**for Preparation** Click here

## 1.PRECAUTION FOR DISCONNECTING CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

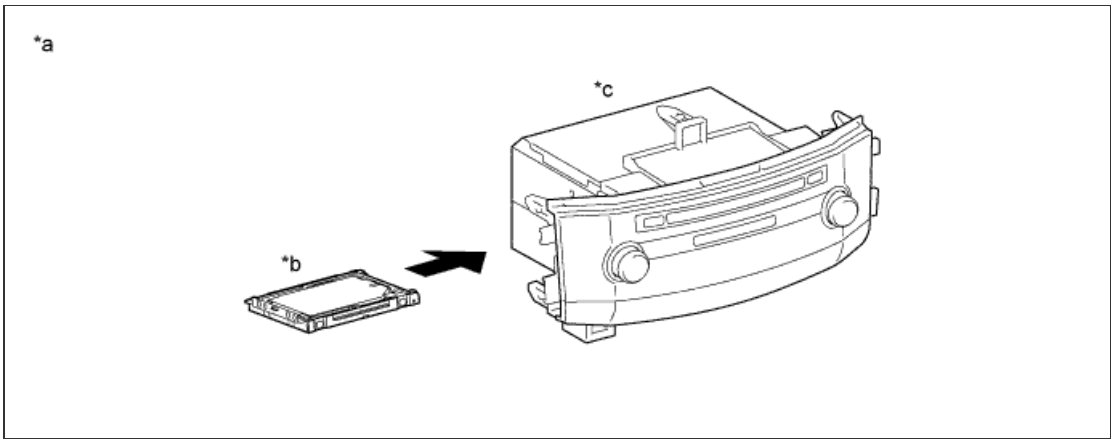
After the engine switch is turned off, the multi-media module receiver assembly records various types of memory and settings. As a result, after turning the engine switch off, be sure to wait for the time specified in the following table before disconnecting the cable from the negative (-) battery terminal.

**Waiting Time before Disconnecting Cable from Negative (-) Battery Terminal**

| Condition | Waiting Time |
|---|---|
| Vehicle enrolled in G-BOOK system | 6 minutes |
| Vehicle not enrolled in G-BOOK system | 1 minute |

## 2.PRECAUTIONS FOR MULTI-MEDIA MODULE RECEIVER ASSEMBLY

a. An HDD is built into the multi-media module receiver assembly to store map and other data, and is used for the audio and visual system. Therefore, care must be taken for the following points when handling:




**Text in Illustration**

| | | | |
|---|---|---|---|
| *a | Example | *b | Hard Disc |
| *c | Multi-media Module Receiver Assembly | - | - |

i. When it is necessary to replace the multi-media module receiver assembly, be sure to replace it with a new one.

**NOTICE:**

If a used multi-media module receiver assembly is installed as a replacement part, the customer's HDD will not be recognized.

ii. Do not apply any vibration or shock to the multi-media module receiver assembly.

**NOTICE:**

- **Do not drop or subject the multi-media module receiver assembly to severe impacts.**
- **Do not use the multi-media module receiver assembly if it has been dropped or subjected to a severe impact.**
- **Do not store the multi-media module receiver assembly without the HDD installed (Only remove the HDD from the multi-media module receiver assembly when the replacement multi-media module receiver assembly or HDD is ready.).**

iii. Do not remove the multi-media module receiver assembly if there is a risk that condensation may occur.

**NOTICE:**

If the temperature of the multi-media module receiver assembly changes rapidly, condensation may occur inside the unit. This may cause a malfunction of the HDD. Therefore, when the multi-media module receiver assembly is removed from the

instrument panel, it needs to be kept inside the vehicle or in an environment with an equivalent temperature and humidity.

iv. Take measures to prevent static electricity.

**NOTICE:**

Touching the terminals of a connector can cause static electricity to be transmitted to the internal circuits. This may cause a malfunction of the HDD.

v. Keep the multi-media module receiver assembly away from magnets or magnetized items.

**NOTICE:**

Keep the multi-media module receiver assembly away from speakers, motors, magnetized tools and other magnetic items.

## 3.PRECAUTIONS FOR HARD DISK DRIVE (HDD)

a. Map and other data for the navigation system is stored on the Hard Disk Drive (HDD). Make sure to follow the following instructions when replacing the HDD:

**NOTICE:**

Data downloaded by the customer may be stored on the HDD. This data will be lost when the HDD is replaced. Make sure to warn the customer that their data will be lost and obtain their consent prior to replacing the HDD.

i. The HDD must only be replaced with a new one. Do not attempt to install a used HDD from another vehicle.

**NOTICE:**

The multi-media module receiver assembly can recognize only a new HDD.

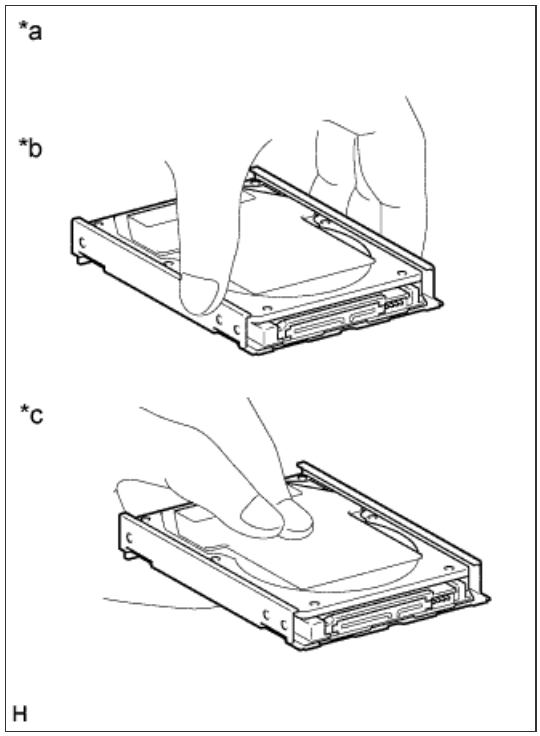
ii. Do not touch the HDD cover.

**NOTICE:**

When removing or installing the HDD, only hold it by the areas shown in the illustration.

**Text in Illustration**

| | |
|---|---|
| *a | Example |
| *b | CORRECT |
| *c | INCORRECT |




iii. Do not apply any vibration or shock to the HDD.

**NOTICE:**

- **Do not drop or subject the HDD to severe impacts.**
- **Do not use the HDD if it has been dropped or subjected to a severe impact.**
- **Do not store the HDD by itself if it has been removed from the multi-media module receiver assembly (Only remove the HDD from the multi-media module receiver assembly when the replacement multi-media module receiver assembly or HDD is ready.).**

iv. Do not remove the HDD if there is a risk that condensation may occur.

**NOTICE:**

If the temperature of the HDD changes rapidly, condensation may occur inside the unit. This may cause a malfunction of the HDD. Therefore, when the multi-media module receiver assembly is removed from the instrument panel, it needs to be kept inside the vehicle or in an environment with an equivalent temperature and humidity.

v. Take measures to prevent static electricity.

**NOTICE:**

Touching the terminals of a connector can cause static electricity to be transmitted to the internal circuits. This may cause a malfunction of the HDD.

vi. Keep the HDD away from magnets or magnetized items.

**NOTICE:**

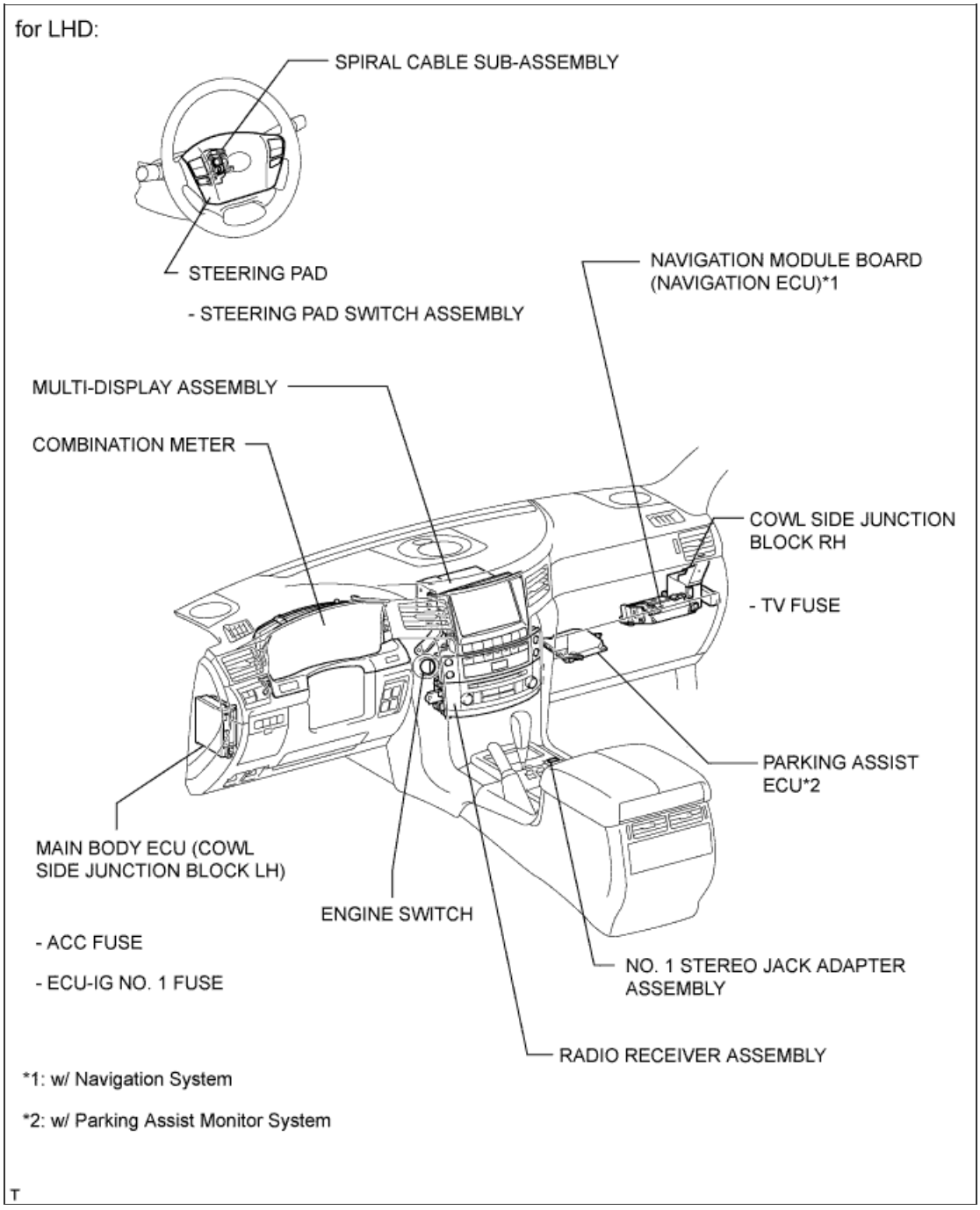
Keep the HDD away from speakers, motors, magnetized tools and other magnetic items.

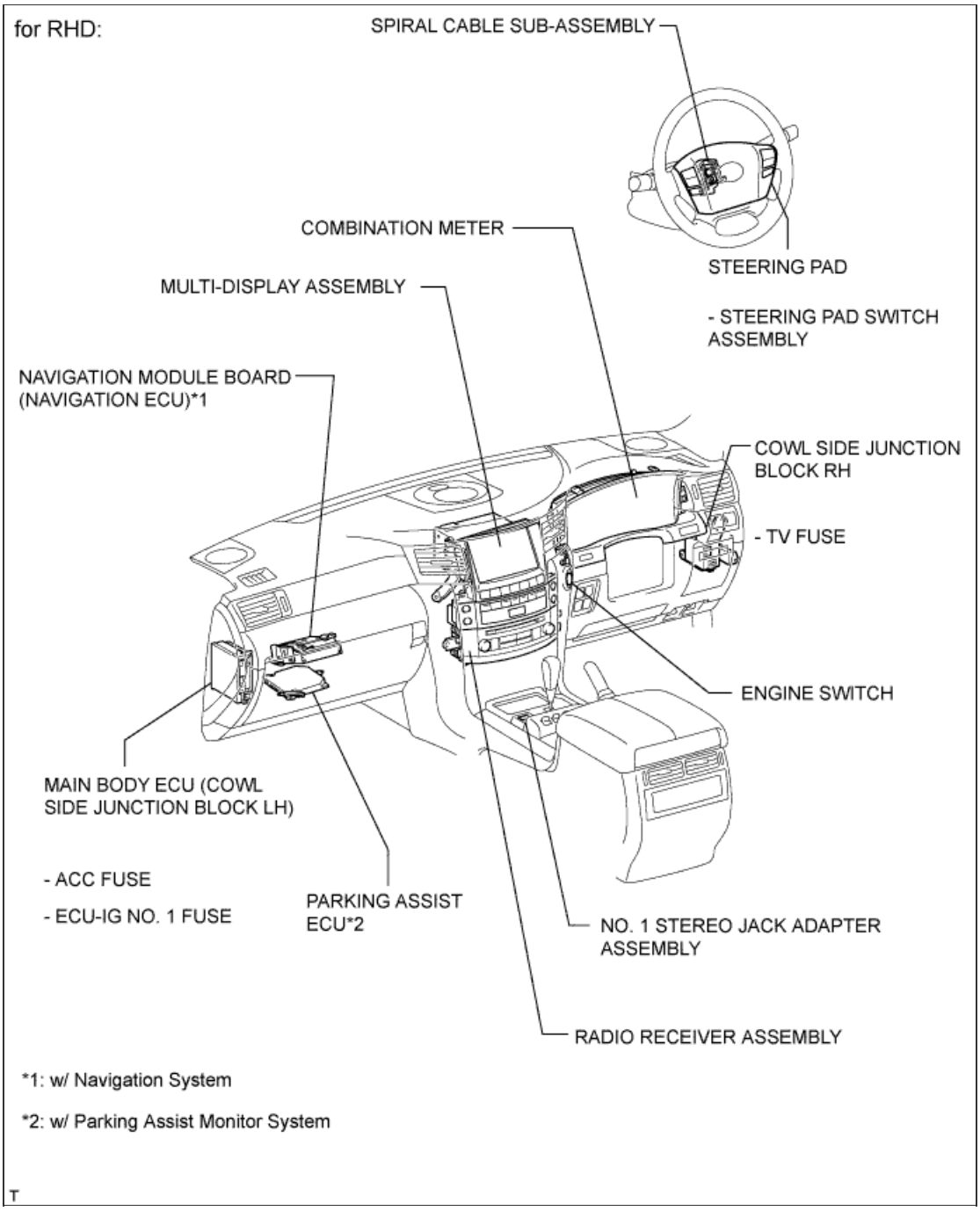
vii. Inspect after HDD replacement.

**NOTICE:**

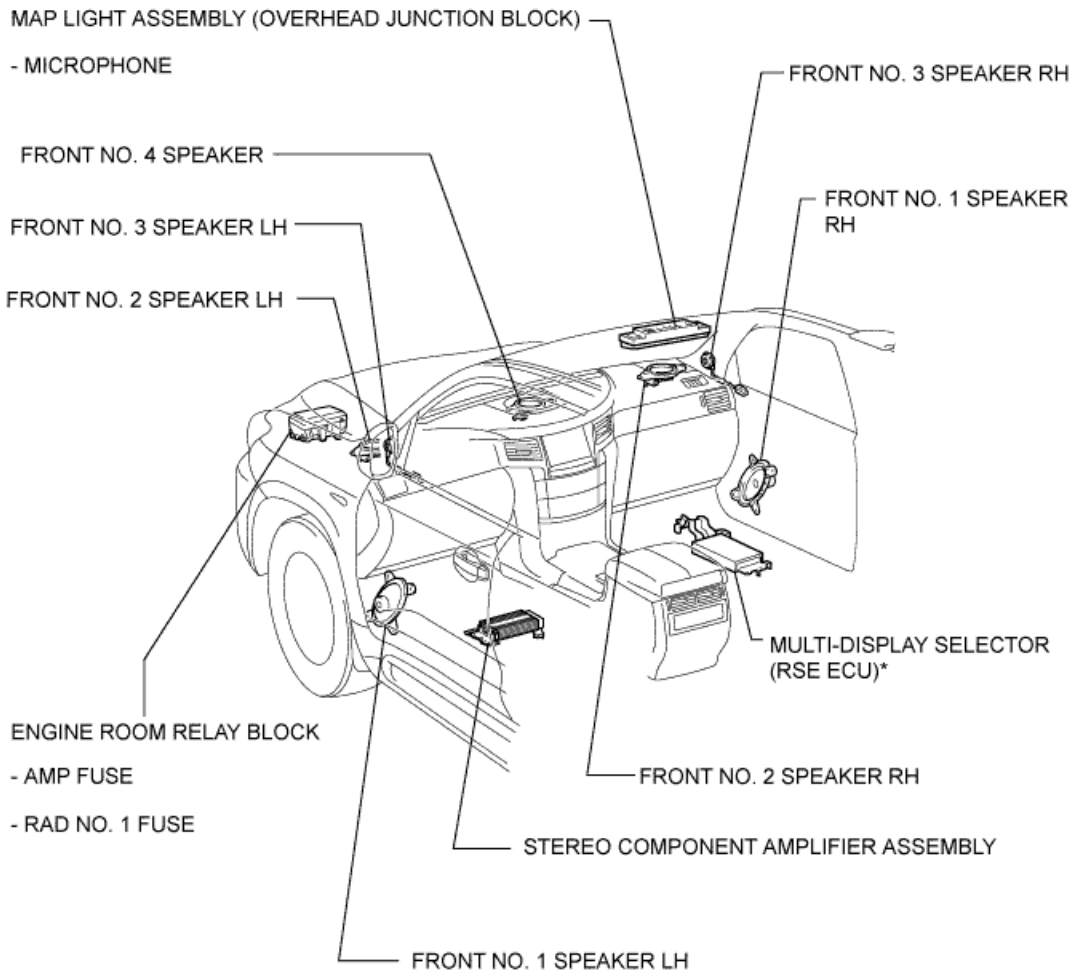
Make sure to perform "Check Hard Disk Drive" in Operation Check to confirm that there are no HDD abnormalities after removal or installation (Click here).

**for Preparation** Click here




for RHD:
SPIRAL CABLE SUB-ASSEMBLY
COMBINATION METER
MULTI-DISPLAY ASSEMBLY
STEERING PAD
- STEERING PAD SWITCH ASSEMBLY
NAVIGATION MODULE BOARD (NAVIGATION ECU)*1
COWL SIDE JUNCTION BLOCK RH
- TV FUSE
ENGINE SWITCH
MAIN BODY ECU (COWL SIDE JUNCTION BLOCK LH)
- ACC FUSE
- ECU-IG NO. 1 FUSE
PARKING ASSIST ECU*2
NO. 1 STEREO JACK ADAPTER ASSEMBLY
RADIO RECEIVER ASSEMBLY
*1: w/ Navigation System
*2: w/ Parking Assist Monitor System
T

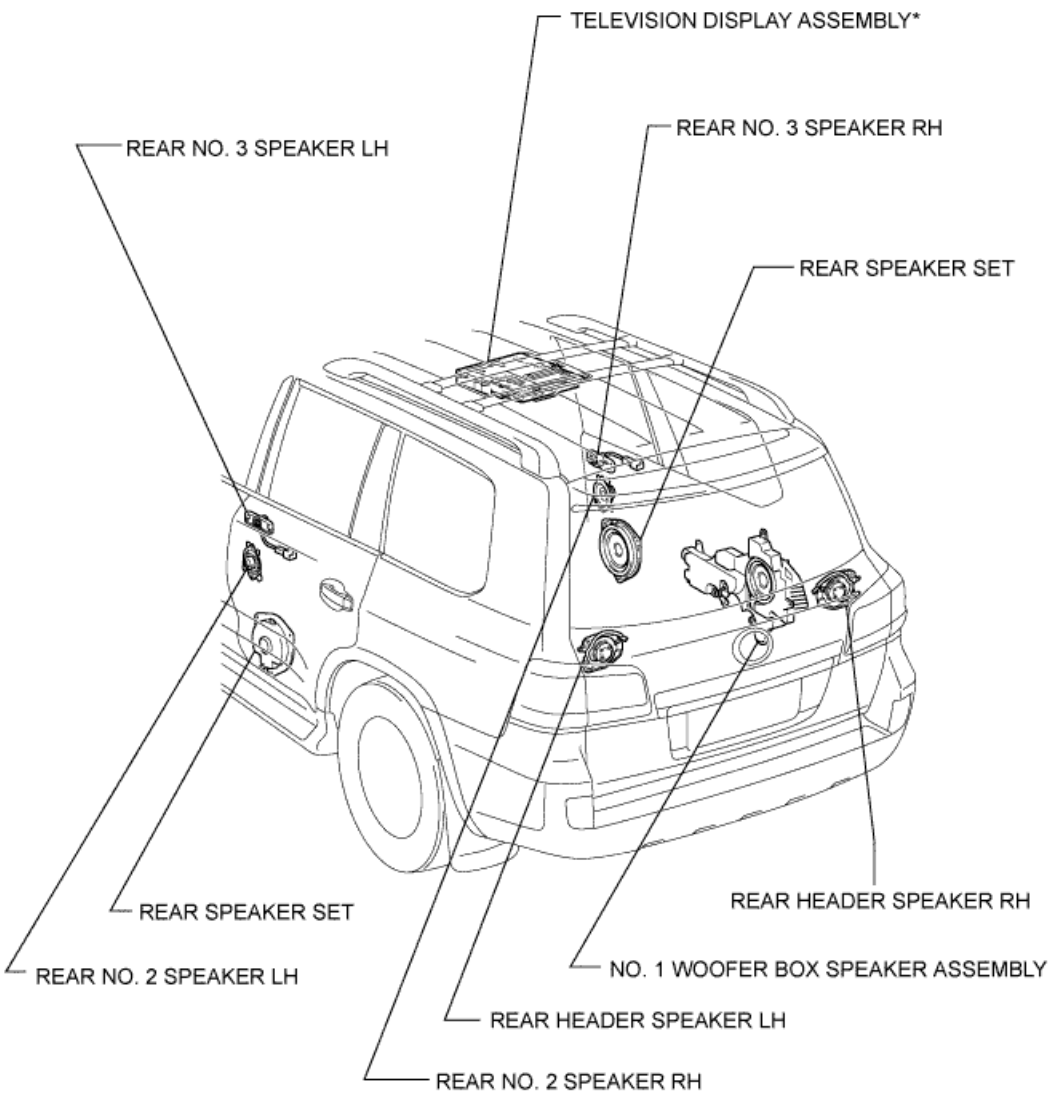
for 19 Speakers:




*: w/ Rear Seat Entertainment System

T

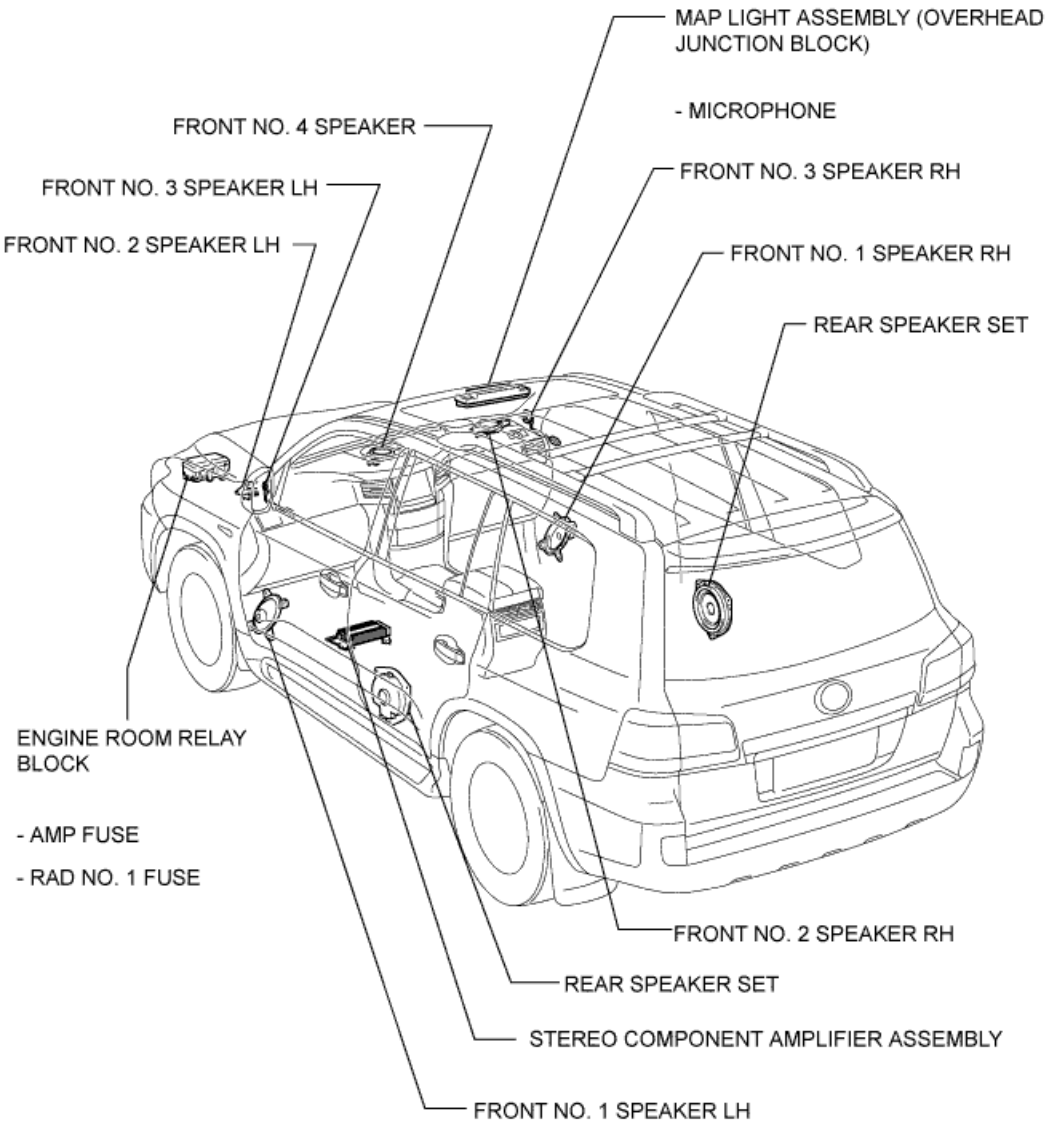
for 19 Speakers:



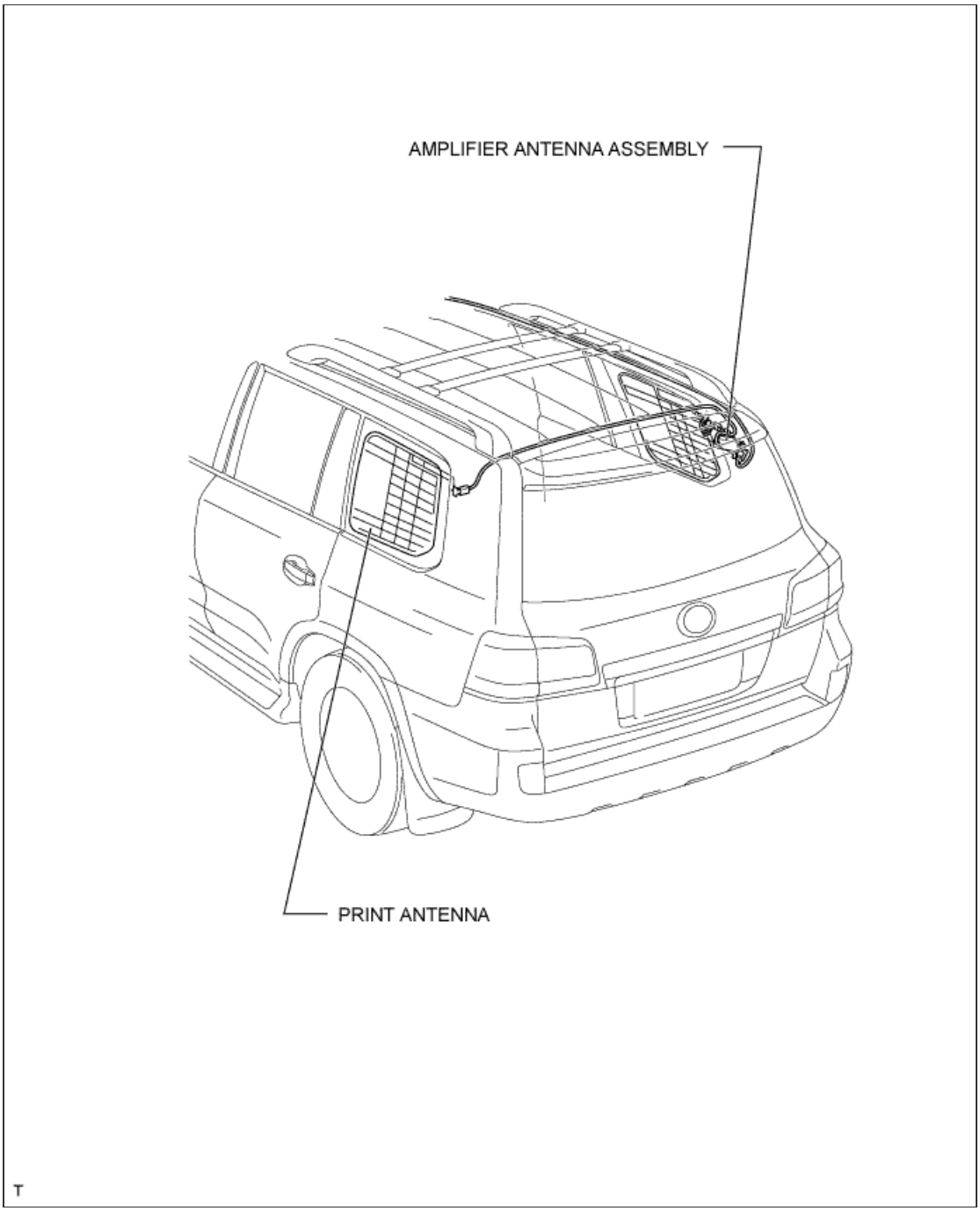

*: Rear Seat Entertainment System

T

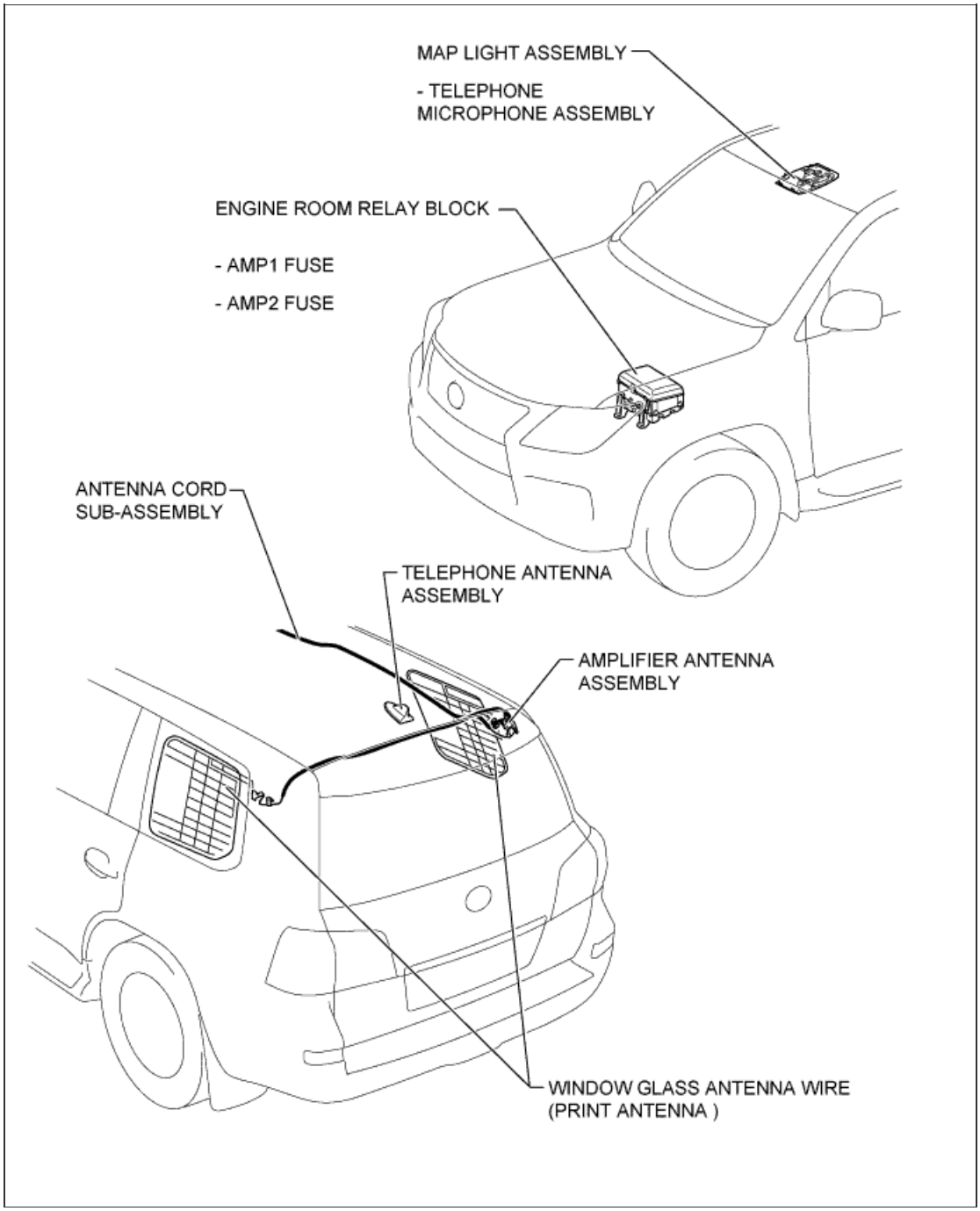
for 9 Speakers:

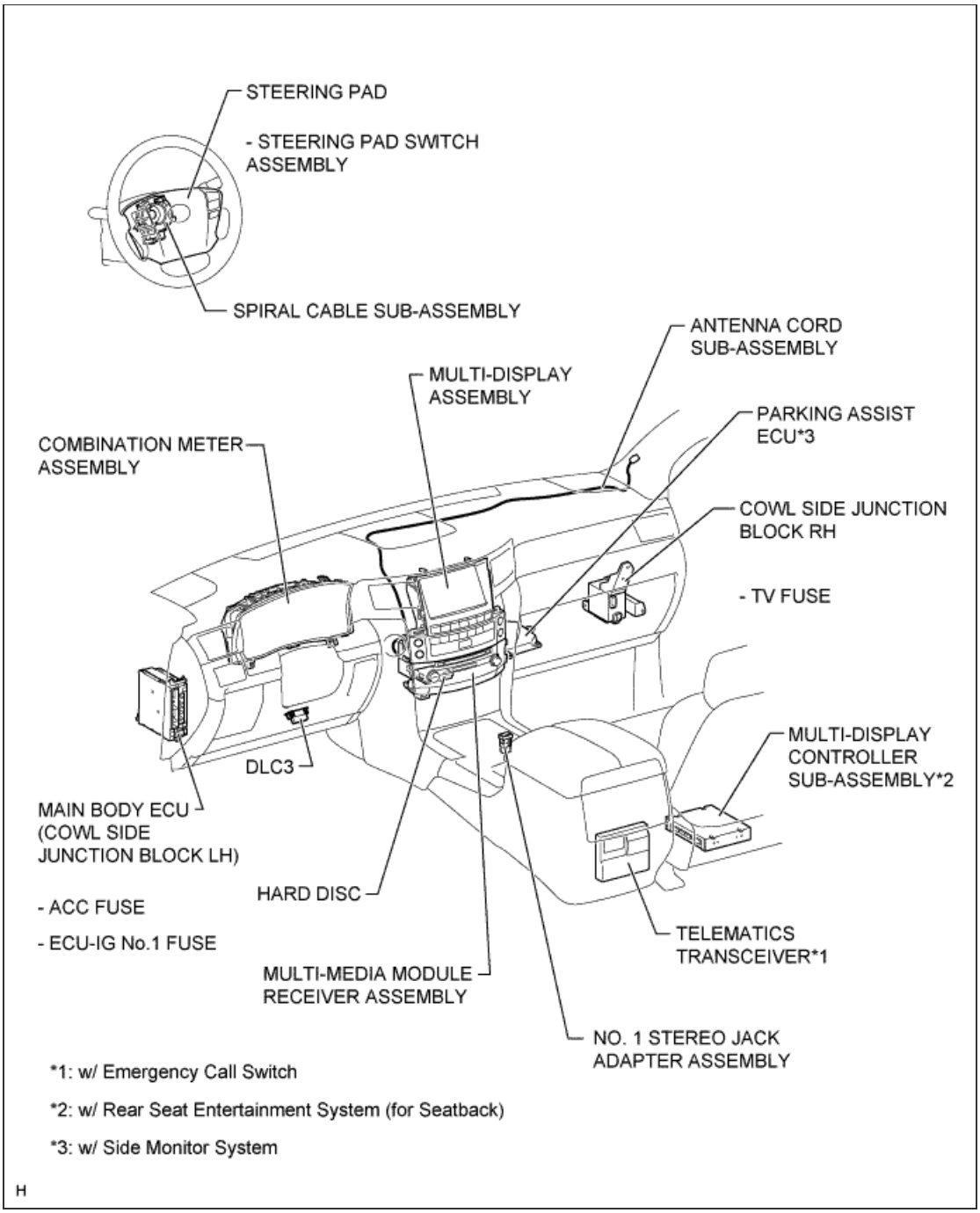



T


AMPLIFIER ANTENNA ASSEMBLY
PRINT ANTENNA
T

**for Preparation** Click here



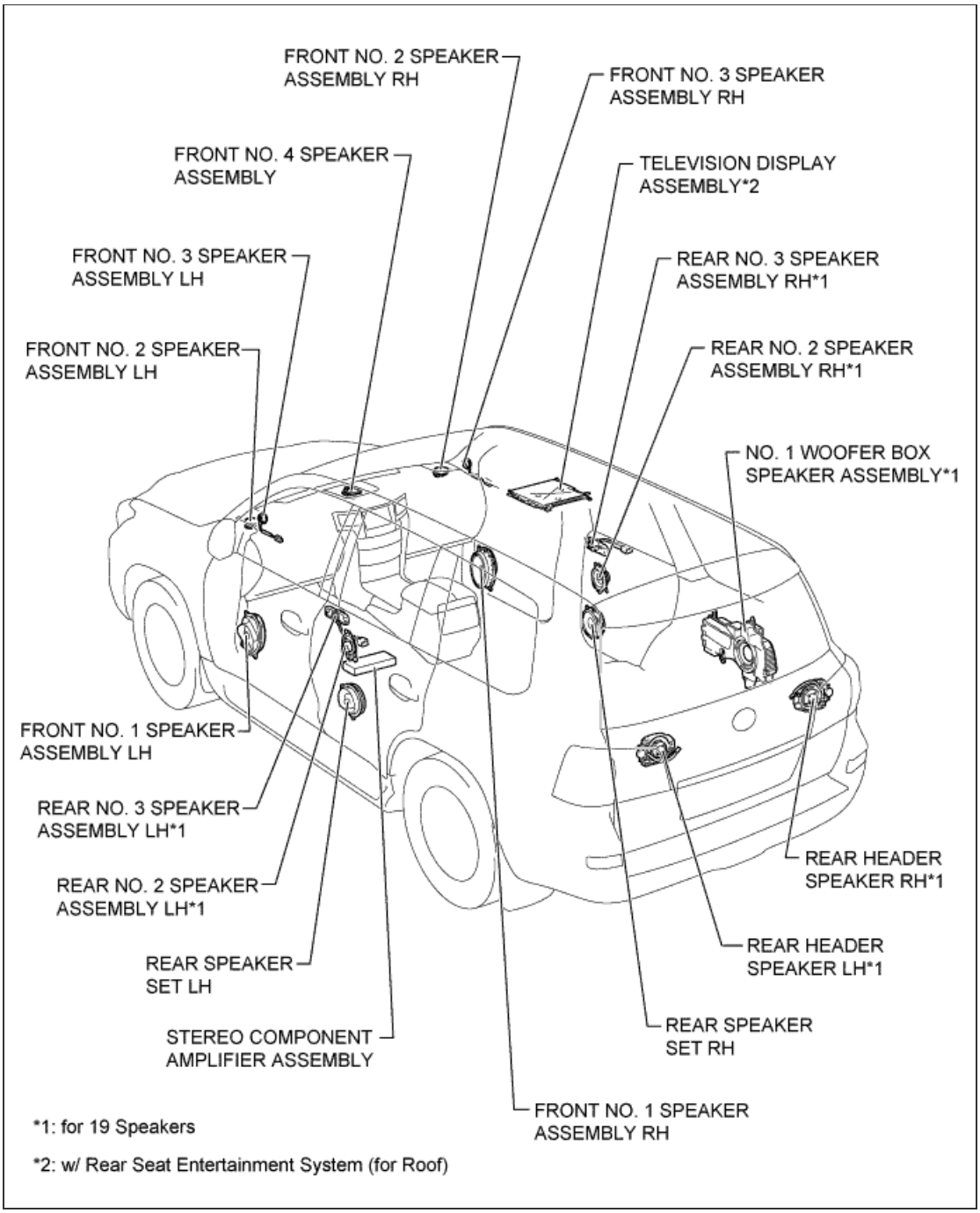



*1: w/ Emergency Call Switch

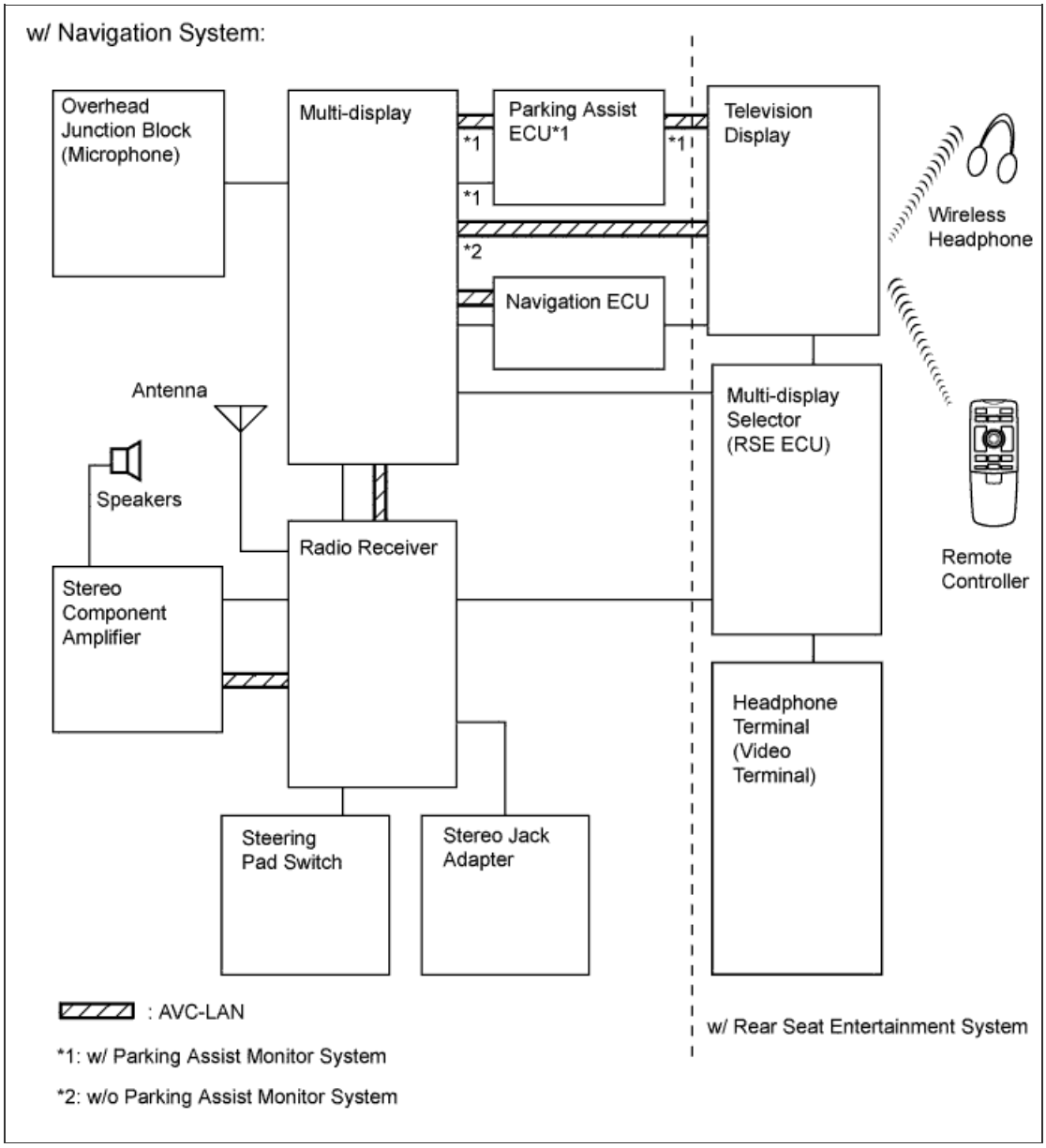
*2: w/ Rear Seat Entertainment System (for Seatback)

*3: w/ Side Monitor System

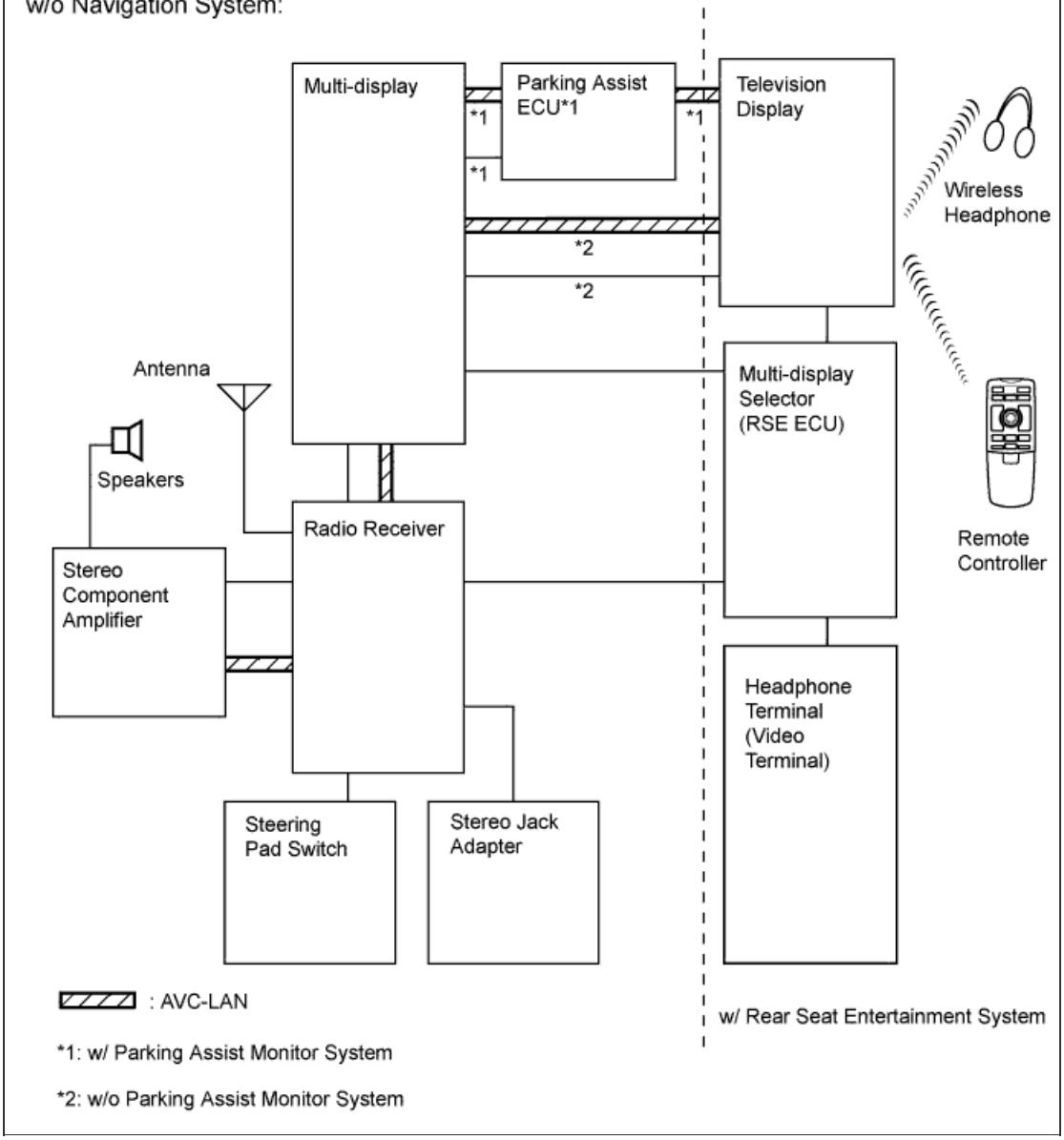
H


FRONT NO. 2 SPEAKER ASSEMBLY RH
FRONT NO. 3 SPEAKER ASSEMBLY RH
FRONT NO. 4 SPEAKER ASSEMBLY
TELEVISION DISPLAY ASSEMBLY*2
FRONT NO. 3 SPEAKER ASSEMBLY LH
REAR NO. 3 SPEAKER ASSEMBLY RH*1
FRONT NO. 2 SPEAKER ASSEMBLY LH
REAR NO. 2 SPEAKER ASSEMBLY RH*1
NO. 1 WOOFER BOX SPEAKER ASSEMBLY*1
FRONT NO. 1 SPEAKER ASSEMBLY LH
REAR NO. 3 SPEAKER ASSEMBLY LH*1
REAR NO. 2 SPEAKER ASSEMBLY LH*1
REAR HEADER SPEAKER RH*1
REAR HEADER SPEAKER LH*1
REAR SPEAKER SET LH
REAR SPEAKER SET RH
STEREO COMPONENT AMPLIFIER ASSEMBLY
FRONT NO. 1 SPEAKER ASSEMBLY RH
*1: for 19 Speakers
*2: w/ Rear Seat Entertainment System (for Roof)

**for Preparation** Click here



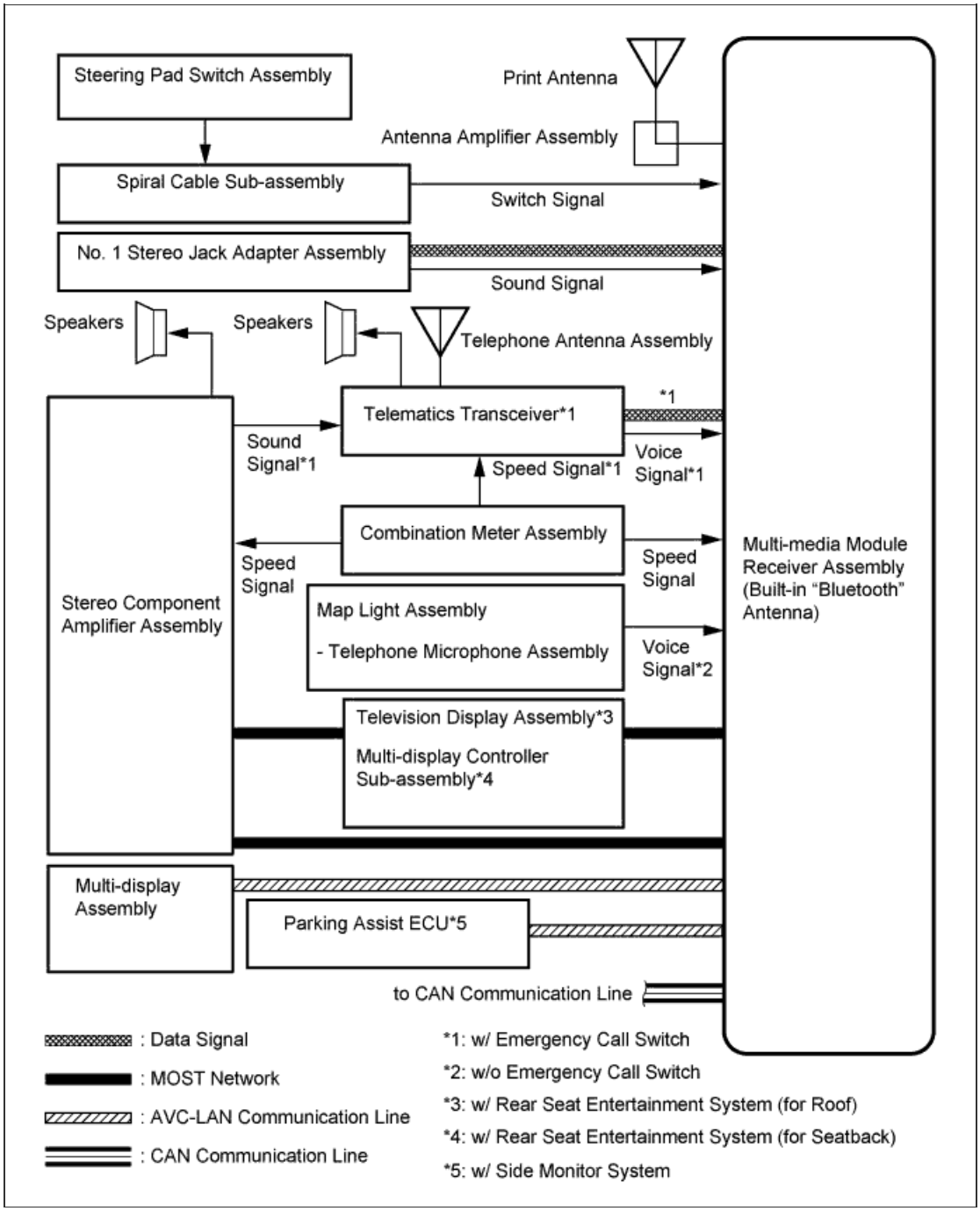
w/o Navigation System:




*1: w/ Parking Assist Monitor System

*2: w/o Parking Assist Monitor System

**for Preparation** Click here



**for Preparation** Click here

## DISC PLAYER OUTLINE

a. A disc player uses a laser pickup to read digital signals recorded on discs. By converting the digital signals to analog, music and other content can be played.

**CAUTION:**

Do not look directly at the laser pickup because the disc player uses an invisible laser beam. Be sure to operate the player only as instructed.

**NOTICE:**

- **Do not disassemble any part of the disc player.**
- **Do not apply oil to the disc player.**
- **Do not insert anything but a disc into the disc player.**

b. Usable discs

i. Disc player
This player can only play audio CDs, CD-Rs (CD-Recordable), CD-RWs (CD-ReWritable), DVD videos, audio DVDs, and video CDs that have any of the following marks:




H

c. Precautions for handling disc

**NOTICE:**

- **Copy-controlled CDs cannot be used.**
- **Some CD-Rs and CD-RWs are not playable as a result of: 1) the type of recording method used, 2) the type of disc, 3) scratches, 4) contamination, or 5) the disc being in the vehicle for an extended amount of time, leading to deterioration.**
- **CD-Rs and CD-RWs that have not been finalized cannot be played.**
- **PAL or SECAM color television standard discs cannot be played. Only NTSC discs can be played.**
- **DualDiscs that mate DVD recorded material on one side with CD digital audio material on the other cannot be played.**
- **When handling a disc, be careful not to put fingerprints, stains or scratches on the disc.**
- **When holding a disc, pinch the center hole and edge of the disc with your fingers. Face the printed side upward.**
- **If a disc is ejected by pressing the eject button and left partially ejected for an extended period of time, the disc may become deformed and unusable.**
- **A disc may not be able to be ejected or the player may become damaged if: 1) cellophane tape, stickers, CD-R labels or rental CD labels are attached; or 2) residue from removed tape, stickers or labels remains.**
- **Avoid direct sunlight when storing discs as they may become deformed and unusable.**
- **Do not use uniquely-shaped discs as they may damage the player.**
- **Do not use discs where part of the recording surface is transparent or translucent. If used, the disc may become unable to be inserted, ejected and played normally.**

**HINT:**

- **Just as condensation fogs the vehicle windows during wet or cold weather, condensation may also form inside the**

**player. If condensation forms, disc skipping or playback stoppage may occur. Ventilate or dehumidify the vehicle for a while before using the player.**

- **If the player vibrates severely due to driving on a rough road, the disc may skip.**

d. Cleaning

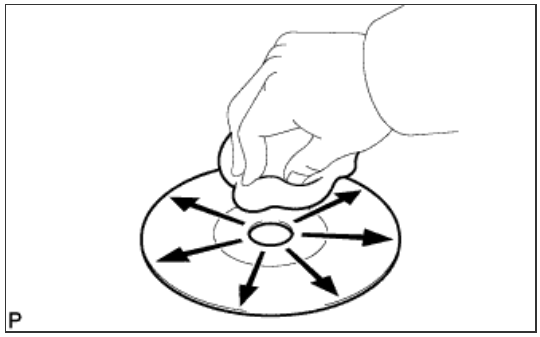
**NOTICE:**

Do not use lens cleaner when cleaning the player, as it may damage the pickup part of the player.

i. To clean dirty discs, use a dry, soft cloth such as those used for glasses with plastic lenses.
Lightly wipe radially from the center of the disc.

**NOTICE:**

- **Pressing the disc roughly with your hand or scrubbing with a hard cloth may scratch the disc surface.**
- **Using record spray, antistatic agents, alcohol, benzene, thinner or other solvents, and chemical cloths on a disc will damage the disc and may make the disc unusable.**




## MP3/WMA OUTLINE

**HINT:**

Audio and visual systems of some vehicles do not support the WMA format.

a. Playable MP3 file standards

| | |
|---|---|
| Compatible standard | MP3 (MPEG1 LAYER3, MPEG2 LSF LAYER3) |
| Compatible sampling frequency | • MPEG1 LAYER3: 32, 44.1, 48 (kHz)<br>• MPEG2 LSF LAYER3: 16, 22.05, 24 (kHz) |
| Compatible bit rate | • MPEG1 LAYER3: 64, 80, 96, 112, 128, 160, 192, 224, 256, 320 (kbps)<br>• MPEG2 LSF LAYER3: 64, 80, 96, 112, 128, 144, 160 (kbps)<br>• Compatible with VBR |
| Compatible channel mode | Stereo, joint stereo, dual channel, monaural |

b. Playable WMA file standards

| | |
|---|---|
| Compatible standard | WMA Ver. 7, 8, and 9 |
| Compatible sampling frequency | 32, 44.1, 48 (kHz) |
| Compatible bit rate | • Ver. 7, 8: CBR48, 64, 80, 96, 128, 160, 192 (kbps)<br>• Ver. 9: CBR48, 64, 80, 96, 128, 160, 192, 256, 320 (kbps)<br>• Compatible with playback of channel 2 only |

c. ID3 tag and WMA tag

i. Additional textual information called ID3 tags can be input to MP3 files. Information such as song titles and artist names can be stored.

**HINT:**

This player is compatible with the ID3 tags of ID3 Ver. 1.0 and 1.1, and ID3 Ver. 2.2 and 2.3. (Number of characters complies with ID3 Ver. 1.0 and 1.1).

ii. Additional textual information called WMA tags can be input to WMA files. Information such as song titles and artist names can be stored.

d. Usable media

i. Only CD-ROMs, CD-Rs (CD-Recordable), and CD-RWs (CD-ReWritable) can be used to play MP3/WMA files.

**NOTICE:**

- **CD-Rs and CD-RWs are more easily affected by a hot and humid environment than discs used for normal audio CDs. For this reason, some CD-Rs and CD-RWs may not be playable.**
- **If there are fingerprints or scratches on the disc, the disc may not be playable or the CD may skip.**
- **Some CD-Rs and CD-RWs deteriorate if they are left in the cabin for a long time.**
- **Keep CD-Rs and CD-RWs in a storage case that is non-transparent.**

e. Usable media format

i. Usable media format

| | |
|---|---|
| Disc format | CD-ROM Mode 1, CD-ROM XA Mode 2 Form1 |
| File format | ISO9660 Level 1 and Level 2 (Joliet, Romeo) |

**HINT:**

- **As for MP3/WMA files written in any format other than those above, the contents of the files may not be playable or the file names or folder names may not be displayed correctly.**
- **This player is compatible with multi-session discs and can play CD-Rs and CD-RWs on which MP3/WMA files are added. However, only the first session can be played.**
- **Discs whose first session includes both music data and MP3 or WMA format data cannot be played.**

ii. Standards and restrictions

| | |
|---|---|
| Maximum directory levels | 8 levels |
| Maximum number of characters for a folder name/file name | 32 characters |
| Maximum number of folders | 192 (Including empty folders, root folders, and folders that do not contain MP3/WMA files) |
| Maximum number of files in a disc | 255 (Including non-MP3/WMA files) |

f. File names

i. Only files with an extension of ".mp3" or ".wma" can be recognized and played as MP3 or WMA files.

ii. Save MP3 or WMA files with an extension of ".mp3" or ".wma".

**NOTICE:**

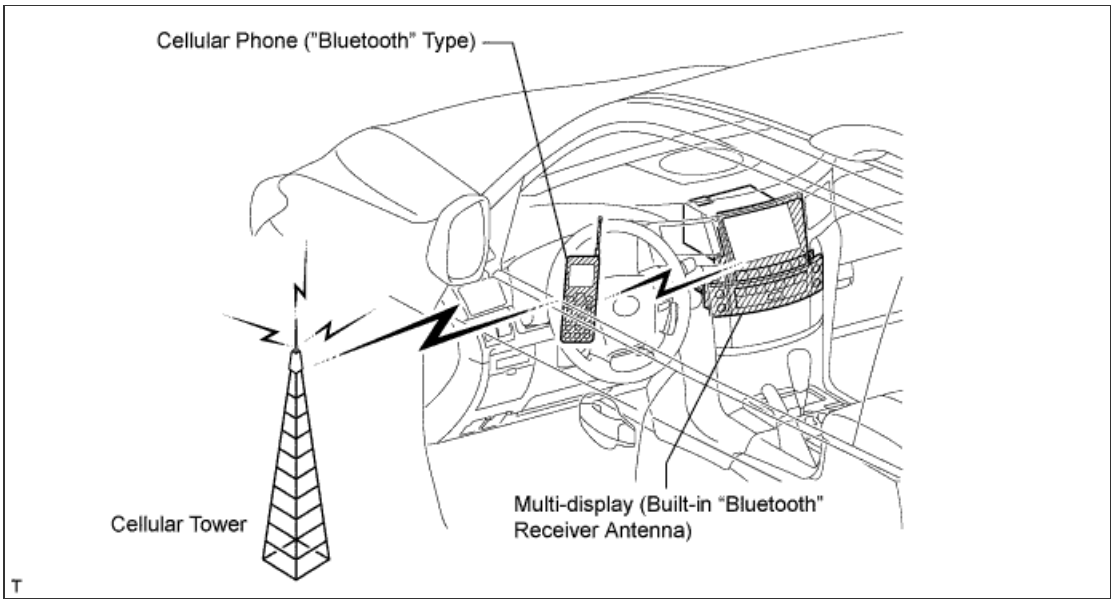
If saving non-MP3 or non-WMA files with an extension of ".mp3" or ".wma", those files are wrongly recognized as MP3 or WMA files and played. A loud noise may occur and damage to the speakers may result.

## "BLUETOOTH" OUTLINE

a. "Bluetooth" is a new wireless connection technology that uses the 2.4 GHz frequency band. This makes it possible to connect a cellular phone ("Bluetooth" capable phone*) to the multi-display ("Bluetooth" system is built-in), and use a handsfree function with the cellular phone in a pocket or bag. As a result, it is not necessary to use a connector for the cellular phone.

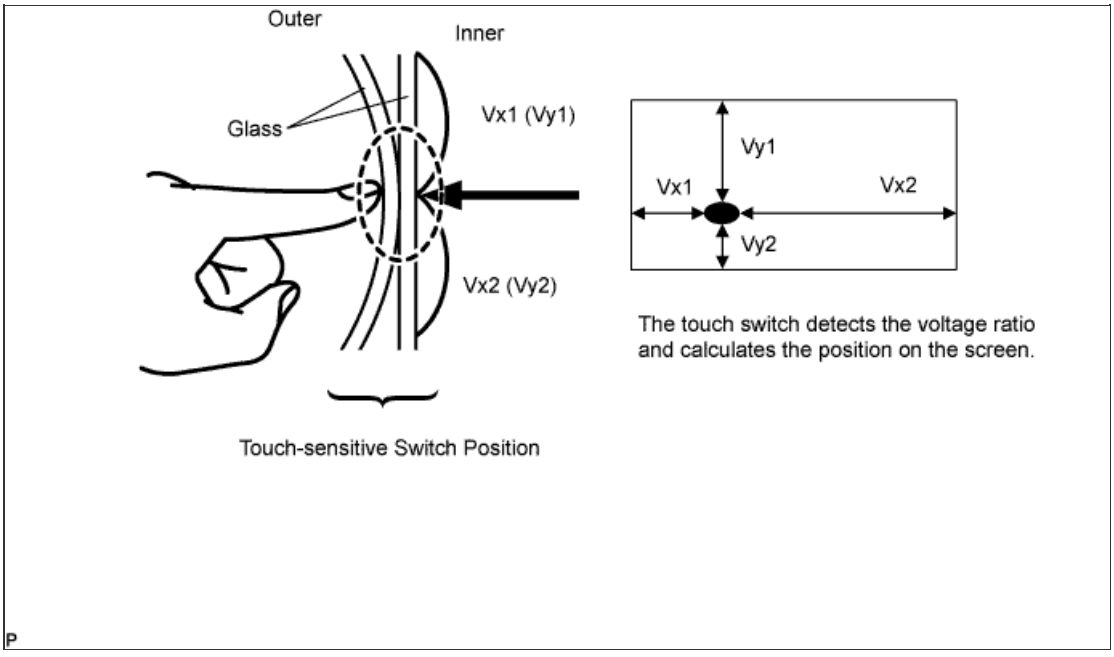
**HINT:**

*: The communication performance of "Bluetooth" may vary depending on the "Bluetooth" version, obstructions or radio wave conditions between communication devices, electromagnetic radiation, communication device sensitivity, or antenna capacity.



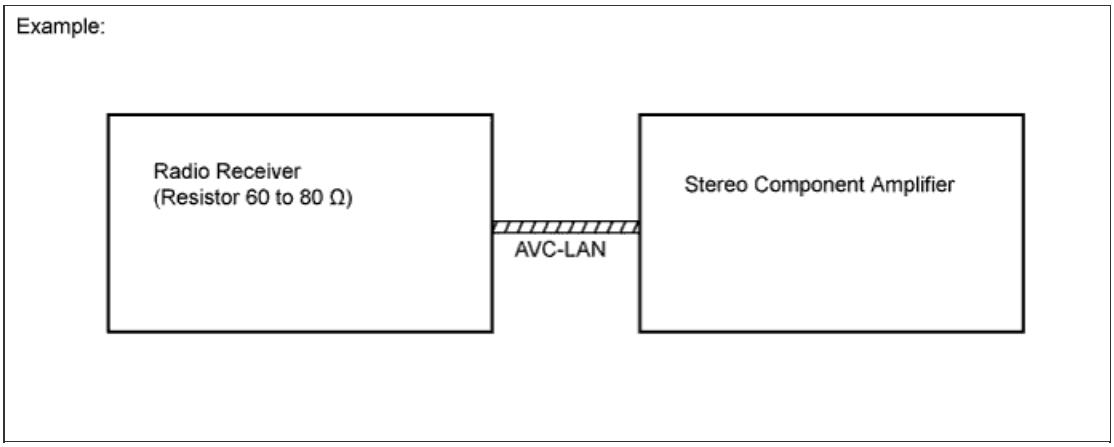

## TOUCH SCREEN OUTLINE

a. Touch switch
Touch switches are touch-sensitive (interactive) switches operated by touching the screen. When a switch is pressed, the outer glass bends into contact the inner glass at the pressed position. By doing this, the voltage ratio is measured and the pressed position is detected.




## AVC-LAN DESCRIPTION

a. What is AVC-LAN?
AVC-LAN, an abbreviation for "Audio Visual Communication Local Area Network", is a united standard developed by the manufacturers in affiliation with Toyota Motor Corporation. This standard pertains to audio and visual signals as well as switch and communication signals.




b. Purpose:
Recently, car audio systems have rapidly developed and the functions have vastly changed. The conventional car audio system is being integrated with multimedia interfaces similar to those in navigation systems. At the same time, customers are demanding higher quality from their audio systems. This is an overview of the standardization background. The specific purposes are as follows:

i. To solve sound problems, etc. caused by using components of different manufacturers through signal standardization.

ii. To allow each manufacturer to concentrate on developing the products they do best. From this, reasonably priced products can be produced.

**HINT:**

- **If a short to +B or short to ground is detected in the AVC-LAN circuit, communication is interrupted and the audio system will stop functioning.**
- **If the audio system (w/ multi-display) is equipped with a navigation system, the multi-display unit acts as the master unit (Click here).**
- **The radio receiver contains a resistor that is necessary to enable communication on the different AVC-LAN circuits.**
- **The car audio system with an AVC-LAN circuit has a diagnostic function.**
- **Each component has a specified number (3-digit) called a physical address. Each function has a number (2-digit) called a logical address.**

## COMMUNICATION SYSTEM OUTLINE

a. Components of the audio system communicate with each other via the AVC-LAN.

b. The master component of the AVC-LAN is a radio receiver with a 60 to 80 Ω resistor. This is essential for communication.

c. If a short circuit or open circuit occurs in the AVC-LAN circuit, communication is interrupted and the audio system will stop functioning.

## DIAGNOSTIC FUNCTION OUTLINE

a. The audio system has a diagnostic function. The result is indicated on the master unit.

b. A 3-digit hexadecimal component code (physical address) is allocated to each component on the AVC-LAN. Using this code, the component can be displayed in the diagnostic function.

## DIAGNOSIS DISPLAY DETAILED DESCRIPTION

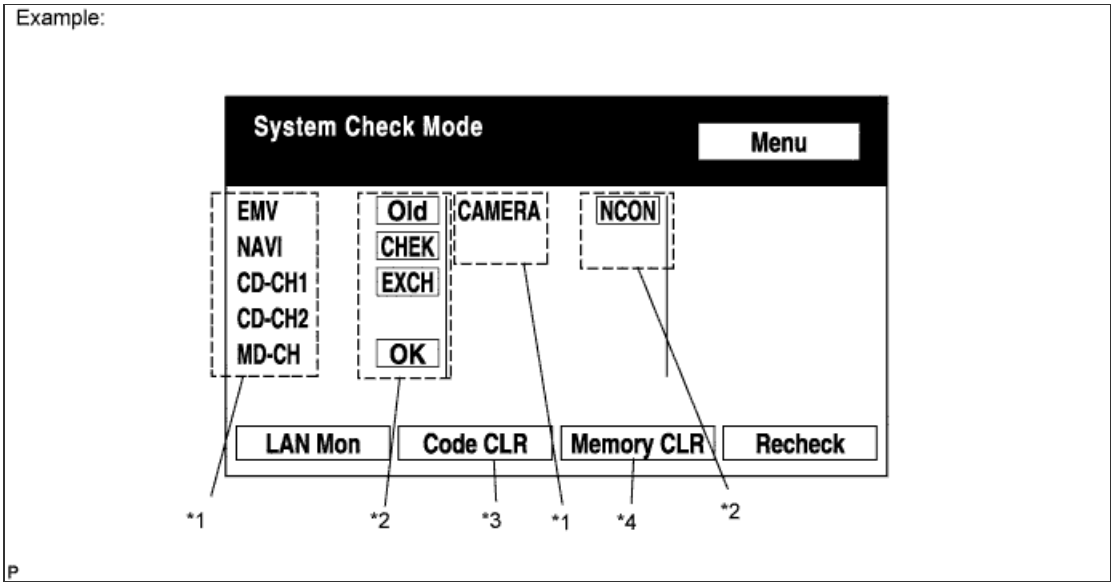
**HINT:**

- **This section contains a detailed description of displays within diagnostic mode.**
- **Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be exactly the same as on the actual vehicle.**

a. SYSTEM CHECK

i. System Check Mode Screen

Example:




P

*1: Device Names and Hardware Address

**HINT:**

- **Registered device names are displayed.**
- **If a device name is unknown to the system, its physical address is shown instead.**

| Address No. | Name | Address No. | Name |
|---|---|---|---|
| 110 | EMV | 120 | AVX |
| 128 | 1DIN TV | 140 | AVN |
| 144 | G-BOOK | 178 | NAVI |
| 17C | MONET | 190 | AUDIO H/U |
| 1AC | CAMERA-C | 1B0 | Rr-TV |
| 1C0 | Rr-CONT | 19D | BT-HF |
| 1C4 | PANEL | 1C6 | G/W |
| 1C8 | FM-M-LCD | 1D8 | CONT-SW |
| 1EC | Body | 118 | EMVN |
| 1F1 | XM | 1F2 | SIRIUS |
| 230 | TV-TUNER | 240 | CD-CH2 |
| 250 | DVD-CH | 280 | CAMERA |
| 360 | CD-CH1 | 3A0 | MD-CH |
| 17D | TEL | 440 | DSP-AMP |
| 530 | ETC | 1F6 | RSE |
| 1A0 | DVD-P | 1D6 | CLOCK |
| 238 | DTV | 480 | AMP |

*2: Check Result

**HINT:**

Result codes for all devices are displayed.

| Result | Meaning | Action |
|---|---|---|
| OK | Device did not output DTC (excluding communication DTCs from AVC-LAN). | - |
| EXCH | Device outputs "replace" type DTC. | Look up DTC in "Unit Check Mode" and replace device. |
| CHEK | Device outputs "check" type DTC. | Look up DTC in "Unit Check Mode". |
| NCON | Device was previously present, but does not respond in diagnostic mode. | - Check power supply wire harness of device.<br>- Check AVC-LAN of device. |
| Old | Device outputs "old" type DTC. | Look up DTC in "Unit Check Mode". |

| | | |
|---|---|---|
| NRES | Device responds in diagnostic mode, but outputs no DTC information. | - Check power supply wire harness of device.<br>- Check AVC-LAN of device. |

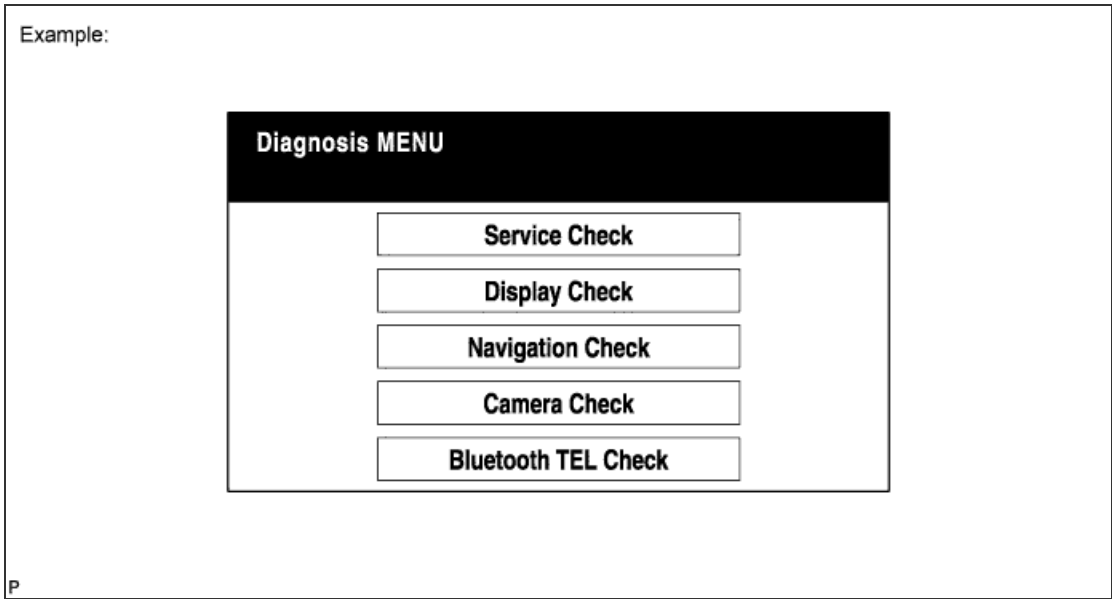
*3: Code Clear

- Present DTCs are cleared.
- Press the "Code CLR" switch for 3 seconds.

*4: Memory Clear

- Present and past DTCs and registered connected device names are cleared.
- Press the "Memory CLR" switch for 3 seconds.

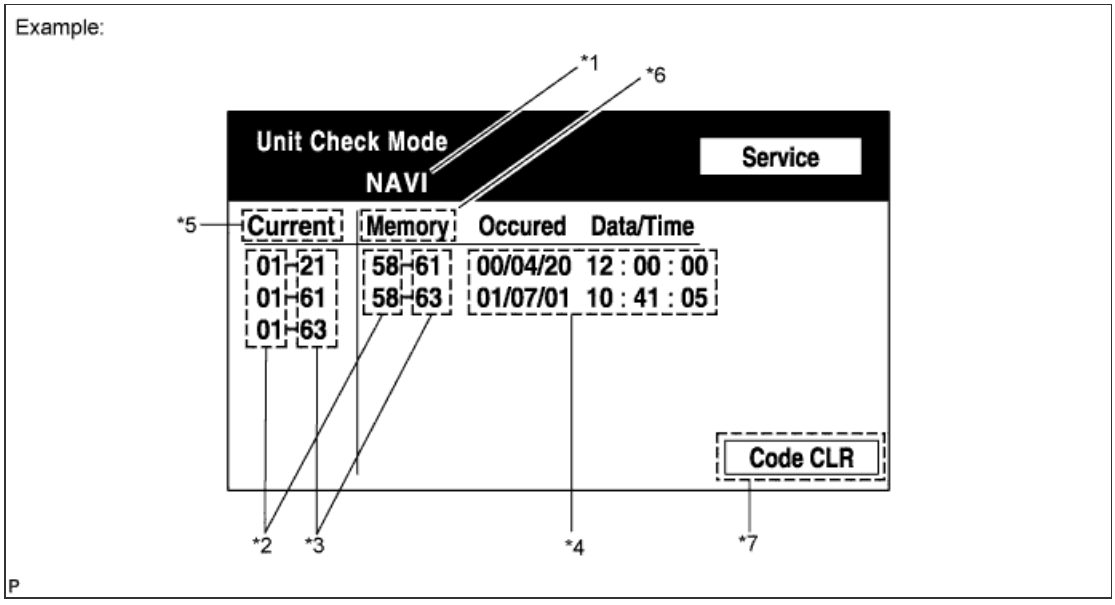
ii. Diagnosis MENU Screen




**HINT:**

Some items may be grayed out or not displayed, as the functions are different depending on the vehicle.

iii. Unit Check Mode Screen



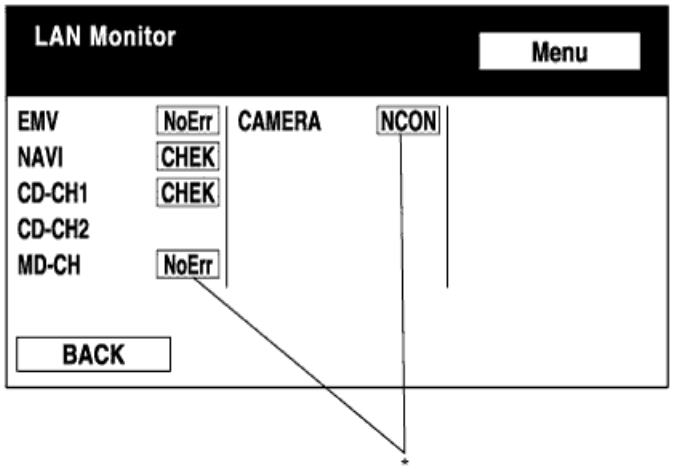

**Screen Description**

| Display | Contents |
|---|---|
| *1: Device name | Target device. |

| | |
|---|---|
| *2: Segment | Target device logical address. |
| *3: DTC | DTC (Diagnostic Trouble Code). |
| *4: Timestamp | Time and date of past DTCs are displayed (year is displayed in 2-digit format). |
| *5: Present Code | DTCs output at service check are displayed. |
| *6: Past Code | Diagnostic memory results and stored DTCs are output. |
| *7: Diagnosis Clear Switch | Pushing this switch for 3 seconds clears diagnostic memory data of target device (responses to diagnostic system check result and displayed data are cleared). |

iv. LAN Monitor (Original) Screen

Example:




P

*: Check Result

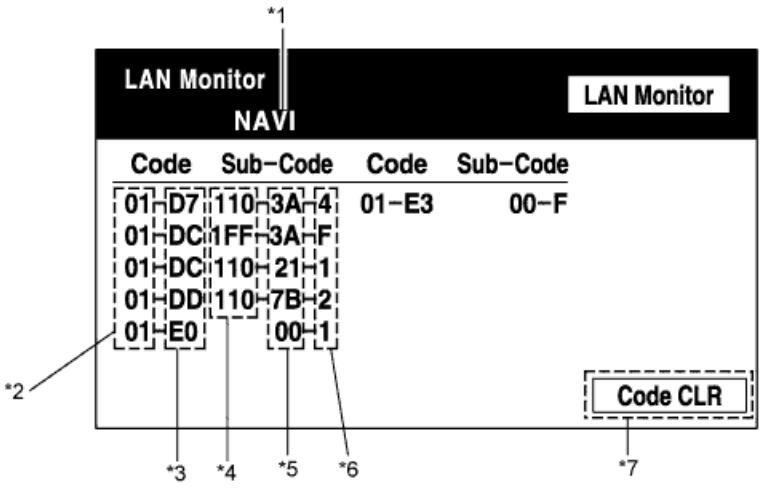
**HINT:**

Check results of all the devices are displayed.

| Result | Meaning | Action |
|---|---|---|
| No Err (OK) | There are no communication DTCs. | - |
| CHEK | Device outputs "check" type DTC. | Look up DTC in "Unit Check Mode". |
| NCON | Device was previously present, but does not respond in diagnostic mode. | **1. Check power supply wire harness of device.**<br>**2. Check AVC-LAN of device.** |
| Old | Device outputs "old" type DTC. | Look up DTC in "Unit Check Mode". |
| NRES | Device responds in diagnostic mode, but outputs no DTC information. | **1. Check power supply wire harness of device.**<br>**2. Check AVC-LAN of device.** |

v. LAN Monitor (Individual) Screen

Example:




P

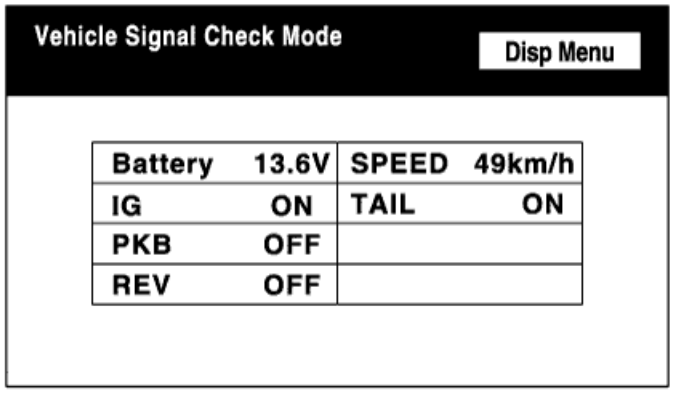
**Screen Description**

| Display | Contents |
|---|---|
| *1: Device name | Target device |
| *2: Segment | Target logical address |
| *3: DTC | DTC (Diagnostic Trouble Code) |
| *4: Sub-code (device address) | Physical address stored with DTC (if there is no address, nothing is displayed) |
| *5: Connection check No. | Connection check number stored with DTC |
| *6: DTC occurrence | Number of times same DTC has been stored |
| *7: Diagnosis Clear Switch | Pushing this switch for 3 seconds clears diagnostic memory data of target device (responses to diagnostic system check result and displayed data are cleared) |

**b.** DISPLAY CHECK

**i.** Vehicle Signal Check Mode Screen

Example:




P

**Screen Description**

| Name | Contents |
|---|---|
| Battery | Battery voltage is displayed. |
| PKB | Parking brake ON/OFF state is displayed. |
| REV | Reverse signal ON/OFF state is displayed. |
| IG | Engine switch ON/OFF state is displayed. |
| TAIL | TAIL signal (Light control switch) ON/OFF state is displayed. |
| SPEED | Vehicle speed is displayed in km/h. |

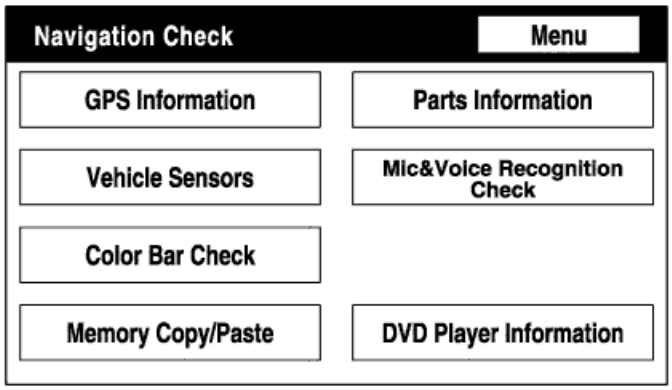
**HINT:**

- **Only items sending a vehicle signal will be displayed.**
- **This screen is updated once per second when input signals to the vehicle are changed.**

c. NAVIGATION CHECK

i. Navigation Check Screen

Example:



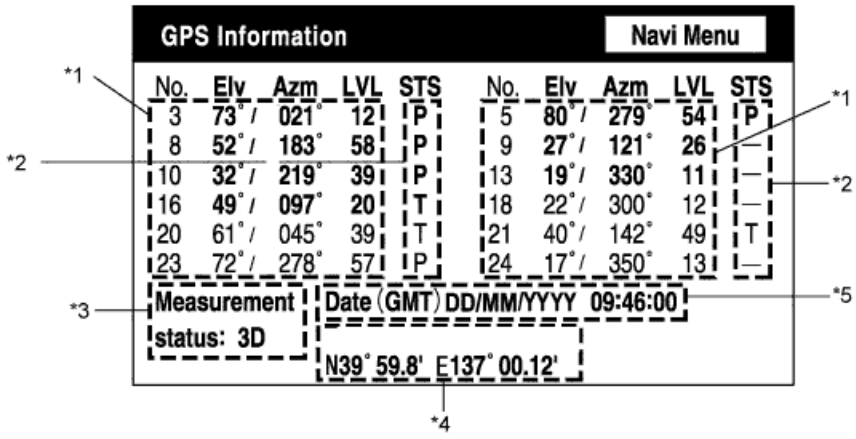

P

**HINT:**

Some items may be grayed out or not displayed, as the functions are different depending on the vehicle.

ii. GPS Information Screen

Example:




P

*1: Satellite information
Information from a maximum of 12 satellites is displayed on the screen. This information includes the target GPS satellite number, elevation angle, direction, and signal level.
*2: Receiving condition

**DENSO Model**

| Display | Contents |
|---|---|
| T | System is receiving GPS signal, but is not using it for location. |
| P | System is using GPS signal for location. |
| - | System cannot receive GPS signal. |

**AISIN AW Model**

| Display | Contents |
|---|---|
| 01H | System cannot receive a GPS signal. |
| 02H | System is tracing a satellite. |
| 03H | System is receiving a GPS signal, but is not using it for location. |
| 04H | System is using the GPS signal for location. |

*3: Measurement information

| Display | Contents |
|---|---|
| 2D | 2-dimensional location method is being used. |
| 3D | 3-dimensional location method is being used. |
| NG | Location data cannot be used. |
| Error | Reception error has occurred. |
| - | Any other state. |

*4: Position information

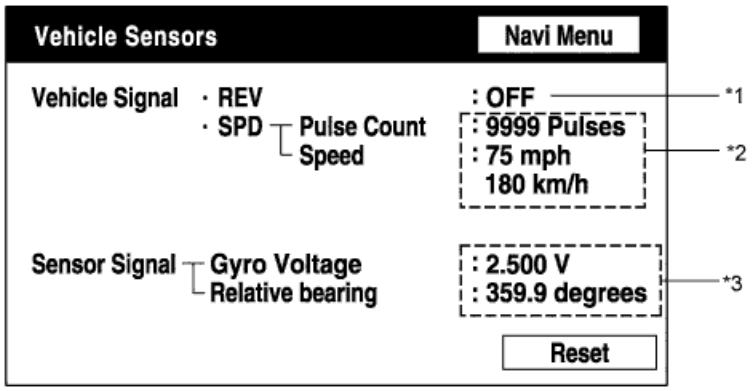
| Display | Contents |
|---|---|
| Position | Latitude and longitude information on current position is displayed. |

*5: Date information

| Display | Contents |
|---|---|
| Date | Date/time information obtained from GPS signal is displayed in Greenwich Mean Time (GMT). |

iii. Vehicle Sensors Screen

Example:




P

**Vehicle Signal**

| Display | Contents |
|---|---|
| *1: REV | REV signal ON/OFF state is displayed. |
| *2: SPD | SPD signal condition is displayed. |

**Sensor Signal**

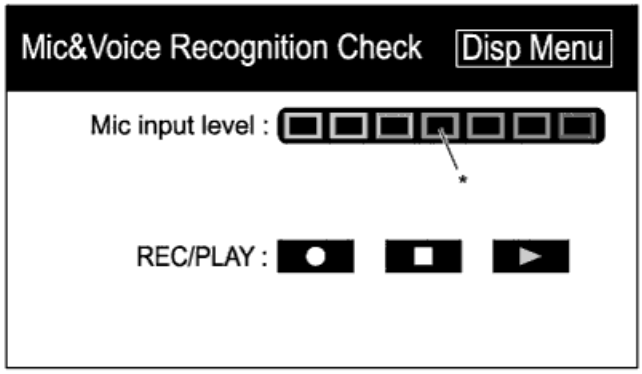
| Display | Contents |
|---|---|
| *3: Gyro sensor | Gyro sensor output condition is displayed (when vehicle is driven straight or is stationary, voltage is approximately 2.5 V). |

**HINT:**

Signals are updated once per second only when vehicle sensor signals are changed.

iv. Mic & Voice Recognition Check Screen

Example:



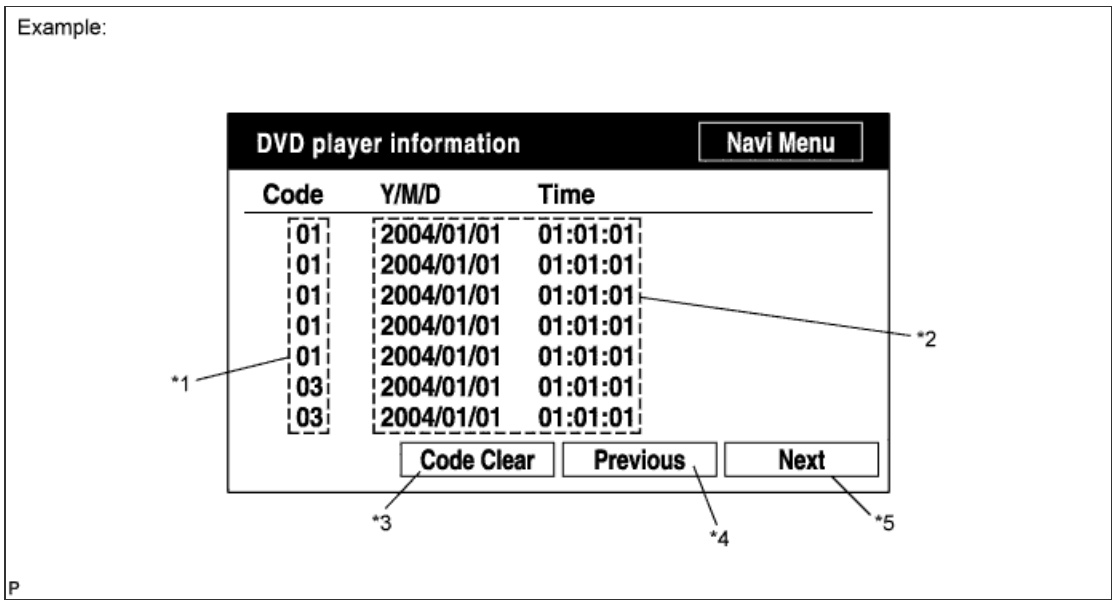

**Screen Description**

| Display | Contents |
|---|---|
| *: Microphone input level meter | Monitors the microphone input level every 100 ms and displays results in 8 different levels. |

**HINT:**

The microphone input function is on at all times when this screen is displayed.

v. DVD player information Screen




**Screen Description**

| Display | Contents |
|---|---|
| *1: Trouble code | Each code corresponding to malfunctions is displayed. For details, refer to "Trouble Code Description". |
| *2: Occurrence time | • Date (year, month, day) and time (hour, minute, second) when trouble code was stored are displayed as time stamp (Greenwich Mean Time).<br>• Time data to be displayed is received from GPS receiver. |
| *3: Trouble code clear switch | All code data being output is cleared by pushing this switch for 3 seconds. |
| *4: Returning switch | Previous page is displayed. If current displayed page is first page, this switch cannot be operated. |
| *5: Proceeding switch | Next page is displayed. If current displayed page is last page, this switch cannot be operated. |

**Trouble Code Description**

| Code | Malfunction | Countermeasure |
|---|---|---|
| 01 | Cannot be recognized | Replace navigation ECU. |
| 03 | Cannot be read | Follow inspection procedure for DTC 58-42 (Click here). |

**HINT:**

There is a DVD player check function in the navigation ECU.

**for Preparation** Click here

## DVD (Digital Versatile Disc) PLAYER OUTLINE

a. The DVD player can only play DVD videos that have any of the following marks:




b. The following products may not be playable on your player.

- Video CD
- DVD+R
- DVD+RW
- DVD-RAM

c. Precaution for use of discs

**NOTICE:**

- **SECAM color television standard discs cannot be played.**
- **Keep the discs away from dirt. Be careful not to damage the discs or leave fingerprints on them.**
- **Hold discs by the outer edge and center hole with the label side up.**
- **Leaving the disc exposed halfway out of the slot for a long time after pressing the disc eject button may cause deformation of the disc, Making the disc unusable.**
- **Do not use odd-shaped discs because these may cause player malfunctions.**
- **Do not use discs whose recording portion is transparent or translucent because they may not be inserted, ejected or played normally.**
- **DualDiscs that mate DVD recorded material on one side with CD digital audio material on the other cannot be played.**

## CD (Compact Disc) PLAYER OUTLINE

a. A compact disc player uses a laser pickup to read digital signals recorded on a CD (compact disc). By converting the digital signals to analog, it can play music and audio.

**CAUTION:**

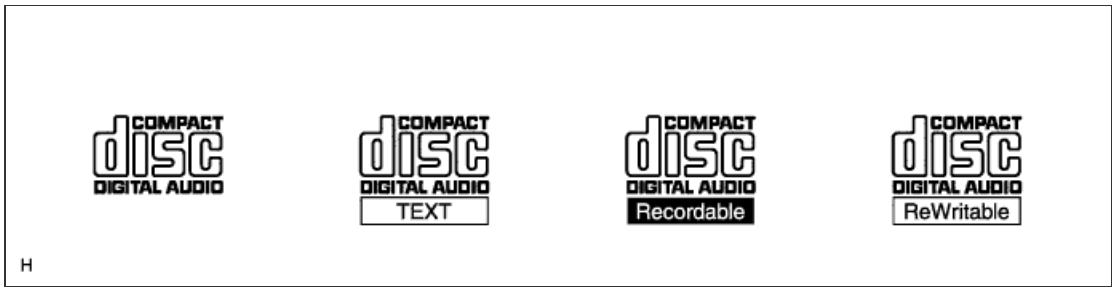
Do not look directly at the laser pickup because the CD player uses an invisible laser beam. Be sure to operate the player only as instructed.

**NOTICE:**

- **Do not disassemble any part of the CD player.**
- **Do not apply oil to the CD player.**
- **Do not insert anything but a CD into the CD player.**

b. Usable discs

i. This player can play only audio CDs, CD-Rs (CD-Recordable) and CD-RWs (CD-ReWritable) that have any of the following marks:




c. Precautions for use of discs

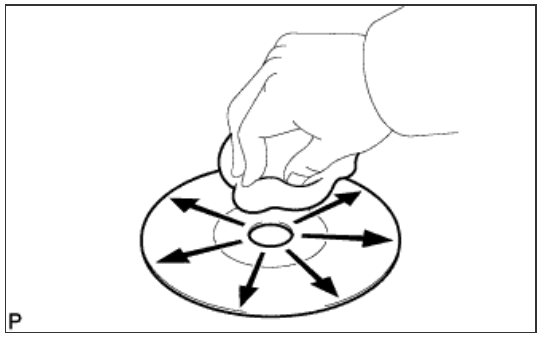
**NOTICE:**

- **Copy-protected CDs cannot be played.**
- **CD-Rs and CD-RWs may not be played depending on the recording conditions or characteristics of the discs, or due to damage, dirt or deterioration caused by leaving the discs in the cabin for a long time.**
- **Unfinalized CD-Rs and CD-RWs cannot be played.**
- **Dual Discs that mate DVD recorded material on one side with CD digital audio material on the other cannot be played.**
- **Keep the discs away from dirt. Be careful not to damage the discs or leave your fingerprints on them.**
- **Hold discs by the outer edge and center hole with the label side up.**
- **Leaving the disc exposed halfway out of the slot for a long time after pressing the disc eject button may cause deformation of the disc, making the disc unusable.**
- **If discs have adhesive tape, stickers, CD labels or any traces of such labels attached, the discs may not be ejected or player malfunctions may result.**
- **Keep the discs away from direct sunlight (Exposure to direct sunlight may cause deformation of the disc, making the disc unusable.).**
- **Do not use odd-shaped CDs because these may cause player malfunctions.**
- **Do not use discs whose recording portion is transparent or translucent because they may not be inserted, ejected or played normally.**
- **Use only 4.7 in. (12 cm) CDs.**
- **Do not use 3 in. (8 cm) CDs, either with or without adapters.**

**HINT:**

- **When it is cold or it is raining, if the windows mist up, mist and condensation may form in the player. In such cases, the CD sound may skip or stop in the middle of play. Ventilate or dehumidify the cabin for a while before using the player.**
- **The CD sound may skip if the player experiences strong vibrations when the vehicle is driven on rough roads or similar uneven surfaces.**

d. Cleaning




**NOTICE:**

Do not use a lens cleaner because it may cause a malfunction in the pickup portion of the player.

i. If dirt is on the disc surface, wipe it clean with a soft dry cloth such as an eyeglass cleaner for plastic lenses from the inside to the outside in a radial direction.

**NOTICE:**

- **Pressing on the disc by hand or rubbing the disc with a hard cloth may scratch the disc surface.**
- **Use of solvents such as record spray, antistatic agents, alcohol, benzine, thinners or a chemical cloth may cause damage to the disc, making the disc unusable.**

## MP3/WMA OUTLINE

a. Playable MP3 file standards

| | |
|---|---|
| Compatible standard | MP3 (MPEG1 LAYER3, MPEG2 LSF LAYER3) |
| Compatible sampling frequency | • MPEG1 LAYER3: 32, 44.1, 48 (kHz)<br>• MPEG2 LSF LAYER3: 16, 22.05, 24 (kHz) |
| Compatible bit rate | • MPEG1 LAYER3: 32 to 320 (kbps)<br>• MPEG2 LSF LAYER3: 8 to 160 (kbps)<br>• Compatible with VBR |
| Compatible channel mode | Stereo, joint stereo, dual channel, monaural |

b. Playable WMA file standards

| | |
|---|---|
| Compatible standard | WMA Ver. 7, 8, 9 |
| Compatible sampling frequency | 32, 44.1, 48 (kHz) |
| Compatible bit rate (Only compatible with 2-channel playback) | • Ver. 7, 8: CBR48 to 192 (kbps)<br>• Ver. 9: CBR48 to 320 (kbps) |

c. ID3 tag and WMA tag

i. Additional text information called an ID3 tag can be input to MP3 files. Information such as song titles and artist names can be stored.

**HINT:**

This player is compatible with ID3 tags of ID3 Ver. 1.0 and 1.1, and ID3 Ver. 2.2 and 2.3 (Number of characters complies with ID3 Ver. 1.0 and 1.1.).

ii. Additional text information called a WMA tag can be input to WMA files. Information such as song titles and artist names can be stored.

d. Usable media

i. Only CD-ROMs, CD-Rs (CD-Recordable) and CD-RWs (CD-ReWritable) can be used to play MP3/WMA files.

**NOTICE:**

- **CD-Rs and CD-RWs are more easily affected by a hot and humid environment than discs used for normal audio CDs. For this reason, some CD-Rs and CD-RWs do not play.**
- **If there are fingerprints or scratches on a disc, the disc may not play or the CD sound may skip.**
- **Some CD-Rs and CD-RWs may deteriorate if they are left in the cabin for a long time.**
- **Keep CD-Rs and CD-RWs in an opaque case.**

e. Usable media format

i. Usable media format

| | |
|---|---|
| Disc format | CD-ROM Mode 1, CD-ROM XA Mode 2 Form1 |
| File format | ISO9660 Level 1 and Level 2 (Joliet, Romeo) |

**HINT:**

- **As for MP3/WMA files written in any unlisted format, the contents of the files may not be played normally or the file names or folder names may not be displayed correctly.**
- **This player is compatible with multi-session discs and can play CD-Rs and CD-RWs on which MP3/WMA files have been added. However, only the first session can be played.**
- **Discs whose first session includes both music data and MP3 or WMA format data cannot be played.**

ii. Standards and restrictions

| | |
|---|---|
| Maximum directory levels | 8 levels |
| Maximum number of characters for a folder name/file name | 32 characters |
| Maximum number of folders | 192 (Including empty folders, root folders, and folders that do not contain MP3/WMA files) |
| Maximum number of files in a disc | 255 (Including non-MP3/WMA files) |

f. File names

i. Only files with an extension of ".mp3" or ".wma" can be recognized and played as MP3 or WMA files.

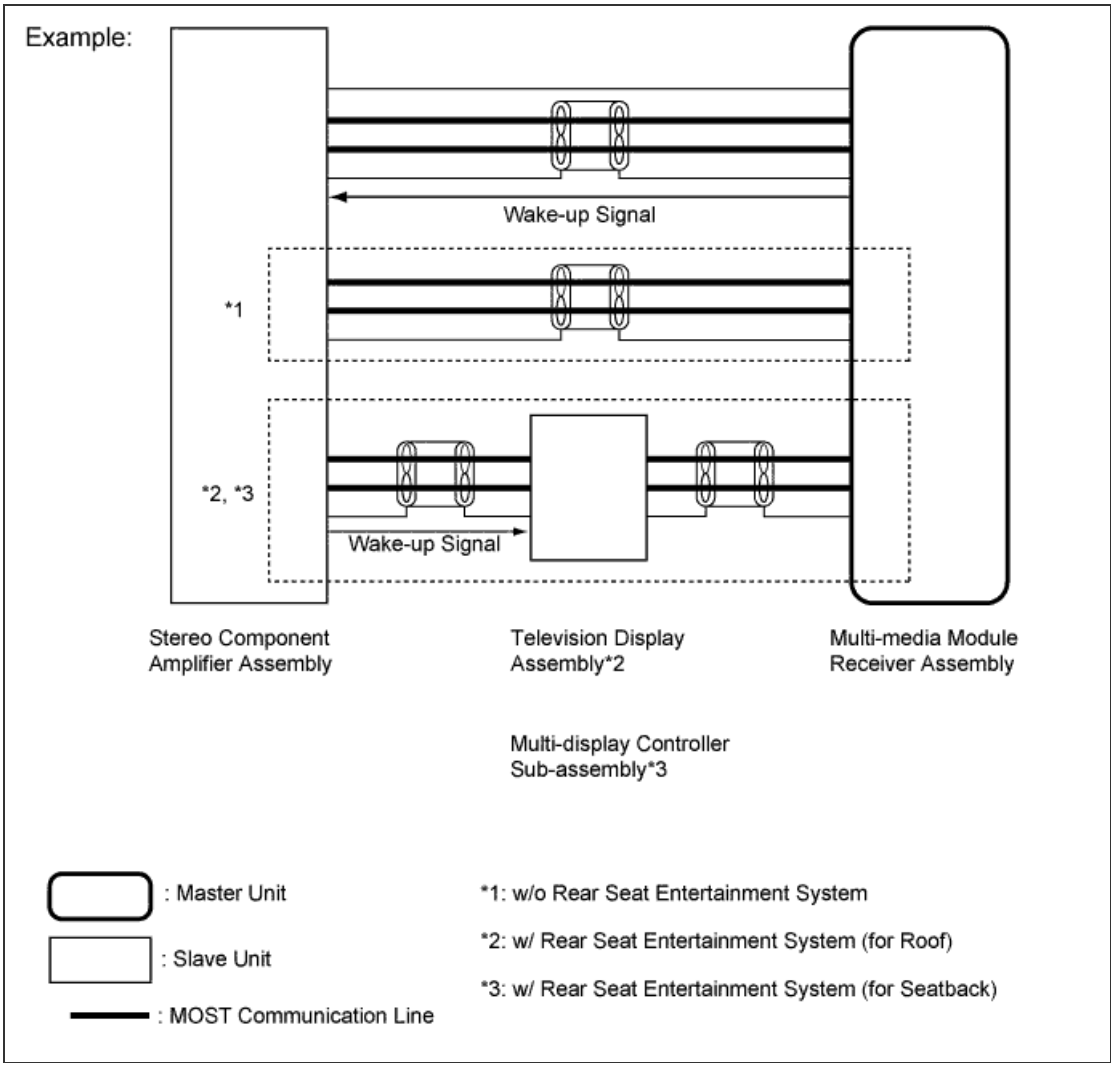
ii. Save MP3 or WMA files with an extension of ".mp3" or ".wma".

**NOTICE:**

If non-MP3 or non-WMA files are saved with an extension of ".mp3" or ".wma", those files may be wrongly recognized as MP3 or WMA files and played. A loud noise may occur and damage to the speakers may result.

## COMMUNICATION SYSTEM

a. MOST Network Outline




i. Audio and visual system components communicate with each other via the MOST network.

ii. The MOST network uses a shielded twisted pair of wires for its communication lines.

iii. The master unit of the MOST network is the multi-media module receiver assembly.

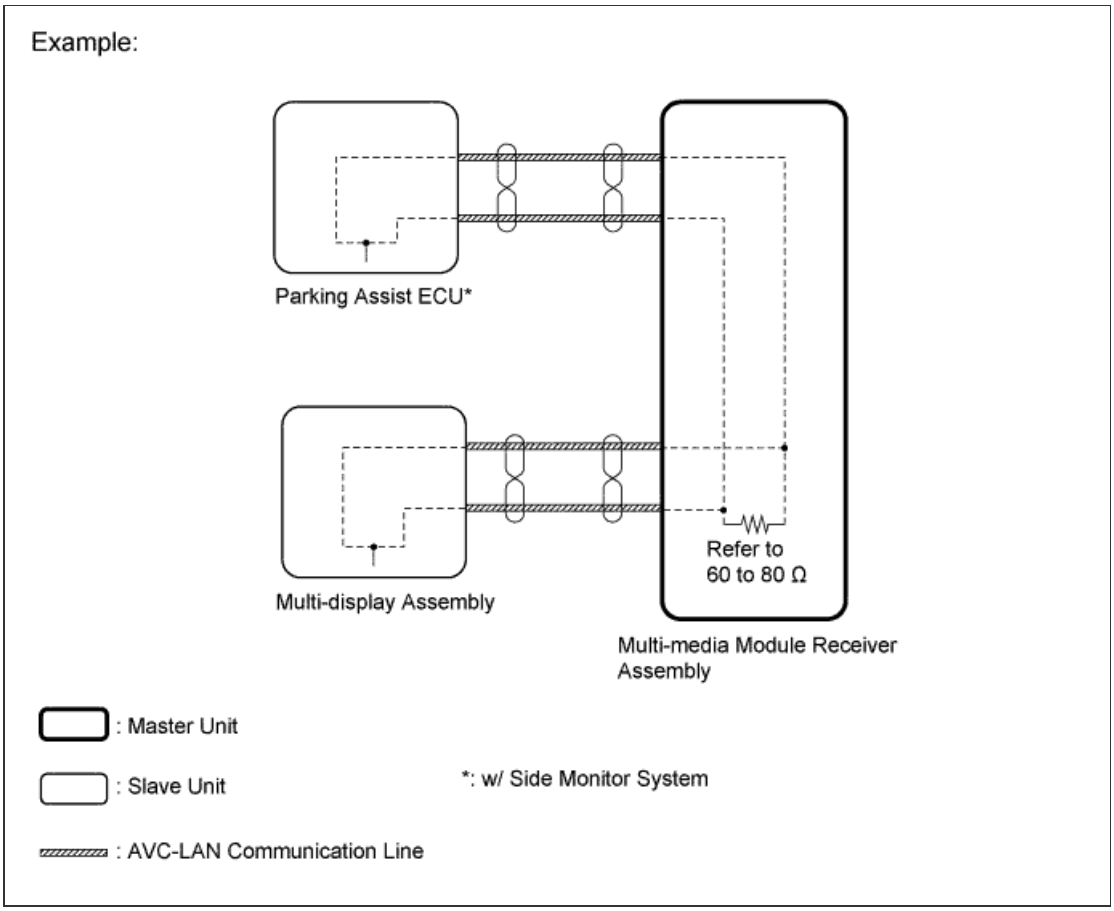
iv. MOST communication lines connect each slave unit centering around the master unit to form a MOST network ring.

v. The master unit sends a wake-up signal to activate each slave unit connected to the MOST network.

**HINT:**

If a short or open circuit occurs in the MOST circuit, communication will be interrupted and the system will not operate normally.

b. AVC-LAN Outline




i. Components of the audio and visual system communicate with each other via the AVC-LAN.

ii. The AVC-LAN uses a twisted pair of wires for its communication lines.

iii. The master unit of the AVC-LAN is the multi-media module receiver assembly.

**HINT:**

- **The multi-media module receiver assembly has the resistance (60 to 80 Ω) necessary for communication.**
- **If a short or open circuit occurs in the AVC-LAN circuit, communication is interrupted and the system will not operate normally.**

## DIAGNOSTIC FUNCTION OUTLINE

a. The navigation system has a diagnostic function (the result is indicated on the master unit or the intelligent tester).

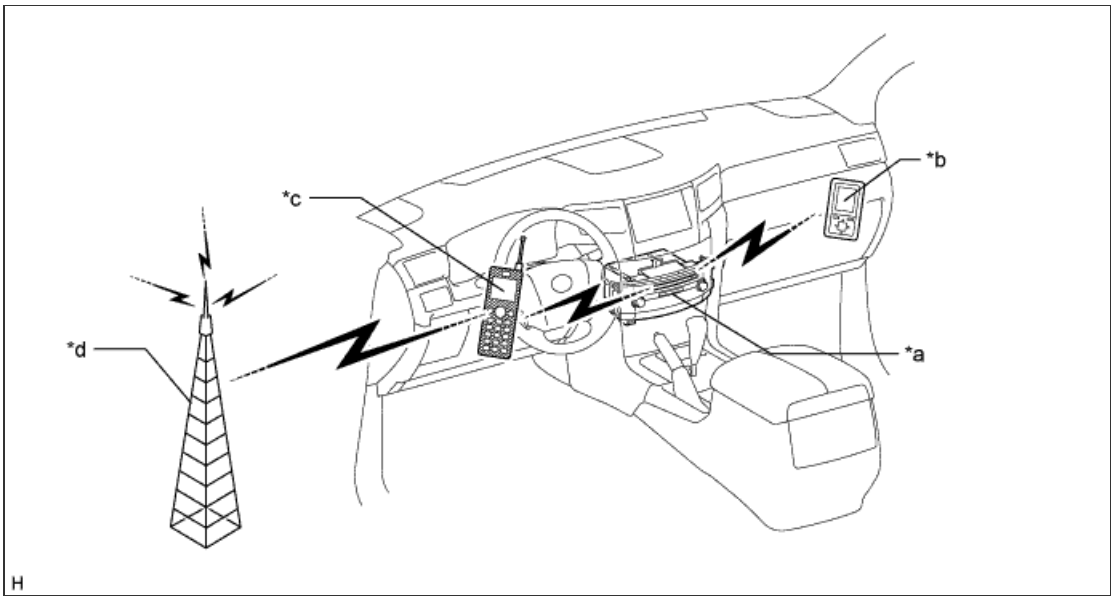
## "Bluetooth" OUTLINE

a. "Bluetooth" is a trademark owned by Bluetooth SIG, Inc.

b. "Bluetooth" is a wireless connection technology that uses the 2.4 GHz frequency band.

**HINT:**

The communication performance of "Bluetooth" may vary depending on obstructions or radio wave conditions between communication devices, electromagnetic radiation, communication device sensitivity or antenna capacity.




**Text in Illustration**

| | | | |
|---|---|---|---|
| *a | Multi-media Module Receiver Assembly<br>(Built-in "Bluetooth" receiver antenna) | *b | Portable Audio Player<br>("Bluetooth" compatible type) |
| *c | Cellular Phone<br>("Bluetooth" compatible type) | *d | Cellular Tower |

c. Hands-free function

i. The "Bluetooth" built-in multi-media module receiver assembly and a "Bluetooth" compatible cellular phone* can be connected using a "Bluetooth" wireless connection. This enables the use of the hands-free function on the cellular phone even if the phone is in a pocket or bag. For this reason, it is not necessary to use a connector or cable to connect the cellular phone.
*: Some versions of "Bluetooth" compatible cellular phones may not function.

ii. Compatible hands-free devices

| | |
|---|---|
| Required "Bluetooth" specifications | Ver. 1.1 or higher (Ver. 2.1+EDR or higher recommended) |
| Compatible profiles | • HFP (Hands Free Profile) Ver.1.0 or higher (Ver.1.5 or higher recommended)*1<br>• OPP (Object Push Profile) Ver.1.1 or higher*1<br>• PBAP (Phone Book Access Profile) Ver.1.0 or higher*1<br>• MAP (Message Access Profile) Ver.1.0 or higher*2 |
| Maximum number of hands-free devices that can be registered (including audio devices) | 5 |

*1: This profile is necessary when using the hands-free function.
*2: This profile is necessary when using the message function.

**HINT:**

The amount of remaining battery charge displayed on the multi-media module receiver assembly may be different from that of the "Bluetooth" device.

d. "Bluetooth" audio function

i. The "Bluetooth" built-in multi-media module receiver assembly and a "Bluetooth" compatible portable audio player* can be connected using a "Bluetooth" wireless connection. This enables files stored in the portable audio player to be heard from the vehicle speakers. In addition, operations such as play/stop can be performed directly from the multi-media module receiver assembly.
*: Some versions of "Bluetooth" compatible audio players may not be able to operate the "Bluetooth" function, or music may play, but functions available using the multi-media module receiver assembly may be limited.

ii. Compatible "Bluetooth" audio devices

| | |
|---|---|
| "Bluetooth" specifications | Ver. 1.1 or higher (Ver. 2.1+EDR or higher recommended) |
| Following profiles | • A2DP (Advanced Audio Distribution Profile) Ver. 1.0 or higher (Ver. 1.2 or higher recommended)<br>• AVRCP (Audio/Video Remote Control Profile) Ver. 1.0 or higher (Ver. 1.4 or higher recommended) |

| | |
|---|---|
| Maximum number of audio devices that can be registered | 5 |

**HINT:**

The amount of remaining battery charge displayed on the multi-media module receiver assembly may be different from that of the portable player.

## USB AUDIO SYSTEM FUNCTION OUTLINE

a. The No. 1 stereo jack adapter assembly is equipped with a USB terminal. Connecting a USB device or "iPod" to the No. 1 stereo jack adapter assembly allows music files to be played. Not only it is possible to play music from a USB device with audio functions, is also possible to play MP3 or WMA music files that are stored on a USB device. In addition, "iPod" control software is installed, allowing file selection from playlists and operation using shuffle mode.

**HINT:**

- **Visual contents of an "iPod" cannot be played.**
- **Operation through the controls of a USB device or "iPod" cannot be performed while it is connected.**

b. USB audio system compatible model

i. USB device
The following device formats can be used:

| | |
|---|---|
| Compatible USB device formats | • USB communication format: USB 2.0 HS (480 Mbps) and FS (12 Mbps)<br>• File format: FAT16/32 (Windows)<br>• Class: Mass storage class |

MP3 and WMA files written in any format other than those listed above may not play correctly, and their file and folder names may not be displayed correctly.
Items related to standards and limitations are as follows:

- Maximum directory hierarchy: 8 levels
- Maximum number of folders in device: 3000 (including the root folder)
- Maximum number of files in device: 9999
- Maximum number of files per folder: 255

ii. "iPod"
"iPhone", "iPod", "iPod classic", "iPod nano" and "iPod touch" are trademarks of Apple Inc., registered in the U.S. and other countries.
The following "iPod", "iPod nano", "iPod classic", "iPod touch" and "iPhone" devices can be used with this system.
Made for

- "iPod touch" (4th generation)
- "iPod touch" (3rd generation)
- "iPod touch" (2nd generation)
- "iPod touch" (1st generation)
- "iPod classic"
- "iPod with video"
- "iPod nano" (6th generation)
- "iPod nano" (5th generation)
- "iPod nano" (4th generation)
- "iPod nano" (3rd generation)
- "iPod nano" (2nd generation)
- "iPod nano" (1st generation)
- "iPhone 4"
- "iPhone 3GS"
- "iPhone 3G"
- "iPhone"

**HINT:**

Depending on differences between models or software versions etc., some models might be incompatible with this system.

## RADIO DESCRIPTION

a. Radio frequency band

i. Radio broadcasts use the radio frequency bands shown in the table below.

| Frequency | 30 kHz | 300 kHz | 3 MHz | 30 MHz | 300 MHz |
|---|---|---|---|---|---|
| Designation | LF | MF | HF | VHF | |
| Radio wave | | AM ← → | | FM ← → | |
| Modulation | Amplitude modulation | | | Frequency modulation | |

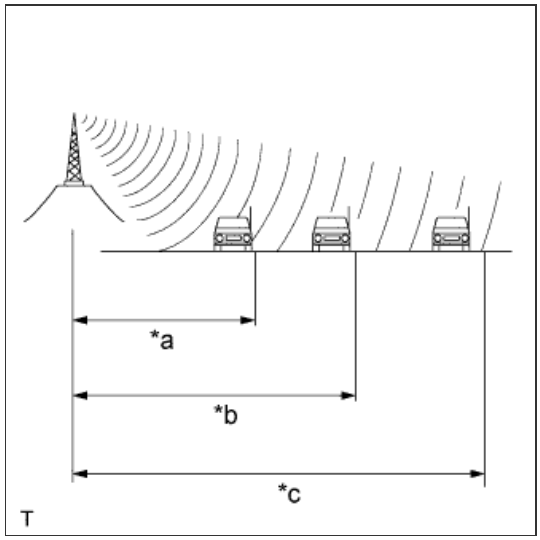
LF: Low Frequency MF: Medium Frequency HF: High Frequency VHF: Very High Frequency

b. Service area

i. The service areas of AM and FM broadcasts are vastly different. Sometimes an AM broadcast can be received very clearly but an FM stereo broadcast cannot. FM stereo has the smallest service area, and is prone to pick up static and other types of interference such as noise.

**Text in Illustration**

| | |
|---|---|
| *a | FM (Stereo) |
| *b | FM (Monaural) |
| *c | AM |




c. Radio reception problems

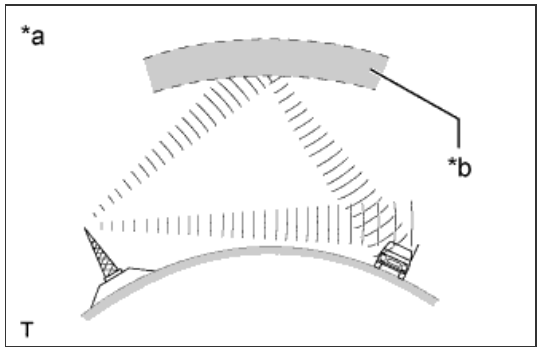
**HINT:**

In addition to static, other problems such as "phasing", "multipath" and "fade out" exist. These problems are not caused by electrical noise, but by the radio signal propagation method itself.

i. Phasing
AM broadcasts are susceptible to electrical interference and another kind of interference called phasing. Occurring only at night, phasing is the interference created when a vehicle receives 2 radio wave signals from the same transmitter. One signal is reflected off the ionosphere and the other signal is received directly from the transmitter.

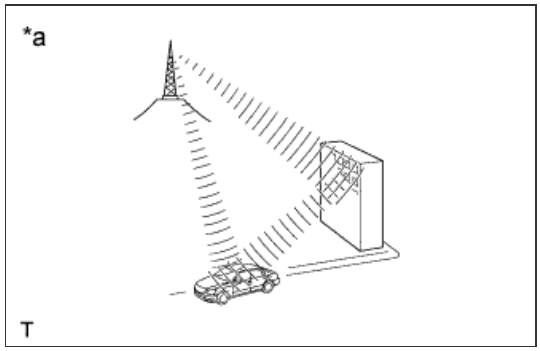
**Text in Illustration**

| | |
|---|---|
| *a | Phasing |
| *b | Ionosphere |



ii. Multipath

Multipath is a type of interference created when a vehicle receives 2 radio wave signals from the same transmitter. One signal is reflected off buildings or mountains and the other signal is received directly from the transmitter.

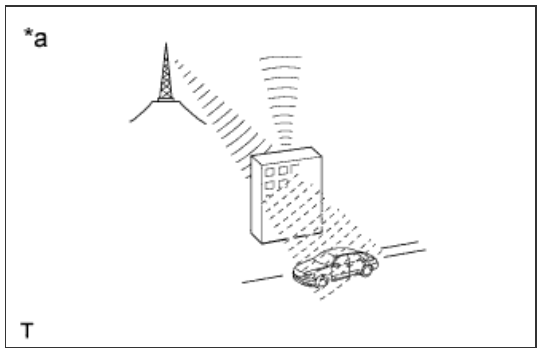



**Text in Illustration**

| | |
|---|---|
| *a | Multipath |

iii. Fade out

Fade out is caused by objects (buildings, mountains and other such large obstacles) that deflect away part of a signal, resulting in a weaker signal when the object is between the transmitter and vehicle. High frequency radio waves, such as FM broadcasts, are easily deflected by obstructions. Low frequency radio waves, such as AM broadcasts, are less likely to deflect.




**Text in Illustration**

| | |
|---|---|
| *a | Fade Out |

d. Noise problem

Technicians must have a clear understanding about each customer's noise complaint. Use the following table to diagnose noise problems.

| Radio Frequency | Noise Occurrence Condition | Presumable Cause |
|---|---|---|
| AM | Noise occurs in a specific area | Foreign noise |
| | Noise occurs when listening to an intermittent broadcast | An identical program transmitted from multiple towers can cause noise where the signals overlap |
| | Noise occurs only at night | Signal phasing |
| FM | Noise occurs while driving in a specified area | Multipath resulting from a change in FM frequency |

## RDS-TMC FUNCTION OUTLINE (w/ RDS-TMC Function)

a. This system has a function which allows the reception of traffic information from Radio Data System Traffic Message Channel (RDS-TMC) stations based on FM-multiple broadcasting. It assists the driver to avoid areas with traffic congestion. It also helps to improve traffic flow and road safety (Click here).

## VEHICLE CUSTOMIZATION OUTLINE

a. Customization of functions can be performed on the multi-display assembly screen. Refer to the owner's manual for further information on customizable items for the navigation system.

**HINT:**

- **Items available for customization via the navigation system can be performed by using the intelligent tester.**
- **Some customize parameters displayed on the intelligent tester will be displayed on the "Vehicle Customization" screen for the navigation system. Users can customize these items.**

## CUSTOMIZE STARTUP IMAGE OR SCREEN OFF IMAGE FUNCTION OUTLINE

a. An image can be copied from a USB device. The image can be used as the startup image or screen off image of the navigation system.

## ASL (Automatic Sound Levelizer) FUNCTION OUTLINE

a. The Automatic Sound Levelizer (ASL) function automatically adjusts the audio system volume level in order to compensate for increased vehicle noise (vehicle noise tends to increase as vehicle speed increases). The ASL adjusts the volume level based upon vehicle speed signals that it receives from the combination meter assembly.

**for Preparation** Click here

**HINT:**

Use these procedures to troubleshoot the audio and visual system.

## 1.VEHICLE BROUGHT TO WORKSHOP

NEXT

## 2.INSPECT BATTERY VOLTAGE

**Standard voltage:**
**11 to 14 V**

If the voltage is below 11 V, recharge or replace the battery before proceeding.

NEXT

## 3.CHECK IF SAME SYMPTOM APPEARS IN NAVIGATION SYSTEM

a. Refer to the navigation system.

**Result**

| Result | Proceed to |
|---|---|
| Symptom does not appear | A |
| Symptom appears | B |

B. → FOLLOW NAVIGATION SYMPTOM CHART TO PERFORM TROUBLESHOOTING (Click here)

A

## 4.BASIC INSPECTION

a. Turn the engine switch on (ACC).

b. Check whether or not the display appears on the multi-display.

**Result**

| Result | Proceed to |
|---|---|
| Display appears | A |
| Display does not appear | B |

B. → Go to step 6

A

## 5.CHECK FOR DTC

a. Check for DTCs and note any codes that are output.

b. Clear the DTCs.

c. Recheck for DTCs. Based on the DTC output in the first step, try to force output of the audio system DTC by simulating the conditions indicated by the DTC.

**HINT:**

- **If the system cannot enter the diagnosis mode, inspect each AVC-LAN communication signal and repair or replace problem parts.**
- **Even if the malfunction symptom is not confirmed, check for DTCs as the system stores past DTCs.**
- **Refer to the detailed description on the diagnostic screen as necessary ( Click here).**
- **Check and clear past diagnostic trouble codes. Check the diagnostic trouble code and inspect the area the code indicates.**

**Result**

| Result | Proceed to |
|---|---|
| DTC is not output | A |
| DTC is output | B |

**B.** → Go to step 7

**A**

## 6.PROBLEM SYMPTOMS TABLE

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in problem symptoms table | A |
| Fault is listed in problem symptoms table | B |

**B.** → Go to step 8

**A**

## 7.OVERALL ANALYSIS AND TROUBLESHOOTING

a. Operation check (Click here).

b. Terminals of ECU (Click here).

c. Inspect the front No. 1 speaker (Click here).

d. Inspect the front No. 2 speaker (Click here).

e. Inspect the front No. 3 speaker (Click here).

f. Inspect the front No. 4 speaker (Click here).

g. Inspect the No. 1 woofer box speaker (Click here).

h. Inspect the rear speaker set (Click here).

i. Inspect the rear No. 2 speaker (Click here).

j. Inspect the rear No. 3 speaker (Click here).

k. Inspect the rear header speaker (Click here).

l. Inspect the steering pad switch (Click here).

**NEXT**

## 8.ADJUST, REPAIR OR REPLACE

**NEXT**

## END

**for Preparation** Click here

**HINT:**

- **Use the following procedure to troubleshoot the audio and visual system.**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

**NEXT**

## 2.INSPECT BATTERY VOLTAGE

a. Measure the battery voltage with the engine switch off.

**Standard voltage:**
**11 to 14 V**

If the voltage is below 11 V, recharge or replace the battery before proceeding to the next step.

**NEXT**

## 3.DIAGNOSTIC QUESTIONING AND SYMPTOM CONFIRMATION

a. Ask the customer about symptoms and confirm malfunctions.

**Result**

| Result | Proceed to |
|---|---|
| Other symptoms occurred. | A |
| The screen displays nothing. | B |

**B.** → **Go to step 6**

**A**

## 4.OPERATION CHECK

a. Refer to Check System Normal Condition ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| Symptom is not normal operation. | A |
| Symptom is normal operation. | B |

**B.** → **SYMPTOM IS NORMAL OPERATION**

**A**

## 5.CHECK CAN COMMUNICATION SYSTEM*

a. Check for DTC output ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| CAN DTCs are not output. | A |

| | |
|---|---|
| CAN DTCs are output (for LHD). | B |
| CAN DTCs are output (for RHD). | C |

B. GO TO CAN COMMUNICATION SYSTEM (Click here)

C. GO TO CAN COMMUNICATION SYSTEM (Click here)

A

## 6.CHECK FOR DTC*

a. Refer to DTC Check/Clear (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTCs are output. | A |
| DTCs are not output.<br>(The multi-display assembly displays content.) | B |
| DTCs are not output.<br>(The multi-display assembly does not display anything.) | C |

**HINT:**

If more information is needed, perform a check using the "System Check Mode" screen after checking for DTCs using the intelligent tester.

B. Go to step 10

C. Go to step 11

A

## 7.CLEAR DTC*

a. Refer to DTC Check/Clear (Click here).

**HINT:**

The present DTCs may not indicate actual malfunctions depending on the vehicle operating conditions.

NEXT

## 8.RECHECK FOR DTC*

a. Refer to DTC Check/Clear (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTCs are output. | A |
| DTCs are not output. | B |

**HINT:**

- **Even if the malfunction symptom is not confirmed, check for DTCs. This is because the system stores history DTCs.**
- **If more information is needed, perform a recheck using the "System Check Mode" screen after rechecking for DTCs using the intelligent tester.**
- **Check the DTCs and inspect the area that the code indicates.**

B. Go to step 10

A

## 9.DIAGNOSTIC TROUBLE CODE CHART

a. Find the output code in Diagnostic Trouble Code Chart ( Click here).

**NOTICE:**

- **The audio and visual system outputs DTCs for the following system.**
- **When DTCs other than those in Diagnostic Trouble Code Chart for the audio and visual system are output, refer to Diagnostic Trouble Code Chart for the relevant system.**
- **Refer to Navigation System (Click here).**
- **Refer to Rear Seat Entertainment System (for Roof) (Click here).**
- **Refer to Rear Seat Entertainment System (for Seatback) (Click here).**

**Result**

| Result | Proceed to |
|---|---|
| DTCs for the audio and visual system are output. | A |
| DTCs for the navigation system are output. | B |
| DTCs for the rear seat entertainment system (for Roof) are output. | C |
| DTCs for the rear seat entertainment system (for Seatback) are output. | D |

| | |
|---|---|
| **A.** | **Go to step 13** |
| **B.** | **GO TO NAVIGATION SYSTEM (Click here)** |
| **C.** | **GO TO REAR SEAT ENTERTAINMENT SYSTEM (Click here)** |
| **D.** | **GO TO REAR SEAT ENTERTAINMENT SYSTEM (Click here)** |

## 10.CHECK HARD DISK DRIVE

a. Enter the "Failure Diagnosis" screen. Refer to Check Hard Disk Drive in Operation Check ( Click here).

**OK:**
**"OK" is displayed.**

| | |
|---|---|
| **NG.** | **REPLACE HARD DISC (Click here)** |

**OK**

## 11.PROBLEM SYMPTOMS TABLE

a. Refer to Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in Problem Symptoms Table. | A |
| Fault is listed in Problem Symptoms Table. | B |

**HINT:**

If the symptom does not recur and no DTCs are output, attempt to reproduce the symptoms ( Click here).

| | |
|---|---|
| **B.** | **ADJUST, REPAIR OR REPLACE IN ACCORDANCE WITH PROBLEM SYMPTOMS TABLE** |

**A**

## 12.PERFORM TROUBLESHOOTING BASED ON MALFUNCTION SYMPTOM

a. Refer to Terminals of ECU (Click here).

NEXT

13.CHECK CIRCUIT

a. Adjust, repair or replace as necessary.

NEXT

14.RECHECK FOR DIAGNOSTIC TROUBLE CODE

**HINT:**

After clearing DTCs, recheck for DTCs (Click here).

NEXT

15.PERFORM CONFIRMATION TEST

NEXT

END

**for Preparation** Click here

## RADIO WAVE BAND

a. Radio frequency band

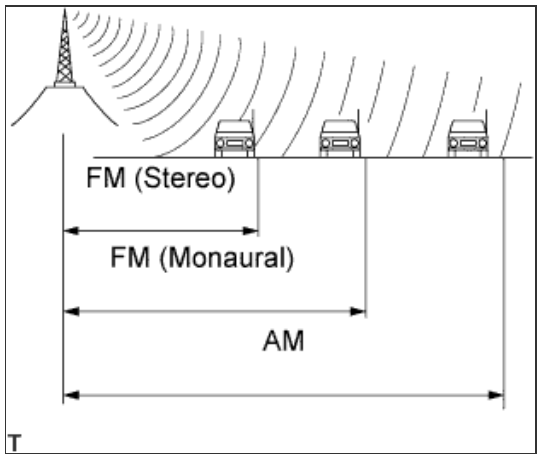
i. Radio broadcasts use the radio frequency bands shown in the table below.

| Frequency | 30 kHz | 300 kHz | 3 MHz | 30 MHz | 300 MHz |
|---|---|---|---|---|---|
| Designation | LF | MF | HF | VHF | |
| Radio Wave | | AM | | FM | |
| Modulation | | Amplitude Modulation | | Frequency Modulation | |

LF: Low Frequency MF: Medium Frequency HF: High Frequency VHF: Very High Frequency

## SERVICE AREA

a. The broadcast range for AM and FM is very different. Sometimes an AM broadcast can be received very clearly but FM stereo cannot.
FM stereo has the smallest service area, and is prone to picking up static and other types of interference (for example, noise).

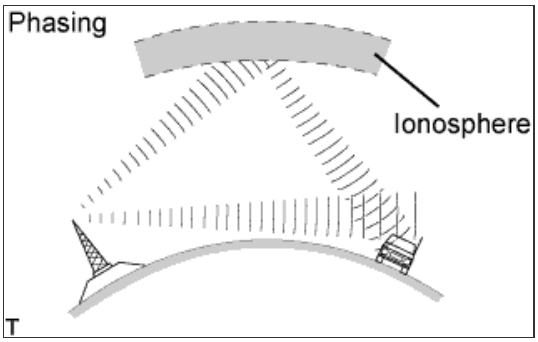



## RECEPTION PROBLEMS

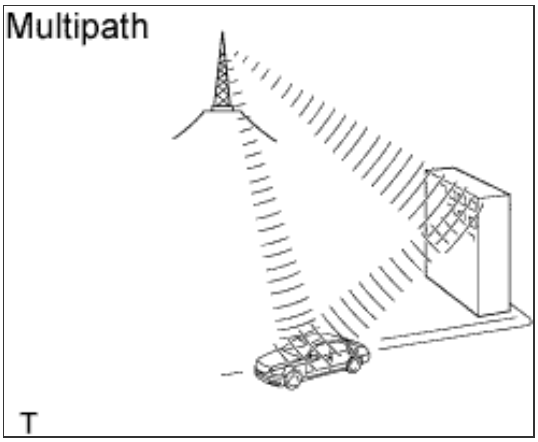
**HINT:**

Besides the problem of static, there are other problems, such as "phasing", "multipath" and "fade out". These problems are caused by the nature of the radio waves themselves, not by electrical noise.

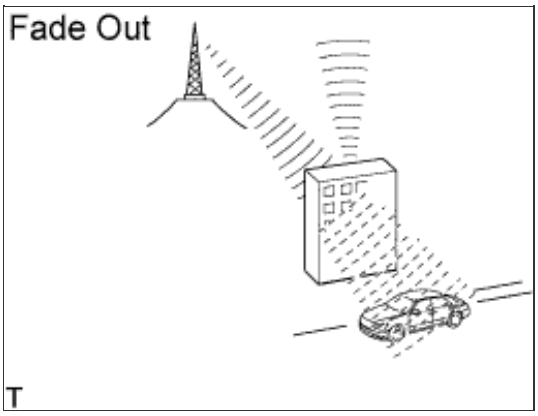
a. AM broadcasts are susceptible to electrical interference called phasing.
Occurring only at night, phasing is the interference created when a vehicle receives 2 radio wave signals from the same transmitter. One signal is reflected off of the ionosphere and the other signal is received directly from the transmitter.




b. Multipath is a type of interference created when a vehicle receives 2 radio wave signals from the same transmitter. One signal is reflected off of buildings or mountains and the other signal is received directly from the transmitter.




c. Fade out is caused by objects (buildings, mountains, etc.) that deflect away part of a signal, resulting in a weaker signal when the object is between the transmitter and vehicle. High frequency radio waves, such as FM broadcasts, are easily deflected by obstructions. Low frequency radio waves, such as AM broadcasts, are much more difficult to deflect.




## NOISE PROBLEMS

a. Technicians must have a clear understanding about the noise problems of the vehicle of the customer. Use the following table to diagnose the problems.

| Radio Wave | Condition in Which Noise Occurs | Presumable Cause |
|---|---|---|
| AM | Noise occurs in a specific area | Strong possibility of foreign noise |
| AM | Noise occurs when broadcasting is weak | • Same program may be broadcasted from various local stations<br>• If the program is the same, one of those may be tuned in |
| AM | Noise occurs only at night | Strong possibility of beats from distant broadcasting |
| FM | Noise occurs at a specific place during driving | Strong possibility of multipath noise and fading noise caused by changes of FM frequency |

**HINT:**

When the noise does not match the examples above, refer to "Reception Problems". Check the descriptions about phasing and multipath.

**for Preparation** Click here

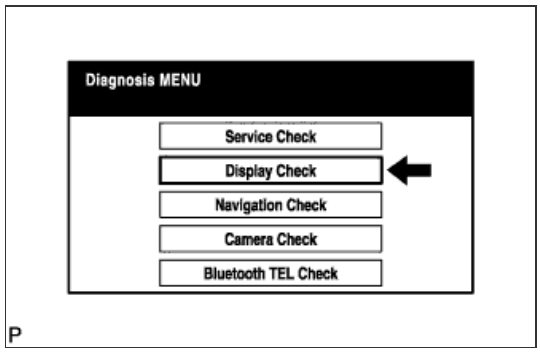
## Check Display Check mode

**HINT:**

- **This mode checks the color display on the multi-display.**
- **Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be exactly the same as on the actual vehicle.**

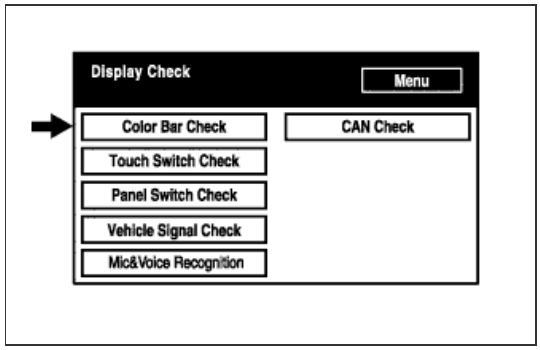
a. Enter diagnostic mode (Click here).

b. Select "Display Check" from the "Diagnosis MENU" screen.




c. Color Bar Check

i. Select "Color Bar Check" from the "Display Check" screen.

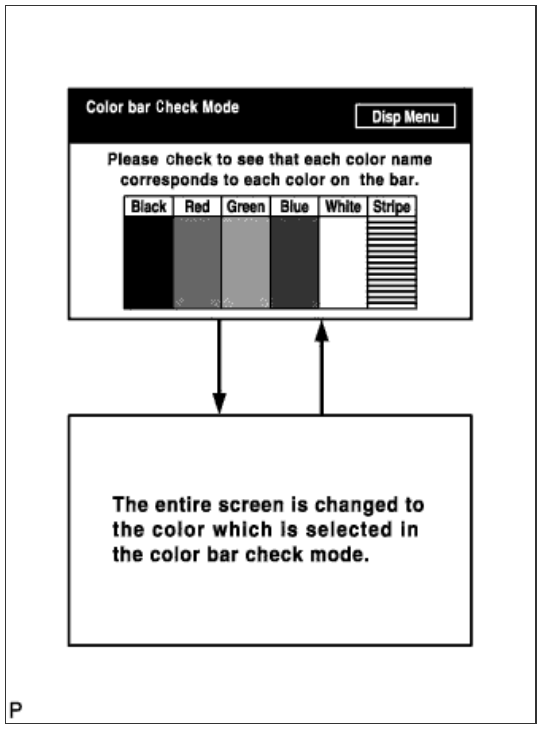



ii. Select a color bar from the "Color bar Check Mode" screen.

iii. Check the display color.

**HINT:**

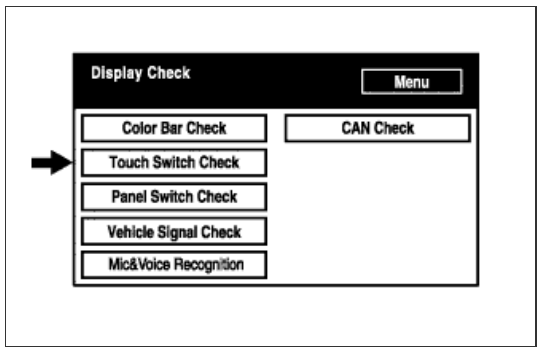
- **The entire screen turns to the color or stripe selected.**
- **Touch the display to return to the "Color Bar Check Mode" screen.**




d. Touch Switch Check

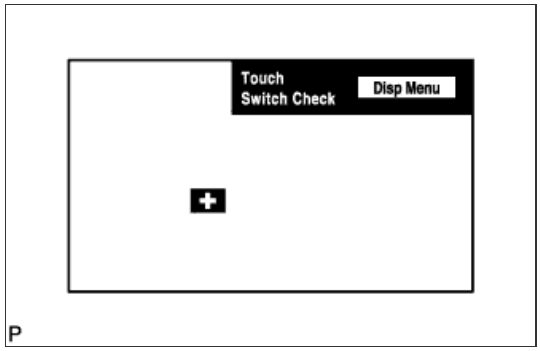
i. Select "Touch Switch Check" from the "Display Check" screen.

ii. Touch the display anywhere in the open area to perform the check when the "Touch Switch Check" screen is displayed.



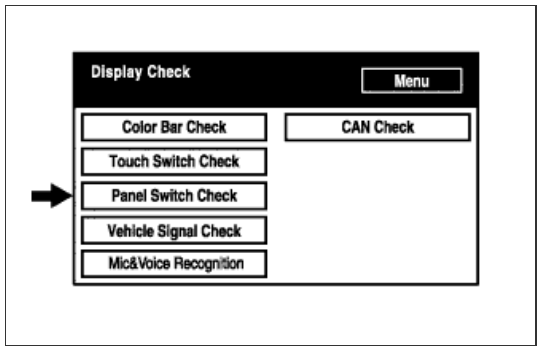

**HINT:**

A "+" mark is displayed where the display is touched.

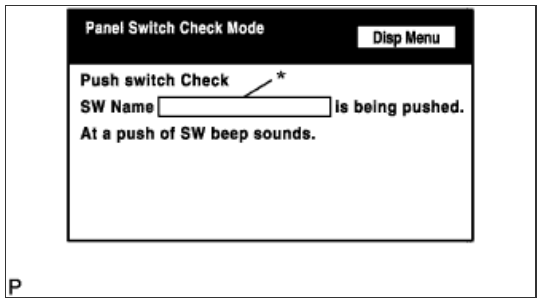



e. Panel Switch Check

i. Select "Panel Switch Check" from the "Display Check" screen.



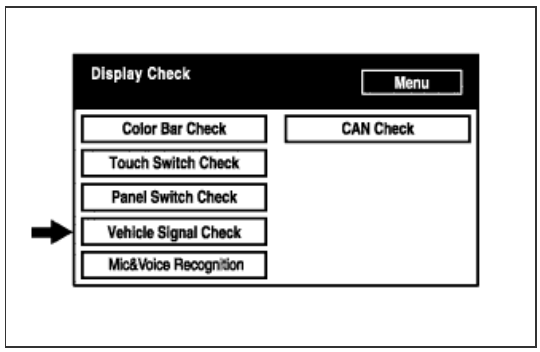

ii. Operate each switch and check that the switch name and condition are correctly displayed.




| Display | Contents |
|---|---|
| *: Pushed switch name | • Name of the pressed switch is displayed.<br>• If more than one switch is pressed, "MULTIPLE" is displayed. |

f. Vehicle Signal Check

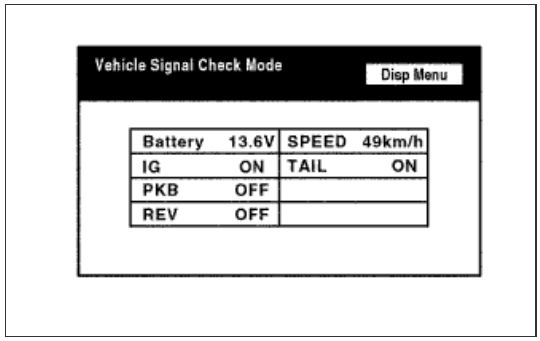
i. Select "Vehicle Signal Check" from the "Display Check" screen.




ii. When the "Vehicle Signal Check Mode" screen is displayed, check all the vehicle signal conditions.

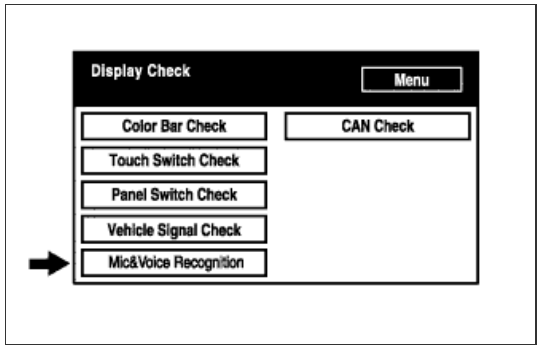
**HINT:**

- **Only conditions having inputs are displayed.**
- **This screen is updated once per second when input signals to the vehicle are changed.**
- **For details of this function, refer to Diagnosis Display Detailed Description in the System Description (Click here).**




g. Mic&Voice Recognition Check

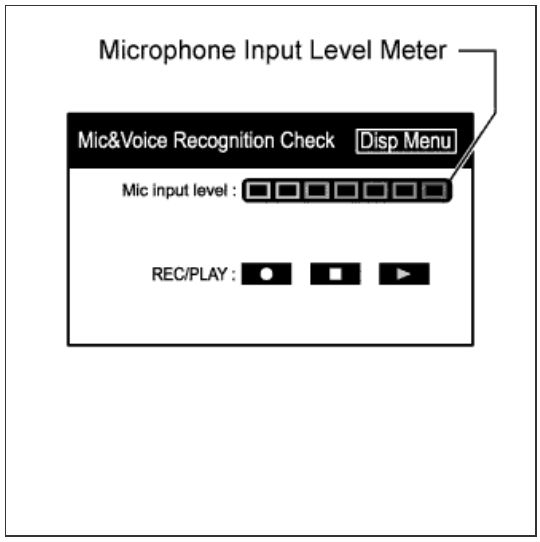
i. Select "Mic&Voice Recognition Check" on the "Display Check" screen to display the "MICROPHONE & VOICE RECOGNITION CHECK" screen.




ii. When a voice is input into the microphone, check that the microphone input level meter changes according to the input voice.

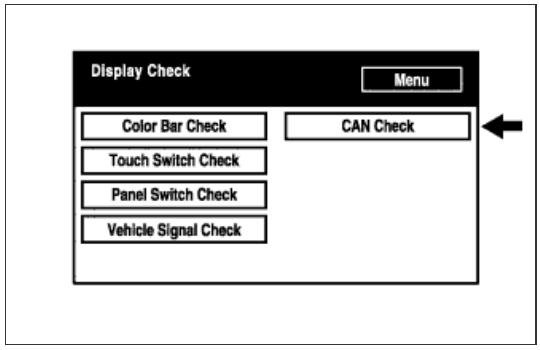
**HINT:**

This function is controlled by the navigation ECU.



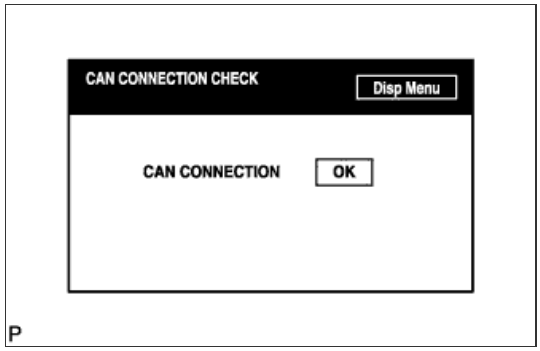

h. CAN Check

i. Select "CAN Check" from the "Display Check" screen.




ii. Check the CAN CONNECTION CHECK result.

- This function operates only for the systems connected to the CAN system.
- For details of this function, refer to Diagnosis Display Detailed Description in the System Description (Click here).



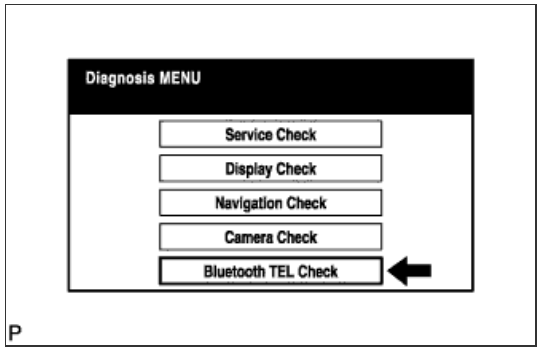

## Check "Bluetooth" TEL Check

**HINT:**

Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be exactly the same as on the actual vehicle.

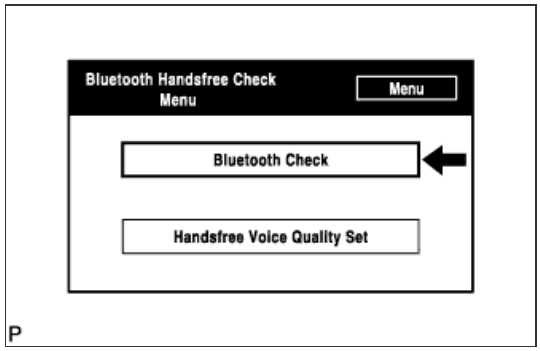
a. Enter diagnostic mode (Click here).

b. Select ""Bluetooth" TEL Check" from the "Diagnosis MENU" screen.

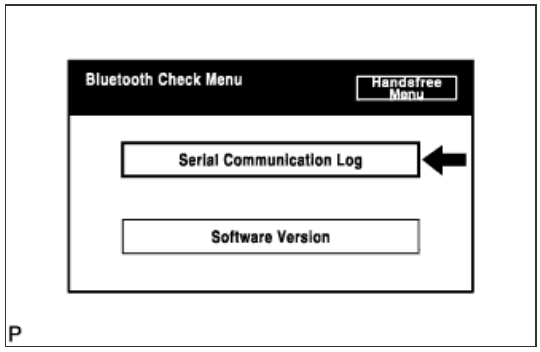



c. "Bluetooth" Check

i. Select ""Bluetooth" Check" from the ""Bluetooth" Handsfree Check Menu" screen.



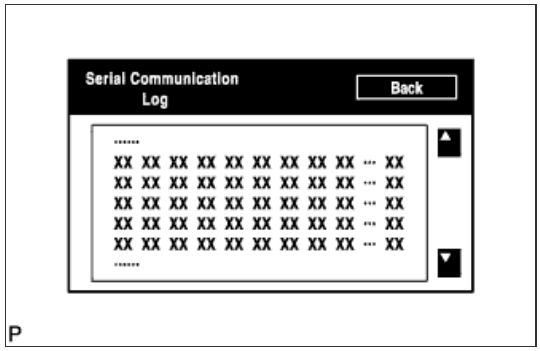

ii. Select "Serial Communication Log" from the ""Bluetooth" Check Menu" screen.



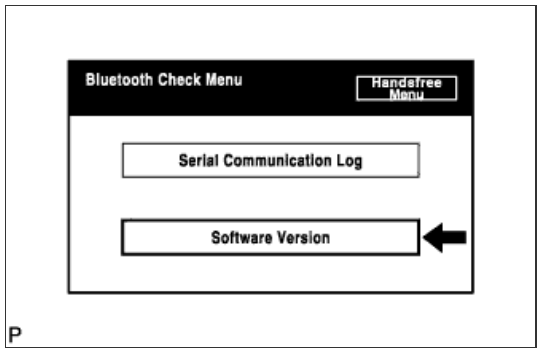

1. The communication log data in the multi-display are displayed on this screen.

**HINT:**

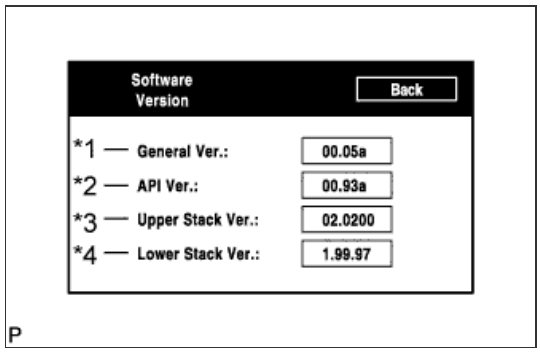
The displayed data can be used as a reference.




iii. Select "Software Version" from the ""Bluetooth" Check Menu" screen.




1. Check the software version of the "Bluetooth" module.




**Screen Description**

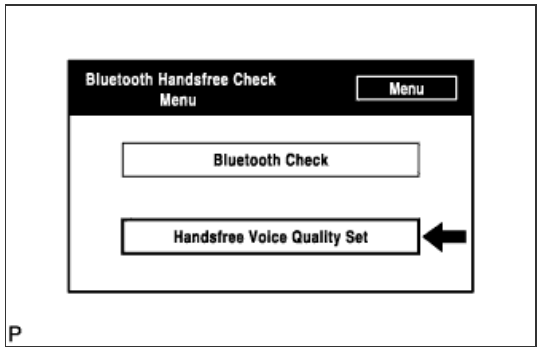
| Display | Contents |
|---|---|
| *1: General Version | • Overall software version of "Bluetooth" module<br>• If any of the API version, upper stack version, and low stack version is updated, the general version is upgraded. |
| *2: API Version | API software version is displayed. |
| *3: Upper Stack Version | Upper Stack version is displayed. |
| *4: Lower Stack Version | Lower Stack version is displayed. |

**HINT:**

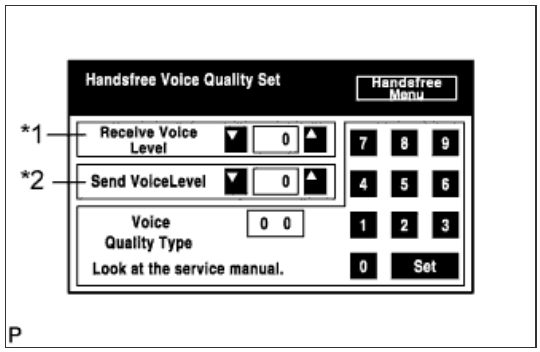
This function is controlled by the multi-display.

**d.** Handsfree Voice Quality Set

**i.** Select "Handsfree Voice Quality Set" from the ""Bluetooth" Handsfree Check Menu" screen.




**ii.** Check the handsfree voice level.




### Screen Description

| Display | Contents |
|---|---|
| *1: Received voice level adjustment | Setting possible for the voice level received from "Bluetooth" compatible phones. |
| *2: Sent voice level adjustment | Setting possible for the voice level sent to "Bluetooth" compatible phones. |

**HINT:**

This function is controlled by the multi-display.

**NOTICE:**

"Voice Quality Type" should not be changed.

**for Preparation** Click here

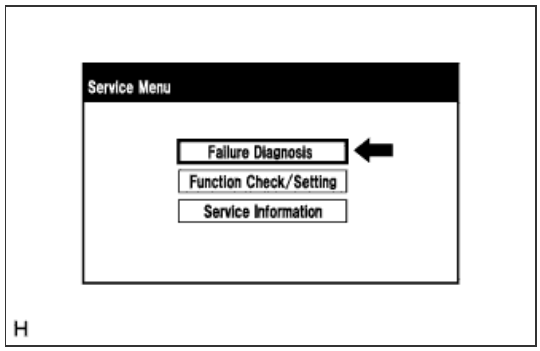
## CHECK HARD DISK DRIVE

**HINT:**

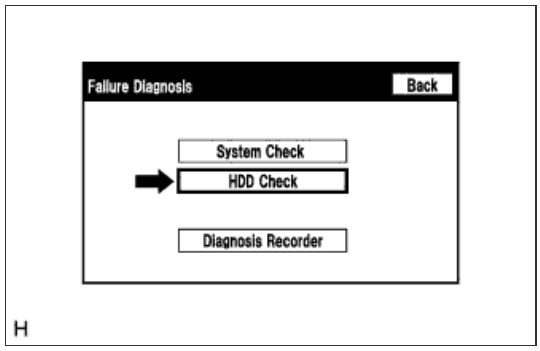
- **Check the hard disk drive (HDD) built into the multi-media module receiver assembly.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Failure Diagnosis" from the "Service Menu" screen.



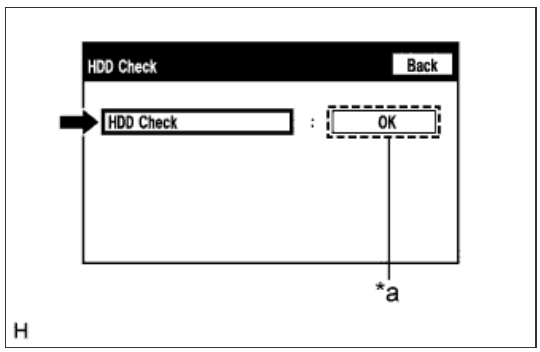

c. Select "HDD Check" from the "Failure Diagnosis" screen.




d. HDD Check

i. Select "HDD Check" to start the HDD check.

ii. Check that the result is displayed when the HDD check is completed.




**Screen Description**

| Display (Result) | Description |
|---|---|
| Checking | Check is in progress |
| OK | Hard disk drive is normal |
| NG | Hard disk drive is malfunctioning |

**Text in Illustration**

| | |
|---|---|
| *a | Result |

**HINT:**

- **After selecting "HDD Check", it may take a while until the result is displayed.**
- **If the cabin temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher, the HDD may not operate normally, and "NG" may be shown on the display. Make sure to perform the inspection with the cabin at an appropriate temperature.**
- **If "NG" is displayed even when the cabin temperature is appropriate, replace the HDD with a new one.**

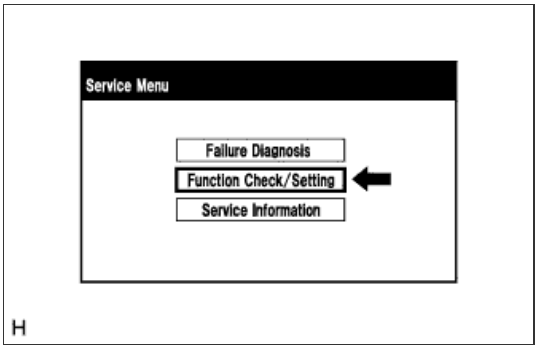
## CHECK PANEL & STEERING SWITCH

**HINT:**

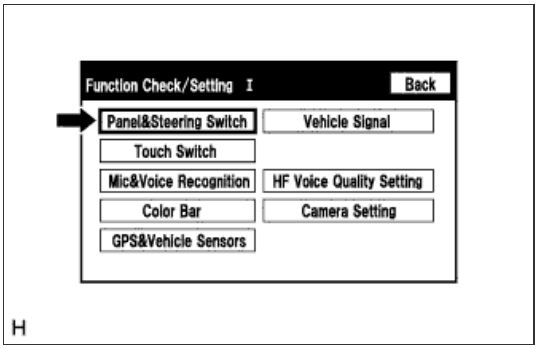
- **The multi-media module receiver assembly panel switches and steering switches are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.

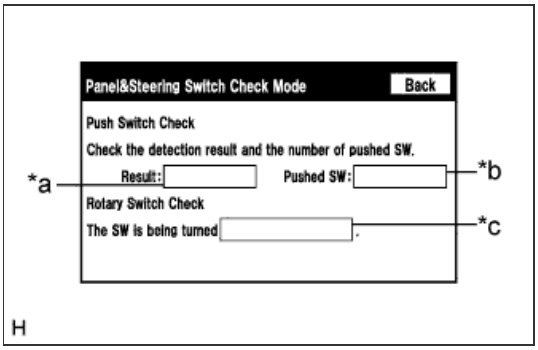



c. Select "Panel&Steering Switch" from the "Function Check/Setting I" screen.




d. Panel & Steering Switch Check Mode

i. Operate each switch and check that the switch conditions are correctly displayed.




**Screen Description**

| Display | Content |
|---|---|
| *a: Switch condition | "Pushed" is displayed when any switch is pushed |
| *b: Number of switches pushed | • Number of switches pushed at once is displayed<br>• If more than 3 switches are pushed at once, "More than 3" is displayed |
| *c: Rotary switch direction | Direction of rotary switch is displayed |

**NOTICE:**

When the "SETUP" switch is pressed and held for 3 seconds or more, diagnostic mode will be canceled.

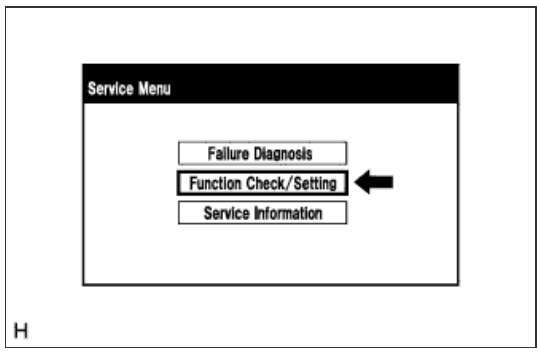
## CHECK TOUCH SWITCH

**HINT:**

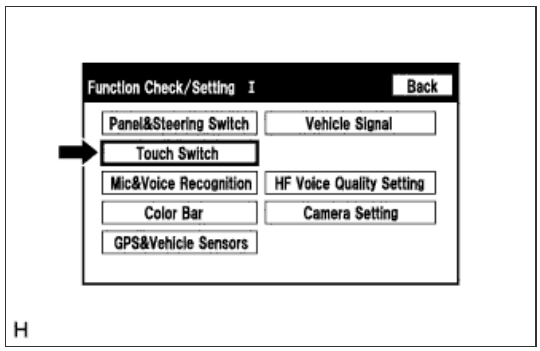
- **The touch switches on the screen are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "Touch Switch" from the "Function Check/Setting I" screen.

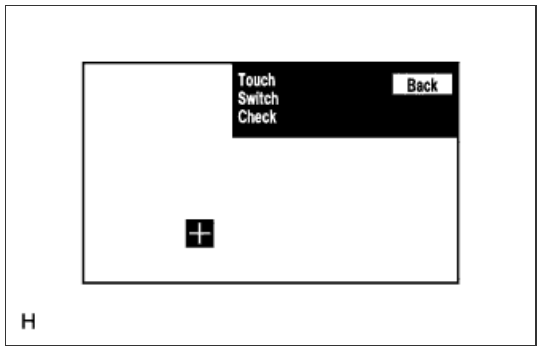



d. Touch Switch Check

i. Touch the display anywhere in the open area to perform the check when the "Touch Switch Check" screen is displayed.

**HINT:**

- **A "+" mark is displayed where the display is touched.**
- **The "+" mark remains on the display even after the finger is removed.**



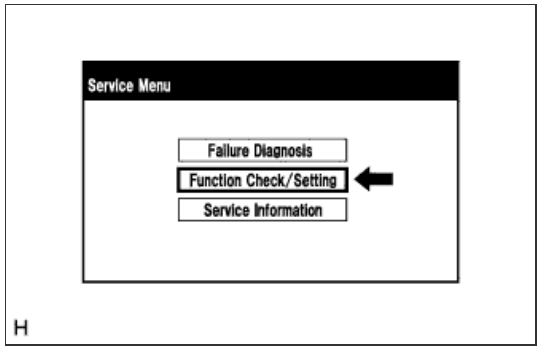

## CHECK MIC & VOICE RECOGNITION

**HINT:**

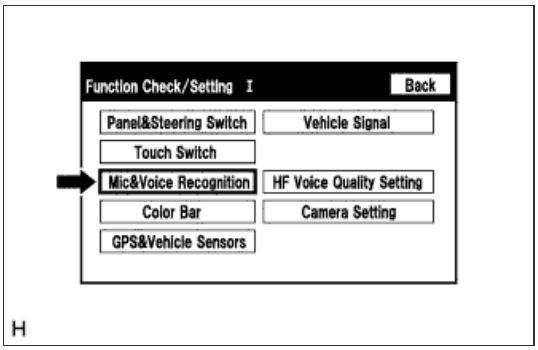
- **The microphone and microphone input level are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

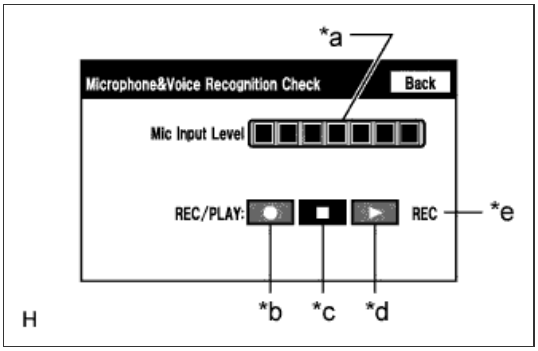
b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "Mic&Voice Recognition" from the "Function Check/Setting I" screen.




d. Microphone & Voice Recognition Check




**Screen Description**

| Display | Content |
|---|---|
| *a: Microphone input level meter | Monitors the microphone input level every 0.1 seconds and displays the results in 8 different levels. |
| *b: Recording switch | Starts recording. |
| *c: Stop switch | Stops recording and playing. |
| *d: Play switch | Plays the recorded voice. |
| *e: Recording indicator | Comes on while recording. |

i. When speaking into the microphone, check that the microphone input level meter changes according to the input level.

**HINT:**

The microphone is active at all times when this screen is displayed.

ii. Push the recording switch and perform voice recording.

**HINT:**

- **Select the recording switch with the blower motor of the air conditioning system stopped. If an outlet of the air conditioning system is facing the microphone, noise may be recorded.**
- **While recording or playing, the switches other than the stop switch cannot be pushed.**
- **When no recording is present, the play switch cannot be pushed.**
- **Recording will stop after 5 seconds or when the stop switch is pushed.**

iii. Check that the recording indicator remains on while recording and that the recording can be played normally.

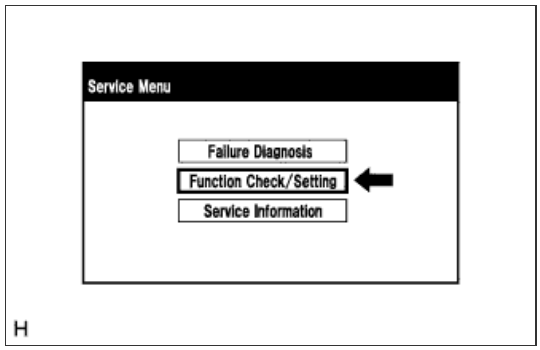
## CHECK COLOR BAR

**HINT:**

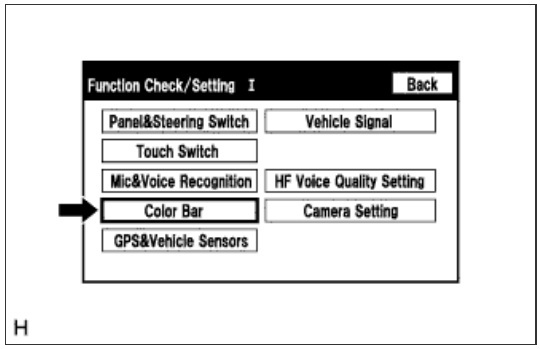
- **The display color on the screen is checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "Color Bar" from the "Function Check/Setting I" screen.



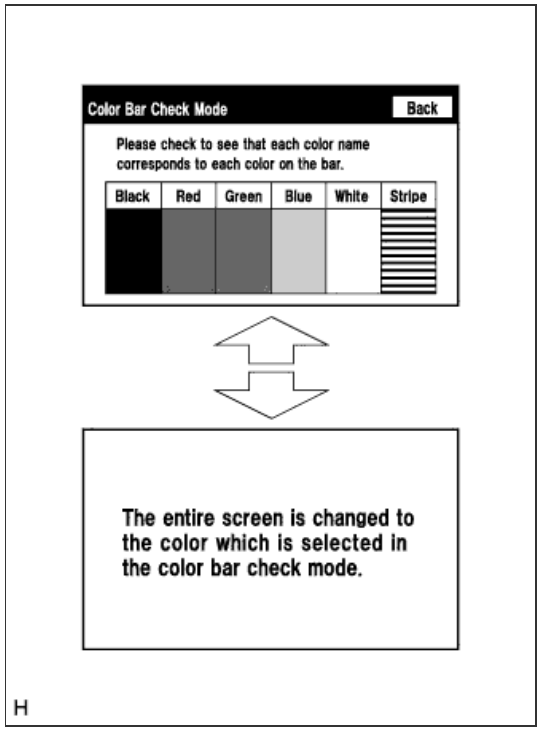

d. Color Bar Check Mode

i. Select a color bar from the "Color Bar Check Mode" screen.

ii. Check the display color.

**HINT:**

- **The entire screen turns to the color or stripe selected.**
- **Touching the display will return to the "Color Bar Check Mode" screen.**



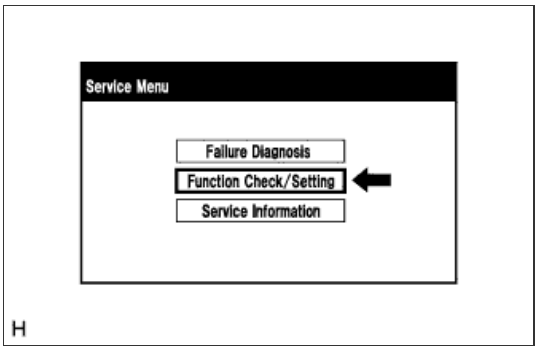

## CHECK GPS & VEHICLE SENSORS

**HINT:**

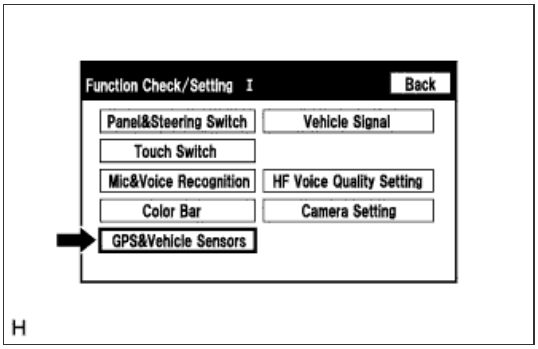
- **GPS information, vehicle signals and sensor signals are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

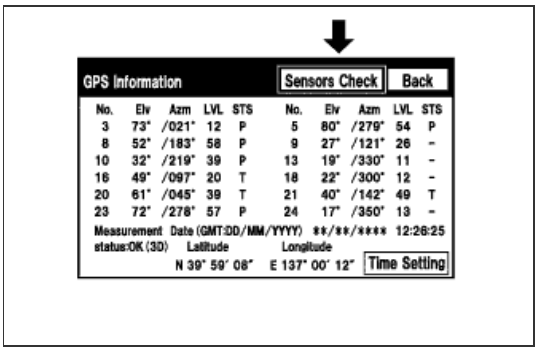
b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "GPS&Vehicle Sensors" from the "Function Check/Setting I" screen.




d. Select "Sensors Check" from the "GPS Information" screen.



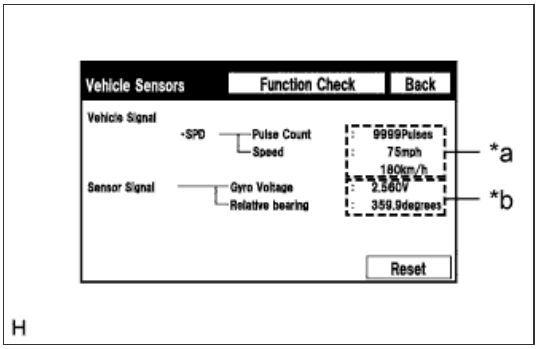

e. Vehicle Sensors

**Screen Description**

| Display | Content |
|---|---|
| *a: Vehicle signal | Vehicle speed signal condition is displayed. |
| *b: Sensor signal | Gyro sensor output condition is displayed. |

**HINT:**

This screen is updated once per second.




i. Check all the signals and sensors when vehicle signal information is displayed.

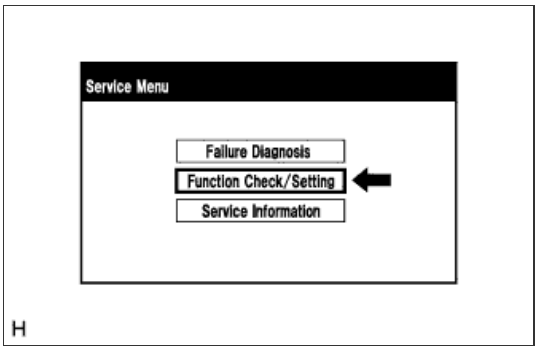
## CHECK VEHICLE SIGNAL

**HINT:**

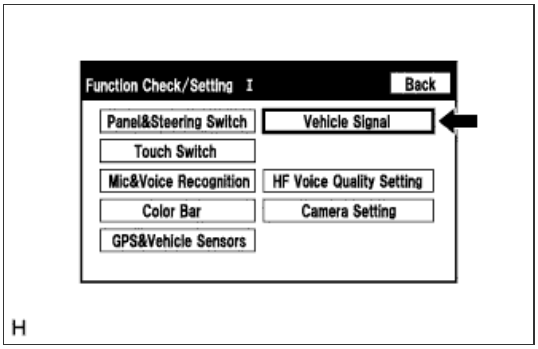
- **Vehicle signals received by the multi-media module receiver assembly are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.

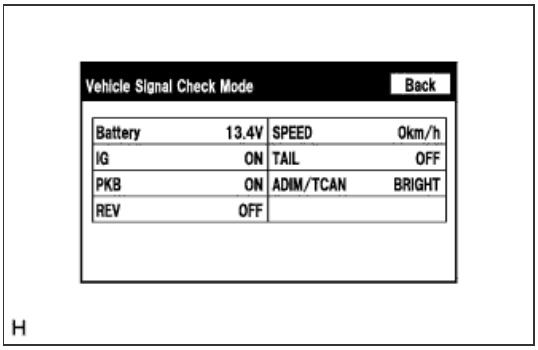



c. Select "Vehicle Signal" from the "Function Check/Setting I" screen.




d. Vehicle Signal Check Mode

i. When the "Vehicle Signal Check Mode" screen is displayed, check all the vehicle signal conditions.




**Screen Description**

| Display | Content |
|---|---|
| Battery | Battery voltage is displayed. |
| IG | Engine switch ON/OFF state is displayed. |
| PKB | Parking brake ON/OFF state is displayed. |
| REV | Reverse signal ON/OFF state is displayed. |
| SPEED | Vehicle speed is displayed in km/h. |
| TAIL | Tail signal (Light control switch) ON/OFF state is displayed. |
| ADIM/TCAN | Brightness state DIM (with) / BRIGHT (without) is displayed. |

**HINT:**

- **Only items sending vehicle signals will be displayed.**
- **This screen displays vehicle signals input to the multi-media module receiver assembly.**
- **This screen is updated once per second when vehicle input signals change.**

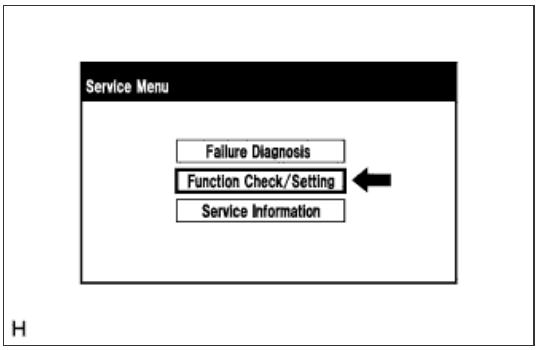
## CHECK HANDS-FREE VOICE QUALITY AND VOLUME SETTING

**HINT:**

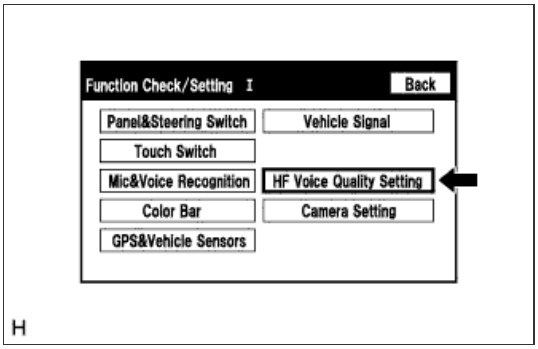
- **The hands-free volume of a "Bluetooth" compatible phone can be adjusted using the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.



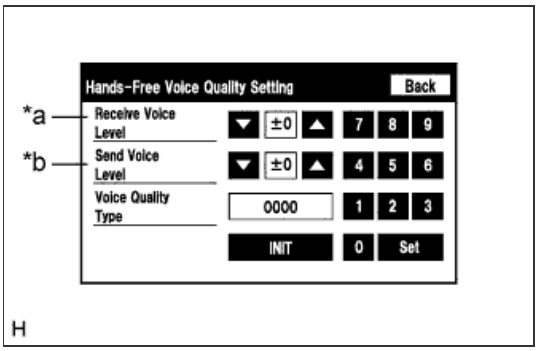

c. Select "HF Voice Quality Setting" from the "Function Check/Setting I" screen.




d. Hands-Free Voice Quality Setting (Receive/Send Voice Level adjustment)

**Screen Description**

| Display | Content |
|---|---|
| *a: Receive voice level adjustment | Setting for the voice level received from "Bluetooth" compatible phones. |
| *b: Send voice level adjustment | Setting for the voice level sent from "Bluetooth" compatible phones. |




**NOTICE:**

Sound quality may deteriorate when the receive voice or send voice level is changed more than necessary. For this reason, check that the received voice or sent voice quality is still acceptable after changing this setting.

i. If the voice level is low, press the up button, and if the voice level is loud, press the down button.

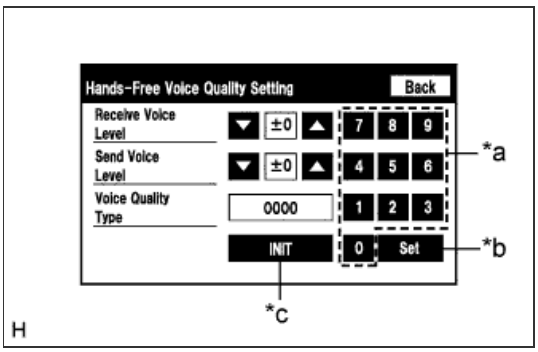
**HINT:**

- **Settings will be applied when the up or down button is selected.**
- **The received voice level adjustment ranges from -5 to +1.**
- **The sent voice level adjustment ranges from -5 to +4.**
- **The initial level is "0".**

e. Hands-Free Voice Quality Setting (Voice Quality Type adjustment)

**Screen Description**

| | |
|---|---|
| *a | Numeric keypad |
| *b | Setting button |
| *c | Reset button |




i. If necessary, refer to the table below to adjust the voice quality type with the numeric keypad.

ii. When adjusting the settings, use the number pad on the screen to input the voice quality type according to the table.

**Settings**

| Parameter | Target Phenomenon | Voice Quality Type | Positive Effect of Changing Voice Quality | Negative Effect of Changing Voice Quality |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| A (Noise) | The change in background noise the other party hears becomes unpleasant. | 1000 | The change in background noise the other party hears is reduced. | Background noise when not talking becomes large. |
| B (Noise) | The volume of the noise the other party hears temporarily becomes large. | 2000 | The temporary noise is reduced. | The volume of voice may drop temporarily. |
| C (Echo) | The other party hears weak echoes. | 0100 | The amount of echo is reduced (low level). | Sound quality of the other party deteriorates (low level). |
| D (Echo) | The other party hears strong echoes. | 0200 | The amount of echo is reduced (high level). | Sound quality of the other party deteriorates (high level). |
| E (Quality) | The other party hears harsh noises. | 0010 | Sound the other party hears becomes soft. | Sound the other party hears becomes muffled. |
| F (Quality) | You hear harsh noises. | 0020 | Sound you hear becomes soft. | Sound you hear becomes muffled. |

**Settings (When multiple phenomenon occurred)**

| Parameter | Target Phenomenon | Voice Quality Type | Positive Effect of Changing Voice Quality | Negative Effect of Changing Voice Quality |
|---|---|---|---|---|
| A+C | The change in background noise the other party hears becomes unpleasant and the other party hears weak echoes. | 1100 | • The change in background noise the other party hears is reduced.<br>• The amount of echo is reduced (low level). | • Background noise when not talking becomes large.<br>• Sound quality of the other party deteriorates (low level). |
| A+D | The change in background noise the other party hears becomes unpleasant and the other party hears strong echoes. | 1200 | • The change in background noise the other party hears is reduced.<br>• The amount of echo is reduced (high level). | • Background noise when not talking becomes large.<br>• Sound quality of the other party deteriorates (high level). |
| B+C | The volume of the noise the other party hears temporarily becomes large and the other party hears weak echoes. | 2100 | • The temporary noise is reduced.<br>• The amount of echo is reduced (low level). | • The volume of voice may drop temporarily.<br>• Sound quality of the other party deteriorates (low level). |
| B+D | The volume of the noise the other party hears temporarily becomes large and the other party hears strong echoes. | 2200 | • The temporary noise is reduced.<br>• The amount of echo is reduced (high level). | • The volume of voice may drop temporarily.<br>• Sound quality of the other party deteriorates (high level). |
| C+E | The other party hears weak echoes and harsh noises. | 0110 | • The amount of echo is reduced (low level).<br>• Sound the other party hears becomes | • Sound quality of the other party deteriorates (low level).<br>• Sound the other party |

| | | | | |
|---|---|---|---|---|
| | | | soft. | hears becomes muffled. |
| C+F | The other party hears weak echoes and you hear harsh noises. | 0120 | • The amount of echo is reduced (low level).<br>• Sound you hear becomes soft. | • Sound quality of the other party deteriorates (low level).<br>• Sound you hear becomes muffled. |

**HINT:**

- **The default value is "0000".**
- **Settings will be applied when the setting button is selected.**
- **If voice quality type values that are not in the table are input, the setting will not be applied and a positive effect may not be gained.**
- **If the quality of phone calls decreases due to the changed settings, return the settings to "0000" by pressing the "INIT" switch.**

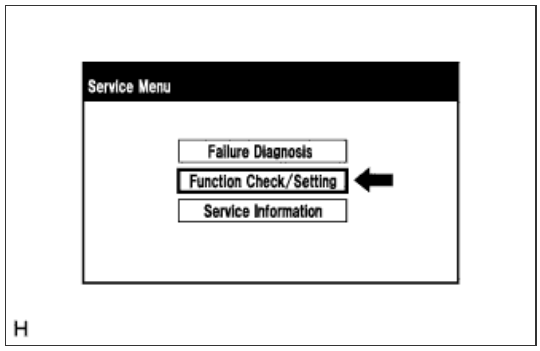
## CHECK DAB RECEPTION (w/ DAB Function)

**HINT:**

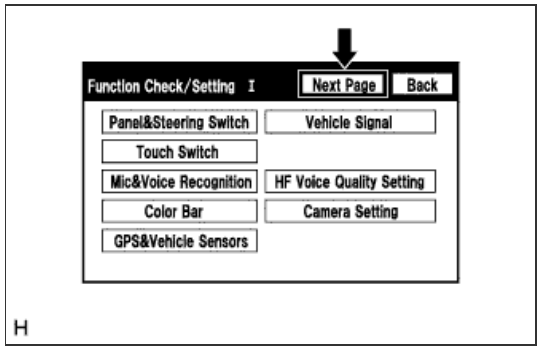
- **The reception condition of DAB (Digital Audio Broadcast) can be checked.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

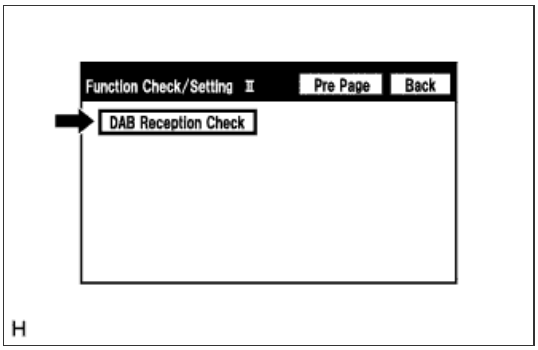
b. Select "Function Check/Setting" from the "Service Menu" screen.



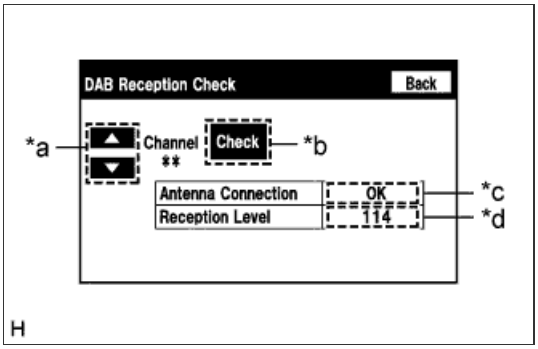

c. Select "Next Page" from the "Function Check/Setting I" screen.




d. Select "DAB Reception Check" from the "Function Check/Setting II" screen.




e. Select "DAB Reception Check" from the "Function Check/Setting II" screen.




***a: Channel Change Switch Description**

| Display | Content |
|---|---|
| Up or down button | Enables the channel to be changed to the one to be checked. |

***b: Check Switch Description**

| Display | Condition | Content |
|---|---|---|
| Check | Before/after check | Starts checking |
| STOP | During check | Stops checking |

***c: Antenna Connection Check Result Description**

| Display | Content |
|---|---|
| OK | Connected properly |
| NG | Not connected properly |
| - | Not equipped with DAB antenna. |

***d: DAB Tuner Reception Level Check Result Description**

| Display | Content |
|---|---|
| Black | Good reception |
| Red | Poor reception |
| - | Not equipped with DAB antenna. |

i. Select the "Check" button to start the DAB reception check.

ii. Check that the result is displayed when the DAB reception check is performed.

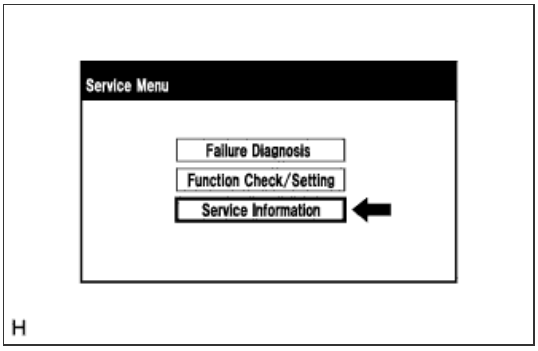
## CHECK UNIT VERSION INFORMATION

**HINT:**

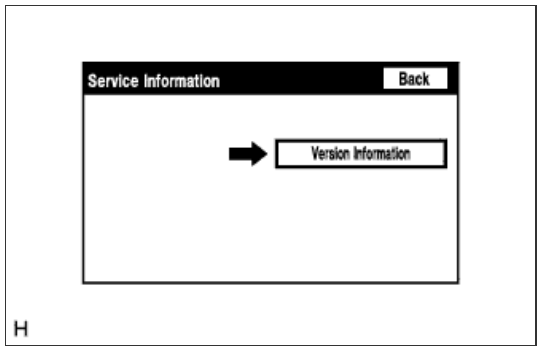
Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.

a. Enter diagnostic mode (Click here).

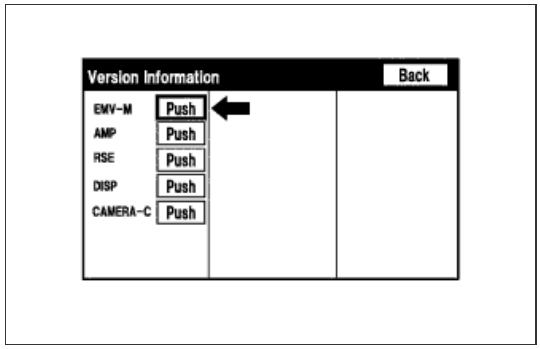
b. Select "Service Information" from the "Service Menu" screen.




c. Select "Version Information" from the "Service Information" screen.



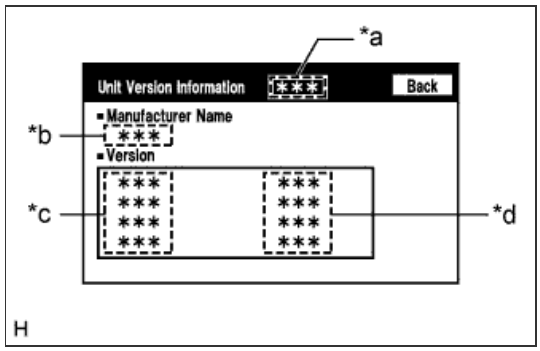

d. Press the "Push" switch.




e. Unit Version Information

**Screen Description**

| Display | Content |
|---|---|
| *a: Device name | Target device |
| *b: Manufacturer name | Manufacturer of the ECU (target device) |
| *c: Component name | Component name of the ECU (target device) |
| *d: Version | Version of the ECU (target device) |




**HINT:**

Depending on the manufacturer, some component names and versions will be displayed differently.

## CHECK SOFTWARE ERROR HISTORY

**HINT:**

This function is used to check the cause when the multi-media module receiver assembly screen is blacked out.

a. Check software error history.

i. Connect the intelligent tester to the DLC3.

ii. Turn the engine switch on (IG).

iii. Turn the intelligent tester on.

iv. Enter the following menus: Body / Navigation System / Utility / Software Error History.

v. When an item is stored for Software Error History, record it before repairing the multi-media module receiver assembly.

**Software Error History Screen Description**

| Error Description | Trigger | Detail |
|---|---|---|
| Software Reset | Navi Microcomputer | Hexadecimal Number |
| | Audio Microcomputer | |
| | CAN Microcomputer | |
| No Video Signal | Front Monitor | |

| | | |
|---|---|---|
| | Rear Monitor | |
| MOST Cold Restart | Always | |

**HINT:**

- **Software Error History can store up to 5 history data items. If a new software error occurs when 5 data items have already been stored, the oldest data is cleared and the new data is stored.**
- **If an error that is unsupported by the intelligent tester occurs, a "-" is displayed for the display items.**

b. Clear software error history.

i. When DTCs are cleared using any of the following operations, Software Error History will be cleared as well ( Click here).

- Cleared using the intelligent tester.
- Cleared using the system check mode screen.
- Cleared using the unit check mode screen.

## CHECK OPTICAL DISC ERROR HISTORY

**HINT:**

This function is used to check the cause when an optical disc error occurs.

a. Check optical disc error history.

i. Connect the intelligent tester to the DLC3.

ii. Turn the engine switch on (IG).

iii. Turn the intelligent tester on.

iv. Enter the following menus: Body / Navigation System / Utility / Optical Disc Error History.

v. When an item is stored for Optical Disc Error History, record it before proceeding with troubleshooting.

**Optical Disc Error History Screen Description**

| Display | Content |
|---|---|
| Error Type | Displays the type of error. |
| Device | Displays the malfunctioning device. |
| Date | Displays the date and time that the malfunction occurred. |

**"Error Type" Screen Description**

| Error Type | Detection Condition | Action |
|---|---|---|
| Read Error | When a disc read error occurs. | Proceed to next suspected area shown in Problem Symptoms Table (Click here) |
| Disc damaged/up side down/dirty | When it is determined that any of the following is the cause of the disc read error:<br>• The disc cannot be read.<br>• The disc cannot be read because of dirt or scratches.<br>• The disc cannot be read because it is inserted up side down. | |
| Cannot determine disc type | An unsuitable disc is inserted. | |
| DPS error | When an error occurs while decoding MP3/WMA files. | |
| Some files are corrupt | • When MP3/WMA files cannot be played back because they are unsupported.<br>• Even though the file extensions are MP3 or WMA, files cannot be played back because the header information cannot be read. | |
| Some files cannot be found | • When a disc without music data is played back.<br>• When there are no playable MP3/WMA files. | |
| Copy protection violation | When a file with copyright protection that cannot be played back is played back. | |

**"Device" Screen Description**

| | |
|---|---|

| Device | Component |
| --- | --- |
| DVD-P | Multi-media module receiver assembly |
| CD-P | Not available |
| R-Seat DVD-P | Not available |

**HINT:**

- **Optical Disc Error History can store up to 7 history data items. If a new optical disc error occurs when 7 data items have already been stored, the oldest data is cleared and the new data is stored.**
- **If an error that is unsupported by the intelligent tester occurs, a "-" or blank is displayed for the display items.**

**b.** Clear optical disc error history.

**i.** When DTCs are cleared using any of the following operations, Optical Disc Error History will be cleared as well ( Click here).

- Cleared using the intelligent tester.
- Cleared using the system check mode screen.
- Cleared using the unit check mode screen.

**for Preparation** Click here

**HINT:**

Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

### Audio Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Turning engine switch on (IG) does not turn on system. | Radio receiver power source circuit | Click here |
| | Multi-display power source circuit | Click here |
| | AVC-LAN circuit | Click here |
| | Radio receiver | Click here |
| | Multi-display*1 | Click here |
| | Multi-display*2 | Click here |
| Panel switch does not function. | Steering pad switch circuit | Click here |
| | AVC-LAN circuit | Click here |
| | Radio receiver | Click here |
| No sound can be heard from speakers (audio is mute). | AVC-LAN circuit | Click here |
| | Radio receiver power source circuit | Click here |
| | Multi-display power source circuit | Click here |
| | Proceed to "No Sound can be Heard from Speakers" | Click here |
| | Stereo component amplifier power source circuit | Click here |
| | Proceed to "Sound Signal Circuit between Radio Receiver and Stereo Component Amplifier" | Click here |
| | Speaker circuit | Click here |
| | Proceed to "Mute Signal Circuit between Radio Receiver and Stereo Component Amplifier" | Click here |
| | Stereo component amplifier | Click here |
| | Radio receiver | Click here |
| | Multi-display*1 | Click here |
| | Multi-display*2 | Click here |
| Only DVD sound cannot be heard or sound quality is bad. | Proceed to "Sound Signal Circuit between Radio Receiver and Stereo Component Amplifier" | Click here |
| | Stereo component amplifier | Click here |
| | Radio receiver | Click here |
| | Proceed to "Poor Sound Quality in All Modes (Low Volume)" | Click here |

| | | |
|---|---|---|
| Sound quality is bad in all modes (volume is too low). | Speaker circuit | Click here |
| | Proceed to "Sound Signal Circuit between Radio Receiver and Stereo Component Amplifier" | Click here |
| | Proceed to "Mute Signal Circuit between Radio Receiver and Stereo Component Amplifier" | Click here |
| | Stereo component amplifier | Click here |
| | Radio receiver | Click here |
| ASL does not function. | Proceed to "Vehicle Speed Signal Circuit between Stereo Component Amplifier and Component Meter" | Click here |
| External device sound cannot be heard or sound quality is bad (stereo jack is used). | Radio receiver power source circuit | Click here |
| | Proceed to "Sound Signal Circuit between Radio Receiver and Stereo Jack Adapter" | Click here |
| | Stereo jack adapter | Click here |
| | Radio receiver | Click here |
| Noise occurs. | Proceed to "Noise Occurs" | Click here |
| | Stereo component amplifier | Click here |
| | Radio receiver | Click here |
| Radio broadcast cannot be received (poor reception). | Proceed to "Radio Broadcast cannot be Received (Poor reception)" | Click here |
| Disc cannot be inserted or is ejected right after insertion. | Radio receiver power source circuit | Click here |
| | Proceed to "Disc cannot be Inserted or is Ejected Right After Insertion" | Click here |
| | Radio receiver | Click here |
| Disc cannot be ejected. | Radio receiver power source circuit | Click here |
| | Proceed to "Disc cannot be Ejected" | Click here |
| | Radio receiver | Click here |
| Sound quality is bad only when CD is played (volume is too low). | Proceed to "Sound Quality is Bad Only when CD is Played (Volume is Too Low)" | Click here |
| CD/DVD sound skips. | Proceed to "CD/DVD Sound Skips" | Click here |
| | Radio receiver | Click here |
| Illumination for radio receiver does not come on with light control switch on. | Illumination circuit | Click here |
| | Radio receiver | Click here |

### Display Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Turning engine switch on (IG) does not turn on system. | Multi-display power source circuit | Click here |
| | AVC-LAN circuit | Click here |
| | Multi-display*1 | Click here |
| | Multi-display*2 | Click here |
| | Proceed to "No Image Appears on Multi-display" | Click here |
| | Multi-display power source circuit | Click |

| | | |
|---|---|---|
| | | here |
| Back screen (no image appears on audio screen). | Illumination circuit | Click here |
| | AVC-LAN circuit | Click here |
| | Multi-display*1 | Click here |
| | Multi-display*2 | Click here |
| Illumination for panel switch does not come on with light control switch on. | Proceed to "Illumination for Panel Switch does not Come on with Tail Switch On" | Click here |
| | Illumination circuit | Click here |
| | Multi-display*1 | Click here |
| | Multi-display*2 | Click here |
| Display does not dim (night screen) with light control switch turned on. | Proceed to "Display does not Dim when Light Control Switch is turned ON" | Click here |
| | Multi-display*1 | Click here |
| | Multi-display*2 | Click here |
| System does not turn off (screen remains on). | Multi-display power source circuit | Click here |
| | Multi-display*1 | Click here |
| | Multi-display*2 | Click here |
| Panel switches do not function. | Proceed to "Panel Switches do not Function" | Click here |
| | Steering pad switch circuit | Click here |
| | Multi-display power source circuit | Click here |
| | Multi-display*1 | Click here |
| | Multi-display*2 | Click here |
| Touch panel switch does not function. | Proceed to "Touch Panel Switch does not Function" | Click here |
| | Steering pad switch circuit | Click here |
| | Multi-display power source circuit | Click here |
| | Multi-display*1 | Click here |
| | Multi-display*2 | Click here |
| DVD image cannot be displayed on multi-display (parking brake is on). | Proceed to "Display Signal Circuit between Multi-display and Radio Receiver" | Click here |
| | Parking brake switch circuit | Click here |
| | Radio receiver | Click here |
| | Multi-display*1 | Click here |
| | Multi-display*2 | Click here |
| | Coaxial cable | - |

### Steering Pad Switch Function

| Symptom | Suspected Area | See page |
|---|---|---|
| System cannot be operated by steering pad switch. | Steering pad switch circuit | Click here |

| | | |
|---|---|---|
| | Radio receiver | Click here |
| Illumination for steering pad switch does not come on with light control switch on. | Illumination circuit | Click here |
| | Steering pad switch | Click here |

### Bluetooth Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Cellular phone registration failure, phone directory transfer failure. | Proceed to "Cellular Phone Registration Failure, Phone Directory Transfer Failure" | Click here |
| Cellular phone cannot send/receive. | Proceed to "Cellular Phone cannot Send/Receive" | Click here |
| | Steering pad switch circuit | Click here |
| | Radio receiver | Click here |
| Cannot call in a certain place. | Proceed to "Cannot Call in a Certain Place" | Click here |
| The other callers voice cannot be heard, is too quiet, or distorted. | Proceed to "The Other Callers Voice cannot be Heard, is too Quiet, or Distorted" | Click here |
| | Multi-display*1 | Click here |
| | Multi-display*2 | Click here |
| The other caller cannot hear your voice, or your voice is too quiet or distorted. | Proceed to "The Other Caller cannot Hear Your Voice, or Your Voice is too Quiet or Distorted" | Click here |
| | Microphone circuit between overhead J/B and multi-display | Click here |
| | Microphone | Click here |
| | Microphone amplifier | Click here |
| | Multi-display*1 | Click here |
| | Multi-display*2 | Click here |

*1: w/ Navigation System
*2: w/o Navigation System

**for Preparation** Click here

**HINT:**

- **Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**
- **Inspect the fuses and relays related to this system before inspecting the suspected areas below.**

### Display Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Pressing power switch does not turn on system. | Proceed to "Radio Receiver Power Source Circuit" | Click here |
| | Proceed to "Pressing Power Switch does not Turn on System" | Click here |
| | Multi-media module receiver assembly | Click here |
| Black screen (No image appears on navigation/audio screen.) | Proceed to "Black Screen" | Click here |
| | Proceed to "Check Software Error History" in Operation Check | Click here |
| | Proceed to "Visual Mute Signal Circuit between Radio Receiver and Multi-display" | Click here |
| | Proceed to "Display Signal Circuit between Multi-display and Radio Receiver" | Click here |
| | Hard disc | Click here |
| | Multi-display assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| Display does not dim (does not change to night screen) with tail switch on. | Proceed to "Display does not Dim when Light Control Switch is Turned ON" | Click here |
| | Proceed to "Illumination Circuit" | Click here |
| | Multi-display assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| Power does not turn off. (Screen remains on.) | Proceed to "Radio Receiver Power Source Circuit" | Click here |
| | Multi-media module receiver assembly | Click here |
| Screen is distorted. | Proceed to "Radio Receiver Power Source Circuit" | Click here |
| | Multi-display assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| Screen flicker or color distortion | Proceed to "Screen Flicker or Color Distortion" | Click here |
| | Proceed to "Visual Mute Signal Circuit between Radio Receiver and Multi-display" | Click here |
| | Proceed to "Display Signal Circuit between Multi-display and Radio Receiver" | Click here |
| | Proceed to "Radio Receiver Power Source Circuit" | Click here |
| | Multi-media module receiver assembly | Click here |

### Panel Switch and Touch Switch Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Illumination for panel switches does not come on with tail switch on. | Proceed to "Illumination for Panel Switch does not Come on with Tail Switch ON" | Click here |
| | Proceed to "Illumination Circuit" | Click here |
| | Multi-media module receiver assembly | Click here |
| Panel switches do not function. | Proceed to "Panel Switches do not Function" | Click here |
| | Proceed to "Radio Receiver Power Source Circuit" | Click here |
| | Multi-media module receiver assembly | Click here |
| Touch panel switch does not function. | Proceed to "Touch Panel Switch does not Function" | Click here |
| | Proceed to "Radio Receiver Power Source Circuit" | Click here |
| | Multi-media module receiver assembly | Click here |

### Steering Pad Switch Function

| Symptom | Suspected Area | See page |
|---|---|---|
| System cannot be operated by steering pad switch. | Proceed to "Panel Switches do not Function" | Click here |
| | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Multi-media module receiver assembly | Click here |
| Illumination for steering pad switch does not come on with tail switch on. | Proceed to "Illumination Circuit" | Click here |
| | Multi-media module receiver assembly | Click here |

### Customize Startup Image or Screen Off Image Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Screen cannot be changed to UIC setting screen. | Multi-media module receiver assembly | Click here |
| Thumbnails for opening image setting or screen off image setting do not update when USB device is connected. | Check that the USB device was not disconnected while transferring an image. | - |
| | Check that the screen was not changed to another function menu while transferring an image. | - |
| | Proceed to "USB Audio System Recognition/Play Error" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| Transfer button cannot be pressed. | Check that a USB device is connected. | - |
| | Check that the USB device is not in use. (USB audio system is playing etc.) | - |
| | Proceed to "USB Audio System Recognition/Play Error" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| Image data in USB device cannot be displayed. | Check that the designated folder name is used. | - |
| | Check that the file extension of the data is JPG or JPEG. | - |
| | Check that the file name is 32 characters or less and available language is used. | - |
| | Check that the image data size is 10 MB or less. | - |
| | Check that the file system of the USB device is FAT16 or FAT32. | - |
| | Proceed to "USB Audio System Recognition/Play Error" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media module receiver assembly | Click here |

| | | |
|---|---|---|
| Set opening image or screen off image is not displayed. | Check if it is the first start-up after disconnecting and reconnecting the +B terminal. (Reading from the HDD may be slow when the system is first starting-up.) | - |
| | Set the opening image or screen off image again. | - |
| | Multi-media module receiver assembly | Click here |
| Stored image cannot be deleted. | Multi-media module receiver assembly | Click here |
| Message indicating that USB device cannot be accessed is displayed. | Check that the USB device has not been disconnected while the navigation system is recognizing it. | - |
| | Proceed to "USB Audio System Recognition/Play Error" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| Thumbnail images for opening image or screen off image are not displayed on setting screen. | Check if it is the first start-up after disconnecting and reconnecting the +B terminal. (Reading from the HDD may be slow when the system is first starting-up.) | - |
| | Set the opening image or screen off image again. | - |
| | Multi-media module receiver assembly | Click here |
| Image cannot be set for opening image or screen off image on setting screen. | Set the opening image or screen off image again. | - |
| | Multi-media module receiver assembly | Click here |

### General Audio Function

| Symptom | Suspected Area | See page |
|---|---|---|
| No sound can be heard from speakers. | Proceed to "No Sound can be Heard from Speakers" | Click here |
| | Proceed to "Speaker Circuit" | Click here |
| | Proceed to "Sound Signal Circuit between Radio Receiver and Stereo Component Amplifier" | Click here |
| | Proceed to "AVC-LAN Circuit" | Click here |
| | Proceed to "Stereo Component Amplifier Power Source Circuit" | Click here |
| | Telematics transceiver (w/ Emergency Call Switch) | Click here |
| | Stereo component amplifier assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| Abnormal noise occurs. | Proceed to "Noise Occurs" | Click here |
| | Telematics transceiver (w/ Emergency Call Switch) | Click here |
| | Stereo component amplifier assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| Sound quality is bad in all modes. (Volume is too low.) | Check that the ASL function is off. | - |
| | Proceed to "Poor Sound Quality in All Modes (Low Volume)" | Click here |
| | Proceed to "Speaker Circuit" | Click here |
| | Proceed to "Sound Signal Circuit between Radio Receiver and Stereo Component Amplifier" | Click here |
| | Telematics transceiver (w/ Emergency Call Switch) | Click here |
| | Stereo component amplifier assembly | Click here |
| | | |

| | | |
|---|---|---|
| | Multi-media module receiver assembly | Click here |
| ASL does not function. | Check that the ASL function is on. | - |
| | Proceed to "Vehicle Speed Signal Circuit between Radio Receiver and Combination Meter" | Click here |
| | Proceed to "Vehicle Speed Signal Circuit between Stereo Component Amplifier and Combination Meter" | Click here |
| | Stereo component amplifier assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| Voice guidance does not function. | Proceed to "Voice Guidance does not Function" | Click here |
| | Proceed to "Speaker Circuit" | Click here |
| | Stereo component amplifier assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| Voice menu screen is not displayed. (Voice recognition function does not turn on.) | Check if the voice recognition prompts function is "On". | - |
| | Proceed to "Panel Switches do not Function" | Click here |
| | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Multi-media module receiver assembly | Click here |
| When voice recognition switch is pressed, a short beep is emitted but voice cannot be recognized properly. | Proceed to "Voice is not Recognized" | Click here |
| | Proceed to "Microphone Circuit between Microphone and Radio Receiver" | Click here |
| | Multi-media module receiver assembly | Click here |
| Customizable parameters cannot be changed. (Customizable parameters can be changed by using the intelligent tester.) | Multi-media module receiver assembly | Click here |

### FM or AM Radio Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Radio broadcast cannot be received or poor reception. | Proceed to "Radio Broadcast cannot be Received or Poor Reception" | Click here |
| Radio broadcast can be received but radio station cannot be displayed. (Some radio stations do not provide their name information.) | Multi-media module receiver assembly | Click here |
| "iPod" tagging function cannot be used. | Check if a message indicating that the capacity for tag information is full is displayed. | - |
| | Proceed to "USB Audio System Recognition/Play Error" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media module receiver assembly | Click here |

### CD or DVD Player Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Disc cannot be inserted/played or disc is ejected right after insertion. | Proceed to "Check Optical Disc Error History" in Operation Check | Click here |
| | Proceed to "Disc cannot be Inserted or is Ejected Right After Insertion" | Click here |
| Disc cannot be ejected. | Proceed to "Check Optical Disc Error History" in Operation Check | Click here |
| | Proceed to "Disc cannot be Ejected" | Click here |
| Disc sound skips. | Proceed to "Check Optical Disc Error History" in Operation Check | Click here |
| | | Click |

| | | |
|---|---|---|
| | Proceed to "CD/DVD Sound Skips" | here |
| Screen color is poor only when watching DVD. | Change the color settings on the screen adjustment screen. | - |
| | Multi-media module receiver assembly | Click here |
| Sound quality is bad only when disc is played. (Volume is too low.) | Proceed to "Check Optical Disc Error History" in Operation Check | Click here |
| | Proceed to "Sound Quality is Bad Only when Disc is played (Volume is Too Low)" | Click here |

### AUX Function

| Symptom | Suspected Area | See page |
|---|---|---|
| External device sound cannot be heard or sound quality is bad. (Stereo jack is used.) | Proceed to "Sound Signal Circuit between Radio Receiver and Stereo Jack Adapter" (w/o Rear Seat Entertainment System) | Click here |
| | Proceed to "Sound Signal Circuit between Radio Receiver and Video Terminal" (w/ Rear Seat Entertainment System [for Roof]) | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| "AUX" is not displayed on system check mode screen. | Proceed to "Sound Signal Circuit between Radio Receiver and Stereo Jack Adapter" (w/o Rear Seat Entertainment System) | Click here |
| | Proceed to "Sound Signal Circuit between Radio Receiver and Video Terminal" (w/ Rear Seat Entertainment System [for Roof]) | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media module receiver assembly | Click here |

### Voice Recognition Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Voice menu screen is not displayed. (Voice recognition function does not turn on.) | Check if the voice recognition prompts function is "On". | - |
| | Proceed to "Panel Switches do not Function" | Click here |
| | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Multi-media module receiver assembly | Click here |
| When voice recognition switch is pressed, a short beep is emitted but voice cannot be recognized properly. | Proceed to "Voice is not Recognized" | Click here |
| | Proceed to "Microphone Circuit between Microphone and Radio Receiver" | Click here |
| | Hard disc | Click here |
| | Multi-media module receiver assembly | Click here |

### "Bluetooth" Hands-free Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Bluetooth is inoperative. | Proceed to "Microphone Circuit between Microphone and Radio Receiver" | Click here |
| | Multi-media module receiver assembly | Click here |
| Cellular phone registration failure. | Proceed to "Cellular Phone Registration Failure, Phonebook Transfer Failure" | Click here |
| | Multi-media module receiver assembly | Click here |
| Cellular phone cannot make outgoing/incoming calls or call in a certain place. | Proceed to "Cellular Phone cannot Make Outgoing/Incoming Calls" | Click here |
| | Multi-media module receiver assembly | Click here |
| | Proceed to "Cellular Phone cannot Make Outgoing/Incoming | Click |

| | | |
|---|---|---|
| Message that prompts to check the cellular phone is displayed. | Calls" | here |
| | Multi-media module receiver assembly | Click here |
| Phonebook data cannot be transferred manually or automatically. | Check the automatic download contract setting | - |
| | When transferring phonebook data, OBEX authentication may be required. Enter "1234" into the "Bluetooth" phone. | - |
| | Proceed to "Cellular Phone Registration Failure, Phonebook Transfer Failure" | Click here |
| | Multi-media module receiver assembly | Click here |
| Volume of other caller's voice is not at an appropriate volume level, there is noise, sound quality is poor or other caller's voice cannot be heard. | Proceed to "Check Hands-free Voice Quality and Volume Setting" in Operation Check | Click here |
| | Proceed to "The Other Caller's Voice cannot be Heard, is too Quiet, or Distorted" | Click here |
| | Multi-media module receiver assembly | Click here |
| | Stereo component amplifier assembly | Click here |
| Other caller cannot hear your voice at an appropriate volume level, there is noise or an echo, sound quality is poor or other caller cannot hear your voice. | Proceed to "Check Hands-free Voice Quality and Volume Setting" in Operation Check | Click here |
| | Proceed to "The Other Caller cannot Hear Your Voice, or Your Voice is too Quiet or Distorted" | Click here |
| | Proceed to "Microphone Circuit between Microphone and Radio Receiver" | Click here |
| | Multi-media module receiver assembly | Click here |
| E-mail/SMS cannot be received or sent. | Check whether messages can be received/sent using the cellular phone. | - |
| | Check that the phone is registered as a hands-free device. | - |
| | Check the sending and receiving e-mails via the navigation system setting. | - |
| | Proceed to "Cellular Phone Registration Failure, Phonebook Transfer Failure" | Click here |
| | Multi-media module receiver assembly | Click here |

### "Bluetooth" Audio Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Portable player cannot be registered. | Proceed to "Portable Player cannot be Registered" | Click here |
| | Multi-media module receiver assembly | Click here |
| Portable player cannot be connected manually/automatically. | Proceed to "Portable Player cannot be Registered" | Click here |
| | Proceed to "Portable Player cannot be Connected Manually/Automatically" | Click here |
| | Multi-media module receiver assembly | Click here |
| Cellular phone with portable audio function cannot be recognized as "Bluetooth" audio device even when connected using "Bluetooth". | Proceed to "Portable Player cannot be Registered" | Click here |
| | Proceed to "Portable Player cannot be Connected Manually/Automatically" | Click here |
| | Multi-media module receiver assembly | Click here |
| Sound of portable player cannot be heard from speakers, or sound is low. | Proceed to "Sound of Portable Player cannot be Heard from Speakers or Sound is Low" | Click here |
| | Multi-media module receiver assembly | Click here |
| Portable player does not play even after "Bluetooth" audio mode is selected. | Proceed to "Does not Play even after Bluetooth Audio Mode is Selected" | Click here |
| | Multi-media module receiver assembly | Click here |
| | Proceed to "Does not Play even after Bluetooth Audio Mode is | Click |

| | | |
|---|---|---|
| Portable player does not play. | Selected" | here |
| | Multi-media module receiver assembly | Click here |
| Track information such as track number, track name, elapsed play time and playlist is not displayed. | Proceed to "Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device" | Click here |
| | Multi-media module receiver assembly | Click here |
| Operation switches for portable player such as play, pause, repeat, random and scan are not displayed. | Proceed to "Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device" | Click here |
| | Multi-media module receiver assembly | Click here |
| Battery condition of portable player is not displayed. | Proceed to "Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device" | Click here |
| | Multi-media module receiver assembly | Click here |
| "Bluetooth" signal condition is not displayed. | Proceed to "Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device" | Click here |
| | Multi-media module receiver assembly | Click here |
| Portable player cannot pause, select file, fast forward, fast rewind, play at random or scan. | Proceed to "Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device" | Click here |
| | Multi-media module receiver assembly | Click here |
| Noise occurs or sound skips when portable player plays. | Proceed to "Noise Occurs or Sound Skips when Portable Player Plays" | Click here |
| | Multi-media module receiver assembly | Click here |
| Registered device cannot be deleted. | Proceed to "Registered Device cannot be Deleted" | Click here |
| | Multi-media module receiver assembly | Click here |

### USB Audio System Function

| Symptom | Suspected Area | See page |
|---|---|---|
| USB audio system sound cannot be heard or sound quality is bad. (USB connector is used.) | Proceed to "Data Signal Circuit between Radio Receiver and Stereo Jack Adapter" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| USB device or "iPod" is not recognized. | Proceed to "USB Audio System Recognition/Play Error" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| Track information such as track, artist and album names are not displayed. | Proceed to "USB Audio System Recognition/Play Error" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| USB device or "iPod" is recognized but cannot play nor play in a sorted order. | Proceed to "USB Audio System Recognition/Play Error" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| Album cover art cannot be displayed. | Check that Display Cover Art on the "iPod" Settings screen is set to on. | - |
| | Check that a JPEG file is used for the cover art. | - |
| | Proceed to "USB Audio System Recognition/Play Error" | Click here |
| | | |

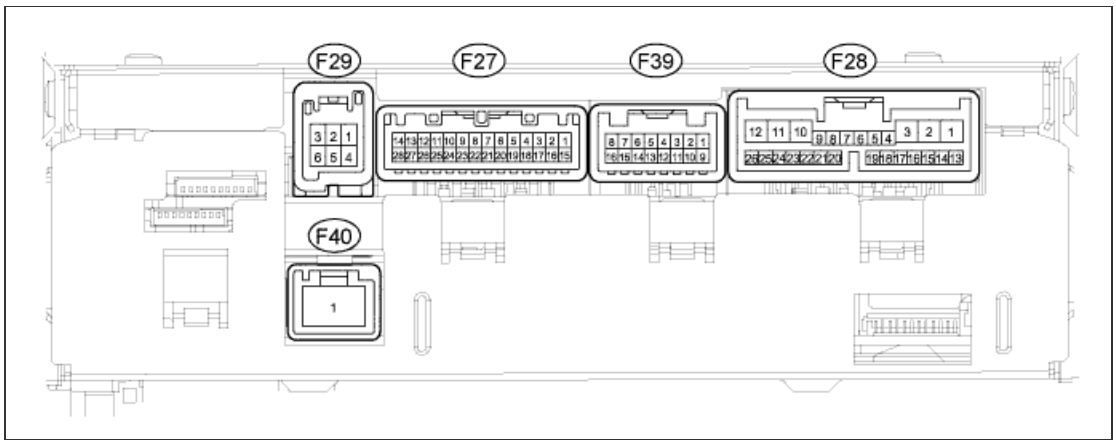
| | | |
|---|---|---|
| "iPod" battery cannot be charged. | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media module receiver assembly | Click here |

### Fuel Consumption Function

| Symptom | Suspected Area | See page |
|---|---|---|
| "Fuel Consumption" icon is dimmed. | Check if other icons or items displayed on screen have any problems. | - |
| | Multi-media module receiver assembly | Click here |
| Graph is not displayed on "Trip Information" screen. | Recheck with the engine running. | - |
| | Multi-media module receiver assembly | Click here |
| Cruise range is not displayed on "Trip Information" screen. | Turn engine switch on (IG) and recheck. | - |
| | Multi-media module receiver assembly | Click here |
| Graph is not updated on "Past record" screen even though "Clear" is selected. | Turn engine switch on (IG) and recheck. | - |
| | Multi-media module receiver assembly | Click here |
| Graph is not displayed on "Past record" screen. | Turn engine switch on (IG) and recheck. | - |
| | Multi-media module receiver assembly | Click here |

**for Preparation** Click here

## CHECK MULTI-DISPLAY




a. Disconnect the F28 and F39 display connectors.

b. Measure the resistance and voltage according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F28-1 (+B1) - F28-10 (GND1) | R - W-B | Battery | Always | 10.5 to 16 V |
| F28-2 (ACC) - F28-10 (GND1) | GR - W-B | Accessory (ON) | Engine switch off | Below 1 V |
| | | | Engine switch on (ACC) | 10.5 to 16 V |
| F28-3 (IG) - F28-10 (GND1) | G - W-B | Ignition (ON) | Engine switch off | Below 1 V |
| | | | Engine switch on (IG) | 10.5 to 16 V |
| F28-10 (GND1) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F39-6 (GND2) - Body ground | B - Body ground | Ground | Always | Below 1 Ω |

If the result is not as specified, there may be a malfunction on the wire harness side.

c. Reconnect the F28 and F39 display connectors.

d. Measure the voltage and waveform according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F27-1 (TX-) - F28-10 (GND1) | L - W-B | AVC-LAN communication signal | Engine switch on (ACC) | 2.25 to 2.75 V |
| F27-2 (TX+) - F28-10 (GND1) | W - W-B | AVC-LAN communication signal | Engine switch on (ACC) | 2.25 to 2.75 V |
| F27-3 (TX2-) - F28-10 (GND1) | L - W-B | AVC-LAN communication signal | Engine switch on (ACC) | 2.25 to 2.75 V |
| F27-4 (TX2+) - F28-10 (GND1) | W - W-B | AVC-LAN communication signal | Engine switch on (ACC) | 2.25 to 2.75 V |
| F27-5 (TSW-) - F28-10 (GND1) | BR - W-B | Telephone relation switch signal | Always | Below 1 V |
| F27-9 (MACC) - F28-10 (GND1) | Y - W-B | Microphone amplifier power supply | Engine switch off | Below 1 V |
| | | | Engine switch on (IG) | 4.75 to 5.25 V |
| F27-10 (MIN-) - F28-10 (GND1) | R - W-B | Microphone voice signal | See "Mic & Voice Recognition Check" (Click here) | - |
| F27-11 (MIN+) - F28-10 (GND1) | G - W-B | Microphone voice signal | See "Mic & Voice Recognition Check" (Click here) | - |
| F27-12 (SGND) - F28-10 (GND1) | BR - W-B | Signal ground | Always | Below 1 V |

| | | | | |
|---|---|---|---|---|
| F27-13 (CA+) - F28-10 (GND1)*1 | B - W-B | Television camera power supply | Engine switch on (IG), shift lever moved to R | 5.8 to 6.5 V |
| F27-14 (CGND) - Body ground*1 | W - Body ground | Ground | Always | Below 1 V |
| F27-21 (IVO-) - F28-10 (GND1) | B - W-B | Voice guidance signal | Voice guidance provided | Waveform synchronized with sounds is output |
| F27-22 (IVO+) - F28-10 (GND1) | W - W-B | Voice guidance signal | Voice guidance provided | Waveform synchronized with sounds is output |
| F27-23 (SLD) - F28-10 (GND1) | Shielded - W-B | Shielded ground | Always | Below 1 V |
| F27-27 (V+) - F27-28 (V-)*1 | R - W | Television camera image signal | Engine switch on (IG), shift lever moved to R | Pulse generation (refer to waveform 1) |
| F27-28 (V-) - F27-14 (CGND)*1 | Shielded - W | Shielded ground | Always | Below 1 V |
| F28-5 (HILL) - F28-10 (GND1) | W - W-B | Illumination signal | Light control switch off | Below 1 V |
| | | | Light control switch on | 10.5 to 16 V |
| F28-7 (TC) - F28-10 (GND1) | V - W-B | Diagnosis ON signal | Engine switch on (IG) | 9 to 14 V |
| F28-8 (HAZ) - F28-10 (GND1) | O - W-B | Hazard warning signal | Hazard warning switch off | Below 1 V |
| | | | Hazard warning switch on | 11 to 14 V |
| F28-9 (ARON) - F28-10 (GND1) | W - W-B | Front passenger side airbag ON/OFF indicator signal | Passenger airbag ON/OFF indicator off | Below 2 V |
| | | | Passenger airbag ON/OFF indicator on | 11 to 14 V |
| F28-12 (ILL+) - F28-10 (GND1) | G - W-B | Illumination signal | Light control switch off | Below 1 V |
| | | | Light control switch on | 10.5 to 16 V |
| F28-13 (REV) - F28-10 (GND1) | L - W-B | Reverse signal | See "Vehicle Signal Check" Mode (Click here) | - |
| F28-14 (SPD) - F28-10 (GND1) | V - W-B | Speed signal from combination meter | See "Vehicle Signal Check" Mode (Click here) | - |
| F28-20 (AIR) - F28-10 (GND1) | B - W-B | Front passenger side airbag ON/OFF indicator signal | Passenger airbag ON/OFF indicator off | Below 2 V |
| | | | Passenger airbag ON/OFF indicator on | 10.5 to 16 V |
| F28-21 (PBEW) - F28-10 (GND1) | Y - W-B | Passenger seat belt signal | Passenger seat occupied, seat belt fastened | 11 to 14 V |
| | | | Passenger seat occupied, seat belt unfastened | Below 2 V |
| F28-23 (PKB) - F28-10 (GND1) | Y - W-B | Parking brake signal | See "Vehicle Signal Check" Mode (Click here) | - |
| F29-1 (VV+) - F28-10 (GND1) | W - W-B | DVD image signal | DVD played on radio receiver | Pulse generation (refer to waveform 2) |
| F29-4 (VV-) - F28-10 (GND1) | B - W-B | Signal ground | Always | Below 1 V |
| F39-1 (TX4-) - F28-10 (GND1)*3 | L - W-B | AVC-LAN communication signal | Engine switch on (ACC) | 2.25 to 2.75 V |
| F39-2 (TX4+) - F28-10 (GND1)*3 | W - W-B | AVC-LAN communication signal | Engine switch on (ACC) | 2.25 to 2.75 V |
| F39-3 (SGND) - F28-10 (GND1)*3 | Shielded - W-B | Shielded ground | Always | Below 1 V |
| F39-4 (MCO-) - F28-10 (GND1)*3 | W - W-B | Microphone voice signal | See "Mic & Voice Recognition Check" (Click here) | - |
| F39-5 (MCO+) - F28-10 (GND1)*3 | B - W-B | Microphone voice signal | See "Mic & Voice Recognition Check" (Click here) | - |
| F39-7 (ACC2) - F28-10 (GND1)*3 | GR - W-B | Accessory (ON) | Engine switch off | Below 1 V |
| | | | Engine switch on (ACC) | 10.5 to 16 V |

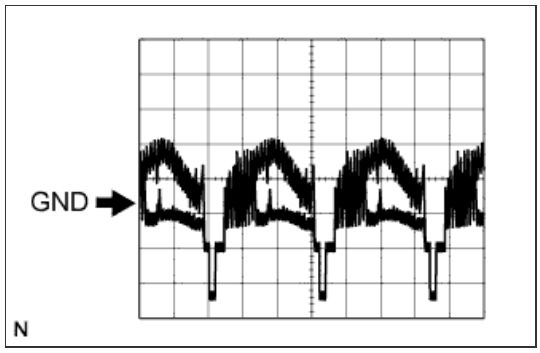
| | | | | |
|---|---|---|---|---|
| F39-10 (SI-) - F28-10 (GND1)*3 | W - W-B | Voice guidance signal | Voice guidance provided | Waveform synchronized with sounds is input |
| F39-11 (SI+) - F28-10 (GND1)*3 | B - W-B | Voice guidance signal | Voice guidance provided | Waveform synchronized with sounds is input |
| F39-15 (REV2) - F28-10 (GND1)*3 | L - W-B | Reverse signal | See "Vehicle Sensors" Mode (Click here) | - |
| F39-16 (SPD2) - F28-10 (GND1)*3 | V - W-B | Speed signal | See "Vehicle Sensors" Mode (Click here) | - |
| F40-1 (GVIF) - F28-10 (GND1)*2 | B - W-B | Digital image signal | Navigation display ON | - |

*1: w/o Parking Assist Monitor System
*2: w/ Parking Assist Monitor System
*3: w/ Navigation System
If the result is not as specified, the multi-display may have a malfunction.

e. Using an oscilloscope, check waveform 1.

**Waveform 1 (reference)**

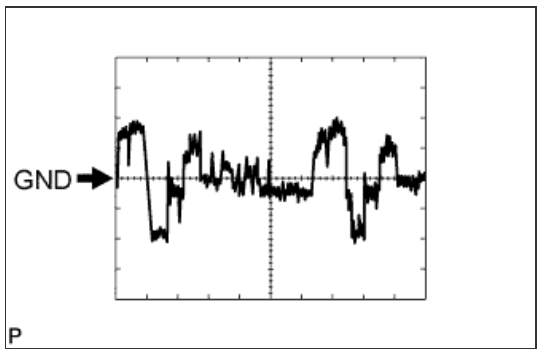
| Item | Content |
|---|---|
| Terminal No. (Symbol) | F27-27 (V+) - F27-28 (V-) |
| Tool Setting | 0.2 V/DIV., 20 µs/DIV. |
| Condition | Engine switch on (IG), shift lever moved to R |



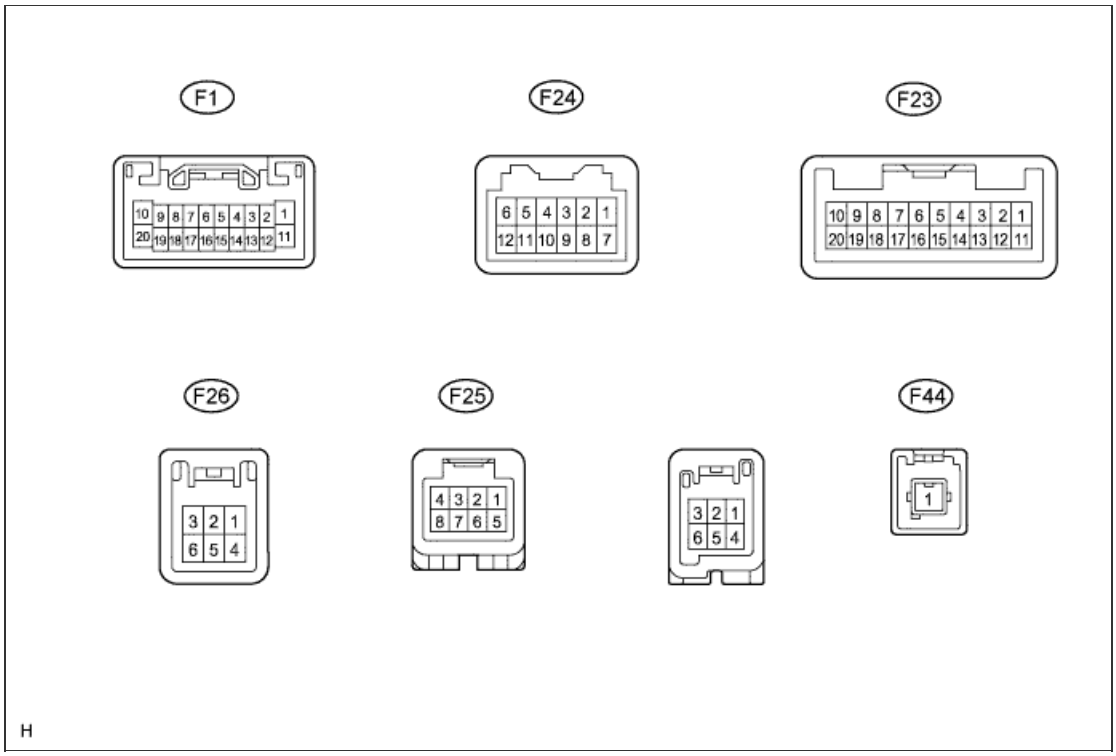

f. Using an oscilloscope, check waveform 2.

**Waveform 2 (reference)**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F29-1 (VV+) - F28-10 (GND1) |
| Tool Setting | 0.2 V/DIV., 0.2 µs/DIV. |
| Condition | Disc played on multi-display |




## CHECK RADIO RECEIVER




a. Disconnect the F1 receiver connector.

b. Measure the resistance and voltage according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F1-1 (B) - F1-20 (GND) | L - BR | Battery | Always | 11 to 14 V |
| F1-20 (GND) - Body ground | BR - Body ground | Ground | Always | Below 1 Ω |
| F1-11 (ACC) - F1-20 (GND) | GR - BR | Accessory (ON) | Engine switch off | Below 1 V |
| F1-11 (ACC) - F1-20 (GND) | GR - BR | Accessory (ON) | Engine switch on (ACC) | 11 to 14 V |

If the result is not as specified, there may be a malfunction on the wire harness side.

c. Reconnect the F1 receiver connector.

d. Measure the resistance, waveform and voltage according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F1-2 (ILL+) - F1-20 (GND) | G - BR | Illumination signal | Engine switch on (IG), light control switch off | Below 1 V |
| F1-2 (ILL+) - F1-20 (GND) | G - BR | Illumination signal | Engine switch on (IG), light control switch tail or on | 11 to 14 V |
| F1-7 (MUTE) - F1-20 (GND) | B - BR | Mute signal | Audio system playing → changing modes | 3.5 V or higher → Below 1 V |
| F1-8 (R+) - F1-20 (GND) | B - BR | Sound signal (right) | Audio system playing | Waveform synchronized with sound is output |
| F1-9 (L+) - F1-20 (GND) | R - BR | Sound signal (left) | Audio system playing | Waveform synchronized with sound is output |
| F1-18 (R-) - F1-20 (GND) | W - BR | Sound signal (right) | Audio system playing | Waveform synchronized with sound is output |
| F1-19 (L-) - F1-20 (GND) | G - BR | Sound signal (left) | Audio system playing | Waveform synchronized with sound is output |
| F1-10 (SLD) - F1-20 (GND) | Shielded - BR | Shielded ground | Always | Below 1 V |
| F24-5 (CDL-) - F1-20 (GND)* | R - BR | Sound signal (left) | RSE system playing | Waveform synchronized with sound is output |
| F24-4 (CDL+) - F1-20 (GND)* | L - BR | Sound signal (left) | RSE system playing | Waveform synchronized with sound is output |
| F24-3 (CDR-) - F1-20 (GND)* | W - BR | Sound signal (right) | RSE system playing | Waveform synchronized with sound is output |

| | | | | |
|---|---|---|---|---|
| F24-2 (CDR+) - F1-20 (GND)* | B - BR | Sound signal (right) | RSE system playing | Waveform synchronized with sound is output |
| F24-6 (MUTE) - F1-20 (GND)* | G - BR | Mute signal | RSE system playing → changing modes | 3.5 V or higher → Below 1 V |
| F23-18 (R-L-) - F1-20 (GND)* | R - BR | Sound signal (left) | RSE system playing | Waveform synchronized with sound is output |
| F23-17 (R-L+) - F1-20 (GND)* | L - BR | Sound signal (left) | RSE system playing | Waveform synchronized with sound is output |
| F23-16 (R-R-) - F1-20 (GND)* | W - BR | Sound signal (right) | RSE system playing | Waveform synchronized with sound is output |
| F23-15 (R-R+) - F1-20 (GND)* | B - BR | Sound signal (right) | RSE system playing | Waveform synchronized with sound is output |
| F23-14 (RSLD) - Body ground* | Shielded - Body ground | Ground | Always | Below 1 V |
| F23-19 (RMUT) - F1-20 (GND)* | G - BR | Mute signal | RSE system playing → changing modes | 3.5 V or higher → Below 1 V |
| F25-7 (SLD2) - Body ground* | Shielded - Body ground | Ground | Always | Below 1 Ω |
| F25-6 (SGD4) - F1-20 (GND)* | W - BR | Ground | Always | Below 1 Ω |
| F25-5 (NTRO) - F1-20 (GND)* | B - BR | Display signal | DVD image playing | Pulse generation |
| F1-12 (ILL-) - F1-20 (GND) | W - BR | Illumination signal | Engine switch off | Below 1 V |
| F1-12 (ILL-) - F1-20 (GND) | W - BR | Illumination signal | Engine switch on (IG) | Pulse generation |
| F23-9 (TX+) - F1-20 (GND) | W - BR | AVC-LAN communication signal | Engine switch on (ACC) | 2 to 3 V |
| F23-10 (TX-) - F1-20 (GND) | L - BR | AVC-LAN communication signal | Engine switch on (ACC) | 2 to 3 V |
| F1-5 (ATX+) - F1-20 (GND) | R - BR | AVC-LAN communication signal | Engine switch on (ACC) | 2 to 3 V |
| F1-15 (ATX-) - F1-20 (GND) | W - BR | AVC-LAN communication signal | Engine switch on (ACC) | 2 to 3 V |
| F1-13 (ANT) - F1-20 (GND) | P - BR | Power source of antenna | Radio switch on and AM or FM | 11 to 14 V |
| F23-6 (SWG) -F1-20 (GND) | W - BR | Steering pad switch ground | Always | Below 1 V |
| F23-7 (SW1) - F1-20 (GND) | L - BR | Steering pad switch signal | Steering pad switch not pushed | 4 V or higher |
| F23-7 (SW1) - F1-20 (GND) | L - BR | Steering pad switch signal | Steering pad switch seek+ switch pushed | Below 0.5 V |
| F23-7 (SW1) - F1-20 (GND) | L - BR | Steering pad switch signal | Steering pad switch seek- switch pushed | 0.8 V |
| F23-7 (SW1) - F1-20 (GND) | L - BR | Steering pad switch signal | Steering pad switch vol+ switch pushed | 1.8 V |
| F23-7 (SW1) - F1-20 (GND) | L - BR | Steering pad switch signal | Steering pad switch vol- switch pushed | 3.0 V |
| F23-8 (SW2) - F1-20 (GND) | P - BR | Steering pad switch signal | Steering pad switch not pushed | 4 V or higher |
| F23-8 (SW2) - F1-20 (GND) | P - BR | Steering pad switch signal | Steering pad switch MODE switch pushed | Below 0.5 V |
| F23-8 (SW2) - F1-20 (GND) | P - BR | Steering pad switch signal | Steering pad switch on hook switch pushed | 0.9 V |
| F23-8 (SW2) - F1-20 (GND) | P - BR | Steering pad switch signal | Steering pad switch off hook switch pushed | 1.5 V |
| F23-8 (SW2) - F1-20 (GND) | P - BR | Steering pad switch signal | Steering pad switch voice recognition switch pushed | 3.0 V |
| F25-1 (NTSC) - F1-20 (GND) | W - BR | DVD image signal | DVD played | Pulse generation (see waveform1) |
| F25-2 (GND) - F1-20 (GND) | B - BR | Ground | Always | Below 1 V |
| F25-3 (SLD) - F1-20 (GND) | Shielded - BR | Shielded ground | Always | Below 1 V |

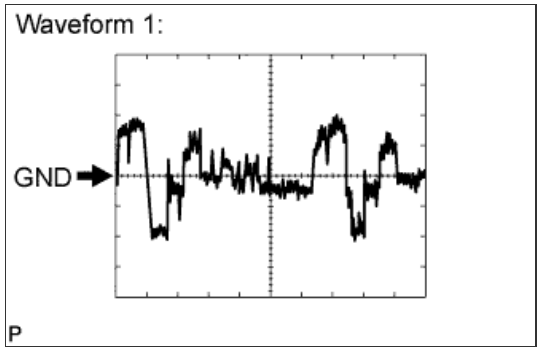
| | | | | |
|---|---|---|---|---|
| F26-2 (ARI) - F1-20 (GND) | W - BR | Sound signal (right) | External device playing (When stereo jack used) | Waveform synchronized with sound is output |
| F26-5 (ASGN) - F1-20 (GND) | R - BR | Ground | Always | Below 1 V |
| F26-4 (AGND) - F1-20 (GND) | Shielded - BR | Shielded ground | Always | Below 1 V |
| F26-3 (ALI) - F1-20 (GND) | B - BR | Sound signal (left) | External device playing (When stereo jack used) | Waveform synchronized with sound is output |
| F26-6 (AUXI) - F1-20 (GND) | V - BR | External device connection detection signal | External device connected | Below 1 V |
| F44-1 (DVD) - F1-20 (GND) | # - BR | Digital image signal | DVD played on radio receiver | - |

*: w/ Rear Seat Entertainment System
#: There is no wire color information.
If the result is not as specified, the receiver may have a malfunction.

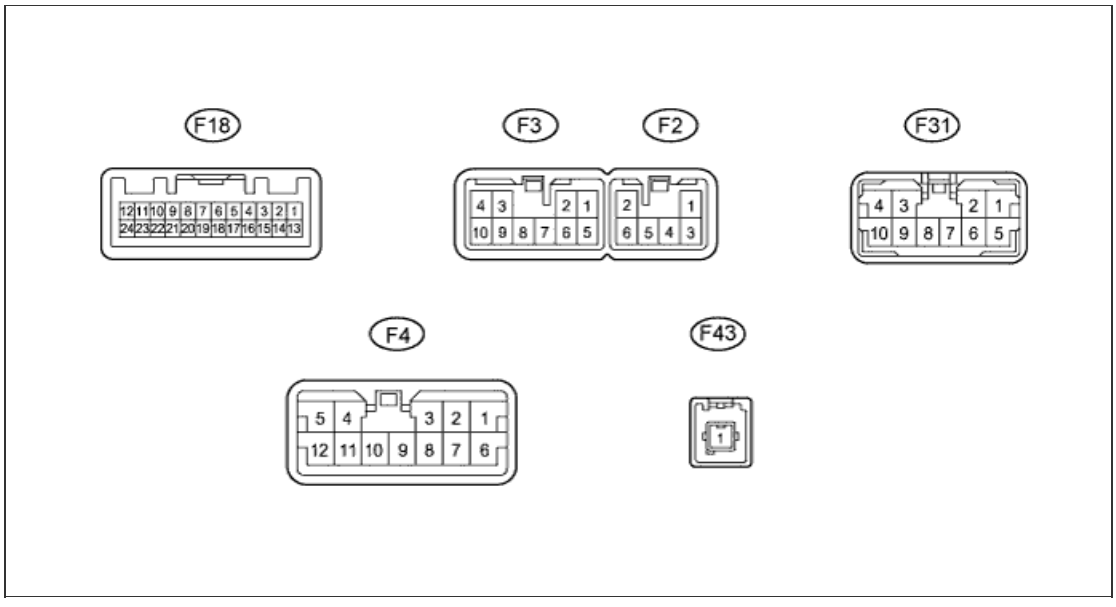
e. Using an oscilloscope, check the waveform.

**Waveform 1 (reference)**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F25-1 (NTSC) - Body ground |
| Tool Setting | 200 mV/DIV., 10 µsec./DIV. |
| Condition | DVD displayed on multi-display |




## CHECK STEREO COMPONENT AMPLIFIER (for 19 Speakers)




a. Disconnect the F18 and F2 amplifier connectors.

b. Measure the resistance and voltage according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F2-2 (GND) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F2-6 (GND2) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F2-1 (+B) - F2-2 (GND) | L - W-B | Battery | Always | 11 to 14 V |
| F2-3 (+B2) - F2-2 (GND) | L - W-B | Battery | Always | 11 to 14 V |
| F18-12 (ACC) - F2-2 (GND) | GR - W-B | Accessory (ON) | Engine switch off | Below 1 V |

| | | | | |
|---|---|---|---|---|
| F18-12 (ACC) - F2-2 (GND) | GR - W-B | Accessory (ON) | Engine switch on (ACC) | 11 to 14 V |

If the result is not as specified, there may be a malfunction on the wire harness side.

c. Reconnect the F18 and F2 amplifier connectors.

d. Measure the voltage according to the value(s) in the table below.

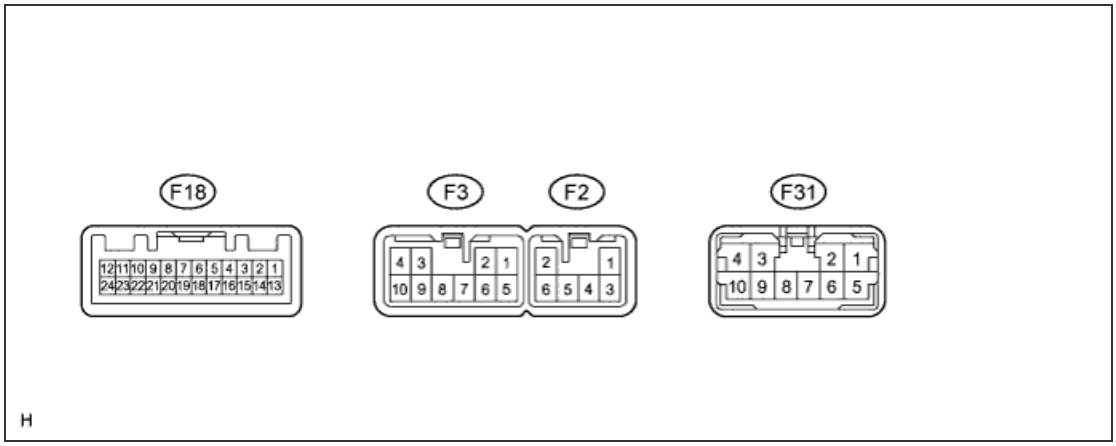
| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F3-3 (CTR+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-9 (CTR-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-2 (FL+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-6 (FL-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-8 (FR+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-7 (FR-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-4 (RL+) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-10 (RL-) - F2-2 (GND) | Y - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-1 (RR+) - F2-2 (GND) | R - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-5 (RR-) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-1 (WF1+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-6 (WF1-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F18-15 (II1+) - F2-2 (GND) | W - W-B | Voice guidance signal | Voice guidance provided | Waveform synchronized with sound is output |
| F18-14 (II1-) - F2-2 (GND) | B - W-B | Voice guidance signal | Voice guidance provided | Waveform synchronized with sound is output |
| F18-11 (SPD) - F2-2 (GND) | V - W-B | Speed signal | Engine switch on (IG), drive wheels turned slowly | Pulse generation |
| F18-1 (MUTE) - F2-2 (GND) | B - W-B | Mute signal | Audio system playing → change mode | 3.5 V or higher → Below 1 V |
| F18-8 (TX+) - F2-2 (GND) | R - W-B | AVC-LAN communication signal | Engine switch on (ACC) | 2 to 3 V |
| F18-7 (TX-) - F2-2 (GND) | W - W-B | AVC-LAN communication signal | Engine switch on (ACC) | 2 to 3 V |
| F18-5 (R+) - F2-2 (GND) | B - W-B | Sound signal (right) | Audio system playing | Waveform synchronized with sound is output |
| F18-4 (R-) - F2-2 (GND) | W - W-B | Sound signal (right) | Audio system playing | Waveform synchronized with sound is output |
| F18-3 (L+) - F2-2 (GND) | R - W-B | Sound signal (left) | Audio system playing | Waveform synchronized with sound is output |
| F18-2 (L-) - F2-2 (GND) | G - W-B | Sound signal (left) | Audio system playing | Waveform synchronized with sound is output |
| F18-10 (LRHD) - F2-2 (GND)* | W-B - W-B | RHD signal | Always | Below 1 Ω |
| F31-3 (R-L+) - F2-2 (GND) | W - W-B | Sound signal (left) | Audio system playing | Waveform synchronized with sound is output |
| F31-9 (R-L-) - F2-2 (GND) | B - W-B | Sound signal (left) | Audio system playing | Waveform synchronized with sound is output |
| F31-4 (R-R+) - F2-2 (GND) | W - W-B | Sound signal (right) | Audio system playing | Waveform synchronized with sound is output |
| F31-10 (R-R-) - F2-2 (GND) | B - W-B | Sound signal (right) | Audio system playing | Waveform synchronized with sound is output |
| F4-2 (SL+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |

| | | | | |
|---|---|---|---|---|
| F4-7 (SL-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-1 (SR+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-6 (SR-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-10 (WFL+) - F2-2 (GND) | P - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-8 (WFL-) - F2-2 (GND) | V - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-5 (WFR+) - F2-2 (GND) | LG - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-11 (WFR-) - F2-2 (GND) | L - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F43-1 (DVD) - F2-2 (GND) | # - W-B | Digital image signal | DVD played on radio receiver | - |

*: for RHD
#: There is no wire color information.

If the result is not as specified, the amplifier may have a malfunction.

**CHECK STEREO COMPONENT AMPLIFIER (for 9 Speakers)**




a. Disconnect the F18 and F2 amplifier connectors.

b. Measure the resistance and voltage according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F2-2 (GND) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F2-6 (GND2) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F2-1 (+B) - F2-2 (GND) | L - W-B | Battery | Always | 11 to 14 V |
| F18-12 (ACC) - F2-2 (GND) | GR - W-B | Accessory (ON) | Engine switch off | Below 1 V |
| F18-12 (ACC) - F2-2 (GND) | GR - W-B | Accessory (ON) | Engine switch on (ACC) | 11 to 14 V |

If the result is not as specified, there may be a malfunction on the wire harness side.

c. Reconnect the F18 and F2 amplifier connectors.

d. Measure the voltage and waveform according to the value(s) in the table below.

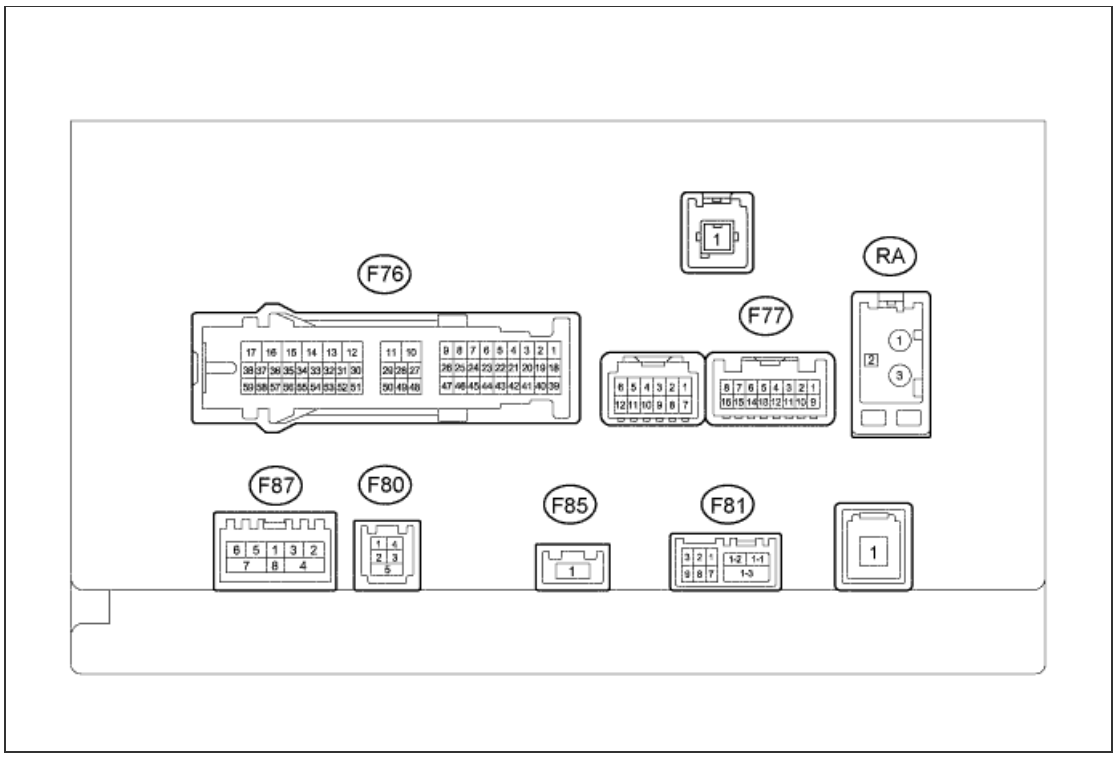
| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F3-3 (CTR+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-9 (CTR-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-2 (FL+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |

| | | | | |
|---|---|---|---|---|
| F31-6 (FL-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-8 (FR+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-7 (FR-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F18-3 (L+) - F2-2 (GND) | R - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F18-2 (L-) - F2-2 (GND) | G - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F18-5 (R+) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F18-4 (R-) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F18-11 (SPD) - F2-2 (GND) | V - W-B | Speed signal | Engine switch on (IG), drive wheels turned slowly | Pulse generation |
| F18-1 (MUTE) - F2-2 (GND) | B - W-B | Mute signal | Audio system playing → change mode | 3.5 V or higher → Below 1 V |
| F18-8 (TX+) - F2-2 (GND) | R - W-B | AVC-LAN communication signal | Engine switch on (ACC) | 2 to 3 V |
| F18-7 (TX-) - F2-2 (GND) | W - W-B | AVC-LAN communication signal | Engine switch on (ACC) | 2 to 3 V |
| F18-5 (R+) - F2-2 (GND) | B - W-B | Sound signal (right) | Audio system playing | Waveform synchronized with sound is output |
| F18-4 (R-) - F2-2 (GND) | W - W-B | Sound signal (right) | Audio system playing | Waveform synchronized with sound is output |
| F18-3 (L+) - F2-2 (GND) | R - W-B | Sound signal (left) | Audio system playing | Waveform synchronized with sound is output |
| F18-2 (L-) - F2-2 (GND) | G - W-B | Sound signal (left) | Audio system playing | Waveform synchronized with sound is output |
| F31-3 (RL+) - F2-2 (GND) | B - W-B | Sound signal (left) | Audio system playing | Waveform synchronized with sound is output |
| F31-9 (RL-) - F2-2 (GND) | Y - W-B | Sound signal (left) | Audio system playing | Waveform synchronized with sound is output |
| F31-4 (RR+) - F2-2 (GND) | R - W-B | Sound signal (right) | Audio system playing | Waveform synchronized with sound is output |
| F31-10 (RR-) - F2-2 (GND) | W - W-B | Sound signal (right) | Audio system playing | Waveform synchronized with sound is output |
| F3-4 (WFL+) - F2-2 (GND) | P - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-10 (WFL-) - F2-2 (GND) | V - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-1 (WFR+) - F2-2 (GND) | LG - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-5 (WFR-) - F2-2 (GND) | L - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F18-15 (II1+) - F2-2 (GND) | W - W-B | Voice guidance signal | Voice guidance provided | Waveform synchronized with sound is output |
| F18-14 (II1-) - F2-2 (GND) | B - W-B | Voice guidance signal | Voice guidance provided | Waveform synchronized with sound is output |

If the result is not as specified, the amplifier may have a malfunction.

**for Preparation** Click here

## MULTI-MEDIA MODULE RECEIVER ASSEMBLY




| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F76-1 (CANH) | P | CAN communication signal | - | - |
| F76-2 (CANL) | B | CAN communication signal | - | - |
| F76-7 (TX1+) | W | AVC-LAN communication signal | - | - |
| F76-8 (TX1-) | L | AVC-LAN communication signal | - | - |
| F76-10 (VMTF) - F76-12 (GND1) | V - W-B | Visual mute signal | When image on display switches | 3.5 V or higher → Below 1 V → 3.5 V or higher |
| F76-12 (GND1) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F76-13 (HILL) - F76-12 (GND1) | W - W-B | Illumination signal | Engine switch on (IG), light control switch off → tail or head (Light intensity is not max. or min.) | Below 1 V → Pulse generation |
| F76-14 (ILL+) - F76-12 (GND1) | G - W-B | Illumination signal | Engine switch on (IG), light control switch off → tail or head position | Below 1 V → 11 to 14 V |
| F76-15 (IG) - F76-12 (GND1) | G - W-B | Power source (IG) | Engine switch on (IG) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F76-16 (ACC1) - F76-12 (GND1) | GR - W-B | Power source (ACC) | Engine switch on (ACC) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F76-17 (+B1) - F76-12 (GND1) | R - W-B | Power source | Always | 11 to 14 V |
| F76-27 (MIN+) - F76-12 (GND1) | B - W-B | Microphone voice signal | See "Microphone & Voice Recognition Check" in Operation Check (Click here) | - |
| F76-28 (SGND) - F76-12 (GND1) | Shielded - W-B | Shield ground | Always | Below 1 V |
| F76-29 (MACC) - F76-12 (GND1)*1 | W - W-B | Telephone microphone assembly power supply | Engine switch off | Below 1 V |
| | | | Engine switch on (ACC) | 4 to 6 V |
| | | | Steering pad switch not | |

| | | | | |
|---|---|---|---|---|
| F76-30 (SW1) - F76-32 (SWG) | L - W | Steering pad switch signal | operated | 4.44 to 5.43 V |
| | | | Seek+ switch pushed | 0.45 to 0.65 V |
| | | | Seek- switch pushed | 1.19 to 1.49 V |
| | | | Vol+ switch pushed | 2.09 to 2.54 V |
| | | | Vol- switch pushed | 3.2 to 3.88 V |
| F76-31 (SW2) - F76-32 (SWG) | P - W | Steering pad switch signal | Steering pad switch not operated | 4.44 to 5.43 V |
| | | | MODE switch pushed | 0.45 to 0.65 V |
| | | | On hook switch pushed | 1.19 to 1.49 V |
| | | | Off hook switch pushed | 2.09 to 2.54 V |
| | | | Voice switch pushed | 3.2 to 3.88 V |
| F76-32 (SWG) - Body ground | W - Body ground | Steering pad switch signal | Always | Below 1 V |
| F76-35 (UIND) | R | UART communication signal | - | - |
| F76-36 (UPSW) | P | UART communication signal | - | - |
| F76-45 (TX3+) | B | AVC-LAN communication signal | - | - |
| F76-46 (TX3-) | W | AVC-LAN communication signal | - | - |
| F76-48 (MIN-) - F76-12 (GND1) | R - W-B | Microphone voice signal | See "Microphone & Voice Recognition Check" in Operation Check (Click here) | - |
| F76-49 (SNS2) - F76-12 (GND1) | GR - W-B | Microphone connection detection signal | Always | Below 1 V |
| F76-56 (SPD) - F76-12 (GND1) | V - W-B | Speed signal from combination meter assembly | See "Vehicle Signal Check Mode" in Operation Check (Click here) | - |
| F77-1 (NTSO) - N64-12 (GND1)*4 | B - W-B | DVD image signal | DVD playing | A waveform synchronized with display signal is output |
| F77-2 (NTSG) - Body ground*4 | W - Body ground | DVD image signal ground | Always | Below 1 V |
| F77-3 (SLD2) - Body ground*4 | Shielded - Body ground | Shield ground | Always | Below 1 V |
| F77-4 (VMTR) - F76-12 (GND1)*4 | G - W-B | Visual mute signal | RSE playing → Source changed | 3.5 V or higher → Below 1 V |
| F77-5 (AGND) - Body ground | Shielded - Body ground | Shield ground | Always | Below 1 V |
| F77-6 (VV+) - F76-12 (GND1)*3 | B - W-B | Display signal | DVD is playing | A waveform synchronized with display signal is output. (Refer to waveform) |
| F77-7 (VAR+) - F77-15 (VA-) | W - R | Sound signal (Right) | AUX audio device playing (When stereo jack adapter used) | A waveform synchronized with sound is output. |
| F77-8 (VAL+) - F77-15 (VA-) | B - R | Sound signal (Left) | AUX audio device playing (When stereo jack adapter used) | A waveform synchronized with sound is output. |
| F77-13 (SG) - Body ground*3 | Shielded - Body ground | Shield ground | Always | Below 1 V |
| F77-14 (VV-) - F76-12 (GND1)*3 | W - W-B | Ground | Always | Below 1 V |
| F77-15 (VA-) - F76-12 (GND1) | R - W-B | Sound signal ground | Always | Below 1 V |
| F77-16 (ADPG) - F76-12 (GND1) | R - W-B | External device connector detection signal | External device connected | Below 1 V |
| | | | External device not connected | 2.1 to 3 V |
| F87-1 (WUO) - F76-12 (GND1) | W - W-B | MOST communication signal | Engine switch on (ACC) | 4.5 V or higher |
| | | | Engine switch off | Below 1 V |
| F87-2 (MI+) | B | MOST communication signal | - | - |
| F87-3 (MI-) | B | MOST communication signal | - | - |
| F87-4 (SLDI) - Body ground | Shielded - Body ground | Shield ground | Always | Below 1 V |
| F87-5 (MO+) | B | MOST communication signal | - | - |
| F87-6 (MO-) | B | MOST communication signal | - | - |
| F87-7 (SLDO) - Body ground | Shielded - Body ground | Shield ground | Always | Below 1 V |

| | | | | |
|---|---|---|---|---|
| F81-1-1 (USB-)*2 | B | USB communication line | - | - |
| F81-1-2 (USB+)*2 | B | USB communication line | - | - |
| F81-1-3 (USBS) - Body ground*2 | B - Body ground | Shield ground | Always | Below 1 V |
| F81-2 (USBG) - Body ground*2 | W - Body ground | Shield ground | Always | Below 1 V |
| F81-3 (VOT+) - F76-12 (GND1)*2 | W - W-B | Sent voice signal | Destination assist service in use and vehicle occupant speaking to operator | A waveform synchronized with the sent voice is output |
| F81-4 (USBV) - F76-12 (GND1)*2 | W - W-B | Telematics transceiver power supply | Engine switch on (ACC) | 4.75 to 5.25 V |
| | | | Engine switch off | Below 1 V |
| F81-5 (VOT-) - F76-12 (GND1)*2 | R - W-B | Sent voice signal | Destination assist service in use and vehicle occupant speaking to operator | A waveform synchronized with the sent voice is output |
| F81-6 (VOR-) - F76-12 (GND1)*2 | B - W-B | Receive voice signal | Destination assist service in use and operator speaking to vehicle occupant | A waveform synchronized with the received voice is output |
| F81-7 (VOR+) - F76-12 (GND1)*2 | G - W-B | Receive voice signal | Destination assist service in use and operator speaking to vehicle occupant | A waveform synchronized with the received voice is output |
| F80-1 (USV1) | # | Power source | - | - |
| F80-2 (US1-) | # | Data signal | - | - |
| F80-3 (US1+) | # | Data signal | - | - |
| F80-4 (UGD1) | # | Ground | - | - |
| F80-5 (UESS) | - | Shield ground | - | - |

#: There is no wire color information.
*1: w/o Emergency Call Switch
*2: w/ Emergency Call Switch
*3: w/ Rear Seat Entertainment System (for Roof)
*4: w/ Rear Seat Entertainment System (for Seatback)

a. Reference (Oscilloscope waveform):

i. Waveform 1

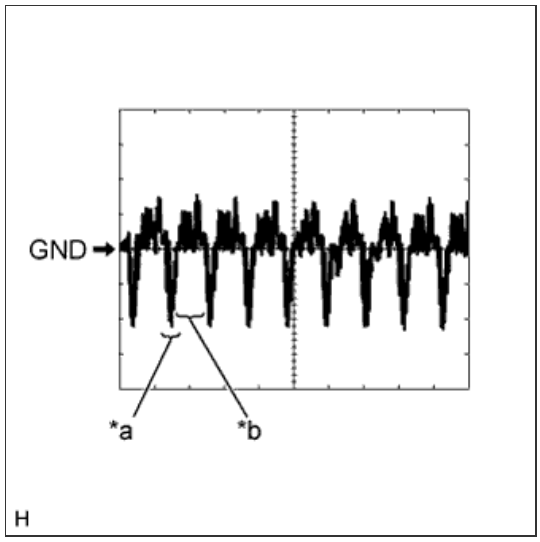
| Item | Content |
|---|---|
| Measurement Terminal | F77-6 (VV+) - F76-12 (GND1) |
| Measurement Setting | 200 mV/DIV., 10 µs/DIV. |
| Condition | DVD is playing |

**HINT:**

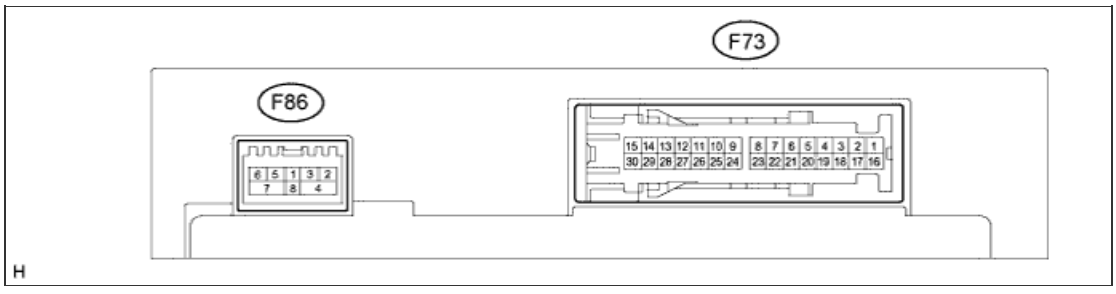
The video waveform changes according to the image input from the multi-media module receiver assembly, but the synchronization signal does not change.

**Text in Illustration**

| | |
|---|---|
| *a | Synchronization Signal |
| *b | Video Waveform |



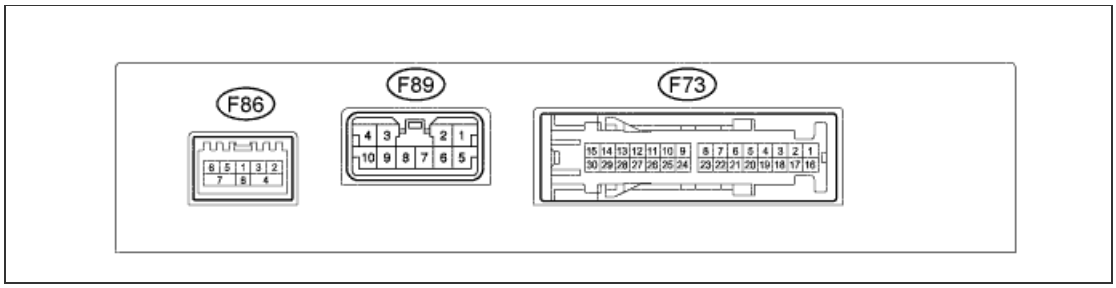

## STEREO COMPONENT AMPLIFIER ASSEMBLY (for 9 speakers)



| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specification |
|---|---|---|---|---|
| F73-2 (TMUT) - F73-3 (GND)* | B - W-B | Mute signal | Audio system playing | Above 3.5 V |
| | | | Emergency call mode | Below 1 V |
| F73-3 (GND) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F73-4 (WFL+) - F73-3 (GND) | P - W-B | Sound signal (Front Left) | Audio system playing | A waveform synchronized with sound is output. |
| F73-5 (WFR+) - F73-3 (GND) | LG - W-B | Sound signal (Front Right) | Audio system playing | A waveform synchronized with sound is output. |
| F73-7 (CTR+) - F73-3 (GND) | W - W-B | Sound signal (Front Center) | Audio system playing | A waveform synchronized with sound is output. |
| F73-12 (FL+) - F73-3 (GND) | W - W-B | Sound signal (Front Left) | Audio system playing | A waveform synchronized with sound is output. |
| F73-13 (FR+) - F73-3 (GND) | W - W-B | Sound signal (Front Right) | Audio system playing | A waveform synchronized with sound is output. |
| F73-14 (RL+) - F73-3 (GND) | B - W-B | Sound signal (Rear Left) | Audio system playing | A waveform synchronized with sound is output |
| F73-15 (RR+) - F73-3 (GND) | R - W-B | Sound signal (Rear Right) | Audio system playing | A waveform synchronized with sound is output. |
| F73-16 (+B2) - F73-3 (GND) | L - W-B | Power source | Always | 11 to 14 V |
| F73-17 (SPD) - F73-3 (GND) | V - W-B | Vehicle speed signal | Engine switch on (IG)<br>Wheel being rotated | Pulse generation |
| F73-18 (GND2) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F73-19 (WFL-) - F73-3 (GND) | V - W-B | Sound signal (Front Left) | Audio system playing | A waveform synchronized with sound is output. |
| F73-20 (WFR-) - F73-3 (GND) | L - W-B | Sound signal (Front Right) | Audio system playing | A waveform synchronized with sound is output. |
| F73-22 (CTR-) - F73-3 (GND) | B - W-B | Sound signal (Front Center) | Audio system playing | A waveform synchronized with sound is output. |
| F73-27 (FL-) - F73-3 (GND) | B - W-B | Sound signal (Front Left) | Audio system playing | A waveform synchronized with sound is output. |
| F73-28 (FR-) - F73-3 (GND) | B - W-B | Sound signal (Front Right) | Audio system playing | A waveform synchronized with sound is output. |
| F73-29 (RL-) - F73-3 (GND) | Y - W-B | Sound signal (Rear Left) | Audio system playing | A waveform synchronized with sound is output. |
| F73-30 (RR-) - F73-3 (GND) | W - W-B | Sound signal (Rear Right) | Audio system playing | A waveform synchronized with sound is output. |
| F86-1 (WUO) - F86-3 (GND) | W - W-B | MOST communication wake-up signal | Engine switch on (ACC) | 4.5 V or higher |
| F86-2 (MI+) | B | MOST communication signal | - | - |
| F86-3 (MI-) | B | MOST communication signal | - | - |
| F86-4 (SLDI) - Body ground | Shielded - Body ground | Shield ground | Always | Below 1 Ω |
| F86-5 (MO+) | B | MOST communication signal | - | - |
| F86-6 (MO-) | B | MOST communication signal | - | - |
| F86-7 (SLDO) - Body ground | Shielded - Body ground | Shield ground | Always | Below 1 Ω |
| F86-8 (WUI) - F73-3 (GND) | W - W-B | MOST communication wake-up signal | Engine switch on (ACC) | 4.5 V or higher |

*: w/ Emergency Call Switch

**STEREO COMPONENT AMPLIFIER ASSEMBLY (for 19 speakers)**

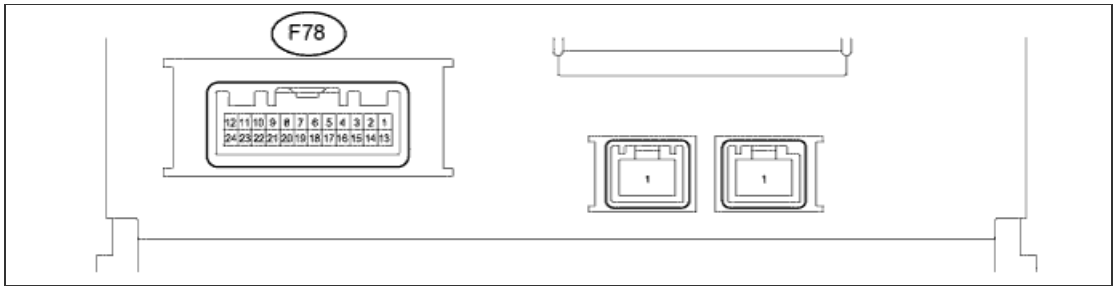



| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specification |
|---|---|---|---|---|
| F73-1 (+B) - F73-3 (GND) | B - W-B | Power source | Always | 11 to 14 V |
| F73-2 (TMUT) - F73-3 (GND)* | B - W-B | Mute signal | Audio system playing | Above 3.5 V |
| | | | Emergency call mode | Below 1 V |
| F73-3 (GND) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F73-5 (WF1-) - F73-3 (GND) | B - W-B | Sound signal (Woofer) | Audio system playing | A waveform synchronized with sound is output. |
| F73-6 (WF1+) - F73-3 (GND) | W - W-B | Sound signal (Woofer) | Audio system playing | A waveform synchronized with sound is output. |
| F73-7 (CTR+) - F73-3 (GND) | W - W-B | Sound signal (Front Center) | Audio system playing | A waveform synchronized with sound is output. |
| F73-8 (RR+) - F73-3 (GND) | R - W-B | Sound signal (Rear Right) | Audio system playing | A waveform synchronized with sound is output. |
| F73-9 (RL+) - F73-3 (GND) | B - W-B | Sound signal (Rear Left) | Audio system playing | A waveform synchronized with sound is output. |
| F73-10 (WFR-) - F73-3 (GND) | L - W-B | Sound signal (Front Right) | Audio system playing | A waveform synchronized with sound is output. |
| F73-11 (WFR+) - F73-3 (GND) | LG - W-B | Sound signal (Front Right) | Audio system playing | A waveform synchronized with sound is output. |
| F73-12 (WFL-) - F73-3 (GND) | V - W-B | Sound signal (Front Left) | Audio system playing | A waveform synchronized with sound is output. |
| F73-13 (WFL+) - F73-3 (GND) | P - W-B | Sound signal (Front Left) | Audio system playing | A waveform synchronized with sound is output. |
| F73-14 (FR+) - F73-3 (GND) | W - W-B | Sound signal (Front Right) | Audio system playing | A waveform synchronized with sound is output. |
| F73-15 (FL+) - F73-3 (GND) | W - W-B | Sound signal (Front Left) | Audio system playing | A waveform synchronized with sound is output. |
| F73-16 (+B2) - F73-3 (GND) | L - W-B | Power source | Always | 11 to 14 V |
| F73-17 (SPD) - F73-3 (GND) | V - W-B | Vehicle speed signal | Engine switch on (IG)<br>Wheel being rotated | Pulse generation |
| F73-18 (GND2) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F73-22 (CTR-) - F73-3 (GND) | B - W-B | Sound signal (Front Center) | Audio system playing | A waveform synchronized with sound is output. |
| F73-23 (RR-) - F73-3 (GND) | W - W-B | Sound signal (Rear Right) | Audio system playing | A waveform synchronized with sound is output. |
| F73-24 (RL-) - F73-3 (GND) | Y - W-B | Sound signal (Rear Left) | Audio system playing | A waveform synchronized with sound is output. |
| F73-29 (FR-) - F73-3 (GND) | B - W-B | Sound signal (Front Right) | Audio system playing | A waveform synchronized with sound is output. |
| F73-30 (FL-) - F73-3 (GND) | B - W-B | Sound signal (Front Left) | Audio system playing | A waveform synchronized with sound is output. |
| F89-1 (SR+) - F73-3 (GND) | W - W-B | Sound signal (Rear Right) | Audio system playing | A waveform synchronized with sound is output. |
| F89-2 (SL+) - F73-3 (GND) | W - W-B | Sound signal (Rear Left) | Audio system playing | A waveform synchronized with sound is output. |
| F89-3 (R-R+) - F73-3 (GND) | W - W-B | Sound signal (Rear Right) | Audio system playing | A waveform synchronized with sound is output. |
| F89-4 (R-L+) - F73-3 (GND) | W - W-B | Sound signal (Rear Left) | Audio system playing | A waveform synchronized with sound is output |
| F89-5 (SR-) - F73-3 (GND) | B - W-B | Sound signal (Rear Right) | Audio system playing | A waveform synchronized with sound is output. |
| F89-6 (SL-) - F73-3 (GND) | B - W-B | Sound signal (Rear Left) | Audio system playing | A waveform synchronized with sound is output. |
| F89-9 (R-R-) - F73-3 (GND) | B - W-B | Sound signal (Rear Right) | Audio system playing | A waveform synchronized |

| | | | | |
|---|---|---|---|---|
| | | | | with sound is output. |
| F89-10 (R-L-) - F73-3 (GND) | B - W-B | Sound signal (Rear Left) | Audio system playing | A waveform synchronized with sound is output. |
| F86-1 (WUO) - F73-3 (GND) | W - W-B | MOST communication wake-up signal | Engine switch on (ACC) | 4.5 V or higher |
| F86-2 (MI+) | B | MOST communication signal | - | - |
| F86-3 (MI-) | B | MOST communication signal | - | - |
| F86-4 (SLDI) - Body ground | Shielded - Body ground | Shield ground | Always | Below 1 Ω |
| F86-5 (MO+) | B | MOST communication signal | - | - |
| F86-6 (MO-) | B | MOST communication signal | - | - |
| F86-7 (SLDO) - Body ground | Shielded - Body ground | Shield ground | Always | Below 1 Ω |
| F86-8 (WUI) - F73-3 (GND) | W - W-B | MOST communication wake-up signal | Engine switch on (ACC) | 4.5 V or higher |

*: w/ Emergency Call Switch

## MULTI-DISPLAY ASSEMBLY




| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F78-2 (ILL) - F78-13 (GND1) | G - BR | Illumination signal | Engine switch on (IG), light control switch off | Below 1 V |
| | | | Tail or head position | 11 to 14 V |
| F78-3 (UPSW) | P | UART communication signal | - | - |
| F78-4 (UIND) | R | UART communication signal | - | - |
| F78-7 (TX+) | B | AVC-LAN communication signal | - | - |
| F78-11 (VMTI) - F78-13 (GND1) | V - BR | Visual mute signal | When image on display switches | 3.5 V or higher → Below 1 V → 3.5 V or higher |
| F78-12 (+B2) - F78-13 (GND1) | R - BR | Power source | Always | 11 to 14 V |
| F78-13 (GND1) - Body ground | BR - Body ground | Ground | Always | Below 1 Ω |
| F78-14 (ILL-) - F78-13 (GND1) | W - BR | Ground | Always | Below 1 Ω |
| F78-19 (TX-) | W | AVC-LAN communication signal | - | - |
| F78-23 (IG) - F78-13 (GND1) | G - BR | Power source (IG) | Engine switch on (IG) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F78-24 (ACC) - F78-13 (GND1) | GR - BR | Power source (ACC) | Engine switch on (ACC) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |

## TELEVISION DISPLAY ASSEMBLY (w/ Rear Seat Entertainment System [for Roof]) (Click here)

## MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY (w/ Rear Seat Entertainment System [for Seatback]) (Click here)

## TELEMATICS TRANSCEIVER (Click here)

**for Preparation** Click here

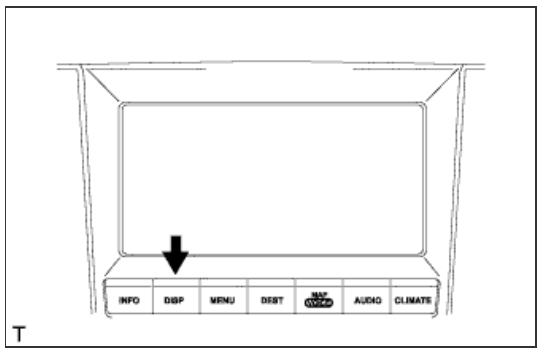
**HINT:**

- **Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be exactly the same as on the actual vehicle.**
- **If the system cannot enter the diagnostic mode, inspect all AVC-LAN communication components and repair or replace problem parts (Click here).**
- **After the engine switch is turned on (IG), check that the map is displayed before starting the diagnostic mode. Otherwise, some items cannot be checked.**

## START DIAGNOSTIC MODE

a. Turn the engine switch on (IG).

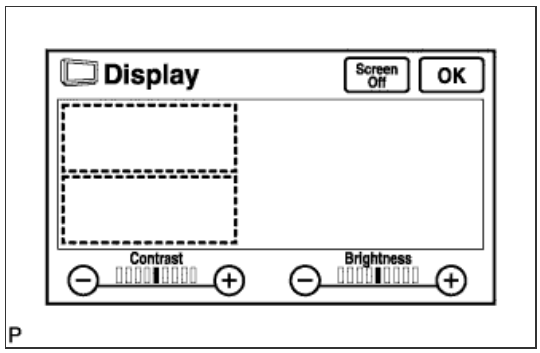
b. Press the "DISP" switch.



T

c. From the display quality adjustment screen, touch the corners of the screen in the following order: upper left → lower left → upper left → lower left → upper left → lower left.

d. The diagnostic mode starts and the "System Check Mode" screen will be displayed. Service inspection starts automatically and the result will be displayed.



P

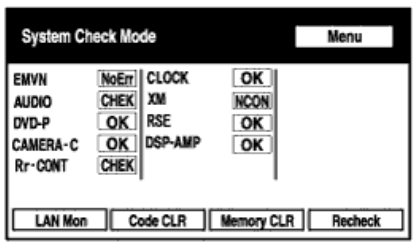
## FINISH DIAGNOSTIC MODE

a. Turn the engine switch off.

## DIAGNOSIS MENU

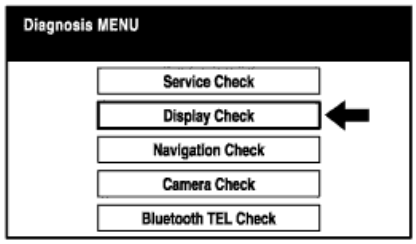
a. Press the "Menu" switch on the "System Check Mode" screen.

Example:



b. The "Diagnosis Menu" screen will be displayed.

Example:



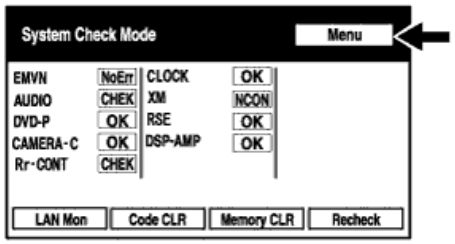

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## CHECK DTC

a. Read the system check result.

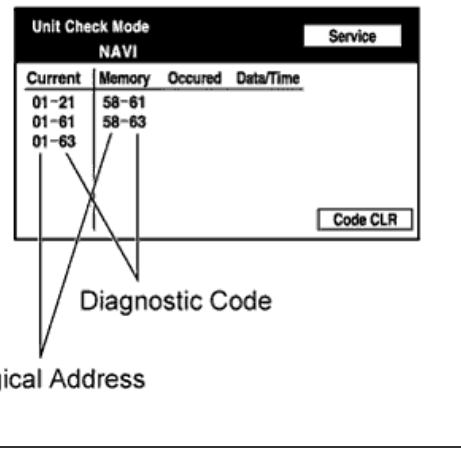
i. If the check result is "EXCH", "CHEK" or "Old", touch the displayed check result.

Example:



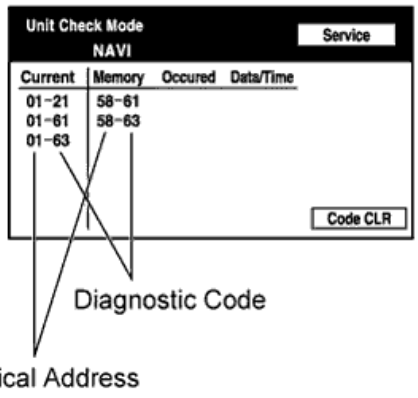

ii. View the results on the "Unit Check Mode" screen and record them.

Example:




iii. When proceeding to view the results of another device, press the "Service" switch.

Example:

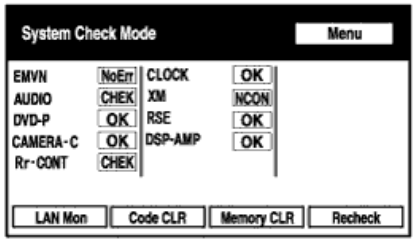



iv. Return to the "System Check Mode" screen.

**HINT:**

To check other items, repeat from the first step.

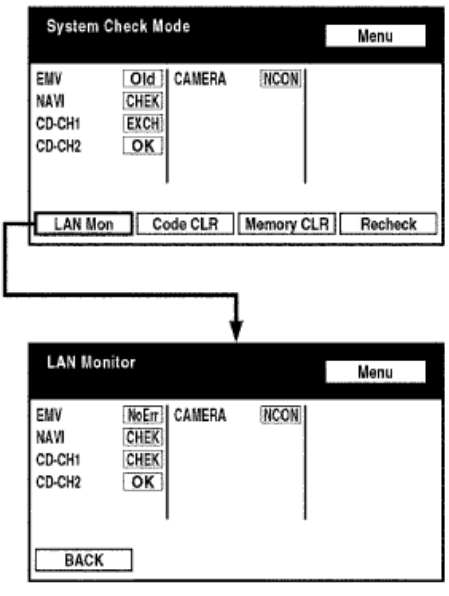
Example:




b. Read the communication diagnostic check result.

i. Return to the "System Check Mode" screen, and press the "LAN Mon" switch to enter the "LAN Monitor" screen.

Example:




P

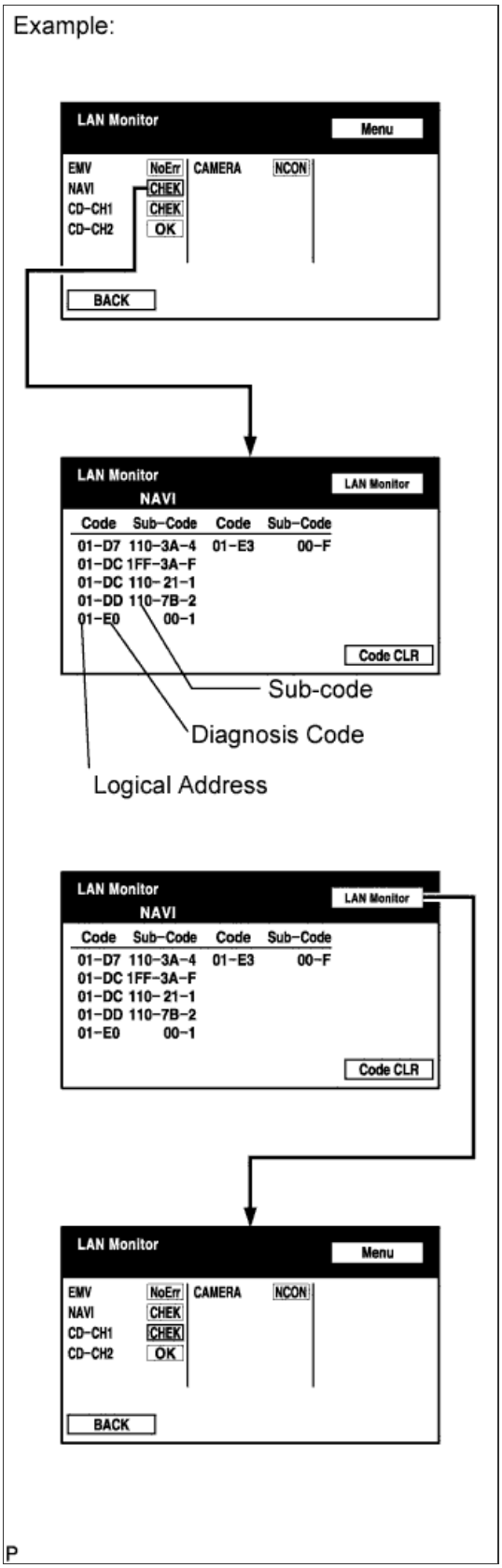
ii. If the check result is "CHEK" or "Old", touch the displayed check result to view the results on the individual communication diagnostic screen and record them.

**HINT:**

- **If all check results are "NoErr", the system judges that no DTC is stored.**
- **The sub-code (relevant device) will be indicated by its physical address.**

- **When proceeding to view the results of another device, press the "LAN Monitor" switch to return to the original "LAN Monitor" screen. Repeat this step for each device.**

Example:




P

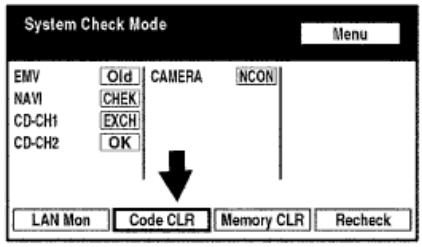
## DTC CLEAR/RECHECK

a. Clear DTC

i. Press the "Code CLR" switch for 3 seconds.

ii. The check results are cleared.

Example:

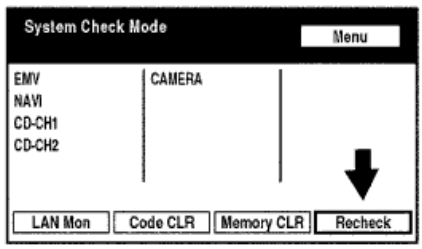



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**b.** Recheck

**i.** Press the "Recheck" switch.

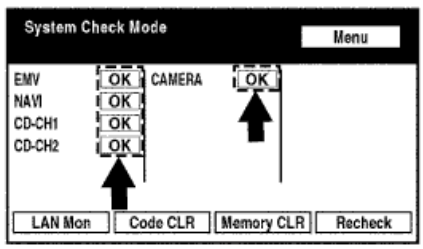
Example:




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**ii.** Confirm that all diagnostic trouble codes are "OK" when the check results are displayed. If a code other than "OK" is displayed, troubleshoot again.

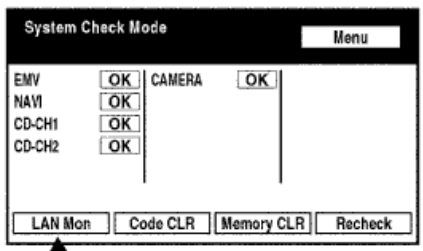
Example:




P

**iii.** Press the "LAN Mon" switch to change to the "LAN Monitor" screen.

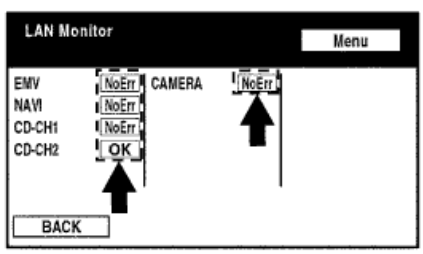
Example:




P

**iv.** Confirm that all diagnostic trouble codes are "NoErr". If a code other than "NoErr" is displayed, troubleshoot again.

Example:




P

**for Preparation** Click here

## CHECK DTC (CHECK USING INTELLIGENT TESTER)

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Body / Navigation System / Trouble Codes.

e. Check for DTCs, and then write them down.

f. Check the details of the DTC(s) ( Click here).

**NOTICE:**

The audio and visual system outputs DTCs for the following system. When DTCs other than those in Diagnostic Trouble Code Chart for the audio and visual system are output, refer to Diagnostic Trouble Code Chart for the relevant system.

| System | Proceed to |
|---|---|
| Navigation System | Click here |
| Rear Seat Entertainment System (for Roof) | Click here |
| Rear Seat Entertainment System (for Seatback) | Click here |

## CLEAR DTC (CHECK USING INTELLIGENT TESTER)

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Body / Navigation System / Trouble Codes.

e. Clear the DTCs.

## START DIAGNOSTIC MODE

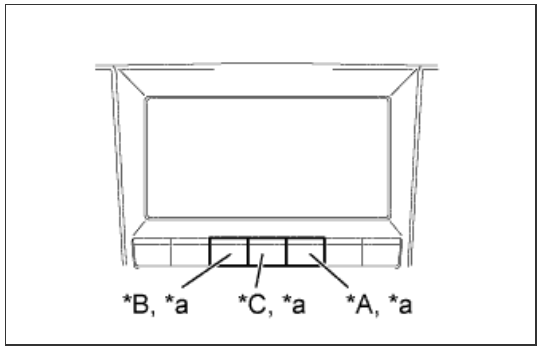
**HINT:**

- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**
- **To help find the malfunction when the system cannot change to diagnostic mode, check for DTCs using the intelligent tester.**
- **After the engine switch is turned on (IG), check that the map is displayed before starting diagnostic mode. Otherwise, some items cannot be checked.**

a. Start the engine.

**Text in Illustration**

| | |
|---|---|
| *A | for LHD |
| *B | for RHD |
| *C | w/o Navigation System |
| *a | "INFO" Switch |

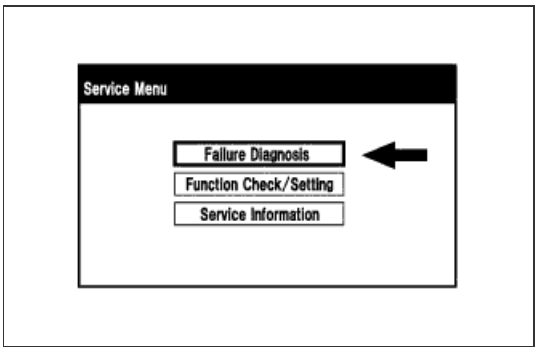



b. While pressing and holding the "INFO" switch, operate the light control switch: Off → Tail → Off → Tail → Off → Tail → Off.

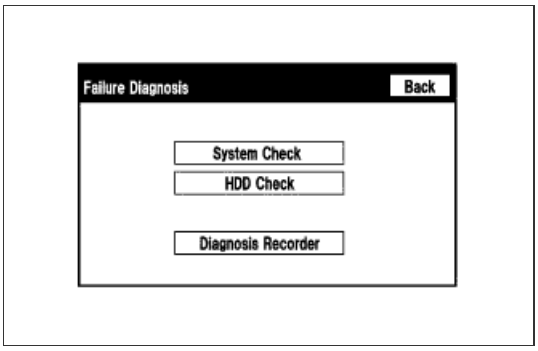
c. Diagnostic mode starts and the "Service Menu" screen will be displayed.

## FAILURE DIAGNOSIS

a. Press the "Failure Diagnosis" switch on the "Service Menu" screen.

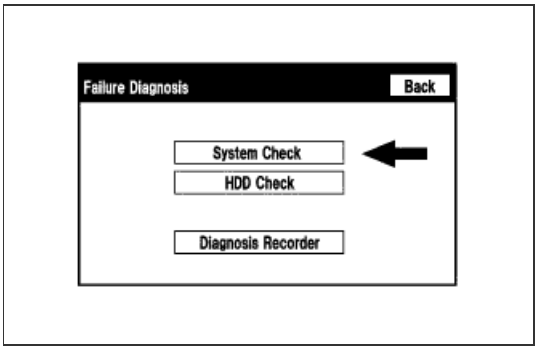



b. The "Failure Diagnosis" will be displayed.

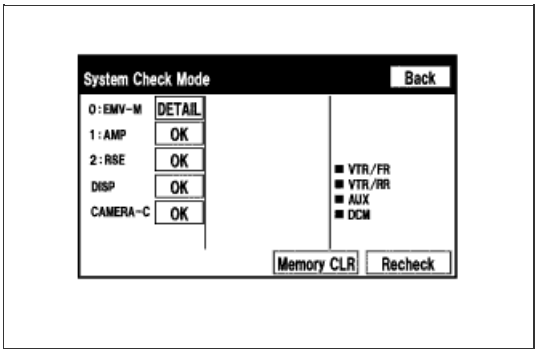



## SYSTEM CHECK

a. Press the "System Check" switch on the "Failure Diagnosis" screen.

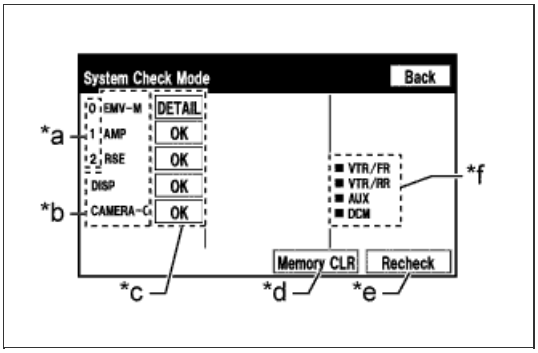



b. The "System Check Mode" screen will be displayed.




## CHECK DTC (CHECK USING SYSTEM CHECK MODE SCREEN)

a. System check mode screen description




### Screen Description

| Display | Content |
|---|---|
| *a: Node position number for devices that use MOST communication | MOST node position numbers are provided for devices connected to the MOST network. |
| *b: Device Name List No. 1 | • Device Name List No. 1 displays some of the devices that make up the audio and visual system.<br>• The names of the components from Device Name List No. 1 are shown in the following table. |
| *c: Check Result | Result codes for all devices are displayed. |
| *d: Memory Clear | • Present and history DTCs and registered connected device names are cleared.<br>• Press the "Memory CLR" switch for 3 seconds. |
| *e: Recheck | • A system check will be performed again after the memory is cleared.<br>• The "Recheck" switch will dim during a system check. |
| *f: Device Name List No. 2 | • Device Name List No. 2 displays some of the devices that make up the audio and visual system.<br>• The names of the components from Device Name List No. 2 are shown in the following table. |

### *b: Device Name List No. 1 Description

| Name | Component | Connection Method |
|---|---|---|
| EMV-M | Multi-media module receiver assembly | - |
| AMP | Stereo component amplifier assembly | Communication line for MOST |
| RSE | • Television display assembly*1<br>• Multi-display controller sub-assembly*2 | Communication line for MOST |
| DISP | Multi-display assembly | Communication line for AVC-LAN |
| CAMERA-C | Parking assist ECU | Communication line for AVC-LAN |

*1: w/ Rear Seat Entertainment System (for Roof)
*2: w/ Rear Seat Entertainment System (for Seatback)

### *c: Check Result Description

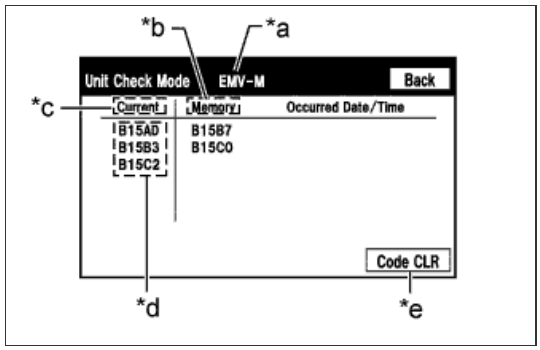
| Result | Meaning | Action |
|---|---|---|
| OK | The device does not respond with a DTC. | - |
| MOST | MOST communication error | Perform "MOST Line Check" to check connection of each device on the MOST network. |
| DETAIL | The device responds with a DTC. | Look up the DTC in "Unit Check Mode". |
| NCON | The device was previously present, but does not respond in diagnostic mode. | • Check power supply wire harness of the device.<br>• Check the AVC-LAN of the device. |
| NRES | The device responds in diagnostic mode, but gives no DTC information. | • Check power supply wire harness of the device.<br>• Check the AVC-LAN of the device. |

### *f: Device Name List No. 2 Description

| Name | Component | Connection Method |
|---|---|---|
| VTR/FR | Remote Controller Adapter Assembly (Video terminal) | Vehicle wire harness |
| VTR/RR | Remote Controller Adapter Assembly (Video terminal) | Vehicle wire harness |
| AUX | No. 1 stereo jack adapter assembly | Vehicle wire harness |
| DCM | Telematics transceiver | Communication line for USB |

b. Unit check mode screen description

b. Unit check mode screen description




**Screen Description**

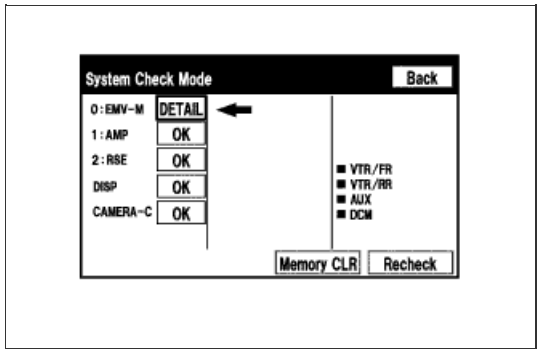
| Display | Content |
|---|---|
| *a: Device name | Target device |
| *b: History DTC | Diagnostic memory results and stored DTCs are displayed. |
| *c: Current DTC | DTCs output in the service check are displayed. |
| *d: DTC | DTC (Diagnostic Trouble Code) |
| *e: Diagnosis clear switch | Pushing this switch for 3 seconds clears the diagnostic memory data of the target device. (Both response to diagnostic system check result and the displayed data are cleared.) |

**HINT:**

- **This screen is updated once per second.**
- **A maximum of 6 DTCs can be displayed for history and present DTCs.**

c. Read the system check result.

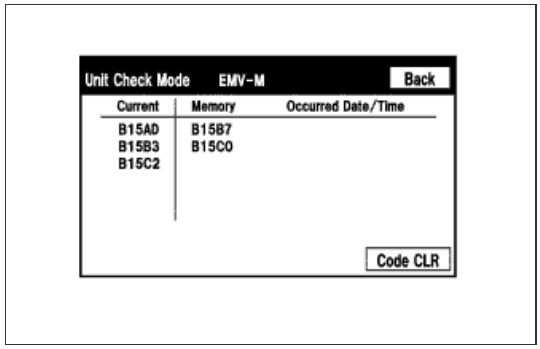
i. If the check result is "DETAIL", touch the displayed check result




**HINT:**

When all results are "OK", this means that no DTCs are stored.

ii. View the results on the "Unit Check Mode" screen and record them.




**NOTICE:**

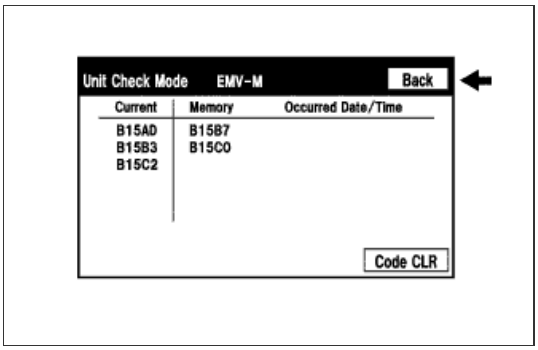
A maximum of 6 DTCs can be displayed for history and present DTCs on the "Unit check mode" screen. Therefore, when 6 DTCs are displayed, troubleshoot those DTCs first and then check the "Unit check mode" screen again to see if any other DTCs are displayed.

iii. When proceeding to view the results of another device, press the "Back" switch to return to the "System Check Mode" screen. Repeat the step above to view the results of other devices.

**HINT:**

To check other item, repeat from the first step.

iv. Check the details of the DTC(s) ( Click here).




**NOTICE:**

The audio and visual system outputs DTCs for the following system. When DTCs other than those in Diagnostic Trouble Code Chart for the audio and visual system are output, refer to Diagnostic Trouble Code Chart for the relevant system.

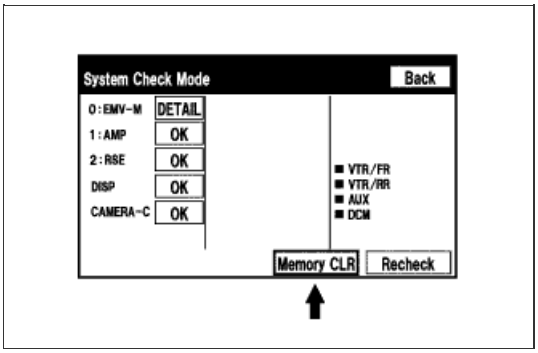
| System | Proceed to |
|---|---|
| Navigation System | Click here |
| Rear Seat Entertainment System (for Roof) | Click here |
| Rear Seat Entertainment System (for Seatback) | Click here |

## DTC CLEAR/RECHECK (CLEAR USING SYSTEM CHECK MODE SCREEN)

a. Clear DTC

i. Press the "Memory CLR" switch for 3 seconds.

ii. Confirm that the check results are cleared.

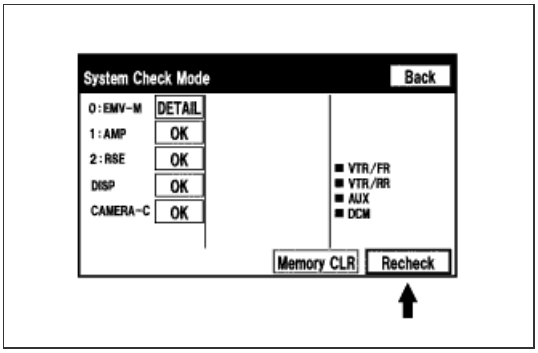



**HINT:**

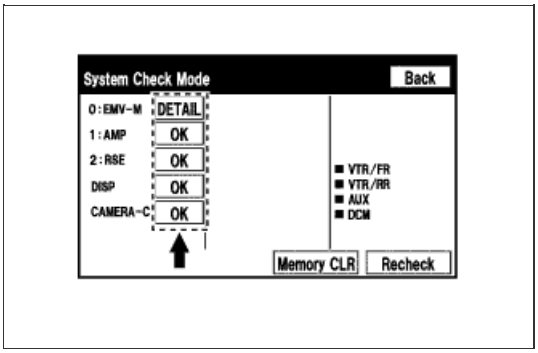
- **To clear the DTC for a specific device, clear the DTC using the "Unit Check Mode" screen.**
- **When clearing a DTC using the "Unit Check Mode" screen, press the "Code CLR" switch for 3 seconds.**

b. Recheck DTC

i. Press the "Recheck" switch.




ii. Confirm that all diagnostic codes are "OK" when the check results are displayed. If a code other than "OK" is displayed, troubleshoot again.




**HINT:**

When a DTC was cleared using the "Unit Check Mode" screen, press the "Back" switch to return to the "System Check Mode" screen and perform this operation.

## FINISH DIAGNOSTIC MODE

a. There are 2 methods to finish diagnostic mode. Start the mode by using one of them.

b. Method 1

    i. Turn the engine switch off.

c. Method 2

    i. Press and hold the "SET UP" switch for 3 seconds or more.

**for Preparation** Click here

## CHECK FREEZE FRAME DATA

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Body / Navigation System / Trouble Codes.

e. Select a Trouble Codes to display its Freeze Frame Data.

## LIST OF FREEZE FRAME DATA

a. Refer to "Data List / Active Test" ( Click here).

**for Preparation** Click here

## DATA LIST

**NOTICE:**

In the table below, the values listed under "Normal Condition" are reference values. Do not depend solely on these reference values when deciding whether a part is faulty or not.

**HINT:**

Using the intelligent tester to read the Data List allows the values or states of switches, sensors, actuators and other items to be read without removing any parts. This non-intrusive inspection can be very useful because intermittent conditions or signals may be discovered before parts or wiring is disturbed. Reading the Data List information early in troubleshooting is one way to save diagnostic time.

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Body / Navigation System / Data List.

e. According to the display on the intelligent tester, read the Data List.

**Navigation System**

| Tester Display | Measurement Item/Range | Normal Condition | Diagnostic Note |
|---|---|---|---|
| Battery Voltage | Battery voltage / Min.: 0 V, Max.: 24 V | 11 to 15.5 V | - |
| Active Dimmer | Active dimmer function / ON or OFF | ON: Active dimmer function on<br>OFF: Active dimmer function off | - |
| Tail Light SW | Taillight switch / ON or OFF | ON: Light control switch in tail or head position<br>OFF: Light control switch off | - |
| Reverse Signal | Reverse signal / ON or OFF | ON: Shift lever in R<br>OFF: Shift lever in any position other than R | - |
| Parking Brake | Parking brake switch / ON or OFF | ON: Parking brake applied<br>OFF: Parking brake released | - |
| Ignition | Engine switch / ON or OFF | ON: Engine switch on (IG)<br>OFF: Engine switch off | - |
| Vehicle Speed | Maximum wheel speed sensor reading / Min.: 0 km/h (0 mph), Max.: 255 km/h (158 mph) | Vehicle stopped: 0 km/h (0 mph) | When driving at constant speed: No large fluctuations |

**for Preparation** Click here

**HINT:**

If a trouble code is output during the DTC check, inspect the trouble areas listed for that code. For details of the code, refer to the "See page" below.

**Audio and Visual System**

| DTC Code | Detection Item | Trouble Area | See page |
|---|---|---|---|
| 01-21 | ROM Error | Multi-display assembly | Click here |
| 01-22 | RAM Error | Multi-display assembly | Click here |
| 01-D5 | Absence of Registration Unit | - Power source circuit of component shown by sub-code<br>- AVC-LAN circuit between multi-display and component shown by sub-code<br>- Component shown by sub-code | Click here |
| 01-D6 | No Master | - Multi-display power source circuit<br>- Power source circuit of the component which has stored this code<br>- AVC-LAN circuit between the multi-display and the component which has stored this code<br>- Component which has stored this code<br>- Multi-display assembly | Click here |
| 01-D7 | Connection Check Error | - Multi-display power source circuit<br>- Power source circuit of the component which has stored this code<br>- AVC-LAN circuit between the multi-display and the component which has stored this code<br>- Component which has stored this code<br>- Multi-display assembly | Click here |
| 01-D8 | No Response for Connection Check | - Power source circuit of component shown by sub-code<br>- AVC-LAN circuit between multi-display and component shown by sub-code<br>- Component shown by sub-code | Click here |
| 01-D9 | Last Mode Error | - Power source circuit of component shown by sub-code<br>- AVC-LAN circuit between multi-display and component shown by sub-code<br>- Component shown by sub-code | Click here |
| 01-DA | No Response Against ON / OFF Command | - Power source circuit of component shown by sub-code<br>- AVC-LAN circuit between multi-display and component shown by sub-code<br>- Component shown by sub-code | Click here |
| 01-DB | Mode Status Error | - Power source circuit of component shown by sub-code<br>- AVC-LAN circuit between multi-display and component shown by sub-code<br>- Component shown by sub-code | Click here |
| 01-DC | Transmission Error | If same sub-code is stored in other components, check harness of power supply and communication system of all components shown by code | Click here |
| 01-DD | Master Reset | - Multi-display power source circuit<br>- AVC-LAN circuit between multi-display and component which has stored this code<br>- Multi-display assembly<br>- Component which has stored this code | Click here |
| 01-DE | Slave Reset | - Power source circuit of component shown by sub-code<br>- AVC-LAN circuit between multi-display and component shown by sub-code<br>- Component shown by sub-code | Click here |
| 01-DF | Master Error | - Multi-display power source circuit<br>- AVC-LAN circuit between multi-display and component which has stored this code<br>- AVC-LAN circuit between multi-display and radio receiver<br>- Multi-display assembly<br>- Component which has stored this code | Click here |
| 01-E0 | Registration Complete Indication Error | - | Click here |
| 01-E1 | Voice Processing Device ON Error | - Multi-display power source circuit<br>- AVC-LAN circuit between multi-display and component which has stored this code<br>- Multi-display assembly<br>- Component which has stored this code | Click here |
| 01-E2 | ON / OFF Indication Parameter Error | Multi-display assembly | Click here |
| 01-E3 | Registration Demand Transmission | - | Click here |
| | | | Click |

| | | | |
|---|---|---|---|
| 01-E4 | Multiple Frame Incomplete | - | here |
| 21-10 | Panel Switch Error | Multi-display assembly | Click here |
| 21-11 | Touch Switch Error | Multi-display assembly | Click here |
| 23-10 | Panel Switch Error | Multi-display assembly | Click here |
| 23-11 | Touch Switch Error | Multi-display assembly | Click here |
| 24-10 | Panel Switch Error | Multi-display assembly | Click here |
| 24-11 | Touch Switch Error | Multi-display assembly | Click here |
| 25-10 | Panel Switch Error | Multi-display assembly | Click here |
| 25-11 | Touch Switch Error | Multi-display assembly | Click here |
| 34-10 | Error in Picture Circuit | Multi-display assembly | Click here |
| 34-11 | No Current in Back-light | Multi-display assembly | Click here |
| 34-12 | Excess Current in Back-light | Multi-display assembly | Click here |
| 45-10 | DVD Changer Mechanical Error | Radio receiver assembly | Click here |
| 45-11 | DVD Insertion and Ejection Error | Radio receiver assembly | Click here |
| 45-12 | DVD Reading Abnormal | Radio receiver assembly | Click here |
| 45-41 | Wrong Disc | - Disc<br>- Radio receiver assembly | Click here |
| 45-42 | Disc cannot be Read | - Disc<br>- Radio receiver assembly | Click here |
| 45-43 | DVD-ROM Abnormal | - Disc<br>- Radio receiver assembly | Click here |
| 45-44 | DVD Malfunction | Radio receiver assembly | Click here |
| 45-45 | Eject Error | Radio receiver assembly | Click here |
| 45-46 | Scratched/Reversed Disc | - Disc<br>- Radio receiver assembly | Click here |
| 45-47 | High Temperature | Radio receiver assembly | Click here |
| 45-48 | Excess Current | Radio receiver assembly | Click here |
| 45-50 | Tray Insertion / Ejection Error | Radio receiver assembly | Click here |
| 45-51 | Elevator Error | Radio receiver assembly | Click here |
| 45-52 | Clamp Error | Radio receiver assembly | Click here |
| 45-78 | DSP Error | Radio receiver assembly | Click here |
| 45-7D | Disc cannot be Played | - Disc<br>- Radio receiver assembly | Click here |
| 45-7E | No Playable Files | - Disc<br>- Radio receiver assembly | Click here |
| 45-7F | Copyright Protection Error | - Disc<br>- Radio receiver assembly | Click here |
| 57-47 | Bluetooth Module Initialization Failed | Multi-display assembly | Click here |
| 5C-40 | Camera Picture Error | - Harness and connector<br>- Rear television camera assembly<br>- Multi-display assembly | Click here |
| 60-10 | AM Tuner PLL does not Lock | Radio receiver assembly | Click |

| | | | |
|---|---|---|---|
| | | | here |
| 60-11 | FM Tuner PLL does not Lock | Radio receiver assembly | Click here |
| 60-42 | Tuner Power Source Error | Radio receiver assembly | Click here |
| 60-43 | AM Tuner Error | Radio receiver assembly | Click here |
| 60-44 | FM Tuner Error | Radio receiver assembly | Click here |
| 60-50 | Malfunction in Internal IC | Radio receiver assembly | Click here |
| 63-10 | CD Changer Mechanical Error | Radio receiver assembly | Click here |
| 63-11 | CD Insertion and Ejection Error | Radio receiver assembly | Click here |
| 63-12 | CD Reading Abnormal | Radio receiver assembly | Click here |
| 63-41 | Wrong Disc | - Disc<br>- Radio receiver assembly | Click here |
| 63-42 | Disc cannot be Read | - Disc<br>- Radio receiver assembly | Click here |
| 63-43 | CD-ROM Abnormal | - Disc<br>- Radio receiver assembly | Click here |
| 63-44 | CD Abnormal | Radio receiver assembly | Click here |
| 63-45 | Eject Error | Radio receiver assembly | Click here |
| 63-46 | Scratched / Reversed Disc | - Disc<br>- Radio receiver assembly | Click here |
| 63-47 | High Temperature | Radio receiver assembly | Click here |
| 63-48 | Excess Current | Radio receiver assembly | Click here |
| 63-50 | Tray Insertion / Ejection Error | Radio receiver assembly | Click here |
| 63-51 | Elevator Error | Radio receiver assembly | Click here |
| 63-52 | Clamp Error | Radio receiver assembly | Click here |
| 63-78 | DSP Error | Radio receiver assembly | Click here |
| 63-7D | Disc cannot be Played | - Disc<br>- Radio receiver assembly | Click here |
| 63-7E | No Playable Files | - Disc<br>- Radio receiver assembly | Click here |
| 63-7F | Copyright Protection Error | - Disc<br>- Radio receiver assembly | Click here |
| 74-40 | Short in Speaker Circuit | - Harness and connector<br>- Speaker<br>- Stereo component amplifier assembly | Click here |

**for Preparation** Click here

### Audio and Visual System

| DTC Code | Detection Item | See page |
|---|---|---|
| B1550 | DAB Tuner Malfunction | Click here |
| B1575 | GVIF Disconnected (from EMV/MM Integrated Device to Multi Display) | Click here |
| B1579 | Voice Recognition Microphone Disconnected | Click here |
| B157D | DAB Tuner Antenna Disconnected | Click here |
| B1585 | USB Device Malfunction | Click here |
| B15A0 | LAN Master Malfunction | Click here |
| B15A3 | Stereo Component Amplifier Malfunction | Click here |
| B15A6 | Display Malfunction | Click here |
| B15B0 | Display Screen Malfunction | Click here |
| B15B3 | Radio Tuner Malfunction | Click here |
| B15B5 | DVD Changer Malfunction | Click here |
| B15B7 | Bluetooth Module Malfunction | Click here |
| B15B8 | Harddisk Malfunction | Click here |
| B15C2 | Speed Signal Malfunction | Click here |
| B15C3 | Speaker Output Short | Click here |
| B15D0 | MOST Communication Malfunction | Click here |
| B15D3 | Stereo Component Amplifier Disconnected | Click here |
| B15D6 | Display Disconnected | Click here |
| B15E7 | Harddisk Reading/Writing Malfunction(Low Temperature) | Click here |
| B15E8 | Harddisk Reading/Writing Malfunction(High Temperature) | Click here |
| B15F5 | Air Conditioner ECU Vehicle Information Reading/Writing Processor Malfunction | Click here |
| B15F6 | Main Body ECU Vehicle Information Reading/Writing Process Malfunction | Click here |
| B15F7 | Certification ECU Vehicle Information Reading/Writing Process Malfunction | Click here |
| B15F8 | Driver Seat ECU Vehicle Information Reading/Writing Process Malfunction | Click here |
| B15F9 | UART Communication Malfunction(for A/C) | Click here |
| U0073 | Sending Malfunction (Navigation to APGS) | Click here |
| U0100 | Engine ECU Communication | Click here |
| U0126 | Steering Sensor Communication | Click here |
| U0130 | Lost Communication with VGRS | Click here |
| U0140 | Lost Communication with Body Control Module | Click here |
| U0155 | Meter ECU Communication | Click here |
| U1110 | Clearance Sonar ECU Communication | Click here |

## DTC 01-21 ROM Error

## DTC 01-22 RAM Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-21 | A malfunction exists in the ROM. | Multi-display assembly |
| 01-22 | A malfunction exists in the RAM. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY ASSEMBLY**

a. w/ Navigation System: Replace the multi-display (Click here).

b. w/o Navigation System: Replace the multi-display (Click here).

**NEXT**

**END**

## DTC 60-42 Tuner Power Source Error

## DTC 60-43 AM Tuner Error

## DTC 60-44 FM Tuner Error

## DTC 60-50 Malfunction in Internal IC

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 60-42 | The power source of the tuner is abnormal. | Radio receiver assembly |
| 60-43 | The AM tuner is abnormal. | |
| 60-44 | The FM tuner is abnormal. | |
| 60-50 | A problem occurs in the internal IC of the tuner unit and the radio reception is not normal. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.RECHECK FOR DTC**

a. Recheck for DTCs and check if the same trouble code is output.

**HINT:**

If DTCs are output frequently, replace the radio receiver.

**OK:**
**No DTC is output.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC 01-21 ROM Error

## DTC 01-22 RAM Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-21 | A malfunction exists in the ROM. | Multi-display assembly |
| 01-22 | A malfunction exists in the RAM. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY ASSEMBLY**

a. w/ Navigation System: Replace the multi-display (Click here).

b. w/o Navigation System: Replace the multi-display (Click here).

**NEXT**

**END**

## DTC 60-42 Tuner Power Source Error

## DTC 60-43 AM Tuner Error

## DTC 60-44 FM Tuner Error

## DTC 60-50 Malfunction in Internal IC

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 60-42 | The power source of the tuner is abnormal. | Radio receiver assembly |
| 60-43 | The AM tuner is abnormal. | |
| 60-44 | The FM tuner is abnormal. | |
| 60-50 | A problem occurs in the internal IC of the tuner unit and the radio reception is not normal. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.RECHECK FOR DTC**

a. Recheck for DTCs and check if the same trouble code is output.

**HINT:**

If DTCs are output frequently, replace the radio receiver.

**OK:**
**No DTC is output.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC 01-D5 Absence of Registration Unit

## DTC 01-D8 No Response for Connection Check

## DTC 01-D9 Last Mode Error

## DTC 01-DA No Response Against ON / OFF Command

## DTC 01-DB Mode Status Error

## DTC 01-DE Slave Reset

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-D5*1, *3 | When either condition below is met:<br>• The component shown by the sub-code is (was) disconnected from the system when turning the engine switch on (ACC) or on (IG).<br>• The communication condition with the device that the code shows cannot be obtained when the engine starts. | • Power source circuit of component shown by sub-code<br>• AVC-LAN circuit between multi-display and component shown by sub-code<br>• Component shown by sub-code |
| 01-D8*2, *3 | The component shown by the sub-code is (was) disconnected from the system after the engine starts. | |
| 01-D9*1, *3 | The device that had functioned before the engine stopped is (was) disconnected from the system when the engine switch is (was) on (ACC) or on (IG). | |
| 01-DA*3 | When either condition below is met:<br>• No response is identified when changing modes.<br>• Sound and image do not change by switch operation. | |
| 01-DB*1, *3 | Dual alarm is detected. | |
| 01-DE*3 | The slave device has been disconnected after the engine starts. | |

**HINT:**

*1: Even if no fault is present, this trouble code may be stored depending on the battery condition or engine start voltage.

*2: If the power connector is disconnected after the engine starts, this code is stored after 180 seconds.

*3: If it is reported that the device does not exist during verification, check the power source circuit and AVC-LAN circuit for the device.

**NOTICE:**

- **Before starting troubleshooting, be sure to clear DTCs to clear codes stored due to the reasons described in the Hint above. Then, check for DTCs and troubleshoot according to the output DTCs.**
- **The multi-display is the master unit.**
- **Be sure to clear and recheck for DTCs after the inspection is completed to confirm that no DTCs are output.**

### INSPECTION PROCEDURE

**NOTICE:**

Be sure to read the Description before performing the following procedures.

**1.CHECK "MULTI-DISPLAY COMMUNICATION ERROR" IN FLOWCHART**

a. Refer to the Multi-display Communication Error (Click here).


NEXT
END

## DTC 63-10 CD Changer Mechanical Error

## DTC 63-11 CD Insertion and Ejection Error

## DTC 63-12 CD Reading Abnormal

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 63-10 | A mechanical error in the CD changer is detected while a CD is not being inserted or ejected. | Radio receiver assembly |
| 63-11 | CD insertion or ejection fails. | |
| 63-12 | A CD read problem occurs. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE RADIO RECEIVER ASSEMBLY**

a. Replace the radio receiver (Click here).

**NEXT**

**END**

## DTC 01-D5 Absence of Registration Unit

## DTC 01-D8 No Response for Connection Check

## DTC 01-D9 Last Mode Error

## DTC 01-DA No Response Against ON / OFF Command

## DTC 01-DB Mode Status Error

## DTC 01-DE Slave Reset

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-D5*1, *3 | When either condition below is met:<br>• The component shown by the sub-code is (was) disconnected from the system when turning the engine switch on (ACC) or on (IG).<br>• The communication condition with the device that the code shows cannot be obtained when the engine starts. | • Power source circuit of component shown by sub-code<br>• AVC-LAN circuit between multi-display and component shown by sub-code<br>• Component shown by sub-code |
| 01-D8*2, *3 | The component shown by the sub-code is (was) disconnected from the system after the engine starts. | |
| 01-D9*1, *3 | The device that had functioned before the engine stopped is (was) disconnected from the system when the engine switch is (was) on (ACC) or on (IG). | |
| 01-DA*3 | When either condition below is met:<br>• No response is identified when changing modes.<br>• Sound and image do not change by switch operation. | |
| 01-DB*1, *3 | Dual alarm is detected. | |
| 01-DE*3 | The slave device has been disconnected after the engine starts. | |

**HINT:**

*1: Even if no fault is present, this trouble code may be stored depending on the battery condition or engine start voltage.

*2: If the power connector is disconnected after the engine starts, this code is stored after 180 seconds.

*3: If it is reported that the device does not exist during verification, check the power source circuit and AVC-LAN circuit for the device.

**NOTICE:**

- **Before starting troubleshooting, be sure to clear DTCs to clear codes stored due to the reasons described in the Hint above. Then, check for DTCs and troubleshoot according to the output DTCs.**
- **The multi-display is the master unit.**
- **Be sure to clear and recheck for DTCs after the inspection is completed to confirm that no DTCs are output.**

### INSPECTION PROCEDURE

**NOTICE:**

Be sure to read the Description before performing the following procedures.

**1.CHECK "MULTI-DISPLAY COMMUNICATION ERROR" IN FLOWCHART**

a. Refer to the Multi-display Communication Error (Click here).


NEXT
END

## DTC 63-10 CD Changer Mechanical Error

## DTC 63-11 CD Insertion and Ejection Error

## DTC 63-12 CD Reading Abnormal

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 63-10 | A mechanical error in the CD changer is detected while a CD is not being inserted or ejected. | Radio receiver assembly |
| 63-11 | CD insertion or ejection fails. | |
| 63-12 | A CD read problem occurs. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE RADIO RECEIVER ASSEMBLY**

a. Replace the radio receiver (Click here).

**NEXT**

**END**

## DTC 01-D5 Absence of Registration Unit

## DTC 01-D8 No Response for Connection Check

## DTC 01-D9 Last Mode Error

## DTC 01-DA No Response Against ON / OFF Command

## DTC 01-DB Mode Status Error

## DTC 01-DE Slave Reset

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-D5*1, *3 | When either condition below is met:<br>• The component shown by the sub-code is (was) disconnected from the system when turning the engine switch on (ACC) or on (IG).<br>• The communication condition with the device that the code shows cannot be obtained when the engine starts. | • Power source circuit of component shown by sub-code<br>• AVC-LAN circuit between multi-display and component shown by sub-code<br>• Component shown by sub-code |
| 01-D8*2, *3 | The component shown by the sub-code is (was) disconnected from the system after the engine starts. | |
| 01-D9*1, *3 | The device that had functioned before the engine stopped is (was) disconnected from the system when the engine switch is (was) on (ACC) or on (IG). | |
| 01-DA*3 | When either condition below is met:<br>• No response is identified when changing modes.<br>• Sound and image do not change by switch operation. | |
| 01-DB*1, *3 | Dual alarm is detected. | |
| 01-DE*3 | The slave device has been disconnected after the engine starts. | |

**HINT:**

*1: Even if no fault is present, this trouble code may be stored depending on the battery condition or engine start voltage.

*2: If the power connector is disconnected after the engine starts, this code is stored after 180 seconds.

*3: If it is reported that the device does not exist during verification, check the power source circuit and AVC-LAN circuit for the device.

**NOTICE:**

- **Before starting troubleshooting, be sure to clear DTCs to clear codes stored due to the reasons described in the Hint above. Then, check for DTCs and troubleshoot according to the output DTCs.**
- **The multi-display is the master unit.**
- **Be sure to clear and recheck for DTCs after the inspection is completed to confirm that no DTCs are output.**

### INSPECTION PROCEDURE

**NOTICE:**

Be sure to read the Description before performing the following procedures.

**1.CHECK "MULTI-DISPLAY COMMUNICATION ERROR" IN FLOWCHART**

a. Refer to the Multi-display Communication Error (Click here).


NEXT
END

## DTC 63-10 CD Changer Mechanical Error

## DTC 63-11 CD Insertion and Ejection Error

## DTC 63-12 CD Reading Abnormal

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 63-10 | A mechanical error in the CD changer is detected while a CD is not being inserted or ejected. | Radio receiver assembly |
| 63-11 | CD insertion or ejection fails. | |
| 63-12 | A CD read problem occurs. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE RADIO RECEIVER ASSEMBLY**

a. Replace the radio receiver (Click here).

**NEXT**

**END**

## DTC 01-D5 Absence of Registration Unit

## DTC 01-D8 No Response for Connection Check

## DTC 01-D9 Last Mode Error

## DTC 01-DA No Response Against ON / OFF Command

## DTC 01-DB Mode Status Error

## DTC 01-DE Slave Reset

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-D5*1, *3 | When either condition below is met:<br>• The component shown by the sub-code is (was) disconnected from the system when turning the engine switch on (ACC) or on (IG).<br>• The communication condition with the device that the code shows cannot be obtained when the engine starts. | • Power source circuit of component shown by sub-code<br>• AVC-LAN circuit between multi-display and component shown by sub-code<br>• Component shown by sub-code |
| 01-D8*2, *3 | The component shown by the sub-code is (was) disconnected from the system after the engine starts. | |
| 01-D9*1, *3 | The device that had functioned before the engine stopped is (was) disconnected from the system when the engine switch is (was) on (ACC) or on (IG). | |
| 01-DA*3 | When either condition below is met:<br>• No response is identified when changing modes.<br>• Sound and image do not change by switch operation. | |
| 01-DB*1, *3 | Dual alarm is detected. | |
| 01-DE*3 | The slave device has been disconnected after the engine starts. | |

**HINT:**

*1: Even if no fault is present, this trouble code may be stored depending on the battery condition or engine start voltage.

*2: If the power connector is disconnected after the engine starts, this code is stored after 180 seconds.

*3: If it is reported that the device does not exist during verification, check the power source circuit and AVC-LAN circuit for the device.

**NOTICE:**

- **Before starting troubleshooting, be sure to clear DTCs to clear codes stored due to the reasons described in the Hint above. Then, check for DTCs and troubleshoot according to the output DTCs.**
- **The multi-display is the master unit.**
- **Be sure to clear and recheck for DTCs after the inspection is completed to confirm that no DTCs are output.**

### INSPECTION PROCEDURE

**NOTICE:**

Be sure to read the Description before performing the following procedures.

**1.CHECK "MULTI-DISPLAY COMMUNICATION ERROR" IN FLOWCHART**

a. Refer to the Multi-display Communication Error (Click here).


NEXT
END

## DTC 63-41 Wrong Disc

## DTC 63-42 Disc cannot be Read

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 63-41 | An unsuitable disc is inserted. | • Disc<br>• Radio receiver assembly |
| 63-42 | The disc cannot be read. | |

### INSPECTION PROCEDURE

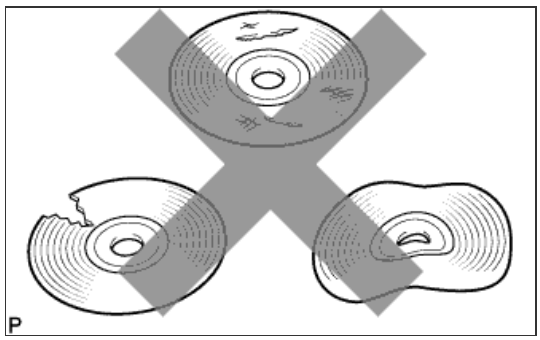
**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK DISC**

a. Check that the disc is not deformed or cracked.

**OK:**
**No deformations or cracks on the disc.**




NG → CHANGE DISC

OK

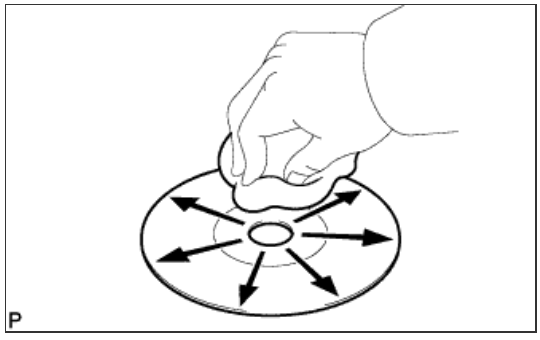
**2.DISC CLEANING**

a. Disc cleaning

i. If dirt is on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

**NOTICE:**

Do not use a conventional record cleaner or antistatic preservative.




NEXT

**3.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

4.RECHECK FOR DTC

a. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → Go to step 5

OK →

END

5.REPLACE DISC WITH ANOTHER AND RECHECK

a. Replace the disc and recheck.

i. Replace the disc with a normal one.

ii. Clear the DTCs (Click here).

iii. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK →

END

## DTC 01-D5 Absence of Registration Unit

## DTC 01-D8 No Response for Connection Check

## DTC 01-D9 Last Mode Error

## DTC 01-DA No Response Against ON / OFF Command

## DTC 01-DB Mode Status Error

## DTC 01-DE Slave Reset

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-D5*1, *3 | When either condition below is met:<br>• The component shown by the sub-code is (was) disconnected from the system when turning the engine switch on (ACC) or on (IG).<br>• The communication condition with the device that the code shows cannot be obtained when the engine starts. | • Power source circuit of component shown by sub-code<br>• AVC-LAN circuit between multi-display and component shown by sub-code<br>• Component shown by sub-code |
| 01-D8*2, *3 | The component shown by the sub-code is (was) disconnected from the system after the engine starts. | |
| 01-D9*1, *3 | The device that had functioned before the engine stopped is (was) disconnected from the system when the engine switch is (was) on (ACC) or on (IG). | |
| 01-DA*3 | When either condition below is met:<br>• No response is identified when changing modes.<br>• Sound and image do not change by switch operation. | |
| 01-DB*1, *3 | Dual alarm is detected. | |
| 01-DE*3 | The slave device has been disconnected after the engine starts. | |

**HINT:**

*1: Even if no fault is present, this trouble code may be stored depending on the battery condition or engine start voltage.

*2: If the power connector is disconnected after the engine starts, this code is stored after 180 seconds.

*3: If it is reported that the device does not exist during verification, check the power source circuit and AVC-LAN circuit for the device.

**NOTICE:**

- **Before starting troubleshooting, be sure to clear DTCs to clear codes stored due to the reasons described in the Hint above. Then, check for DTCs and troubleshoot according to the output DTCs.**
- **The multi-display is the master unit.**
- **Be sure to clear and recheck for DTCs after the inspection is completed to confirm that no DTCs are output.**

### INSPECTION PROCEDURE

**NOTICE:**

Be sure to read the Description before performing the following procedures.

**1.CHECK "MULTI-DISPLAY COMMUNICATION ERROR" IN FLOWCHART**

a. Refer to the Multi-display Communication Error (Click here).


NEXT
END

## DTC 63-41 Wrong Disc

## DTC 63-42 Disc cannot be Read

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 63-41 | An unsuitable disc is inserted. | • Disc<br>• Radio receiver assembly |
| 63-42 | The disc cannot be read. | |

### INSPECTION PROCEDURE

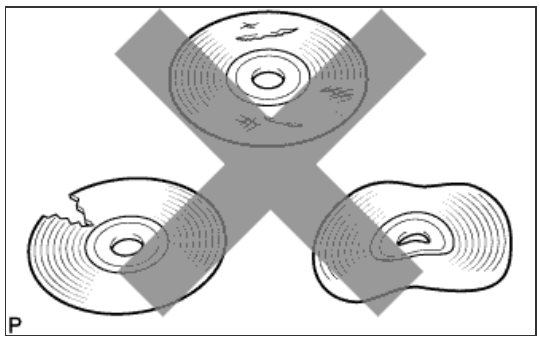
**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK DISC**

a. Check that the disc is not deformed or cracked.

**OK:**
**No deformations or cracks on the disc.**




NG → CHANGE DISC

OK

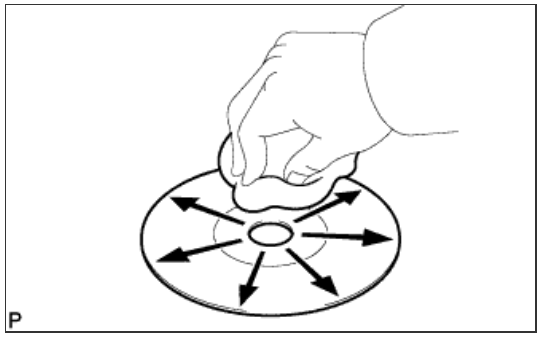
**2.DISC CLEANING**

a. Disc cleaning

i. If dirt is on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

**NOTICE:**

Do not use a conventional record cleaner or antistatic preservative.




NEXT

**3.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

4.RECHECK FOR DTC

a. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → Go to step 5

OK →

END

5.REPLACE DISC WITH ANOTHER AND RECHECK

a. Replace the disc and recheck.

i. Replace the disc with a normal one.

ii. Clear the DTCs (Click here).

iii. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK →

END

## DTC 01-D5 Absence of Registration Unit

## DTC 01-D8 No Response for Connection Check

## DTC 01-D9 Last Mode Error

## DTC 01-DA No Response Against ON / OFF Command

## DTC 01-DB Mode Status Error

## DTC 01-DE Slave Reset

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-D5*1, *3 | When either condition below is met:<br>• The component shown by the sub-code is (was) disconnected from the system when turning the engine switch on (ACC) or on (IG).<br>• The communication condition with the device that the code shows cannot be obtained when the engine starts. | • Power source circuit of component shown by sub-code<br>• AVC-LAN circuit between multi-display and component shown by sub-code<br>• Component shown by sub-code |
| 01-D8*2, *3 | The component shown by the sub-code is (was) disconnected from the system after the engine starts. | |
| 01-D9*1, *3 | The device that had functioned before the engine stopped is (was) disconnected from the system when the engine switch is (was) on (ACC) or on (IG). | |
| 01-DA*3 | When either condition below is met:<br>• No response is identified when changing modes.<br>• Sound and image do not change by switch operation. | |
| 01-DB*1, *3 | Dual alarm is detected. | |
| 01-DE*3 | The slave device has been disconnected after the engine starts. | |

**HINT:**

*1: Even if no fault is present, this trouble code may be stored depending on the battery condition or engine start voltage.

*2: If the power connector is disconnected after the engine starts, this code is stored after 180 seconds.

*3: If it is reported that the device does not exist during verification, check the power source circuit and AVC-LAN circuit for the device.

**NOTICE:**

- **Before starting troubleshooting, be sure to clear DTCs to clear codes stored due to the reasons described in the Hint above. Then, check for DTCs and troubleshoot according to the output DTCs.**
- **The multi-display is the master unit.**
- **Be sure to clear and recheck for DTCs after the inspection is completed to confirm that no DTCs are output.**

### INSPECTION PROCEDURE

**NOTICE:**

Be sure to read the Description before performing the following procedures.

**1.CHECK "MULTI-DISPLAY COMMUNICATION ERROR" IN FLOWCHART**

a. Refer to the Multi-display Communication Error (Click here).


NEXT
END

## DTC 63-43 CD-ROM Abnormal

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 63-43 | CD operation is abnormal. | • CD<br>• Radio receiver assembly |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK IF A PROPER CD IS INSERTED**

a. Make sure that the CD is an audio CD or a CD with an MP3 or WMA file, and that it is not deformed, flawed, stained, burred, or otherwise defective.

**OK:**
**Normal CD.**

**HINT:**

- **Translucent or uniquely-shaped CDs cannot be played.**
- **CDs with adhesive paper labels should not be played.**
- **Commercial audio CDs can be played.**
- **CD-DA files on CD-ROMs, CD-Rs, and CD-RWs can be played.**
- **MP3 and WMA files on CD-ROMs, CD-Rs, and CD-RWs can be played.**
- **For details on playable CDs, refer to the Owner's Manual.**

**NG** → **CD IS FAULTY**

**OK**

**2.REPLACE CD WITH ANOTHER AND RECHECK**

a. Replace the CD and recheck.

i. Replace the CD with a normal one.

ii. Clear the DTCs (Click here).

iii. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**END**

## DTC 01-D6 No Master

## DTC 01-D7 Connection Check Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-D6*1 | When either of the following conditions is met:<br>• The component which has stored the code has (had) been disconnected when the engine switch is on (ACC) or on (IG).<br>• The master device has (had) been disconnected when this code is stored. | • Multi-display power source circuit<br>• Power source circuit of component which has stored this code<br>• AVC-LAN circuit between the multi-display and the component which has stored this code<br>• Component which has stored this code<br>• Multi-display assembly |
| 01-D7*2 | When either of the following conditions is met:<br>• The component which has stored the code has (had) been disconnected after the engine starts (started).<br>• The master device has (had) been disconnected when this code is (was) stored. | |

**HINT:**

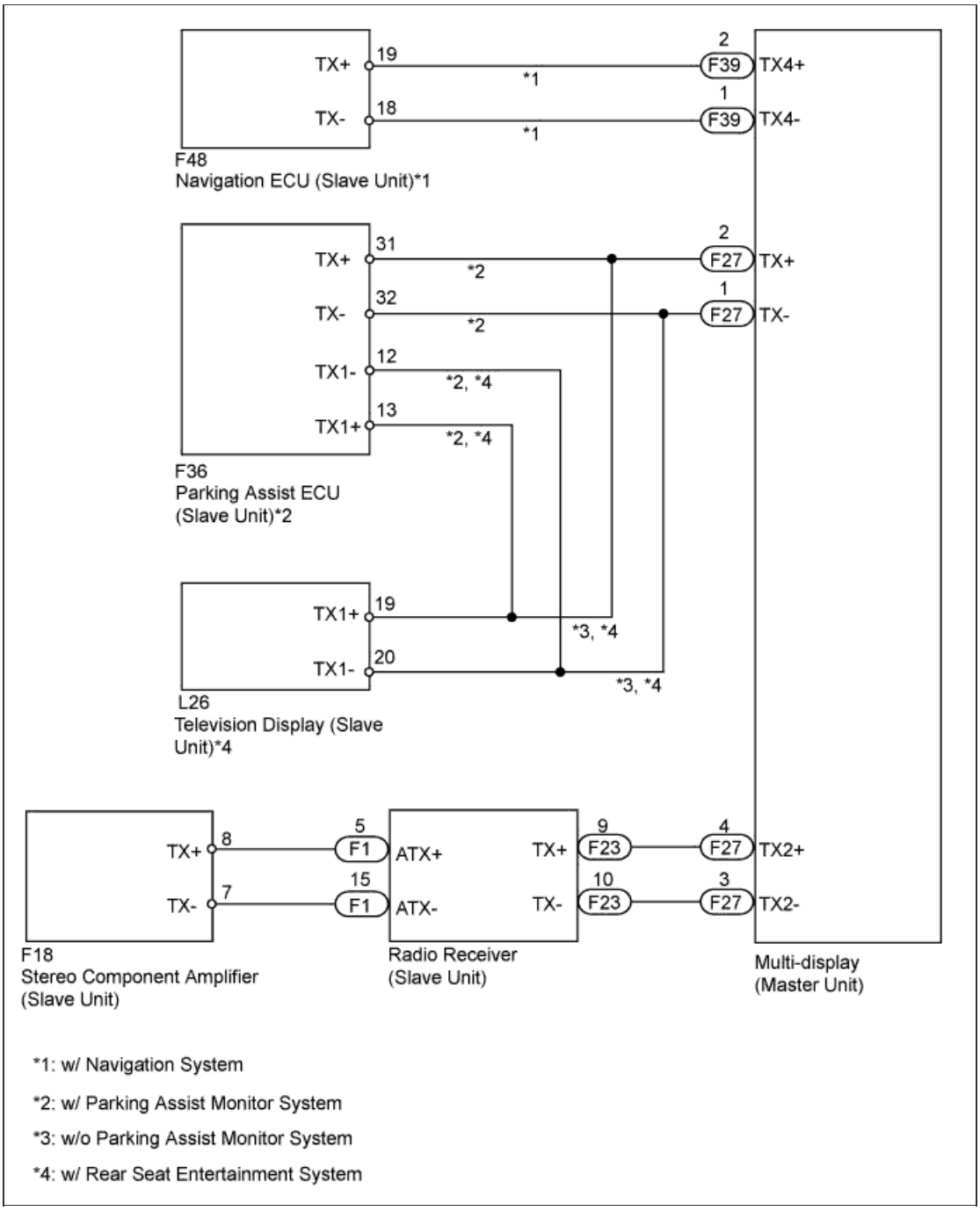
*1: Even if no fault is present, this trouble code may be stored depending on the battery condition or engine start voltage.

*2: When 210 seconds have elapsed after disconnecting the power supply connector of the master component with the engine switch on (ACC) or on (IG), this code is stored.

**NOTICE:**

- **Before starting troubleshooting, be sure to clear DTCs to clear codes stored due to the reasons described in the Hint above. Then, check for DTCs and troubleshoot according to the output DTCs.**
- **The multi-display is the master unit.**
- **Be sure to clear and recheck for DTCs after the inspection is completed to confirm that no DTCs are output.**

### WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Be sure to read the Description before performing the following procedures.

### 1.CHECK MULTI-DISPLAY POWER SOURCE CIRCUIT

a. Refer to the Multi-display Power Source Circuit ( Click here).

**NEXT**

### 2.IDENTIFY COMPONENT WHICH HAS STORED THIS CODE

a. Enter the diagnostic mode.

b. Press the "LAN Mon" switch to change to "LAN Monitor" mode.

c. Identify the component which has stored this code.

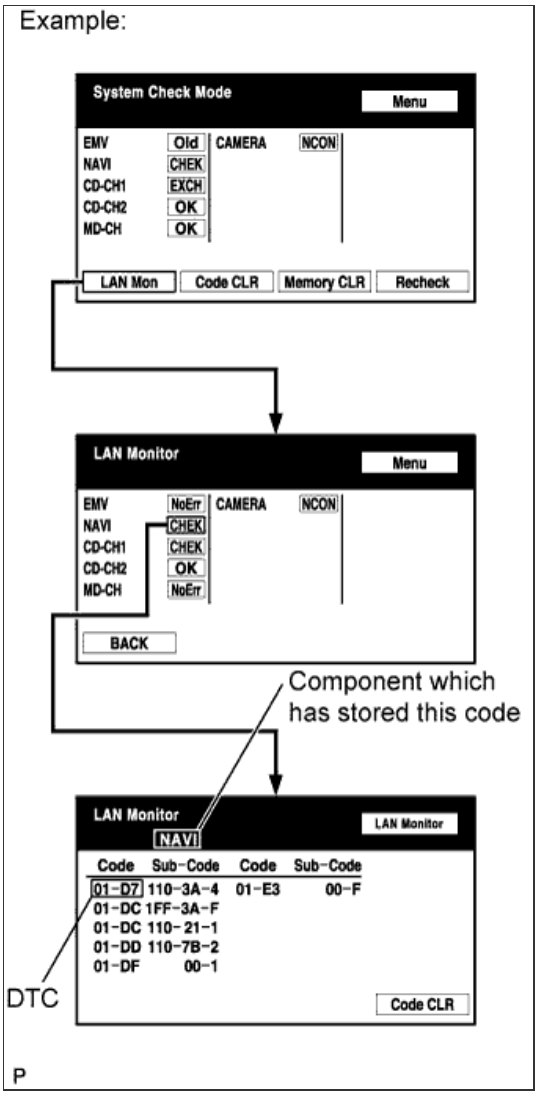
**Component Table**

| Display | Component |
|---|---|
| AUDIO | Radio receiver |
| DSP-AMP | Stereo component amplifier |
| CAMERA-C*1 | Parking assist ECU |
| NAVI*2 | Navigation ECU |
| RSE*3 | Television display |

*1: w/ Parking Assist Monitor System
*2: w/ Navigation System
*3: w/ Rear Seat Entertainment System

**HINT:**

"NAVI" is the component which has stored this code in the example shown in the illustration.




NEXT

## 3.CHECK POWER SOURCE CIRCUIT OF COMPONENT WHICH HAS STORED THIS CODE

a. Inspect the power source circuit of the component which has stored this code.

**Component Table**

| Display | Proceed to |
|---|---|
| Radio receiver (190) | Radio receiver power source circuit (Click here) |
| Stereo component amplifier (440) | Stereo component amplifier power source circuit (Click here) |
| Navigation ECU (178)*1 | Navigation ECU power source circuit (Click here) |
| Parking assist ECU (1AC)*2 | Parking assist ECU power source circuit (Click here) |
| Television display (1F6)*3 | Television display power source circuit (Click here) |

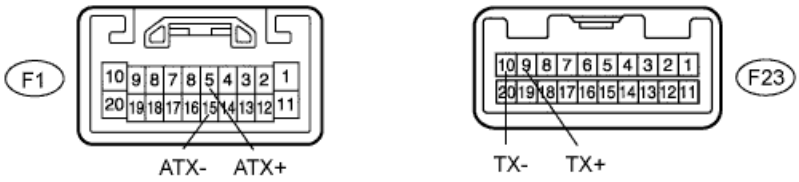
If the power source circuit is operating normally, proceed to the next step.

*1: w/ Navigation System
*2: w/ Parking Assist Monitor System
*3: w/ Rear Seat Entertainment System

NEXT

## 4.INSPECT RADIO RECEIVER ASSEMBLY

Component without harness connected:
(Radio Receiver)




a. Disconnect the F1 and F23 receiver connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-5 (ATX+) - F1-15 (ATX-) | Always | 60 to 80 Ω |
| F23-9 (TX+) - F23-10 (TX-) | Always | 60 to 80 Ω |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

**5.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - COMPONENT WHICH HAS STORED THIS CODE)**

**HINT:**

For details of the connectors, refer to Terminals of ECU ( Click here).

a. Check the AVC-LAN circuit between the multi-display and the component which has stored this code.

i. Disconnect all connectors between the multi-display and the component which has stored this code.

ii. Check for an open or short in the AVC-LAN circuit between the multi-display and the component which has stored this code.

**OK:**
**There is no open or short circuit.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**6.REPLACE COMPONENT WHICH HAS STORED THIS CODE**

a. Replace the component which has stored this code with a normal one and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (w/ Navigation System) | B |
| NG (w/o Navigation System) | C |

B → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

C → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

A

END

## DTC 63-44 CD Abnormal

## DTC 63-48 Excess Current

## DTC 63-50 Tray Insertion / Ejection Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 63-44 | An operation error in the CD mechanism. | Radio receiver assembly |
| 63-48 | Excess current is present in the CD changer. | |
| 63-50 | A malfunction in the insertion/ejection system. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.RECHECK FOR DTC**

a. Recheck for DTCs and check if the same trouble code is output.

**HINT:**

If DTCs are output frequently, replace the radio receiver.

**OK:**
**No DTC is output.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**END**

## DTC 01-D6 No Master

## DTC 01-D7 Connection Check Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-D6*1 | When either of the following conditions is met:<br>• The component which has stored the code has (had) been disconnected when the engine switch is on (ACC) or on (IG).<br>• The master device has (had) been disconnected when this code is stored. | • Multi-display power source circuit<br>• Power source circuit of component which has stored this code<br>• AVC-LAN circuit between the multi-display and the component which has stored this code<br>• Component which has stored this code<br>• Multi-display assembly |
| 01-D7*2 | When either of the following conditions is met:<br>• The component which has stored the code has (had) been disconnected after the engine starts (started).<br>• The master device has (had) been disconnected when this code is (was) stored. | |

**HINT:**

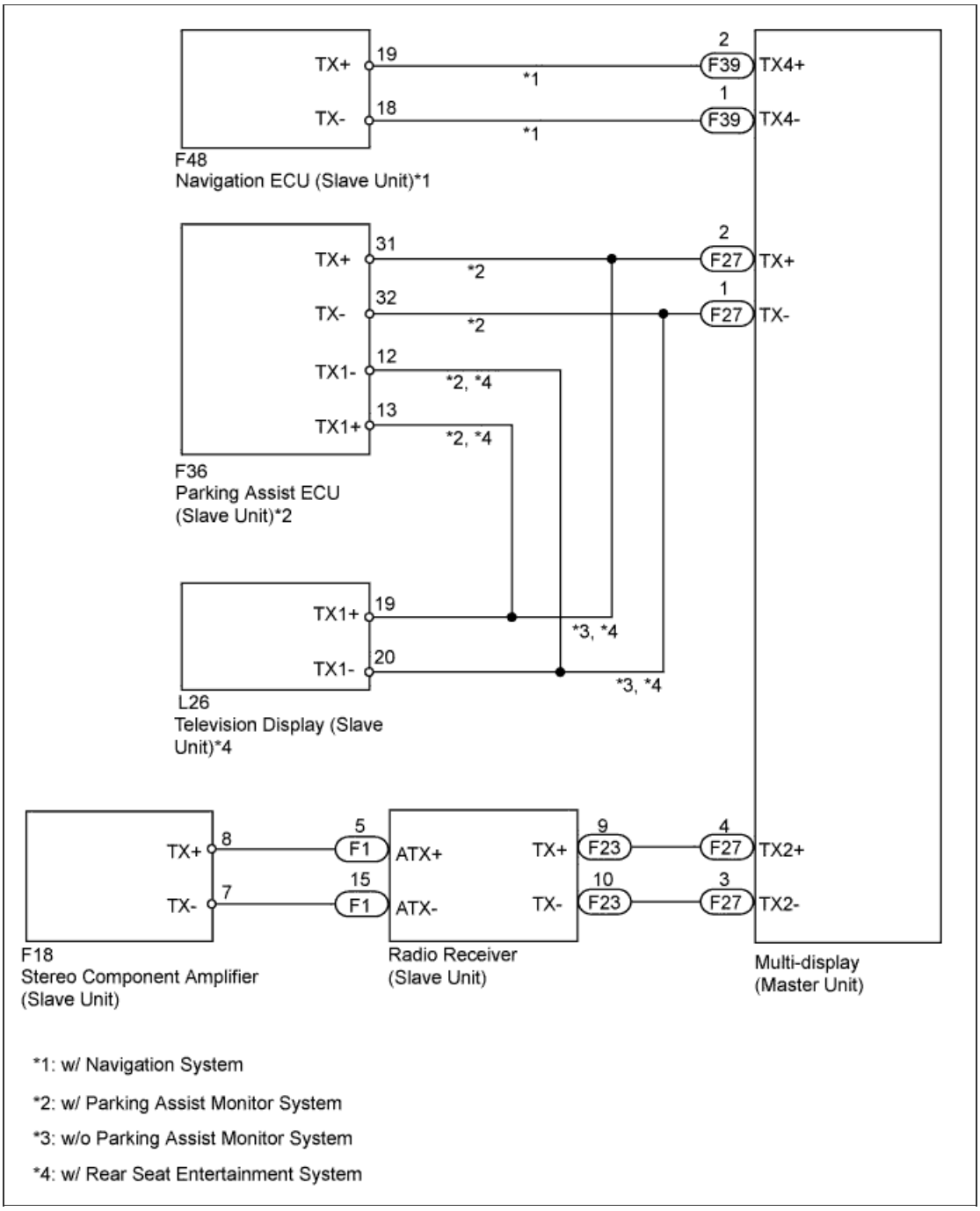
*1: Even if no fault is present, this trouble code may be stored depending on the battery condition or engine start voltage.

*2: When 210 seconds have elapsed after disconnecting the power supply connector of the master component with the engine switch on (ACC) or on (IG), this code is stored.

**NOTICE:**

- **Before starting troubleshooting, be sure to clear DTCs to clear codes stored due to the reasons described in the Hint above. Then, check for DTCs and troubleshoot according to the output DTCs.**
- **The multi-display is the master unit.**
- **Be sure to clear and recheck for DTCs after the inspection is completed to confirm that no DTCs are output.**

### WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Be sure to read the Description before performing the following procedures.

### 1.CHECK MULTI-DISPLAY POWER SOURCE CIRCUIT

a. Refer to the Multi-display Power Source Circuit ( Click here).

**NEXT**

### 2.IDENTIFY COMPONENT WHICH HAS STORED THIS CODE

a. Enter the diagnostic mode.

b. Press the "LAN Mon" switch to change to "LAN Monitor" mode.

c. Identify the component which has stored this code.

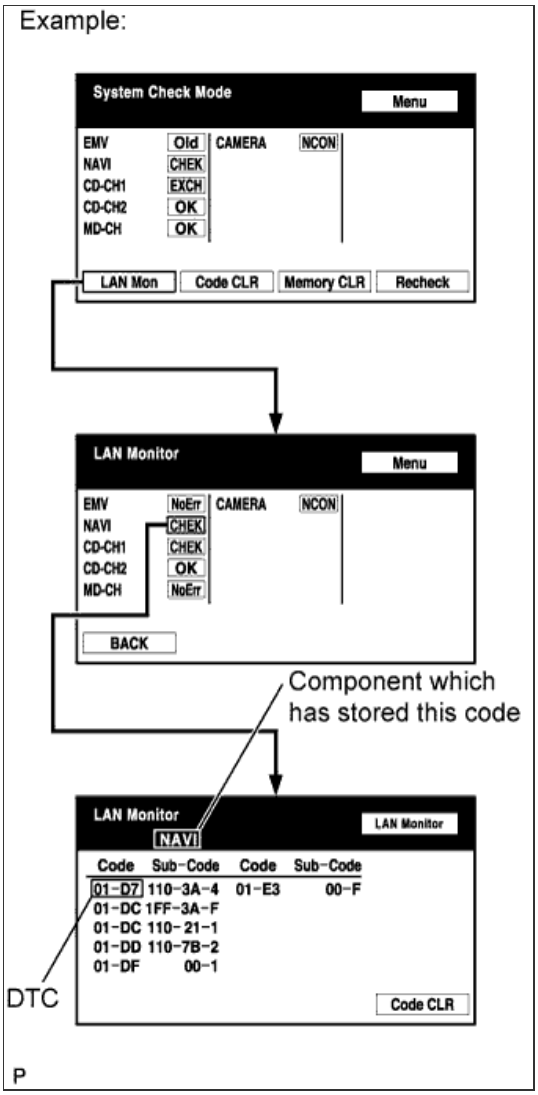
**Component Table**

| Display | Component |
|---|---|
| AUDIO | Radio receiver |
| DSP-AMP | Stereo component amplifier |
| CAMERA-C*1 | Parking assist ECU |
| NAVI*2 | Navigation ECU |
| RSE*3 | Television display |

*1: w/ Parking Assist Monitor System
*2: w/ Navigation System
*3: w/ Rear Seat Entertainment System

**HINT:**

"NAVI" is the component which has stored this code in the example shown in the illustration.




NEXT

## 3.CHECK POWER SOURCE CIRCUIT OF COMPONENT WHICH HAS STORED THIS CODE

a. Inspect the power source circuit of the component which has stored this code.

**Component Table**

| Display | Proceed to |
|---|---|
| Radio receiver (190) | Radio receiver power source circuit (Click here) |
| Stereo component amplifier (440) | Stereo component amplifier power source circuit (Click here) |
| Navigation ECU (178)*1 | Navigation ECU power source circuit (Click here) |
| Parking assist ECU (1AC)*2 | Parking assist ECU power source circuit (Click here) |
| Television display (1F6)*3 | Television display power source circuit (Click here) |

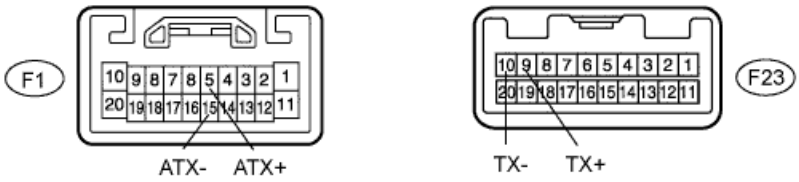
If the power source circuit is operating normally, proceed to the next step.

*1: w/ Navigation System
*2: w/ Parking Assist Monitor System
*3: w/ Rear Seat Entertainment System

NEXT

## 4.INSPECT RADIO RECEIVER ASSEMBLY

Component without harness connected:
(Radio Receiver)




a. Disconnect the F1 and F23 receiver connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-5 (ATX+) - F1-15 (ATX-) | Always | 60 to 80 Ω |
| F23-9 (TX+) - F23-10 (TX-) | Always | 60 to 80 Ω |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

**5.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - COMPONENT WHICH HAS STORED THIS CODE)**

**HINT:**

For details of the connectors, refer to Terminals of ECU ( Click here).

a. Check the AVC-LAN circuit between the multi-display and the component which has stored this code.

i. Disconnect all connectors between the multi-display and the component which has stored this code.

ii. Check for an open or short in the AVC-LAN circuit between the multi-display and the component which has stored this code.

**OK:**
**There is no open or short circuit.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**6.REPLACE COMPONENT WHICH HAS STORED THIS CODE**

a. Replace the component which has stored this code with a normal one and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (w/ Navigation System) | B |
| NG (w/o Navigation System) | C |

B → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

C → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

A

END

## DTC 63-44 CD Abnormal

## DTC 63-48 Excess Current

## DTC 63-50 Tray Insertion / Ejection Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 63-44 | An operation error in the CD mechanism. | Radio receiver assembly |
| 63-48 | Excess current is present in the CD changer. | |
| 63-50 | A malfunction in the insertion/ejection system. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.RECHECK FOR DTC**

a. Recheck for DTCs and check if the same trouble code is output.

**HINT:**

If DTCs are output frequently, replace the radio receiver.

**OK:**
**No DTC is output.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**END**

# DTC 01-DC Transmission Error

**for Preparation** Click here

## DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-DC | Transmission to the component shown by the sub-code failed (the storing of this DTC does not always mean actual failure). | If same sub-code is stored in other components, check harness of power supply and communication system of all components shown by code |

**NOTICE:**

- **The multi-display is the master unit.**
- **Be sure to clear and recheck for DTCs after the inspection is completed to confirm that no DTCs are output.**

## INSPECTION PROCEDURE

**NOTICE:**

Be sure to read the Description before performing the following procedures.

### 1.CHECK FOR DTC OF OTHER COMPONENTS

a. Check if the component shown by the sub-code is displayed in the check result of the other components.

i. Check if "01-DC" is output for the other components.

ii. If "01-DC" is output for any other components, check if the same physical address is displayed.

**HINT:**

For the list of the components shown by sub-codes, refer to the table in the step below.

**Result**

| Result | Proceed to |
|---|---|
| "01-DC" is not output or the same physical address is not displayed | A |
| "01-DC" is output and the same physical address is displayed | B |

**B** → Go to step 4

**A**

### 2.CLEAR DTC

a. Clear the DTCs (Click here).

**HINT:**

If "01-DC" is output for only one component, this may not indicate a malfunction.

**NEXT**

### 3.RECHECK FOR DTC

a. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

**Result**

| Result | Proceed to |
|---|---|

| | |
|---|---|
| OK | A |
| NG (w/ Navigation System) | B |
| NG (w/o Navigation System) | C |

B → Go to step 6

C → Go to step 7

A

USE SIMULATION METHOD TO CHECK (Click here)

## 4.IDENTIFY COMPONENT WHICH HAS STORED THIS CODE

a. Enter the diagnostic mode.

b. Press the "LAN Mon" switch to change to "LAN Monitor" mode.

c. Identify the component which has stored this code.

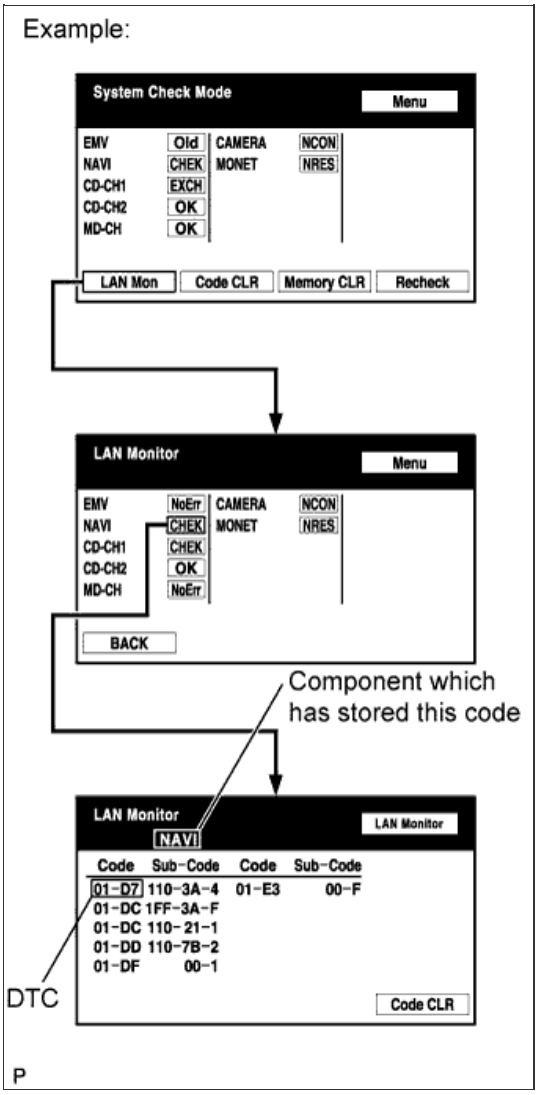
**Component Table**

| Display | Component |
|---|---|
| AUDIO | Radio receiver |
| DSP-AMP | Stereo component amplifier |
| EMV | Multi-display |
| NAVI*3 | Navigation ECU |
| RSE*1 | Television display |
| CAMERA-C*2 | Parking assist ECU |

*1: w/ Rear Seat Entertainment System
*2: w/ Parking Assist Monitor System
*3: w/ Navigation System

**HINT:**

"NAVI" is the component which has stored this code in the example shown in the illustration.




NEXT

## 5.CHECK NAVIGATION SYSTEM

a. Check if the navigation system is equipped on the vehicle.

**Result**

| Result | Proceed to |
|---|---|
| w/ Navigation System | A |
| w/o Navigation System | B |

B → Go to step 7

A

## 6.CHECK COMPONENT WHICH HAS STORED THIS CODE

a. Select the component which has stored this code.

**Component Table**

| Display | Proceed to |
|---|---|
| Radio receiver (AUDIO) | Radio receiver communication error (Click here) |
| Stereo component amplifier (DSP-AMP) | Stereo component amplifier communication error (Click here) |
| Multi-display (EMV) | Multi-display communication error (Click here) |
| Television display (RSE)*1 | Television display assembly communication error (Click here) |
| Parking assist ECU (CAMERA-C)*2 | Parking assist ECU communication error (Click here) |
| Navigation ECU (NAVI) | Navigation ECU communication error (Click here) |

*1: w/ Rear Seat Entertainment System
*2: w/ Parking Assist Monitor System

NEXT

END

## 7.CHECK COMPONENT WHICH HAS STORED THIS CODE

a. Select the component which has stored this code.

**Component Table**

| Display | Proceed to |
|---|---|
| Radio receiver (AUDIO) | Radio receiver communication error (Click here) |
| Stereo component amplifier (DSP-AMP) | Stereo component amplifier communication error (Click here) |
| Multi-display (EMV) | Multi-display communication error (Click here) |
| Television display (RSE)*1 | Television display assembly communication error (Click here) |
| Parking assist ECU (CAMERA-C)*2 | Parking assist ECU communication error (Click here) |

*1: w/ Rear Seat Entertainment System
*2: w/ Parking Assist Monitor System

NEXT

END

## DTC 63-44 CD Abnormal

## DTC 63-48 Excess Current

## DTC 63-50 Tray Insertion / Ejection Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 63-44 | An operation error in the CD mechanism. | Radio receiver assembly |
| 63-48 | Excess current is present in the CD changer. | |
| 63-50 | A malfunction in the insertion/ejection system. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.RECHECK FOR DTC**

a. Recheck for DTCs and check if the same trouble code is output.

**HINT:**

If DTCs are output frequently, replace the radio receiver.

**OK:**
**No DTC is output.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**END**

## DTC 01-DD Master Reset

## DTC 01-E1 Voice Processing Device ON Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-DD | The device that should be the master has been disconnected after the engine starts. | • Multi-display power source circuit<br>• AVC-LAN circuit between multi-display and component which has stored this code<br>• Multi-display assembly<br>• Component which has stored this code |
| 01-E1* | The amplifier device records that the amplifier output does not function even while the source device is operating. | |

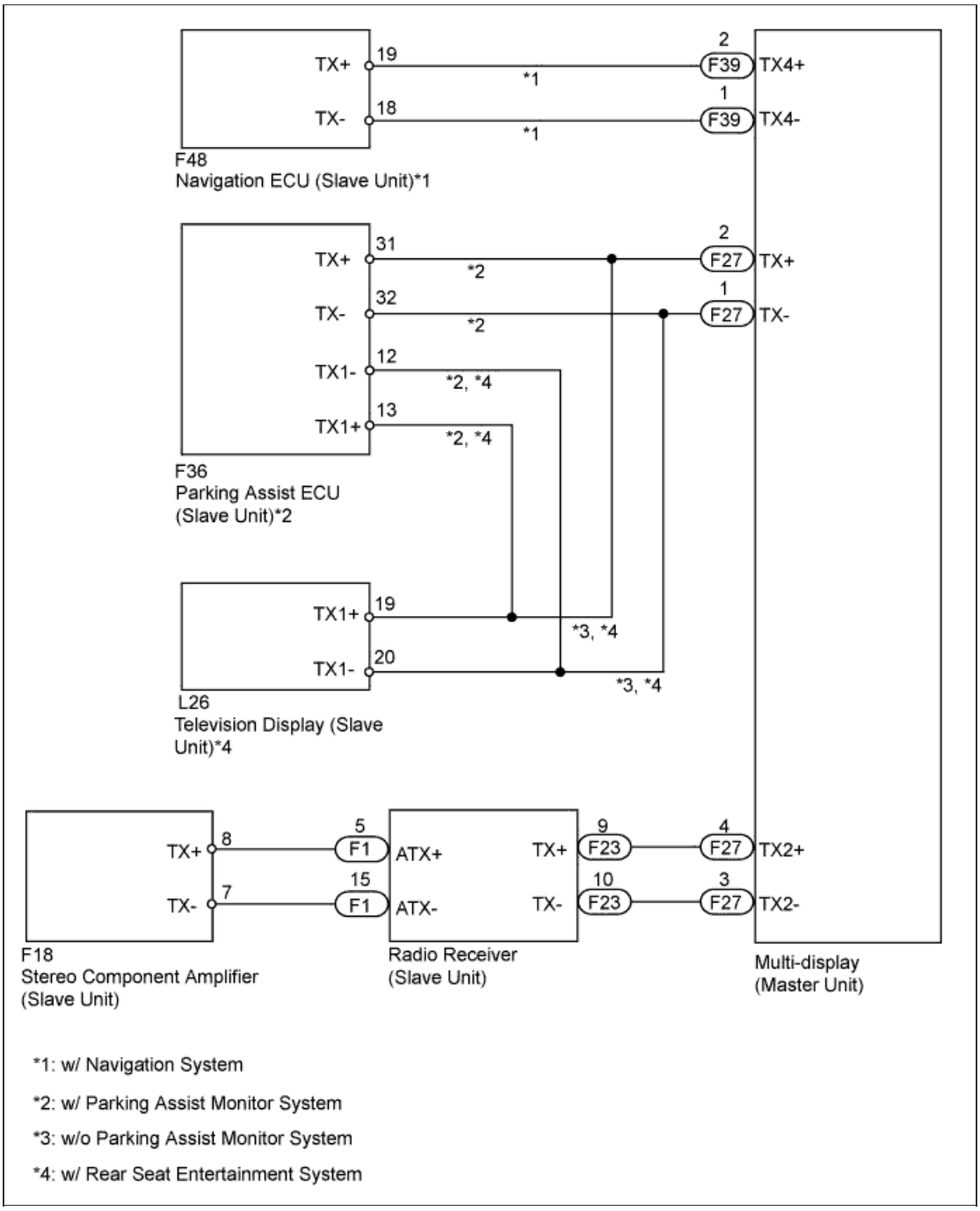
**HINT:**

*: Even if no fault is present, this trouble code may be stored depending on the battery condition or engine start voltage.

**NOTICE:**

- **Before starting troubleshooting, be sure to clear DTCs to clear codes stored due to the reasons described in the Hint above. Then, check for DTCs and troubleshoot according to the output DTCs.**
- **The multi-display is the master unit.**
- **Be sure to clear and recheck for DTCs after the inspection is completed to confirm that no DTCs are output.**

### WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

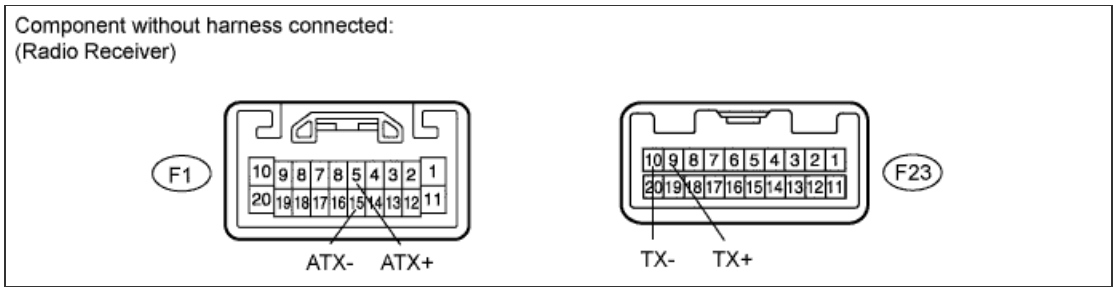
Be sure to read the Description before performing the following procedures.

### 1.CHECK MULTI-DISPLAY POWER SOURCE CIRCUIT

a. Refer to the Multi-display Power Source Circuit ( Click here).
If the power source circuit is operating normally, proceed to the next step.

**NEXT**

### 2.INSPECT RADIO RECEIVER ASSEMBLY




a. Disconnect the F1 and F23 receiver connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-5 (ATX+) - F1-15 (ATX-) | Always | 60 to 80 Ω |
| F23-9 (TX+) - F23-10 (TX-) | Always | 60 to 80 Ω |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

## 3.IDENTIFY COMPONENT WHICH HAS STORED THIS CODE

a. Enter the diagnostic mode.

b. Press the "LAN Mon" switch to change to "LAN Monitor" mode.

c. Identify the component which has stored this code.

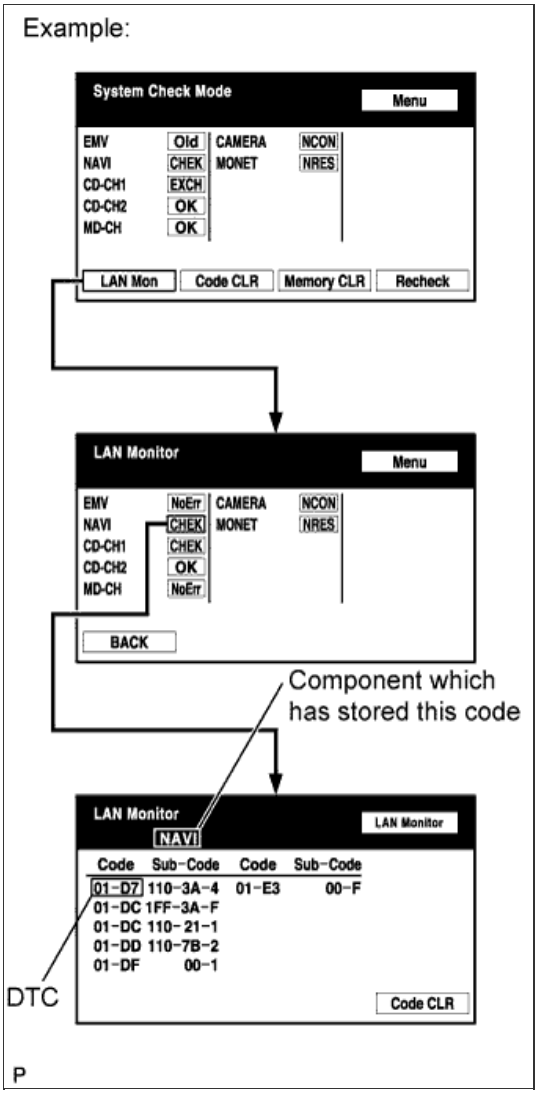
**Component Table**

| Display | Component |
|---|---|
| AUDIO | Radio receiver |
| DSP-AMP | Stereo component amplifier |
| CAMERA-C*1 | Parking assist ECU |
| NAVI*2 | Navigation ECU |
| RSE*3 | Television display |

*1: w/ Parking Assist Monitor System
*2: w/ Navigation System
*3: w/ Rear Seat Entertainment System

**HINT:**

"NAVI" is the component which has stored this code in the example shown in the illustration.



NEXT

4.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - COMPONENT WHICH HAS STORED THIS CODE)

**HINT:**

For details of the connectors, refer to Terminals of ECU ( Click here).

a. Referring to the AVC-LAN wiring diagram, check the AVC-LAN circuit between the multi-display and the component which has stored this code.

i. Disconnect all connectors between the multi-display and the component which has stored this code.

ii. Check for an open or short in the AVC-LAN circuit between the multi-display and the component which has stored this code.

**OK:**
**There is no open or short circuit.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

5.REPLACE MULTI-DISPLAY WITH NORMAL ONE AND CHECK

a. w/ Navigation System: Replace multi-display with a normal one and check if the same problem occurs again ( Click here).

b. w/o Navigation System: Replace multi-display with a normal one and check if the same problem occurs again ( Click here).

NG → REPLACE COMPONENT WHICH HAS STORED THIS CODE

OK

END

## DTC 63-45 Eject Error

## DTC 63-51 Elevator Error

## DTC 63-52 Clamp Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 63-45 | The magazine cannot be ejected. | Radio receiver assembly |
| 63-51 | A mechanical error occurs during the elevator operation. | |
| 63-52 | An error occurs in the CD changer clamp. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK RADIO RECEIVER ASSEMBLY**

a. Check if a disc can be changed, inserted, or ejected normally.

**OK:**
**Malfunction disappears.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**END**

## DTC 01-DD Master Reset

## DTC 01-E1 Voice Processing Device ON Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-DD | The device that should be the master has been disconnected after the engine starts. | • Multi-display power source circuit<br>• AVC-LAN circuit between multi-display and component which has stored this code<br>• Multi-display assembly<br>• Component which has stored this code |
| 01-E1* | The amplifier device records that the amplifier output does not function even while the source device is operating. | |

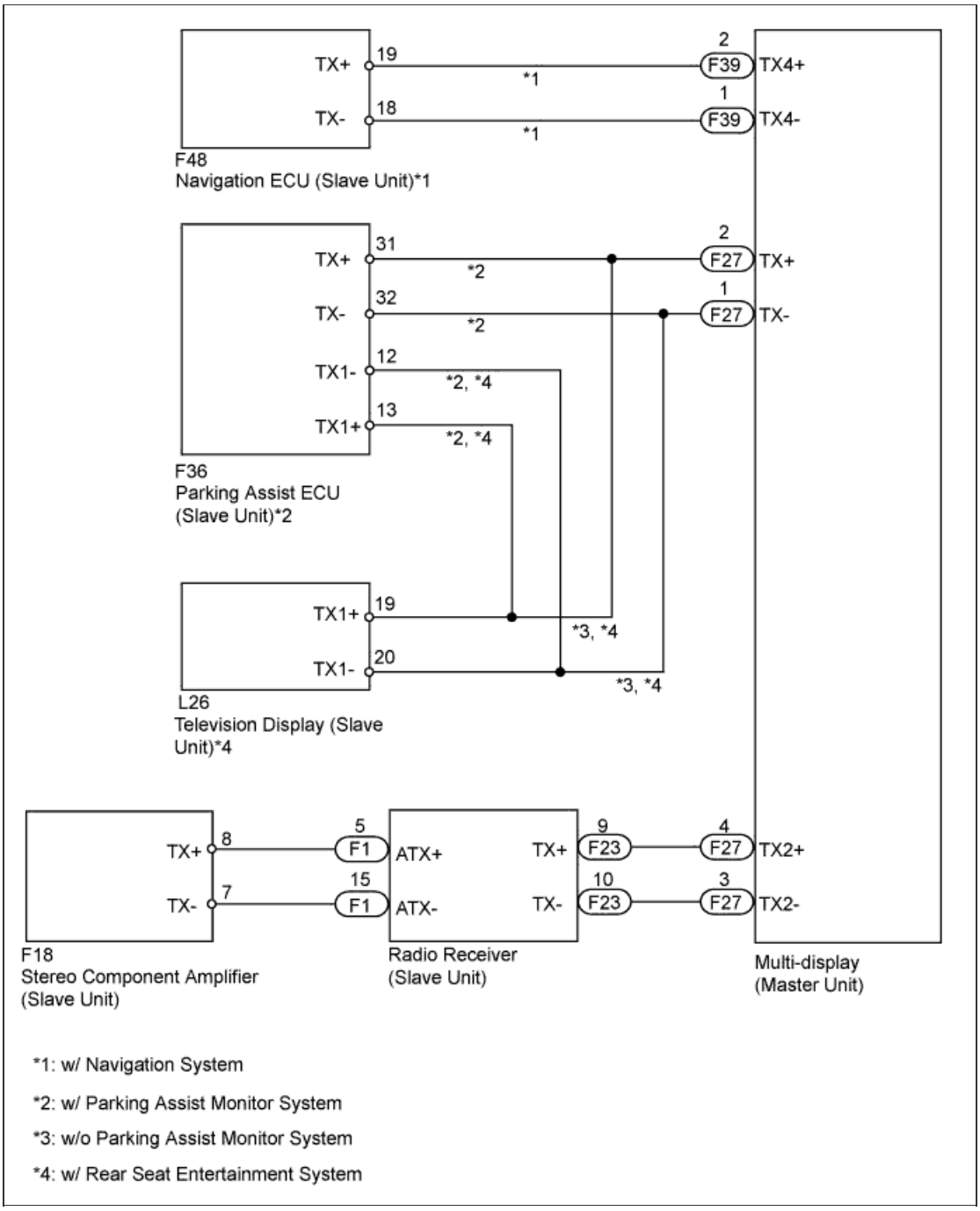
**HINT:**

*: Even if no fault is present, this trouble code may be stored depending on the battery condition or engine start voltage.

**NOTICE:**

- **Before starting troubleshooting, be sure to clear DTCs to clear codes stored due to the reasons described in the Hint above. Then, check for DTCs and troubleshoot according to the output DTCs.**
- **The multi-display is the master unit.**
- **Be sure to clear and recheck for DTCs after the inspection is completed to confirm that no DTCs are output.**

### WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

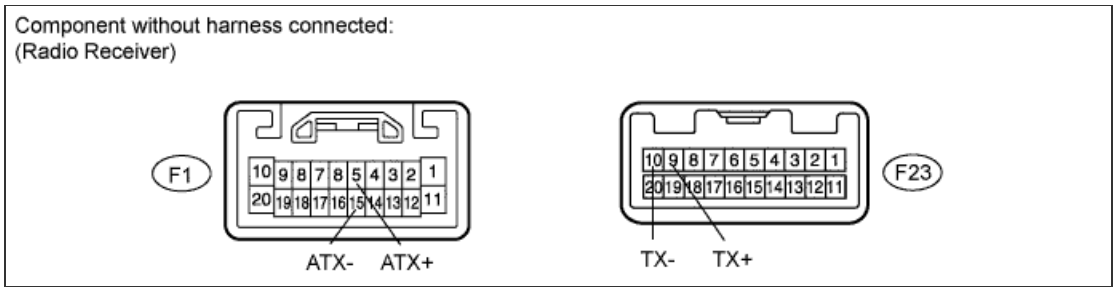
Be sure to read the Description before performing the following procedures.

### 1.CHECK MULTI-DISPLAY POWER SOURCE CIRCUIT

a. Refer to the Multi-display Power Source Circuit ( Click here).
If the power source circuit is operating normally, proceed to the next step.

**NEXT**

### 2.INSPECT RADIO RECEIVER ASSEMBLY




a. Disconnect the F1 and F23 receiver connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-5 (ATX+) - F1-15 (ATX-) | Always | 60 to 80 Ω |
| F23-9 (TX+) - F23-10 (TX-) | Always | 60 to 80 Ω |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

## 3.IDENTIFY COMPONENT WHICH HAS STORED THIS CODE

a. Enter the diagnostic mode.

b. Press the "LAN Mon" switch to change to "LAN Monitor" mode.

c. Identify the component which has stored this code.

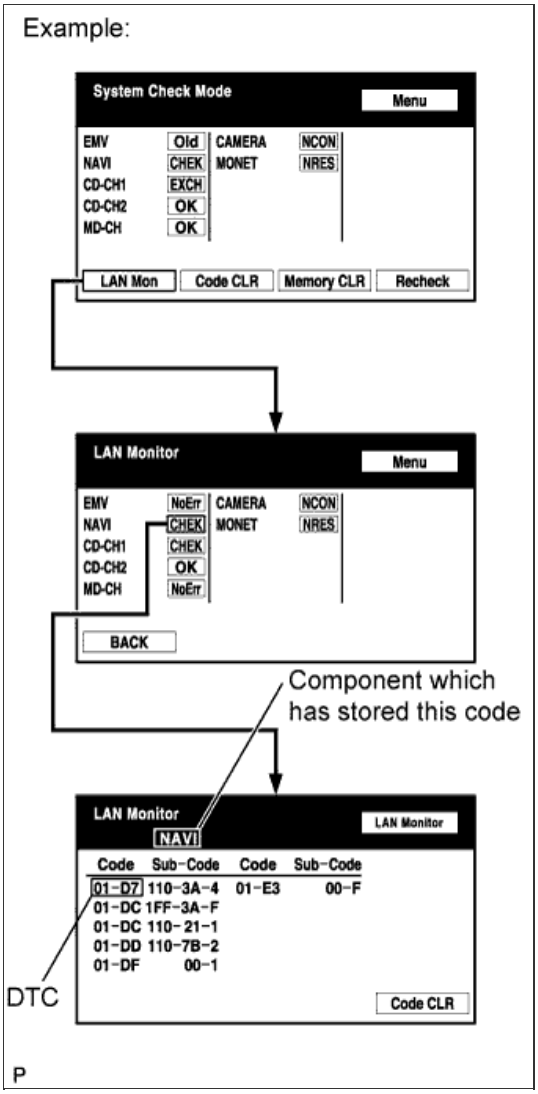
**Component Table**

| Display | Component |
|---|---|
| AUDIO | Radio receiver |
| DSP-AMP | Stereo component amplifier |
| CAMERA-C*1 | Parking assist ECU |
| NAVI*2 | Navigation ECU |
| RSE*3 | Television display |

*1: w/ Parking Assist Monitor System
*2: w/ Navigation System
*3: w/ Rear Seat Entertainment System

**HINT:**

"NAVI" is the component which has stored this code in the example shown in the illustration.



NEXT

4.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - COMPONENT WHICH HAS STORED THIS CODE)

**HINT:**

For details of the connectors, refer to Terminals of ECU ( Click here).

a. Referring to the AVC-LAN wiring diagram, check the AVC-LAN circuit between the multi-display and the component which has stored this code.

i. Disconnect all connectors between the multi-display and the component which has stored this code.

ii. Check for an open or short in the AVC-LAN circuit between the multi-display and the component which has stored this code.

**OK:**
**There is no open or short circuit.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

5.REPLACE MULTI-DISPLAY WITH NORMAL ONE AND CHECK

a. w/ Navigation System: Replace multi-display with a normal one and check if the same problem occurs again ( Click here).

b. w/o Navigation System: Replace multi-display with a normal one and check if the same problem occurs again ( Click here).

NG → REPLACE COMPONENT WHICH HAS STORED THIS CODE

OK

END

## DTC 63-45 Eject Error

## DTC 63-51 Elevator Error

## DTC 63-52 Clamp Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 63-45 | The magazine cannot be ejected. | Radio receiver assembly |
| 63-51 | A mechanical error occurs during the elevator operation. | |
| 63-52 | An error occurs in the CD changer clamp. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK RADIO RECEIVER ASSEMBLY**

a. Check if a disc can be changed, inserted, or ejected normally.

**OK:**
**Malfunction disappears.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**END**

## DTC 01-DF Master Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-DF* | When either condition below is met:<br>• The device with a display fails and the master is switched to the audio device.<br>• A communication error between the sub-master (radio receiver) and master occurs. | • Multi-display power source circuit<br>• AVC-LAN circuit between multi-display and component which has stored this code<br>• AVC-LAN circuit between multi-display and radio receiver<br>• Multi-display assembly<br>• Component which has stored this code |

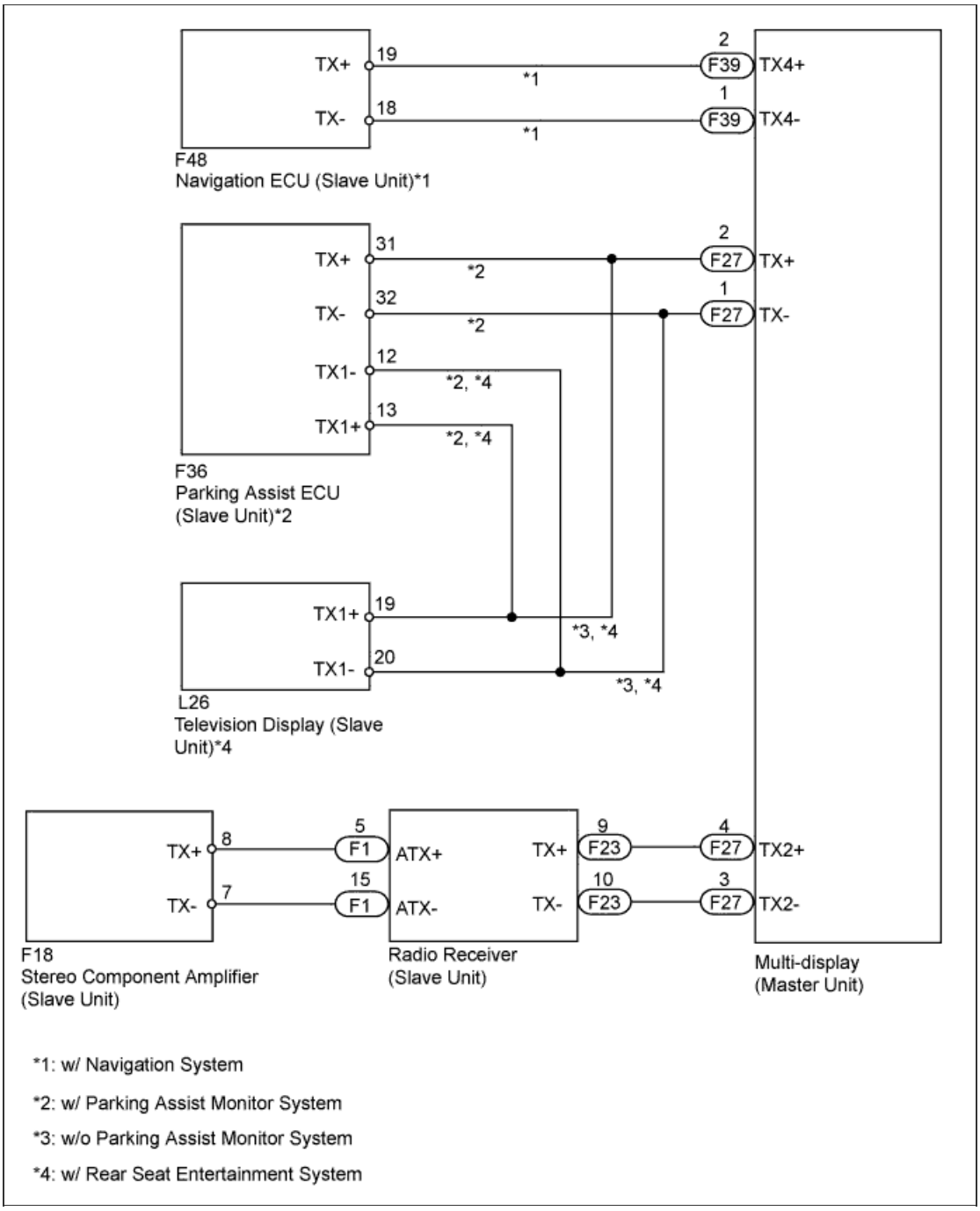
**HINT:**

*: When 210 seconds have elapsed after disconnecting the power supply connector of the master component with the engine switch on (ACC) or on (IG), this code is stored.

**NOTICE:**

- **Before starting troubleshooting, be sure to clear DTCs to clear codes stored due to the reasons described in the Hint above. Then, check for DTCs and troubleshoot according to the output DTCs.**
- **The multi-display is the master unit.**
- **Be sure to clear and recheck for DTCs after the inspection is completed to confirm that no DTCs are output.**

### WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Be sure to read the Description before performing the following procedures.

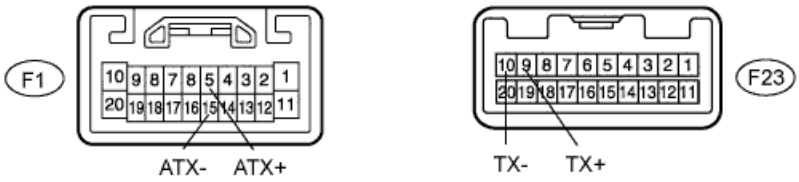
### 1.CHECK MULTI-DISPLAY ASSEMBLY

a. Refer to the Multi-display Power Source Circuit ( Click here).
If the power source circuit is operating normally, proceed to the next step.

**NEXT**

### 2.INSPECT RADIO RECEIVER ASSEMBLY

Component without harness connected:
(Radio Receiver)




a. Disconnect the F1 and F23 receiver connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-5 (ATX+) - F1-15 (ATX-) | Always | 60 to 80 Ω |
| F23-9 (TX+) - F23-10 (TX-) | Always | 60 to 80 Ω |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

## 3.IDENTIFY COMPONENT WHICH HAS STORED THIS CODE

a. Enter the diagnostic mode.

b. Press the "LAN Mon" switch to change to "LAN Monitor" mode.

c. Identify the component which has stored this code.

**Component Table**

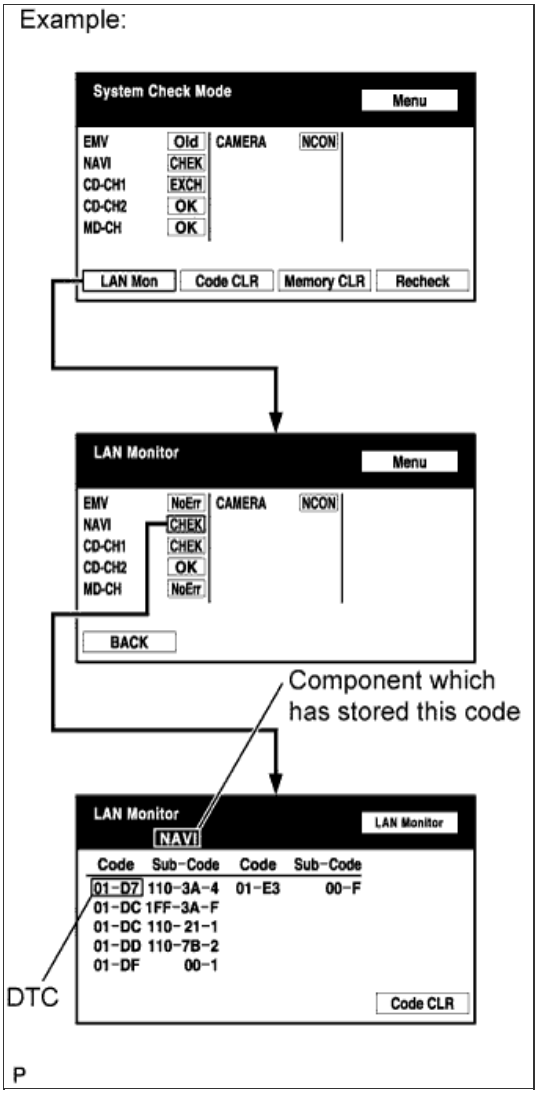
| Display | Component |
|---|---|
| AUDIO | Radio receiver |
| DSP-AMP | Stereo component amplifier |
| NAVI*1 | Navigation ECU |
| EMV | Multi-display |
| CAMERA-C*2 | Parking assist ECU |
| RSE*3 | Television display |

*1: w/ Navigation System
*2: w/ Parking Assist Monitor System
*3: w/ Rear Seat Entertainment System

**HINT:**

"NAVI" is the component which has stored this code in the example shown in the illustration.

Example:




P

NEXT

4.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - COMPONENT WHICH HAS STORED THIS CODE)

**HINT:**

For details of the connectors, refer to Terminals of ECU ( Click here).

a. Referring to the AVC-LAN wiring diagram, check the AVC-LAN circuit between the multi-display and the component which has stored this code.

i. Disconnect all connectors between the multi-display and the component which has stored this code.

ii. Check for an open or short in the AVC-LAN circuit between the multi-display and the component which has stored this code.

**OK:**
**There is no open or short circuit.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

5.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - RADIO RECEIVER)

**HINT:**

For details of the connectors, refer to Terminals of ECU ( Click here).

a. Referring to the AVC-LAN wiring diagram, check the AVC-LAN circuit between the multi-display and the radio receiver.

i. Disconnect all connectors between the multi-display and the radio receiver.

ii. Check for an open or short in the AVC-LAN circuit between the multi-display and the radio receiver.

**OK:**
**There is no open or short circuit.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

6.REPLACE MULTI-DISPLAY WITH NORMAL ONE AND CHECK

a. w/ Navigation System: Replace the multi-display with a normal one and check if the same problem occurs again ( Click here).

b. w/o Navigation System: Replace the multi-display with a normal one and check if the same problem occurs again ( Click here).

NG → REPLACE COMPONENT WHICH HAS STORED THIS CODE

OK

END

## DTC 63-45 Eject Error

## DTC 63-51 Elevator Error

## DTC 63-52 Clamp Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 63-45 | The magazine cannot be ejected. | Radio receiver assembly |
| 63-51 | A mechanical error occurs during the elevator operation. | |
| 63-52 | An error occurs in the CD changer clamp. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK RADIO RECEIVER ASSEMBLY**

a. Check if a disc can be changed, inserted, or ejected normally.

**OK:**
**Malfunction disappears.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**END**

## DTC 01-E0 Registration Complete Indication Error

## DTC 01-E3 Registration Demand Transmission

## DTC 01-E4 Multiple Frame Incomplete

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-E0 | A "Registration complete" signal from the master device cannot be received. | - |
| 01-E3 | A registration demand signal from the slave device is output, or a registration demand signal is output by receiving a connection confirmation signal from the sub-master device. | - |
| 01-E4 | Multiple frame transmission is incomplete. | - |

**HINT:**

Even if no fault is present, this trouble code may be stored depending on the battery condition or engine start voltage.

### INSPECTION PROCEDURE

**HINT:**

- **After the inspection is completed, clear the DTCs (Click here).**
- **These DTCs do not indicate a malfunction.**

# DTC 63-46 Scratched / Reversed Disc

**for Preparation** Click here

## DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 63-46 | Scratches or dirt is found on the CD surface or the CD is inserted upside down. | • CD<br>• Radio receiver assembly |

## INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

### 1.CHECK THAT CD IS INSERTED PROPERLY

a. Check that the CD is not inserted upside down.

**OK:**
**CD is properly inserted.**

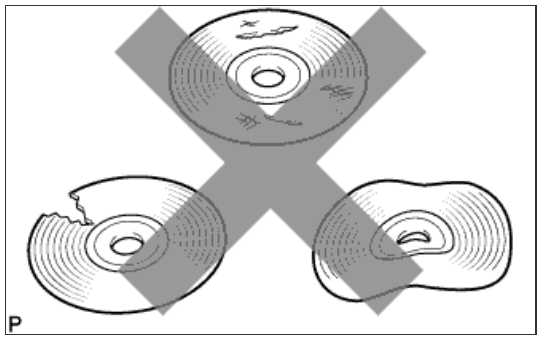
NG → INSERT CD PROPERLY

OK ↓

### 2.CHECK DISC

a. Check that the disc is not deformed or cracked.

**OK:**
**No deformations or cracks on the disc.**




NG → CHANGE DISC

OK ↓

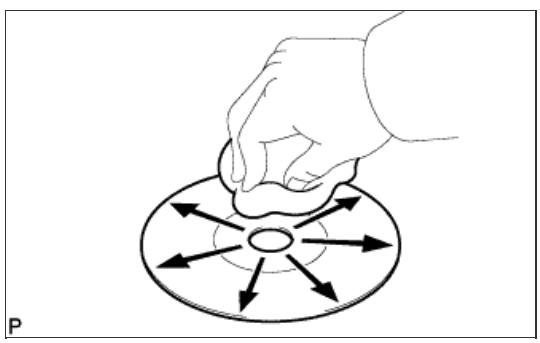
### 3.DISC CLEANING

a. Disc cleaning

i. If dirt is on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

**NOTICE:**

Do not use a conventional record cleaner or antistatic preservative.



NEXT

4.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

5.RECHECK FOR DTC

a. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → Go to step 6

OK

END

6.REPLACE DISC WITH ANOTHER AND RECHECK

a. Replace the disc and recheck.

i. Replace the disc with a normal one.

ii. Clear the DTCs (Click here).

iii. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (**Click here**)

OK

END

## DTC 01-E0 Registration Complete Indication Error

## DTC 01-E3 Registration Demand Transmission

## DTC 01-E4 Multiple Frame Incomplete

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-E0 | A "Registration complete" signal from the master device cannot be received. | - |
| 01-E3 | A registration demand signal from the slave device is output, or a registration demand signal is output by receiving a connection confirmation signal from the sub-master device. | - |
| 01-E4 | Multiple frame transmission is incomplete. | - |

**HINT:**

Even if no fault is present, this trouble code may be stored depending on the battery condition or engine start voltage.

### INSPECTION PROCEDURE

**HINT:**

- **After the inspection is completed, clear the DTCs (Click here).**
- **These DTCs do not indicate a malfunction.**

## DTC 63-47 High Temperature

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 63-47 | The sensor detects that the CD unit temperature is high (higher than 80°C (176°F)). | Radio receiver assembly |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK RADIO RECEIVER ASSEMBLY**

a. Park the vehicle in a cool place.

b. Check that the temperature of the radio receiver has become sufficiently low, then start the engine. Check that the malfunction disappears.

**OK:**
**Malfunction disappears.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**END**

## DTC 01-E0 Registration Complete Indication Error

## DTC 01-E3 Registration Demand Transmission

## DTC 01-E4 Multiple Frame Incomplete

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-E0 | A "Registration complete" signal from the master device cannot be received. | - |
| 01-E3 | A registration demand signal from the slave device is output, or a registration demand signal is output by receiving a connection confirmation signal from the sub-master device. | - |
| 01-E4 | Multiple frame transmission is incomplete. | - |

**HINT:**

Even if no fault is present, this trouble code may be stored depending on the battery condition or engine start voltage.

### INSPECTION PROCEDURE

**HINT:**

- **After the inspection is completed, clear the DTCs (Click here).**
- **These DTCs do not indicate a malfunction.**

## DTC 63-78 DSP Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 63-78 | An error occurs during the decode process (MP3/WMA). | Radio receive assembly |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**NOTICE:**

- **This code may be output even if there is no malfunction.**
- **If this code is output frequently, replace the radio receiver.**

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.RECHECK DTC**

a. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**END**

## DTC 01-E2 ON / OFF Indication Parameter Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-E2 | A signal for ON/OFF control from the master device has a problem. | Multi-display assembly |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY ASSEMBLY**

a. w/ Navigation System: Replace the multi-display (Click here).

b. w/o Navigation System: Replace the multi-display (Click here).

**NEXT**

**END**

## DTC 63-7D Disc cannot be Played

## DTC 63-7E No Playable Files

## DTC 63-7F Copyright Protection Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 63-7D | When either condition below is met:<br>• An incompatible MP3 or WMA file is used.<br>• Although the file has the extension of ".mp3" or ".wma", the header information cannot be read. | • Disc<br>• Radio receiver assembly |
| 63-7E | When either condition below is met:<br>• A disc with no music data is used.<br>• Playable files are not on the disc (MP3 or WMA). | |
| 63-7F | A copy-protected file which cannot be played is used. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHANGE DISC**

a. Insert a disc with a playable file and check if the disc can be played correctly.

**HINT:**

For details on playable files and discs, refer to the Owner's Manual.

**OK:**

**The disc can be played correctly.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**DISC IS FAULTY**

## DTC 21-10 Panel Switch Error

## DTC 21-11 Touch Switch Error

## DTC 23-10 Panel Switch Error

## DTC 23-11 Touch Switch Error

## DTC 24-10 Panel Switch Error

## DTC 24-11 Touch Switch Error

## DTC 25-10 Panel Switch Error

## DTC 25-11 Touch Switch Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 21-10 | The panel switch detection circuit has a problem. | Multi-display assembly |
| 21-11 | The touch panel switch has a problem. | |
| 23-10 | The panel switch detection circuit has a problem. | |
| 23-11 | The touch panel switch has a problem. | |
| 24-10 | The panel switch detection circuit has a problem. | |
| 24-11 | The touch panel switch has a problem. | |
| 25-10 | The panel switch detection circuit has a problem. | |
| 25-11 | The touch panel switch has a problem. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY ASSEMBLY**

a. w/ Navigation System: Replace the multi-display (Click here).

b. w/o Navigation System: Replace the multi-display (Click here).

**NEXT**

**END**

## DTC 63-7D Disc cannot be Played

## DTC 63-7E No Playable Files

## DTC 63-7F Copyright Protection Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 63-7D | When either condition below is met:<br>• An incompatible MP3 or WMA file is used.<br>• Although the file has the extension of ".mp3" or ".wma", the header information cannot be read. | • Disc<br>• Radio receiver assembly |
| 63-7E | When either condition below is met:<br>• A disc with no music data is used.<br>• Playable files are not on the disc (MP3 or WMA). | |
| 63-7F | A copy-protected file which cannot be played is used. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHANGE DISC**

a. Insert a disc with a playable file and check if the disc can be played correctly.

**HINT:**

For details on playable files and discs, refer to the Owner's Manual.

**OK:**

**The disc can be played correctly.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**DISC IS FAULTY**

## DTC 21-10 Panel Switch Error

## DTC 21-11 Touch Switch Error

## DTC 23-10 Panel Switch Error

## DTC 23-11 Touch Switch Error

## DTC 24-10 Panel Switch Error

## DTC 24-11 Touch Switch Error

## DTC 25-10 Panel Switch Error

## DTC 25-11 Touch Switch Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 21-10 | The panel switch detection circuit has a problem. | Multi-display assembly |
| 21-11 | The touch panel switch has a problem. | |
| 23-10 | The panel switch detection circuit has a problem. | |
| 23-11 | The touch panel switch has a problem. | |
| 24-10 | The panel switch detection circuit has a problem. | |
| 24-11 | The touch panel switch has a problem. | |
| 25-10 | The panel switch detection circuit has a problem. | |
| 25-11 | The touch panel switch has a problem. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY ASSEMBLY**

a. w/ Navigation System: Replace the multi-display (Click here).

b. w/o Navigation System: Replace the multi-display (Click here).

**NEXT**

**END**

## DTC 63-7D Disc cannot be Played

## DTC 63-7E No Playable Files

## DTC 63-7F Copyright Protection Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 63-7D | When either condition below is met:<br>• An incompatible MP3 or WMA file is used.<br>• Although the file has the extension of ".mp3" or ".wma", the header information cannot be read. | • Disc<br>• Radio receiver assembly |
| 63-7E | When either condition below is met:<br>• A disc with no music data is used.<br>• Playable files are not on the disc (MP3 or WMA). | |
| 63-7F | A copy-protected file which cannot be played is used. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHANGE DISC**

a. Insert a disc with a playable file and check if the disc can be played correctly.

**HINT:**

For details on playable files and discs, refer to the Owner's Manual.

**OK:**

**The disc can be played correctly.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**DISC IS FAULTY**

## DTC 21-10 Panel Switch Error

## DTC 21-11 Touch Switch Error

## DTC 23-10 Panel Switch Error

## DTC 23-11 Touch Switch Error

## DTC 24-10 Panel Switch Error

## DTC 24-11 Touch Switch Error

## DTC 25-10 Panel Switch Error

## DTC 25-11 Touch Switch Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 21-10 | The panel switch detection circuit has a problem. | Multi-display assembly |
| 21-11 | The touch panel switch has a problem. | |
| 23-10 | The panel switch detection circuit has a problem. | |
| 23-11 | The touch panel switch has a problem. | |
| 24-10 | The panel switch detection circuit has a problem. | |
| 24-11 | The touch panel switch has a problem. | |
| 25-10 | The panel switch detection circuit has a problem. | |
| 25-11 | The touch panel switch has a problem. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY ASSEMBLY**

a. w/ Navigation System: Replace the multi-display (Click here).

b. w/o Navigation System: Replace the multi-display (Click here).

**NEXT**

**END**

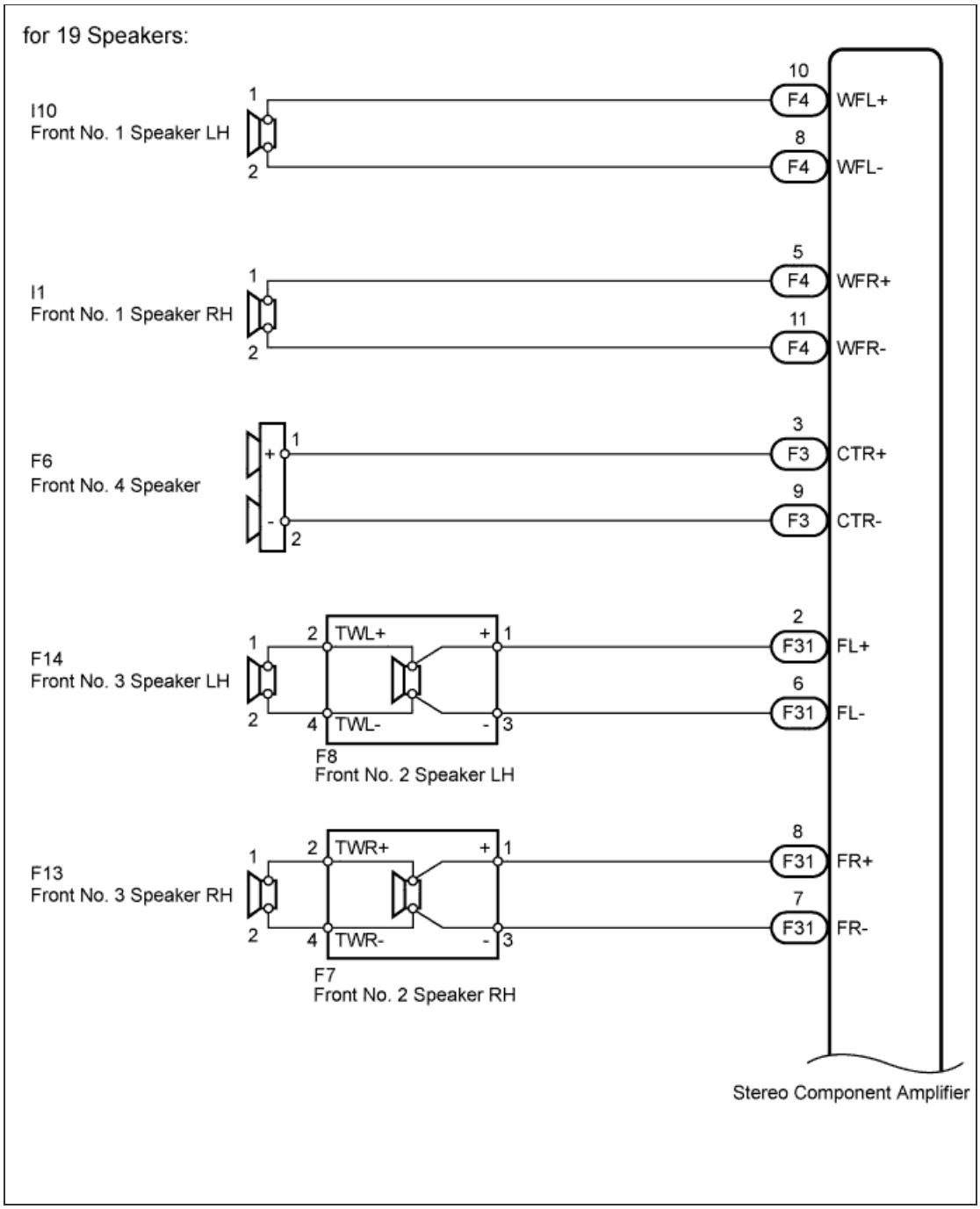
## DTC 74-40 Short in Speaker Circuit

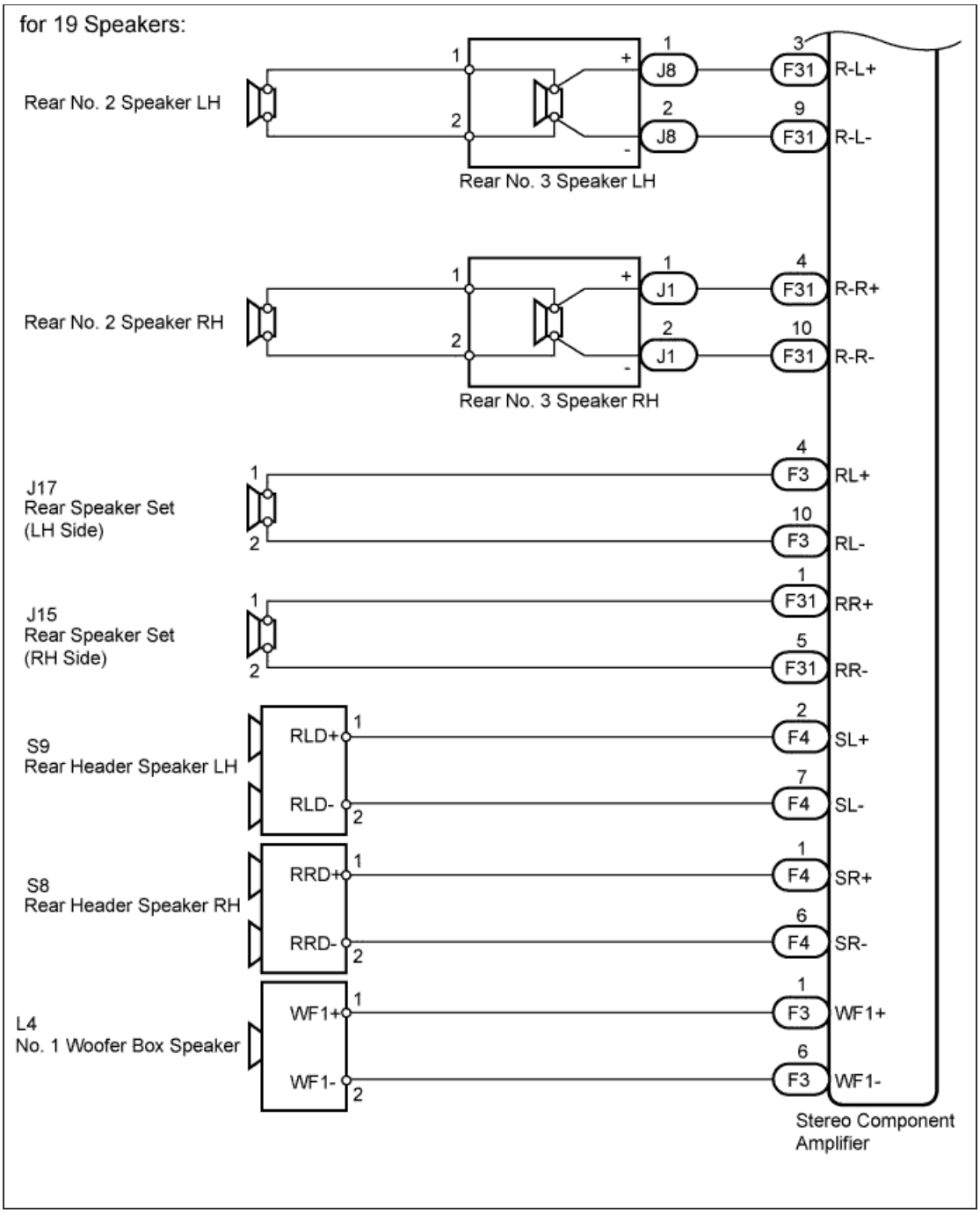
**for Preparation** Click here

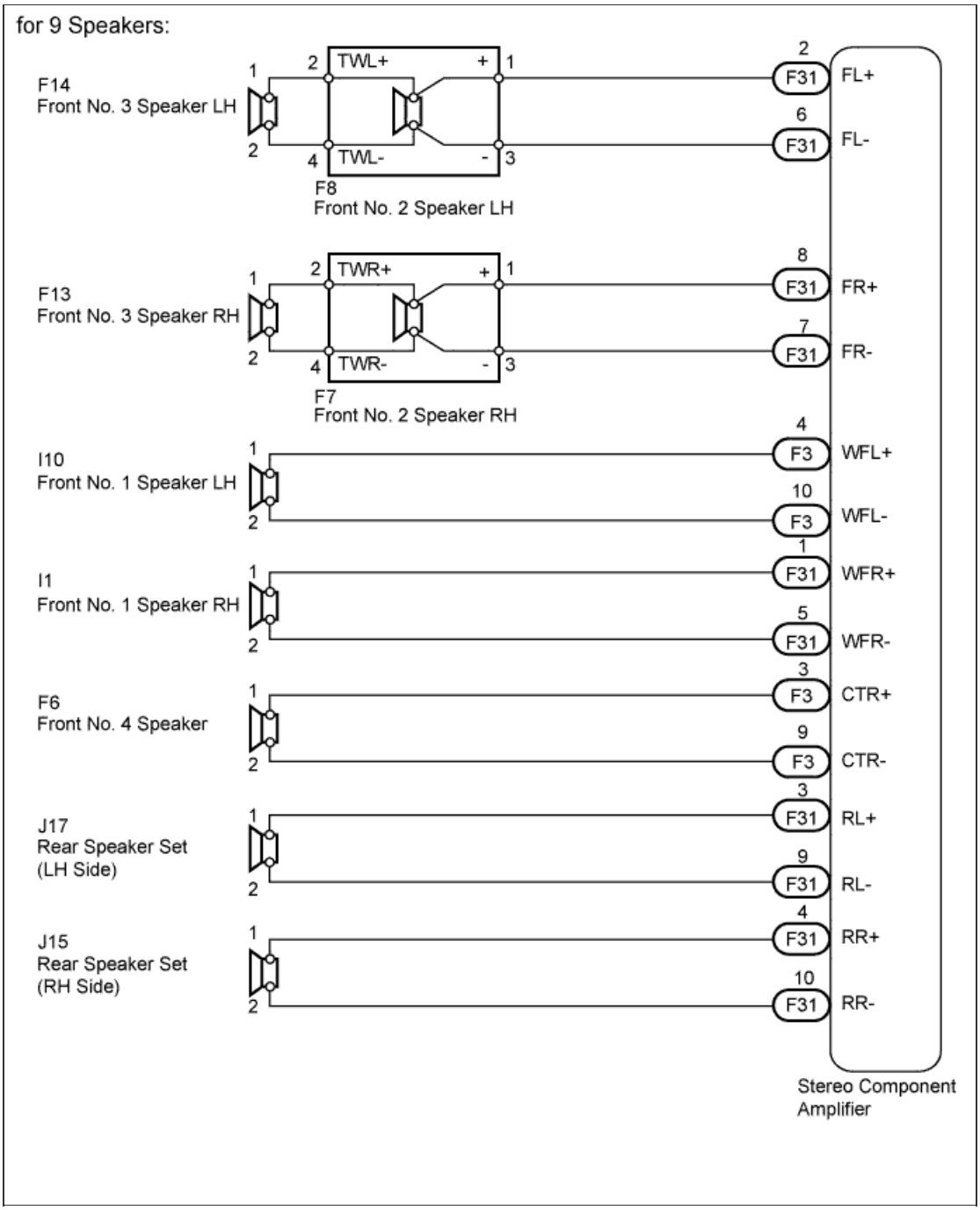
### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 74-40 | A short is detected in the speaker output circuit. | • Harness or connector<br>• Speaker<br>• Stereo component amplifier assembly |

### WIRING DIAGRAM




for 19 Speakers:
Rear No. 2 Speaker LH
1
2
+
-
1
J8
2
J8
Rear No. 3 Speaker LH
3
F31
R-L+
9
F31
R-L-
Rear No. 2 Speaker RH
1
2
+
-
1
J1
2
J1
Rear No. 3 Speaker RH
4
F31
R-R+
10
F31
R-R-
J17
Rear Speaker Set
(LH Side)
1
2
4
F3
RL+
10
F3
RL-
J15
Rear Speaker Set
(RH Side)
1
2
1
F31
RR+
5
F31
RR-
S9
Rear Header Speaker LH
RLD+
RLD-
1
2
2
F4
SL+
7
F4
SL-
S8
Rear Header Speaker RH
RRD+
RRD-
1
2
1
F4
SR+
6
F4
SR-
L4
No. 1 Woofer Box Speaker
WF1+
WF1-
1
2
1
F3
WF1+
6
F3
WF1-
Stereo Component
Amplifier




## INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs.

### 1.CHECK AUDIO MODELS

a. Check the audio model.

**Result**

| Result | Proceed to |
|---|---|
| 19 speakers | A |
| 9 speakers | B |

B → Go to step 19

A

### 2.CHECK FOR DTC

a. Disconnect the F31, F4 and F3 amplifier connectors.

b. Clear the DTCs.

c. Check if DTC 74-40 is output.

**OK:**
**DTC 74-40 is not output.**

NG → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

OK

### 3.CHECK FOR DTC

a. Reconnect the F3 amplifier connector.

b. Check if DTC 74-40 is output.

**OK:**
**DTC 74-40 is not output.**

NG → Go to step 8

OK

### 4.CHECK FOR DTC

a. Reconnect the F31 amplifier connector.

b. Check if DTC 74-40 is output.

**OK:**
**DTC 74-40 is not output.**

NG → Go to step 12

OK

### 5.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - SPEAKER)

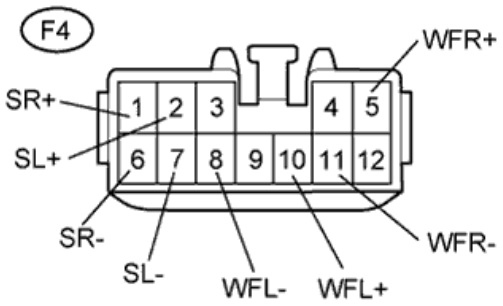
a. Disconnect the F4 amplifier connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-1 (SR+) - Body ground | Always | 10 kΩ or higher |
| F4-2 (SL+) - Body ground | | |
| F4-5 (WFR+) - Body ground | | |
| F4-6 (SR-) - Body ground | | |
| F4-7 (SL-) - Body ground | | |
| F4-8 (WFL-) - Body ground | | |
| F4-10 (WFL+) - Body ground | | |

Front view of wire harness connector:
(to Stereo Component Amplifier)



| | | |
|---|---|---|
| F4-11 (WFR-) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 6.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY

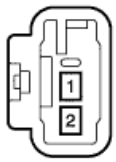
a. Disconnect the I10 and I1 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 1.9 +/-0.4 Ω |

Component without harness connected:
(Front No. 1 Speaker)




N

NG → REPLACE FRONT NO. 1 SPEAKER ASSEMBLY (Click here)

OK

## 7.INSPECT REAR HEADER SPEAKER ASSEMBLY

a. Disconnect the S9 and S8 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 6.0 +/-1.0 Ω |

Component without harness connected:
(Rear Header Speaker)




N

NG → REPLACE REAR HEADER SPEAKER ASSEMBLY (Click here)

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 8.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - SPEAKER)

a. Disconnect the F3 amplifier connector.

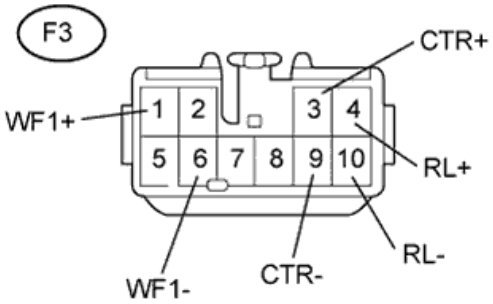
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-3 (CTR+) - Body ground | | |
| F3-9 (CTR-) - Body ground | | |

| | | |
|---|---|---|
| F3-4 (RL+) - Body ground | Always | 10 kΩ or higher |
| F3-10 (RL-) - Body ground | | |
| F3-1 (WF1+) - Body ground | | |
| F3-6 (WF1-) - Body ground | | |

Front view of wire harness connector:
(to Stereo Component Amplifier)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 9.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY

a. Disconnect the F6 speaker connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 6.0 +/-1.0 Ω |

Component without harness connected:
(Front No. 4 Speaker)




N

NG → REPLACE FRONT NO. 4 SPEAKER ASSEMBLY (Click here)

OK

## 10.INSPECT REAR SPEAKER SET LH

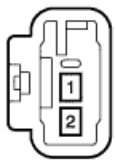
a. Disconnect the J17 speaker connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 6.0 +/-1.0 Ω |

Component without harness connected:
(Rear Speaker Set LH)




N

NG → REPLACE REAR SPEAKER SET LH (Click here)

OK

## 11.INSPECT NO. 1 WOOFER BOX SPEAKER ASSEMBLY

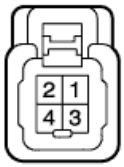
a. Disconnect the L4 speaker connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 8.0 Ω |

Component without harness connected:
(No. 1 Woofer Box Speaker)




NG → REPLACE NO. 1 WOOFER BOX SPEAKER ASSEMBLY (Click here)

OK → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 12.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - SPEAKER)

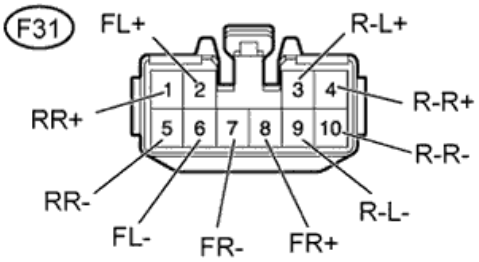
a. Disconnect the F31 amplifier connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-1 (RR+) - Body ground | Always | 10 kΩ or higher |
| F31-5 (RR-) - Body ground | | |
| F31-3 (R-L+) - Body ground | | |
| F31-9 (R-L-) - Body ground | | |
| F31-4 (R-R+) - Body ground | | |
| F31-10 (R-R-) - Body ground | | |
| F31-2 (FL+) - Body ground | | |
| F31-6 (FL-) - Body ground | | |
| F31-7 (FR-) - Body ground | | |
| F31-8 (FR+) - Body ground | | |

Front view of wire harness connector:
(to Stereo Component Amplifier)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 13.INSPECT REAR SPEAKER SET RH

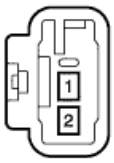
a. Disconnect the J15 speaker connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 6.0 +/-1.2 Ω |

Component without harness connected:
(Rear Speaker Set RH)




N

NG → REPLACE REAR SPEAKER SET RH (Click here)

OK

**14.INSPECT REAR NO. 2 SPEAKER ASSEMBLY**

a. Disconnect the rear No. 2 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 6.0 +/-1.0 Ω |

Component without harness connected:
(Rear No. 2 Speaker)




NG → REPLACE REAR NO. 2 SPEAKER ASSEMBLY (Click here)

OK

**15.CHECK REAR NO. 3 SPEAKER ASSEMBLY**

a. Disconnect the rear No. 3 speaker connectors.

b. Interchange the rear No. 3 speaker LH with RH.

c. Check that the malfunction disappears.

**OK:**
**Malfunction disappears.**

**HINT:**

- **Connect all the connectors to the rear No. 3 speakers.**
- **When there is a possibility that either the right or left rear speaker is defective, inspect by interchanging the right one with the left one.**
- **Perform the inspection above on both the LH and RH sides.**

NG → Go to step 16

OK

REPLACE REAR NO. 3 SPEAKER ASSEMBLY (Click here)

**16.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY**

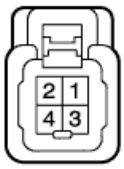
a. Disconnect the F8 and F7 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | Below 1 Ω |
| 3 - 4 | Always | Below 1 Ω |
| 2 - 4 | Always | 6.0 +/-1.0 Ω |

Component without harness connected:
(Front No. 2 Speaker)




NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

**17.CHECK FRONT NO. 3 SPEAKER ASSEMBLY**

a. Disconnect the F14 and F13 speaker connectors.

b. Interchange the front No. 3 speaker LH with RH.

c. Check that the malfunction disappears.

**OK:**
**Malfunction disappears.**

**HINT:**

- **Connect all the connectors to the front No. 3 speakers.**
- **When there is a possibility that either the right or left front speaker is defective, inspect by interchanging the right one with the left one.**
- **Perform the inspection above on both the LH and RH sides.**

NG → Go to step 18

OK

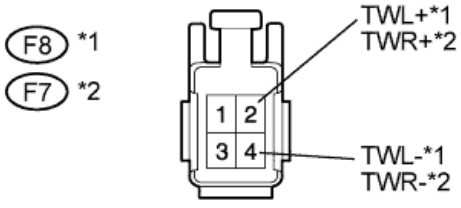
REPLACE FRONT NO. 3 SPEAKER ASSEMBLY (Click here)

**18.CHECK HARNESS AND CONNECTOR (FRONT NO. 2 SPEAKER - FRONT NO. 3 SPEAKER)**

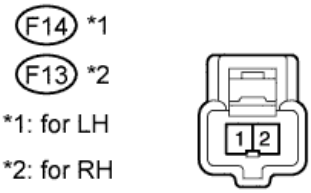
a. Disconnect the F8, F7, F14 and F13 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

Front view of wire harness connector:
(to Front No. 2 Speaker)




Front view of wire harness connector:
(to Front No. 3 Speaker)



**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F8-2 (TWL+) - F14-1 | Always | Below 1 Ω |
| F8-4 (TWL-) - F14-2 | | |
| F8-2 (TWL+) - Body ground | Always | 10 kΩ or higher |
| F8-4 (TWL-) - Body ground | | |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F7-2 (TWR+) - F13-1 | Always | Below 1 Ω |
| F7-4 (TWR-) - F13-2 | | |
| F7-2 (TWR+) - Body ground | Always | 10 kΩ or higher |
| F7-4 (TWR-) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK →

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**19.CHECK DTC**

a. Disconnect the F3 and F31 amplifier connectors.

b. Clear the DTCs.

c. Check if DTC 74-40 is output.

**OK:**

**DTC 74-40 is not output.**

NG → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

OK →

**20.CHECK DTC**

a. Reconnect the F31 amplifier connector.

b. Clear the DTCs.

c. Check if DTC 74-40 is output.

**OK:**

**DTC 74-40 is not output.**

NG → Go to step 24

OK →

**21.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - SPEAKER)**

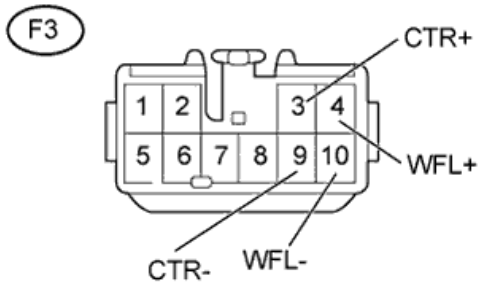
a. Disconnect the F3 amplifier connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-3 (CTR+) - Body ground | Always | 10 kΩ or higher |
| F3-9 (CTR-) - Body ground | Always | 10 kΩ or higher |
| F3-4 (WFL+) - Body ground | Always | 10 kΩ or higher |
| F3-10 (WFL-) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to Stereo Component Amplifier)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**22.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY LH**

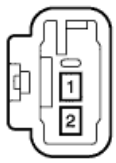
a. Disconnect the I10 speaker connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 3 Ω |

Component without harness connected:
(Front No. 1 Speaker LH)




N

NG → REPLACE FRONT NO. 1 SPEAKER ASSEMBLY LH (Click here)

OK

**23.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY**

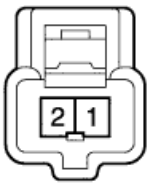
a. Disconnect the F6 speaker connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 6 Ω |

Component without harness connected:
(Front No. 4 Speaker)




N

NG → REPLACE FRONT NO. 4 SPEAKER ASSEMBLY (Click here)

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 24.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - SPEAKER)

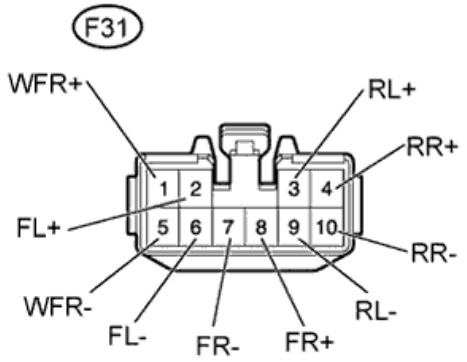
a. Disconnect the F31 amplifier connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-1 (WFR+) - Body ground | Always | 10 kΩ or higher |
| F31-6 (FL-) - Body ground | Always | 10 kΩ or higher |
| F31-2 (FL+) - Body ground | Always | 10 kΩ or higher |
| F31-7 (FR-) - Body ground | Always | 10 kΩ or higher |
| F31-4 (RR+) - Body ground | Always | 10 kΩ or higher |
| F31-3 (RL+) - Body ground | Always | 10 kΩ or higher |
| F31-8 (FR+) - Body ground | Always | 10 kΩ or higher |
| F31-10 (RR-) - Body ground | Always | 10 kΩ or higher |
| F31-9 (RL-) - Body ground | Always | 10 kΩ or higher |
| F31-5 (WFR-) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to Stereo Component Amplifier)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 25.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY RH

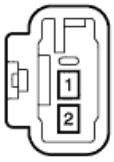
a. Disconnect the I1 speaker connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 3 Ω |

Component without harness connected:
(Front No. 1 Speaker RH)




N

NG → REPLACE FRONT NO. 1 SPEAKER ASSEMBLY RH ( Click here)

OK

## 26.INSPECT REAR SPEAKER SET

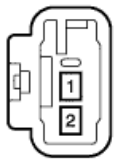
a. Disconnect the J17 and J15 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4 Ω |

Component without harness connected:
(Rear Speaker Set)




N

NG → REPLACE REAR SPEAKER SET (Click here)

OK

## 27.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

a. Disconnect the F8 and F7 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | Below 1 Ω |
| 3 - 4 | Always | Below 1 Ω |
| 2 - 4 | Always | 4 Ω |

Component without harness connected:
(Front No. 2 Speaker)




NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

## 28.INSPECT FRONT NO. 3 SPEAKER ASSEMBLY

a. Disconnect the F14 and F13 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4 Ω |

Component without harness connected:
(Front No. 3 Speaker)



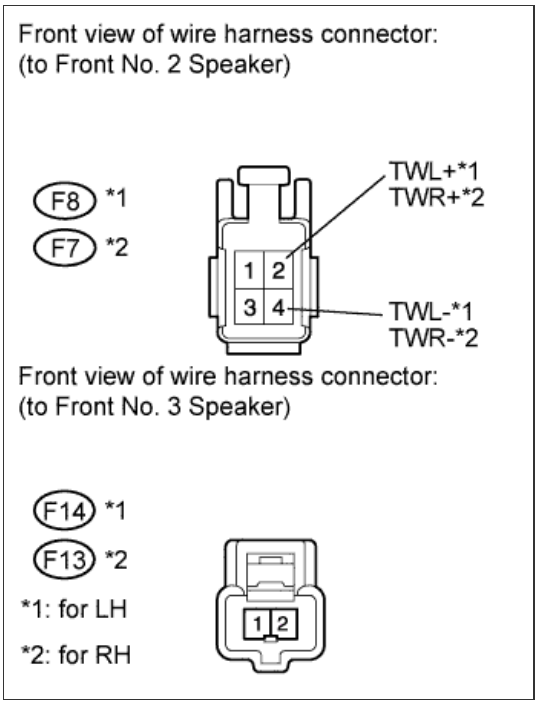

NG → REPLACE FRONT NO. 3 SPEAKER ASSEMBLY (Click here)

OK

## 29.CHECK HARNESS AND CONNECTOR (FRONT NO. 2 SPEAKER - FRONT NO. 3 SPEAKER)

a. Disconnect the F8, F7, F14 and F13 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.




**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F8-2 (TWL+) - F14-1 | Always | Below 1 Ω |
| F8-4 (TWL-) - F14-2 | | |
| F8-2 (TWL+) - Body ground | Always | 10 kΩ or higher |
| F8-4 (TWL-) - Body ground | | |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F7-2 (TWR+) - F13-1 | Always | Below 1 Ω |
| F7-4 (TWR-) - F13-2 | | |
| F7-2 (TWR+) - Body ground | Always | 10 kΩ or higher |
| F7-4 (TWR-) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## DTC 21-10 Panel Switch Error

## DTC 21-11 Touch Switch Error

## DTC 23-10 Panel Switch Error

## DTC 23-11 Touch Switch Error

## DTC 24-10 Panel Switch Error

## DTC 24-11 Touch Switch Error

## DTC 25-10 Panel Switch Error

## DTC 25-11 Touch Switch Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 21-10 | The panel switch detection circuit has a problem. | Multi-display assembly |
| 21-11 | The touch panel switch has a problem. | |
| 23-10 | The panel switch detection circuit has a problem. | |
| 23-11 | The touch panel switch has a problem. | |
| 24-10 | The panel switch detection circuit has a problem. | |
| 24-11 | The touch panel switch has a problem. | |
| 25-10 | The panel switch detection circuit has a problem. | |
| 25-11 | The touch panel switch has a problem. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY ASSEMBLY**

a. w/ Navigation System: Replace the multi-display (Click here).

b. w/o Navigation System: Replace the multi-display (Click here).

**NEXT**

**END**

## DTC B1550 DAB Tuner Malfunction

## DTC B157D DAB Tuner Antenna Disconnected

## DTC B15A0 LAN Master Malfunction

## DTC B15B3 Radio Tuner Malfunction

## DTC B15B5 DVD Changer Malfunction

## DTC B15B7 Bluetooth Module Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the multi-media module receiver assembly.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1550 | Digital radio tuner has a malfunction. | Multi-media module receiver assembly |
| B157D | DAB Tuner Antenna disconnected. | |
| B15A0 | When either condition below is met:<br>• Bus malfunction<br>• EEPROM error<br>• Sub-microprocessor malfunction | |
| B15B3 | Tuner communication error | |
| B15B5 | When one of the conditions below is met:<br>• Mechanical communication error<br>• Read malfunction<br>• Mechanical malfunction | |
| B15B7 | "Bluetooth" module malfunction | |

### INSPECTION PROCEDURE

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

**NG** → **REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC 21-10 Panel Switch Error

## DTC 21-11 Touch Switch Error

## DTC 23-10 Panel Switch Error

## DTC 23-11 Touch Switch Error

## DTC 24-10 Panel Switch Error

## DTC 24-11 Touch Switch Error

## DTC 25-10 Panel Switch Error

## DTC 25-11 Touch Switch Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 21-10 | The panel switch detection circuit has a problem. | Multi-display assembly |
| 21-11 | The touch panel switch has a problem. | |
| 23-10 | The panel switch detection circuit has a problem. | |
| 23-11 | The touch panel switch has a problem. | |
| 24-10 | The panel switch detection circuit has a problem. | |
| 24-11 | The touch panel switch has a problem. | |
| 25-10 | The panel switch detection circuit has a problem. | |
| 25-11 | The touch panel switch has a problem. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY ASSEMBLY**

a. w/ Navigation System: Replace the multi-display (Click here).

b. w/o Navigation System: Replace the multi-display (Click here).

**NEXT**

**END**

## DTC B1550 DAB Tuner Malfunction

## DTC B157D DAB Tuner Antenna Disconnected

## DTC B15A0 LAN Master Malfunction

## DTC B15B3 Radio Tuner Malfunction

## DTC B15B5 DVD Changer Malfunction

## DTC B15B7 Bluetooth Module Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the multi-media module receiver assembly.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1550 | Digital radio tuner has a malfunction. | Multi-media module receiver assembly |
| B157D | DAB Tuner Antenna disconnected. | |
| B15A0 | When either condition below is met:<br>• Bus malfunction<br>• EEPROM error<br>• Sub-microprocessor malfunction | |
| B15B3 | Tuner communication error | |
| B15B5 | When one of the conditions below is met:<br>• Mechanical communication error<br>• Read malfunction<br>• Mechanical malfunction | |
| B15B7 | "Bluetooth" module malfunction | |

### INSPECTION PROCEDURE

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

**NG** → **REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC 21-10 Panel Switch Error

## DTC 21-11 Touch Switch Error

## DTC 23-10 Panel Switch Error

## DTC 23-11 Touch Switch Error

## DTC 24-10 Panel Switch Error

## DTC 24-11 Touch Switch Error

## DTC 25-10 Panel Switch Error

## DTC 25-11 Touch Switch Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 21-10 | The panel switch detection circuit has a problem. | Multi-display assembly |
| 21-11 | The touch panel switch has a problem. | |
| 23-10 | The panel switch detection circuit has a problem. | |
| 23-11 | The touch panel switch has a problem. | |
| 24-10 | The panel switch detection circuit has a problem. | |
| 24-11 | The touch panel switch has a problem. | |
| 25-10 | The panel switch detection circuit has a problem. | |
| 25-11 | The touch panel switch has a problem. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY ASSEMBLY**

a. w/ Navigation System: Replace the multi-display (Click here).

b. w/o Navigation System: Replace the multi-display (Click here).

**NEXT**

**END**

## DTC B1550 DAB Tuner Malfunction

## DTC B157D DAB Tuner Antenna Disconnected

## DTC B15A0 LAN Master Malfunction

## DTC B15B3 Radio Tuner Malfunction

## DTC B15B5 DVD Changer Malfunction

## DTC B15B7 Bluetooth Module Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the multi-media module receiver assembly.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1550 | Digital radio tuner has a malfunction. | Multi-media module receiver assembly |
| B157D | DAB Tuner Antenna disconnected. | |
| B15A0 | When either condition below is met:<br>• Bus malfunction<br>• EEPROM error<br>• Sub-microprocessor malfunction | |
| B15B3 | Tuner communication error | |
| B15B5 | When one of the conditions below is met:<br>• Mechanical communication error<br>• Read malfunction<br>• Mechanical malfunction | |
| B15B7 | "Bluetooth" module malfunction | |

### INSPECTION PROCEDURE

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

**NG** → **REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC 21-10 Panel Switch Error

## DTC 21-11 Touch Switch Error

## DTC 23-10 Panel Switch Error

## DTC 23-11 Touch Switch Error

## DTC 24-10 Panel Switch Error

## DTC 24-11 Touch Switch Error

## DTC 25-10 Panel Switch Error

## DTC 25-11 Touch Switch Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 21-10 | The panel switch detection circuit has a problem. | Multi-display assembly |
| 21-11 | The touch panel switch has a problem. | |
| 23-10 | The panel switch detection circuit has a problem. | |
| 23-11 | The touch panel switch has a problem. | |
| 24-10 | The panel switch detection circuit has a problem. | |
| 24-11 | The touch panel switch has a problem. | |
| 25-10 | The panel switch detection circuit has a problem. | |
| 25-11 | The touch panel switch has a problem. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY ASSEMBLY**

a. w/ Navigation System: Replace the multi-display (Click here).

b. w/o Navigation System: Replace the multi-display (Click here).

**NEXT**

**END**

## DTC B1550 DAB Tuner Malfunction

## DTC B157D DAB Tuner Antenna Disconnected

## DTC B15A0 LAN Master Malfunction

## DTC B15B3 Radio Tuner Malfunction

## DTC B15B5 DVD Changer Malfunction

## DTC B15B7 Bluetooth Module Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the multi-media module receiver assembly.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1550 | Digital radio tuner has a malfunction. | Multi-media module receiver assembly |
| B157D | DAB Tuner Antenna disconnected. | |
| B15A0 | When either condition below is met:<br>• Bus malfunction<br>• EEPROM error<br>• Sub-microprocessor malfunction | |
| B15B3 | Tuner communication error | |
| B15B5 | When one of the conditions below is met:<br>• Mechanical communication error<br>• Read malfunction<br>• Mechanical malfunction | |
| B15B7 | "Bluetooth" module malfunction | |

### INSPECTION PROCEDURE

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

**NG** → **REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC 21-10 Panel Switch Error

## DTC 21-11 Touch Switch Error

## DTC 23-10 Panel Switch Error

## DTC 23-11 Touch Switch Error

## DTC 24-10 Panel Switch Error

## DTC 24-11 Touch Switch Error

## DTC 25-10 Panel Switch Error

## DTC 25-11 Touch Switch Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 21-10 | The panel switch detection circuit has a problem. | Multi-display assembly |
| 21-11 | The touch panel switch has a problem. | |
| 23-10 | The panel switch detection circuit has a problem. | |
| 23-11 | The touch panel switch has a problem. | |
| 24-10 | The panel switch detection circuit has a problem. | |
| 24-11 | The touch panel switch has a problem. | |
| 25-10 | The panel switch detection circuit has a problem. | |
| 25-11 | The touch panel switch has a problem. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY ASSEMBLY**

a. w/ Navigation System: Replace the multi-display (Click here).

b. w/o Navigation System: Replace the multi-display (Click here).

**NEXT**

**END**

## DTC B1550 DAB Tuner Malfunction

## DTC B157D DAB Tuner Antenna Disconnected

## DTC B15A0 LAN Master Malfunction

## DTC B15B3 Radio Tuner Malfunction

## DTC B15B5 DVD Changer Malfunction

## DTC B15B7 Bluetooth Module Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the multi-media module receiver assembly.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1550 | Digital radio tuner has a malfunction. | Multi-media module receiver assembly |
| B157D | DAB Tuner Antenna disconnected. | |
| B15A0 | When either condition below is met:<br>• Bus malfunction<br>• EEPROM error<br>• Sub-microprocessor malfunction | |
| B15B3 | Tuner communication error | |
| B15B5 | When one of the conditions below is met:<br>• Mechanical communication error<br>• Read malfunction<br>• Mechanical malfunction | |
| B15B7 | "Bluetooth" module malfunction | |

### INSPECTION PROCEDURE

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

**NG** → **REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC 34-10 Error in Picture Circuit

## DTC 34-11 No Current in Back-light

## DTC 34-12 Excess Current in Back-light

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 34-10 | An error in the power supply system for the picture circuit. | Multi-display assembly |
| 34-11 | A decline in power output from the inverter circuit for the back-light. | |
| 34-12 | Excess power output from the inverter circuit for the back-light. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY ASSEMBLY**

a. w/ Navigation System: Replace the multi-display (Click here).

b. w/o Navigation System: Replace the multi-display (Click here).

**NEXT**

**END**

## DTC B1550 DAB Tuner Malfunction

## DTC B157D DAB Tuner Antenna Disconnected

## DTC B15A0 LAN Master Malfunction

## DTC B15B3 Radio Tuner Malfunction

## DTC B15B5 DVD Changer Malfunction

## DTC B15B7 Bluetooth Module Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the multi-media module receiver assembly.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1550 | Digital radio tuner has a malfunction. | Multi-media module receiver assembly |
| B157D | DAB Tuner Antenna disconnected. | |
| B15A0 | When either condition below is met:<br>• Bus malfunction<br>• EEPROM error<br>• Sub-microprocessor malfunction | |
| B15B3 | Tuner communication error | |
| B15B5 | When one of the conditions below is met:<br>• Mechanical communication error<br>• Read malfunction<br>• Mechanical malfunction | |
| B15B7 | "Bluetooth" module malfunction | |

### INSPECTION PROCEDURE

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

**NG** → **REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC 34-10 Error in Picture Circuit

## DTC 34-11 No Current in Back-light

## DTC 34-12 Excess Current in Back-light

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 34-10 | An error in the power supply system for the picture circuit. | Multi-display assembly |
| 34-11 | A decline in power output from the inverter circuit for the back-light. | |
| 34-12 | Excess power output from the inverter circuit for the back-light. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY ASSEMBLY**

a. w/ Navigation System: Replace the multi-display (Click here).

b. w/o Navigation System: Replace the multi-display (Click here).

**NEXT**

**END**

# DTC B1575 GVIF Disconnected (from EMV/MM Integrated Device to Multi Display)

**for Preparation** Click here

## DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1575 | GVIF disconnected (from Multi-media module receiver assembly to multi-display assembly). | • Harness and connector (GVIF cable)<br>• Multi-media module receiver assembly |

## INSPECTION PROCEDURE

### 1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

### 2.CHECK DTC

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

NG → **Go to step 3**

OK

### USE SIMULATION METHOD TO CHECK (Click here)

### 3.REPLACE HARNESS AND CONNECTOR (GVIF CABLE)

a. Replace the harness and connector (GVIF cable) with a new or normally functioning one.

NEXT

### 4.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

### 5.CHECK DTC

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

NG → **REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)**

OK

### END (GVIF CABLE IS DEFECTIVE)

## DTC 34-10 Error in Picture Circuit

## DTC 34-11 No Current in Back-light

## DTC 34-12 Excess Current in Back-light

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 34-10 | An error in the power supply system for the picture circuit. | Multi-display assembly |
| 34-11 | A decline in power output from the inverter circuit for the back-light. | |
| 34-12 | Excess power output from the inverter circuit for the back-light. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY ASSEMBLY**

a. w/ Navigation System: Replace the multi-display (Click here).

b. w/o Navigation System: Replace the multi-display (Click here).

**NEXT**

**END**

## DTC B1579 Voice Recognition Microphone Disconnected

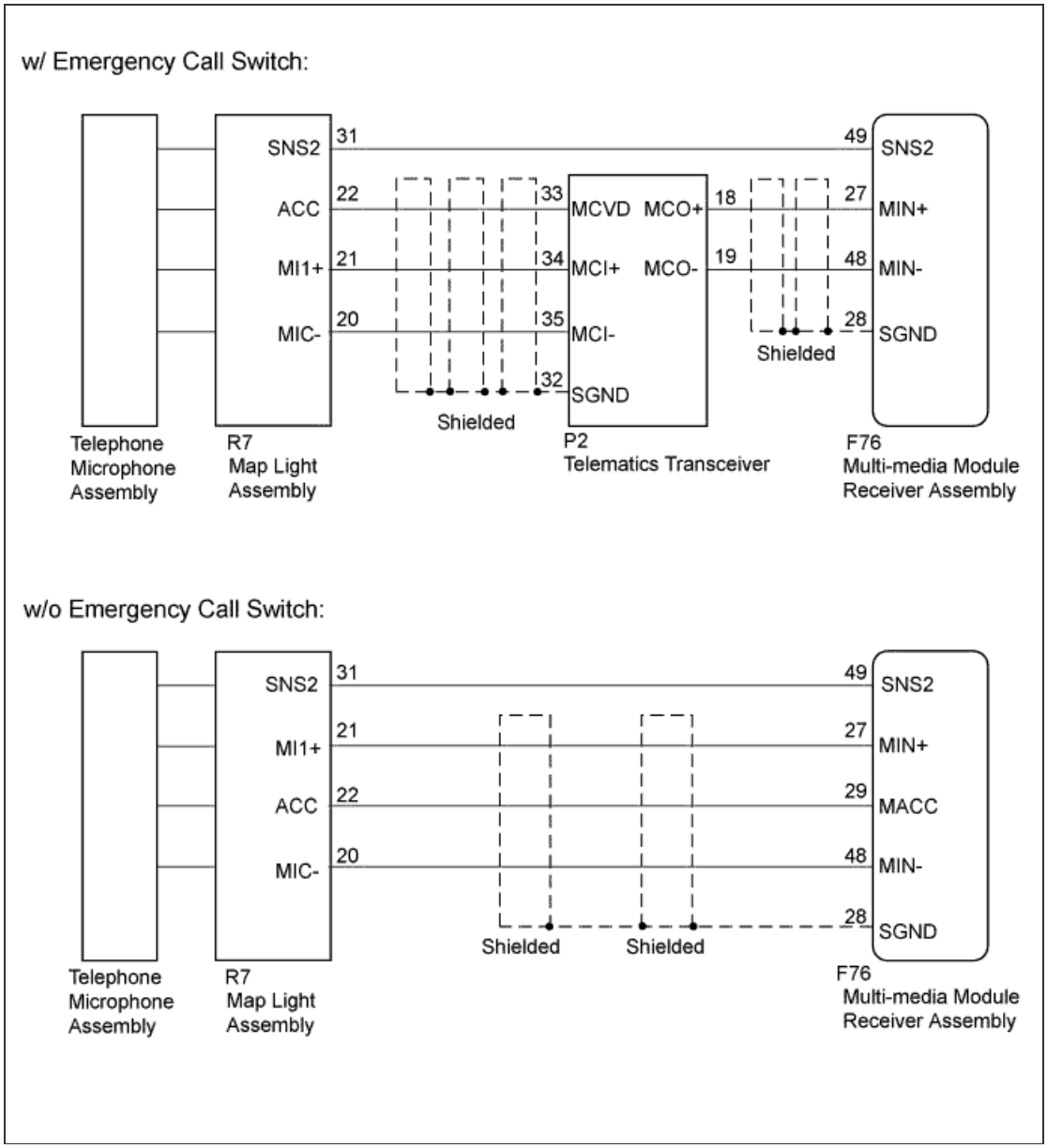
**for Preparation** Click here

### DESCRIPTION

The multi-media module receiver assembly and map light assembly (telephone microphone assembly) are connected to each other using the microphone connection detection signal lines.
This DTC is stored when a microphone connection detection signal line is disconnected.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1579 | Telephone microphone signal is lost. | • Multi-media module receiver assembly<br>• Map light assembly<br>• Telephone microphone assembly<br>• Telematics Transceiver (w/ Emergency Call Switch)<br>• Harness or connector |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**HINT:**

When replacing the multi-media module receiver assembly or the telematics transceiver, perform the vehicle contract setting ( Click here).

## 1.CONFIRM MODEL

a. Choose the model to be inspected.

**Model**

| Model | Proceed to |
|---|---|
| w/o Emergency Call Switch | A |
| w/ Emergency Call Switch | B |

B → Go to step 7

A

## 2.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - MAP LIGHT ASSEMBLY)

a. Disconnect the F76 multi-media module receiver assembly connector.

b. Disconnect the R7 map light assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-27 (MIN+) - R7-21 (MI1+) | Always | Below 1 Ω |
| F76-29 (MACC) - R7-22 (ACC) | Always | Below 1 Ω |
| F76-48 (MIN-) - R7-20 (MIC-) | Always | Below 1 Ω |
| F76-49 (SNS2) - R7-31 (SNS2) | Always | Below 1 Ω |
| F76-27 (MIN+) - Body ground | Always | 10 kΩ or higher |
| F76-28 (SGND) - Body ground | Always | 10 kΩ or higher |
| F76-29 (MACC) - Body ground | Always | 10 kΩ or higher |
| F76-48 (MIN-) - Body ground | Always | 10 kΩ or higher |
| F76-49 (SNS2) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 3.CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY

a. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

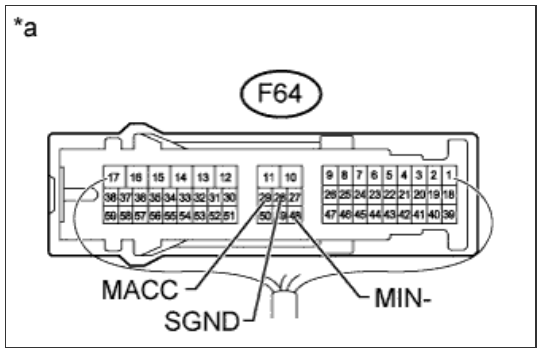
| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F76-29 (MACC) - Body ground | Engine switch on (ACC) | 4 to 6 V |

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| | | Specified |
|---|---|---|

| Tester Connection | Condition | Condition |
|---|---|---|
| F76-28 (SGND) - Body ground | Always | Below 1 Ω |
| F76-48 (MIN-) - Body ground | Always | Below 1 Ω |




**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Multi-media Module Receiver Assembly) |

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

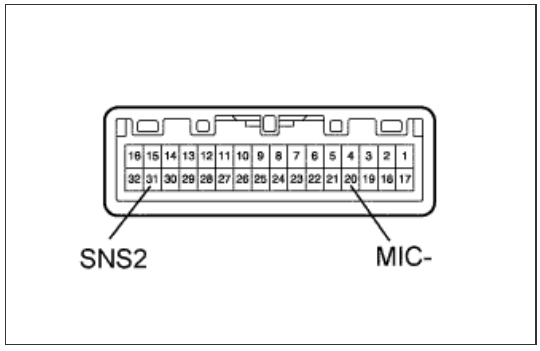
## 4.INSPECT MAP LIGHT ASSEMBLY

a. Remove the map light assembly (Click here).

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 20 (MIC-) - 31 (SNS2) | Always | Below 1 Ω |




NG → Go to step 6

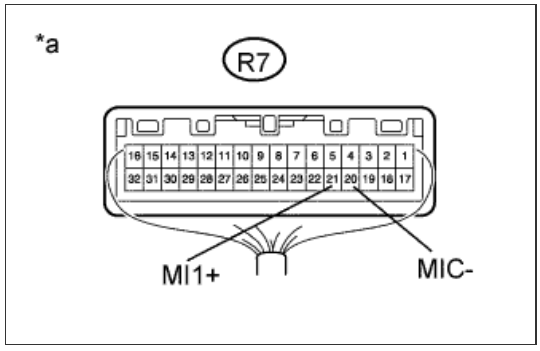
OK

## 5.CHECK MAP LIGHT ASSEMBLY

a. Turn the engine switch on (ACC).

b. Connect an oscilloscope to terminals R7-21 (MI1+) and R7-20 (MIC-) of the map light assembly connector.

c. Check the waveform of the telephone microphone assembly using the oscilloscope.




**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Map Light Assembly) |

**Result**

| Result | Proceed to |
|---|---|
| A waveform synchronized with the voice input to the map light assembly is output. | A |
| A waveform synchronized with the voice input to the map light assembly is not output. | B |

B → Go to step 6

A

REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

### 6.CHECK TELEPHONE MICROPHONE ASSEMBLY

a. Replace the telephone microphone assembly with a new or normally functioning one ( Click here).

b. Check if the same DTC is output again.

**Result**

| Result | Proceed to |
|---|---|
| No DTCs are output. | A |
| DTCs are output. | B |

B → REPLACE MAP LIGHT ASSEMBLY (Click here)

A →

END (TELEPHONE MICROPHONE ASSEMBLY IS DEFECTIVE)

### 7.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - MAP LIGHT ASSEMBLY)

a. Disconnect the F76 multi-media module receiver assembly connector.

b. Disconnect the R7 map light assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-49 (SNS2) - R7-31 (SNS2) | Always | Below 1 Ω |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK →

### 8.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - TELEMATICS TRANSCEIVER)

a. Disconnect the F76 multi-media module receiver assembly connector.

b. Disconnect the P2 telematics transceiver connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-27 (MIN+) - P2-18 (MCO+) | Always | Below 1 Ω |
| F76-48 (MIN-) - P2-19 (MCO-) | Always | Below 1 Ω |
| F76-27 (MIN+) - Body ground | Always | 10 kΩ or higher |
| F76-48 (MIN-) - Body ground | Always | 10 kΩ or higher |
| F76-28 (SGND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK →

### 9.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - MAP LIGHT ASSEMBLY)

a. Disconnect the P2 telematics transceiver connector.

b. Disconnect the R7 map light assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P2-33 (MCVD) - R7-22 (ACC) | Always | Below 1 Ω |
| P2-34 (MCI+) - R7-21 (MI1+) | Always | Below 1 Ω |
| P2-35 (MCI-) - R7-20 (MIC-) | Always | Below 1 Ω |
| P2-33 (MCVD) - Body ground | Always | 10 kΩ or higher |
| P2-34 (MCI+) - Body ground | Always | 10 kΩ or higher |
| P2-35 (MCI-) - Body ground | Always | 10 kΩ or higher |
| P2-32 (SGND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

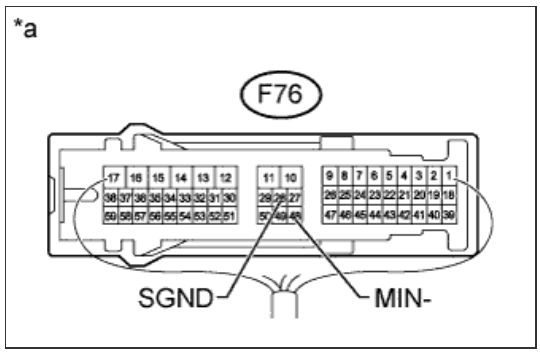
## 10.CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY

a. Disconnect the P2 telematics transceiver connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-28 (SGND) - Body ground | Always | Below 1 Ω |
| F76-48 (MIN-) - Body ground | Always | Below 1 Ω |




**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Multi-media Module Receiver Assembly) |

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

## 11.CHECK TELEMATICS TRANSCEIVER

a. Measure the voltage according to the value(s) in the table below.

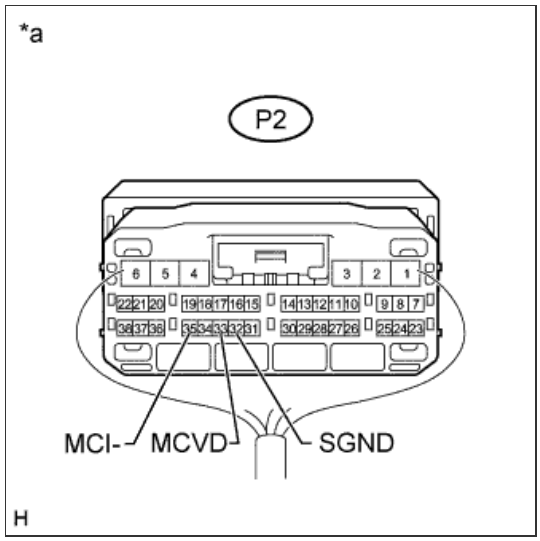
**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| P2-33 (MCVD) - Body ground | Engine switch on (ACC) | 4 to 6 V |

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P2-32 (SGND) - Body ground | Always | Below 1 Ω |
| P2-35 (MCI-) - Body ground | Always | Below 1 Ω |




**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Telematics Transceiver) |

NG → REPLACE TELEMATICS TRANSCEIVER (Click here)

OK

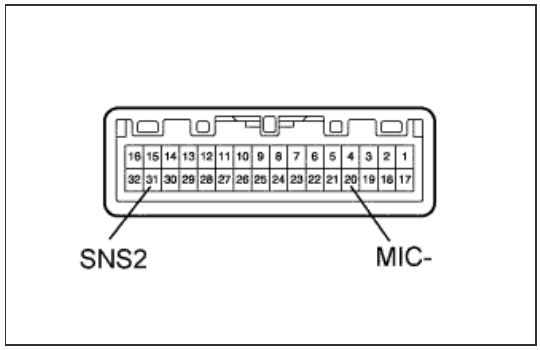
## 12.INSPECT MAP LIGHT ASSEMBLY

a. Remove the map light assembly (Click here).

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 20 (MIC-) - 31 (SNS2) | Always | Below 1 Ω |




NG → Go to step 14

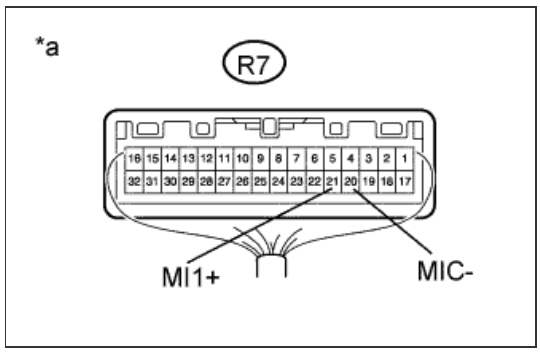
OK

## 13.CHECK MAP LIGHT ASSEMBLY

a. Turn the engine switch on (ACC).

b. Connect an oscilloscope to terminals R7-21 (MI1+) and R7-20 (MIC-) of the map light assembly connector.

c. Check the waveform of the telephone microphone assembly using the oscilloscope.




**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Map Light Assembly) |

**Result**

| Result | Proceed to |
|---|---|
| A waveform synchronized with the voice input to the map light assembly is output. | A |
| A waveform synchronized with the voice input to the map light assembly is not output. | B |

B → Go to step 14

A

REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

14.CHECK TELEPHONE MICROPHONE ASSEMBLY

a. Replace the telephone microphone assembly with a new or normally functioning one ( Click here).

b. Check if the same DTC is output again.

**Result**

| Result | Proceed to |
|---|---|
| No DTCs are output. | A |
| DTCs are output. | B |

B → REPLACE MAP LIGHT ASSEMBLY (Click here)

A

END (TELEPHONE MICROPHONE ASSEMBLY IS DEFECTIVE)

## DTC 45-10 DVD Changer Mechanical Error

## DTC 45-11 DVD Insertion and Ejection Error

## DTC 45-12 DVD Reading Abnormal

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-10 | A mechanical error in the DVD changer is detected while a disc is not being inserted or ejected. | Radio receiver assembly |
| 45-11 | Disc insertion or ejection fails. | |
| 45-12 | A disc read problem occurs. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE RADIO RECEIVER ASSEMBLY**

a. Replace the radio receiver (Click here).

**NEXT**

**END**

# DTC B1585 USB Device Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when a malfunction occurs in a connected device.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1585 | USB Device Malfunction<br>• Non mass-storage class or incompatible protocol USB device<br>• USB device with an incompatible file system, corrupted or incompatible File Allocation Table (FAT)<br>• "iPod" malfunction<br>• "iPod" with unsupported firmware<br>• Unsupported "iPod" model | • USB device or "iPod"<br>• Multi-media module receiver assembly |

## INSPECTION PROCEDURE

### 1.REPLACE USB DEVICE OR “iPod”

a. Disconnect the USB device or "iPod" from the No. 1 stereo jack adapter assembly.

b. Turn the engine switch off.

**HINT:**

When this DTC has been stored, it is necessary to turn off the engine switch to make it possible for the vehicle to recognize a new device when it is connected.

c. Turn the engine switch on (ACC).

d. Connect a known good USB device or "iPod" to the No. 1 stereo jack adapter assembly.

**HINT:**

- **If the malfunction occurred when a USB device was in use, use another USB device for the inspection. If the malfunction occurred when an "iPod" was in use, use another "iPod" for the inspection.**
- **Refer to System Description for compatible formats and versions (Click here).**

**NEXT**

### 2.CLEAR DTC

a. Clear the DTCs (Click here).

**NEXT**

### 3.CHECK DTC

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

**NG** → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

**OK**

### USB DEVICE FORMAT WAS INCOMPATIBLE, "iPod" VERSION WAS INCOMPATIBLE, OR USB DEVICE OR "iPod" WAS DEFECTIVE

## DTC 45-10 DVD Changer Mechanical Error

## DTC 45-11 DVD Insertion and Ejection Error

## DTC 45-12 DVD Reading Abnormal

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-10 | A mechanical error in the DVD changer is detected while a disc is not being inserted or ejected. | Radio receiver assembly |
| 45-11 | Disc insertion or ejection fails. | |
| 45-12 | A disc read problem occurs. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE RADIO RECEIVER ASSEMBLY**

a. Replace the radio receiver (Click here).

**NEXT**

**END**

# DTC B15A3 Stereo Component Amplifier Malfunction

**for Preparation** Click here

## DESCRIPTION

These DTCs are stored when a malfunction occurs in the stereo component amplifier assembly.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A3 | When one of the conditions below is met:<br>• Internal power supply malfunction<br>• DSP error<br>• EEPROM error | Stereo component amplifier assembly |

## INSPECTION PROCEDURE

### 1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

### 2.CHECK DTC

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

NG → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (**Click here**)

OK

### USE SIMULATION METHOD TO CHECK (**Click here**)

## DTC 45-10 DVD Changer Mechanical Error

## DTC 45-11 DVD Insertion and Ejection Error

## DTC 45-12 DVD Reading Abnormal

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-10 | A mechanical error in the DVD changer is detected while a disc is not being inserted or ejected. | Radio receiver assembly |
| 45-11 | Disc insertion or ejection fails. | |
| 45-12 | A disc read problem occurs. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE RADIO RECEIVER ASSEMBLY**

a. Replace the radio receiver (Click here).

**NEXT**

**END**

# DTC B15A6 Display Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when a malfunction occurs in the multi-display assembly.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A6 | When one of the conditions below is met:<br>• RAM error<br>• Drawing controller malfunction<br>• Internal hard drive malfunction | Multi-display assembly |

## INSPECTION PROCEDURE

### 1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

### 2.CHECK DTC

a. Recheck for DTCs and check if the same DTCs are output again ( Click here).

**OK:**
**No DTCs are output.**

NG → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

OK

USE SIMULATION METHOD TO CHECK (Click here)

## DTC 45-41 Wrong Disc

## DTC 45-42 Disc cannot be Read

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-41 | An unsuitable disc is inserted. | • Disc<br>• Radio receiver assembly |
| 45-42 | The disc cannot be read. | |

### INSPECTION PROCEDURE

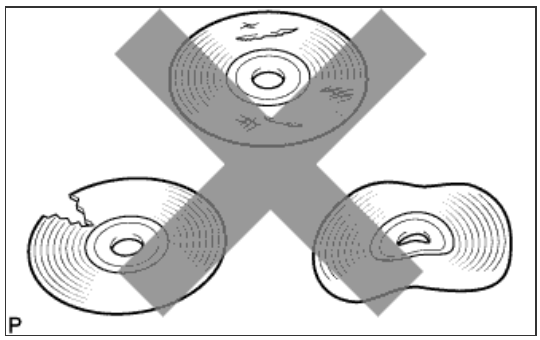
**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK DISC**

a. Check that the disc is not deformed or cracked.

**OK:**
**No deformation or cracks on the disc.**




NG → REPLACE DISC

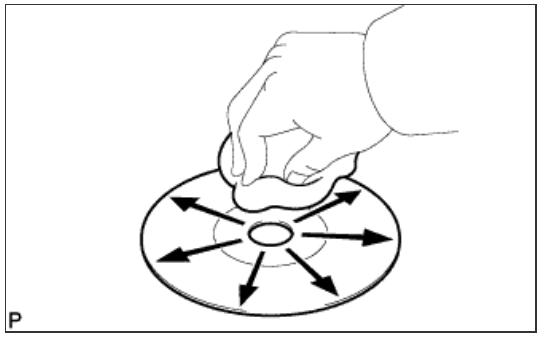
OK

**2.DISC CLEANING**

a. If dirt is on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

**NOTICE:**

Do not use a conventional record cleaner or antistatic preservative.




NEXT

**3.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

4.RECHECK DTC

a. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → Go to step 5

OK →

END

5.REPLACE DISC WITH ANOTHER AND RECHECK

a. Replace the disc with a normal one.

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK →

END

## DTC B15B0 Display Screen Malfunction

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a malfunction occurs in the multi-display assembly.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15B0 | Picture circuit (TFT unit) malfunction | Multi-display assembly |

### INSPECTION PROCEDURE

**1.CLEAR DTC**

a. Clear the DTC (Click here).

**NEXT**

**2.CHECK DTC**

a. Recheck for DTCs and check if the same DTCs are output again ( Click here).

**OK:**
**No DTCs are output.**

**NG** → **REPLACE MULTI-DISPLAY ASSEMBLY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC 45-41 Wrong Disc

## DTC 45-42 Disc cannot be Read

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-41 | An unsuitable disc is inserted. | • Disc<br>• Radio receiver assembly |
| 45-42 | The disc cannot be read. | |

### INSPECTION PROCEDURE

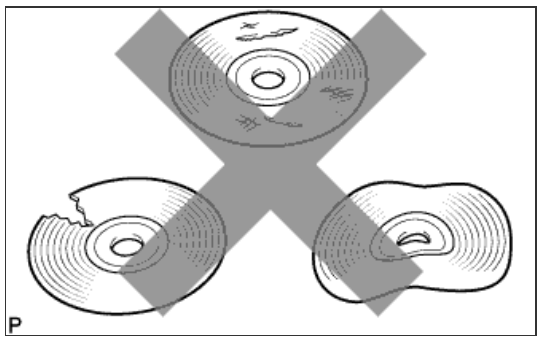
**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK DISC**

a. Check that the disc is not deformed or cracked.

**OK:**
**No deformation or cracks on the disc.**




NG → REPLACE DISC

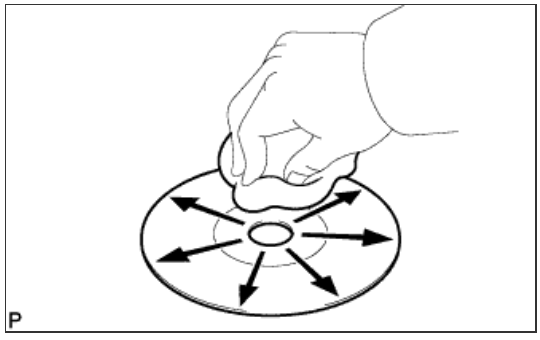
OK

**2.DISC CLEANING**

a. If dirt is on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

**NOTICE:**

Do not use a conventional record cleaner or antistatic preservative.




NEXT

**3.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

4.RECHECK DTC

a. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → Go to step 5

OK →

END

5.REPLACE DISC WITH ANOTHER AND RECHECK

a. Replace the disc with a normal one.

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK →

END

# DTC B15B8 Harddisk Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when the hard disc which is built into the multi-media module receiver assembly has an initialization malfunction or read/write errors occur more than a specified number of times.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15B8 | Hard Disk Drive (HDD) malfunction | Hard disc |

## INSPECTION PROCEDURE

### 1.CHECK HARD DISC (OPERATION CHECK)

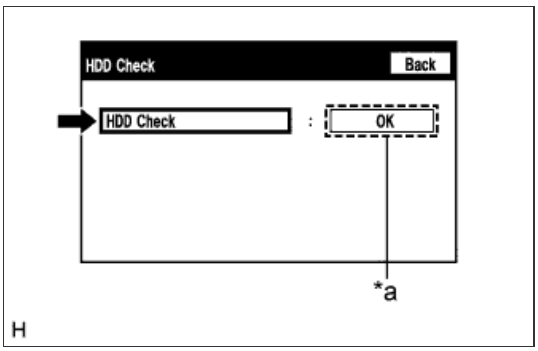
a. Enter the "Failure Diagnosis" screen. Refer to Check Hard Disc in Operation Check (Click here).

b. Select "HDD Check" and check the result.

**OK:**
**"OK" is displayed.**

**HINT:**

- **After selecting "HDD Check", it may take a while until the result is displayed.**
- **If the cabin temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher, the hard disc may not operate normally, and "NG" may be shown on the display. Make sure to perform the inspection with the cabin at an appropriate temperature.**




Text in Illustration

| | |
|---|---|
| *a | Result |

NG → Go to step 4

OK →

### 2.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT →

### 3.CHECK DTC

a. Recheck for DTCs and check if the same DTCs are output again ( Click here).

**OK:**
**No DTCs are output.**

**HINT:**

The hard disc may be malfunctioning even if DTC B15B8 is not output.

NG → REPLACE HARD DISC (**Click here**)

OK →

USE SIMULATION METHOD TO CHECK (**Click here**)

### 4.REPLACE HARD DISC

a. Replace the hard disc with a new one ( Click here).

NEXT

5.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

6.CHECK DTC

a. Recheck for DTCs and check if the same DTCs are output again ( Click here).

**OK:**
**No DTCs are output.**

**HINT:**

The hard disc may be malfunctioning even if DTC B15B8 is not output.

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (**Click here**)

OK

END (HARD DISC IS DEFECTIVE)

# DTC 45-43 DVD-ROM Abnormal

**for Preparation** Click here

## DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-43 | Disc operation is abnormal. | • Disc<br>• Radio receiver assembly |

## INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK IF PROPER DISC IS INSERTED**

a. Make sure that the DVD is a video DVD or a CD with an MP3 or WMA file, and that it is not deformed, flawed, stained, burred, or otherwise defective.

**OK:**
**Normal disc.**

**HINT:**

- **Translucent or uniquely-shaped DVDs or CDs cannot be played.**
- **For details on playable DVDs or CDs, refer to the Owner's Manual.**

**NG** → **DISC IS FAULTY**

**OK**

**2.REPLACE DISC WITH ANOTHER AND RECHECK**

a. Replace the disc and recheck.

i. Replace the disc with a normal one.

ii. Clear the DTCs (Click here).

iii. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**END**

# DTC B15C2 Speed Signal Malfunction

**for Preparation** Click here

## DESCRIPTION

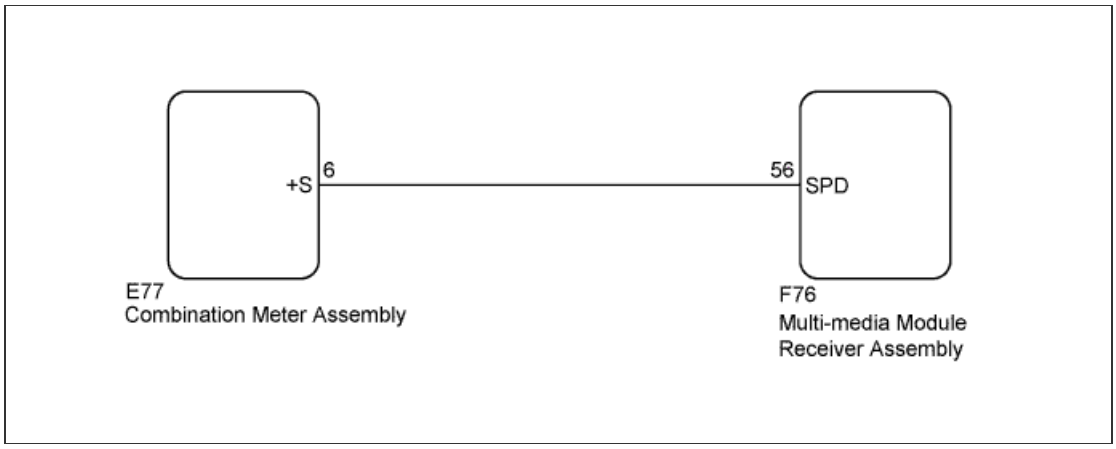
The multi-media module receiver assembly receives a vehicle speed signal from the combination meter assembly and information from the navigation antenna, and then adjusts the vehicle position on the map. The multi-media module receiver assembly stores this DTC when the difference between the speed information that the navigation antenna assembly receives and the SPD pulse received from the combination meter assembly becomes large.

**HINT:**

- **A voltage of 12 V or 5 V is output from each ECU and then input to the combination meter assembly. The signal is changed to a pulse signal at the transistor in the combination meter assembly. Each ECU controls the respective systems based on the pulse signal.**
- **If a short occurs in any of the ECUs or in the wire harness connected to an ECU, all systems in the diagram below will not operate normally.**

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15C2 | A difference between the GPS speed and SPD pulse is detected | • Combination meter assembly<br>• Multi-media module receiver assembly<br>• Harness or connector |

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CLEAR DTC

a. Clear the DTCs (Click here).

**NEXT**

### 2.CHECK DTC

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

**NG** → **Go to step 3**

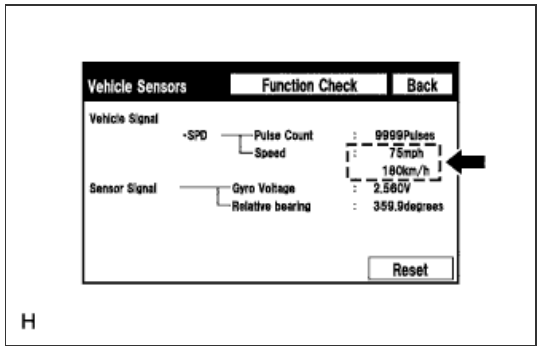
**OK**

USE SIMULATION METHOD TO CHECK (**Click here**)

### 3.CHECK VEHICLE SENSOR (OPERATION CHECK)

a. Enter the "Vehicle Sensors" screen. Refer to Check GPS & Vehicle Sensor in Operation Check (Click here).

b. While driving the vehicle, compare the "Speed" indicator to the reading on the speedometer. Check if these readings are almost equal.




**HINT:**

The combination meter assembly receives the vehicle speed signal from the skid control ECU via CAN communication. Therefore, perform the following inspection referring to values on the Data List of the skid control ECU because it is the source of the vehicle speed signal.

**OK:**

**Vehicle speed displayed on the "Vehicle Sensors" screen is almost the same as the actual vehicle speed measured using the intelligent tester (Click here).**

NG → GO TO METER / GAUGE SYSTEM (Click here)

OK → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

## DTC 45-44 DVD Malfunction

## DTC 45-48 Excess Current

## DTC 45-50 Tray Insertion / Ejection Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-44 | An operation error in the DVD mechanism. | Radio receiver assembly |
| 45-48 | Excess current is present in the DVD changer. | |
| 45-50 | A malfunction in the insertion/ejection system. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.RECHECK DTC**

a. Recheck for DTCs and check if the same trouble code is output.

**HINT:**

If DTCs are output frequently, replace the radio receiver.

**OK:**
**No DTC is output.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC B15C3 Speaker Output Short

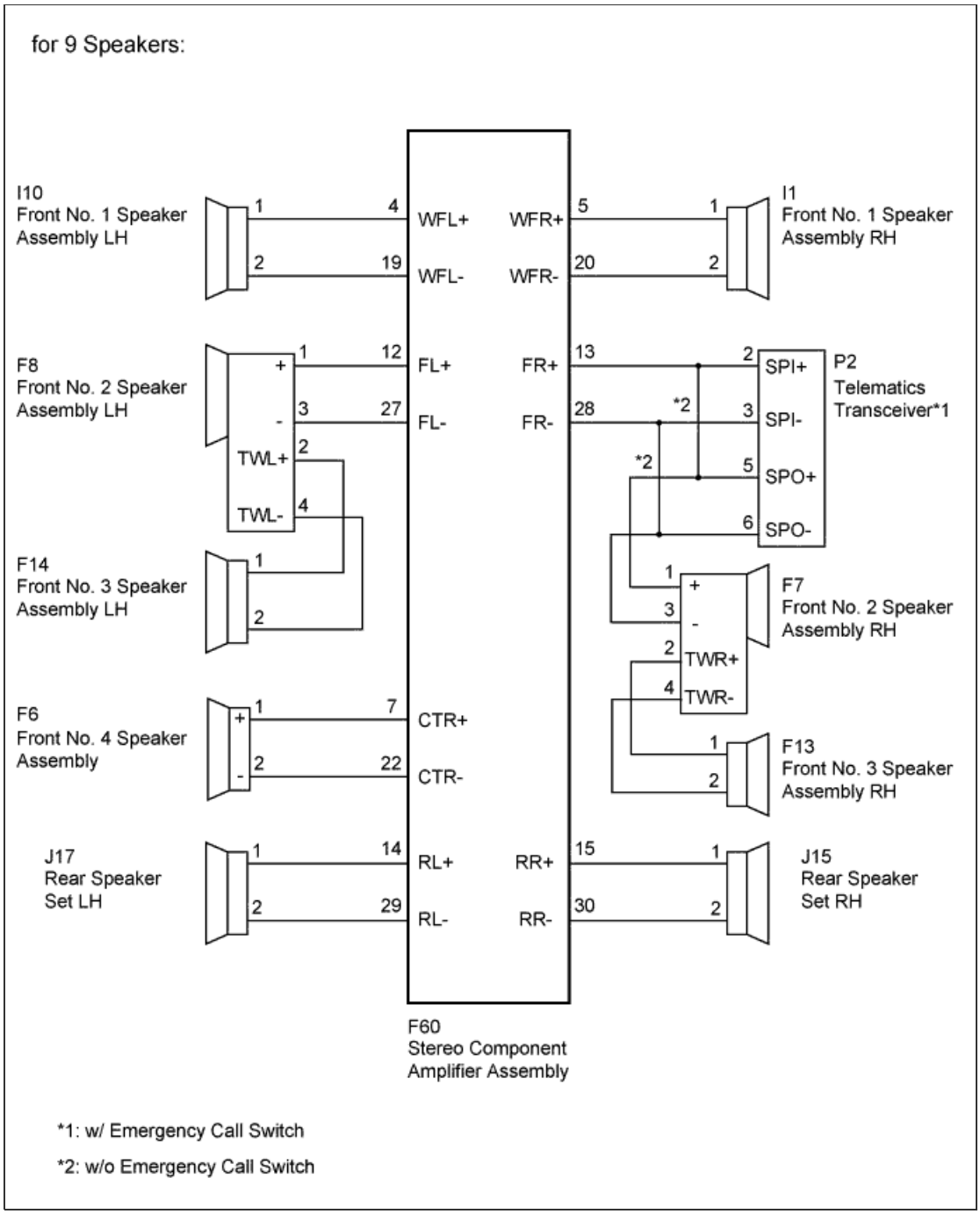
**for Preparation** Click here

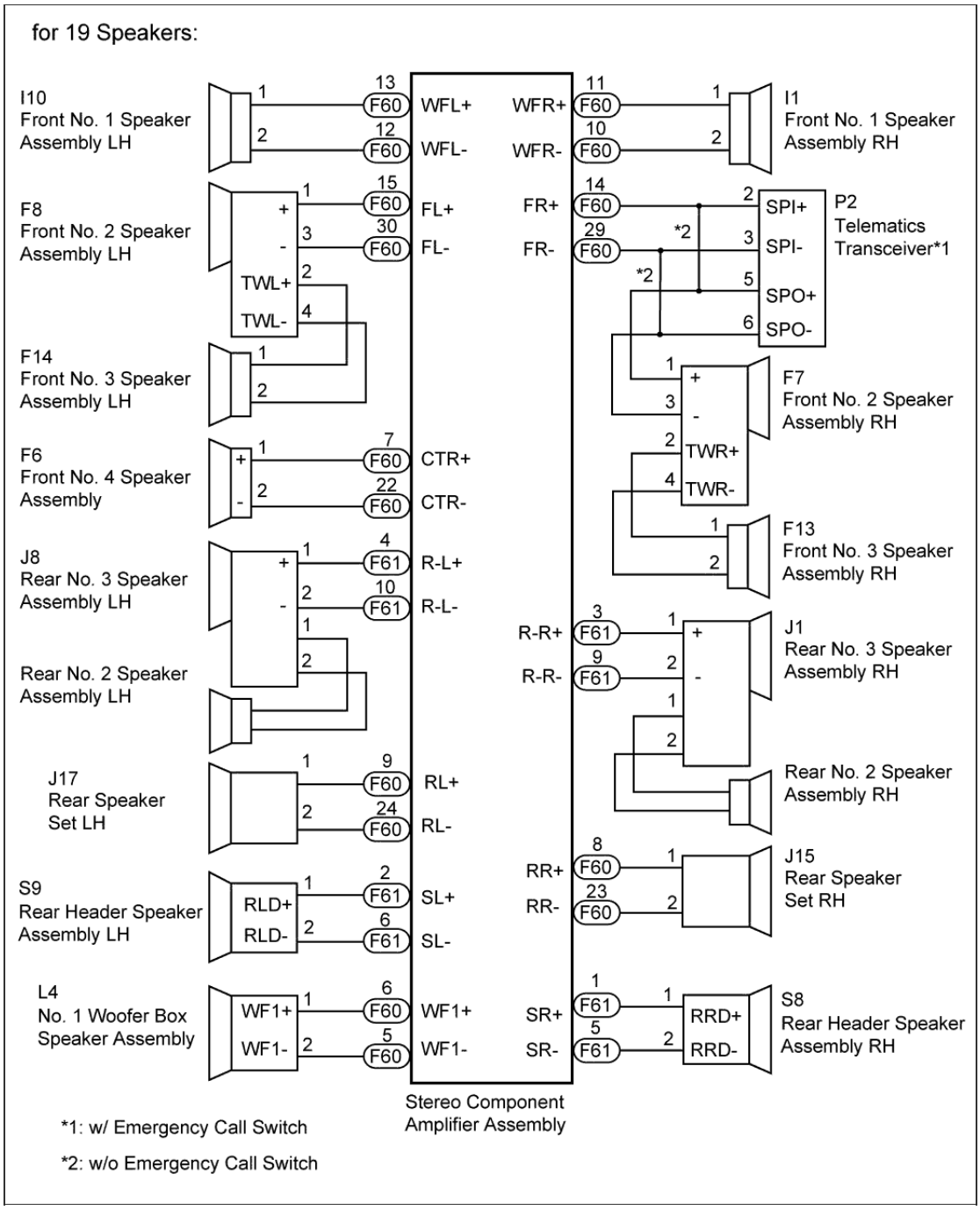
### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15C3 | A short is detected in the speaker output circuit. | • Stereo component amplifier assembly<br>• Ttelematics transceiver*<br>• Speaker<br>• Harness or connector |

*: w/ Emergency Call Switch

### WIRING DIAGRAM






## INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs.

### 1.CHECK DTC

a. Clear the DTC (Click here).

**NEXT**

### 2.CHECK DTC

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**

**DTC B15C3 is not output.**

**NG** → **Go to step 3**

OK

USE SIMULATION METHOD TO CHECK (Click here)

3.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - SPEAKERS)

*1: for RH Side
*2: for LH Side
*3: w/ Emergency Call Switch
*4: w/o Emergency Call Switch
*5: for 9 speakers
*6: for 19 speakers

a. Disconnect the F60 and/or F61*6 stereo component amplifier assembly connector.

b. Disconnect the I1*1 and/or I10*2 front No. 1 speaker assembly connector.

c. Disconnect the F7*1 and/or F8*2 front No. 2 speaker assembly connector.

d. Disconnect the F6 front No. 4 speaker assembly connector.

e. Disconnect the J15*1 and/or J17*2 rear speaker set connector.

f. Disconnect the J1*1 and/or J8*2 rear No. 3 speaker connector*6.

g. Disconnect the S8*1 and/or S9*2 rear header speaker assembly connector*6.

h. Disconnect the L4 No. 1 woofer box speaker connector*6.

i. Disconnect the P2*3 telematics transceiver connector.

j. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**
**for 9 speakers:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F60-5 (WFR+) - I1-1*1 | Always | Below 1 Ω |
| F60-20 (WFR-) - I1-2*1 | Always | Below 1 Ω |
| F60-4 (WFL+) - I10-1*2 | Always | Below 1 Ω |
| F60-19 (WFL-) - I10-2*2 | Always | Below 1 Ω |
| F60-13 (FR+) - P2-2 (SPI+)*1, *3 | Always | Below 1 Ω |
| F60-28 (FR-) - P2-3 (SPI-)*1, *3 | Always | Below 1 Ω |
| F60-13 (FR+) - F7-1 (+)*1, *4 | Always | Below 1 Ω |
| F60-28 (FR-) - F7-3 (-)*1, *4 | Always | Below 1 Ω |
| F60-12 (FL+) - F8-1 (+)*2 | Always | Below 1 Ω |
| F60-27 (FL-) - F8-3 (-)*2 | Always | Below 1 Ω |
| F60-7 (CTR+) - F6-1 (+) | Always | Below 1 Ω |
| F60-22 (CTR-) - F6-2 (-) | Always | Below 1 Ω |
| F60-15 (RR+) - J15-1*1 | Always | Below 1 Ω |
| F60-30 (RR-) - J15-2*1 | Always | Below 1 Ω |
| F60-14 (RL+) - J17-1*2 | Always | Below 1 Ω |
| F60-29 (RL-) - J17-2*2 | Always | Below 1 Ω |
| F60-5 (WFR+) - | | |

| | | |
|---|---|---|
| Body ground | Always | 10 kΩ or higher |
| F60-20 (WFR-) - Body ground | Always | 10 kΩ or higher |
| F60-4 (WFL+) - Body ground | Always | 10 kΩ or higher |
| F60-19 (WFL-) - Body ground | Always | 10 kΩ or higher |
| F60-13 (FR+) - Body ground | Always | 10 kΩ or higher |
| F60-28 (FR-) - Body ground | Always | 10 kΩ or higher |
| F60-12 (FL+) - Body ground | Always | 10 kΩ or higher |
| F60-27 (FL-) - Body ground | Always | 10 kΩ or higher |
| F60-7 (CTR+) - Body ground | Always | 10 kΩ or higher |
| F60-22 (CTR-) - Body ground | Always | 10 kΩ or higher |
| F60-15 (RR+) - Body ground | Always | 10 kΩ or higher |
| F60-30 (RR-) - Body ground | Always | 10 kΩ or higher |
| F60-14 (RL+) - Body ground | Always | 10 kΩ or higher |
| F60-29 (RL-) - Body ground | Always | 10 kΩ or higher |

**for 19 speakers:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F60-11 (WFR+) - I1-1*1 | Always | Below 1 Ω |
| F60-10 (WFR-) - I1-2*1 | Always | Below 1 Ω |
| F60-13 (WFL+) - I10-1*2 | Always | Below 1 Ω |
| F60-12 (WFL-) - I10-2*2 | Always | Below 1 Ω |
| F60-14 (FR+) - P2-2 (SPI+)*1, *3 | Always | Below 1 Ω |
| F60-29 (FR-) - P2-3 (SPI-)*1, *3 | Always | Below 1 Ω |
| F60-14 (FR+) - F7-1 (+)*1, *4 | Always | Below 1 Ω |
| F60-29 (FR-) - F7-3 (-)*1, *4 | Always | Below 1 Ω |
| F60-15 (FL+) - F8-1 (+)*2 | Always | Below 1 Ω |
| F60-30 (FL-) - F8-3 (-)*2 | Always | Below 1 Ω |
| F60-7 (CTR+) - F6-1 (+) | Always | Below 1 Ω |
| F60-22 (CTR-) - F6-2 (-) | Always | Below 1 Ω |
| F61-3 (R-R+) - J1-1 (+)*1 | Always | Below 1 Ω |
| F61-9 (R-R-) - J1-2 (-)*1 | Always | Below 1 Ω |
| F61-4 (R-L+) - J8-1 (+)*2 | Always | Below 1 Ω |
| F61-10 (R-L-) - J8-2 (-)*2 | Always | Below 1 Ω |
| F60-8 (RR+) - J15-1*1 | Always | Below 1 Ω |
| F60-23 (RR-) - | | |

| | | |
|---|---|---|
| J15-2*1 | Always | Below 1 Ω |
| F60-9 (RL+) - J17-1*2 | Always | Below 1 Ω |
| F60-24 (RL-) - J17-2*2 | Always | Below 1 Ω |
| F61-1 (SR+) - S8-1 (RRD+)*1 | Always | Below 1 Ω |
| F61-5 (SR-) - S8-2 (RRD-)*1 | Always | Below 1 Ω |
| F61-2 (SL+) - S9-1 (RLD+)*2 | Always | Below 1 Ω |
| F61-6 (SL-) - S9-2 (RLD-)*2 | Always | Below 1 Ω |
| F60-6 (WF1+) - L4-1 (WF1+) | Always | Below 1 Ω |
| F60-5 (WF1-) - L4-2 (WF1-) | Always | Below 1 Ω |
| F60-11 (WFR+) - Body ground | Always | 10 kΩ or higher |
| F60-10 (WFR-) - Body ground | Always | 10 kΩ or higher |
| F60-13 (WFL+) - Body ground | Always | 10 kΩ or higher |
| F60-12 (WFL-) - Body ground | Always | 10 kΩ or higher |
| F60-14 (FR+) - Body ground | Always | 10 kΩ or higher |
| F60-29 (FR-) - Body ground | Always | 10 kΩ or higher |
| F60-15 (FL+) - Body ground | Always | 10 kΩ or higher |
| F60-30 (FL-) - Body ground | Always | 10 kΩ or higher |
| F60-7 (CTR+) - Body ground | Always | 10 kΩ or higher |
| F60-22 (CTR-) - Body ground | Always | 10 kΩ or higher |
| F61-3 (R-R+) - Body ground | Always | 10 kΩ or higher |
| F61-9 (R-R-) - Body ground | Always | 10 kΩ or higher |
| F61-4 (R-L+) - Body ground | Always | 10 kΩ or higher |
| F61-10 (R-L-) - Body ground | Always | 10 kΩ or higher |
| F60-8 (RR+) - Body ground | Always | 10 kΩ or higher |
| F60-23 (RR-) - Body ground | Always | 10 kΩ or higher |
| F60-9 (RL+) - Body ground | Always | 10 kΩ or higher |
| F60-24 (RL-) - Body ground | Always | 10 kΩ or higher |
| F60-1 (SR+) - Body ground | Always | 10 kΩ or higher |
| F60-5 (SR-) - Body ground | Always | 10 kΩ or higher |
| F61-2 (SL+)- Body ground | Always | 10 kΩ or higher |
| F61-6 (SL-) - Body ground | Always | 10 kΩ or higher |
| F60-6 (WF1+) - Body ground | Always | 10 kΩ or higher |
| F60-5 (WF1-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 4.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY

a. Disconnect the front No. 1 speaker assembly connector.

b. Inspect the front No. 1 speaker assembly (Click here).

NG → REPLACE FRONT NO. 1 SPEAKER ASSEMBLY (**Click here**)

OK

### 5.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

a. Disconnect the front No. 2 speaker assembly connector.

b. Inspect the front No. 2 speaker assembly (Click here).

NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (**Click here**)

OK

### 6.CHECK FRONT NO. 3 SPEAKER ASSEMBLY

a. Temporarily replace the front No. 3 speaker assembly with a new or normally functioning one ( Click here).

b. Check for DTCs and check if the same DTCs is output ( Click here).

**OK:**
**No DTCs are output.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (w/ Emergency Call Switch) | B |
| NG (w/o Emergency Call Switch) | C |

B → **Go to step 7**

C → **Go to step 9**

A

### END (FRONT NO. 3 SPEAKER ASSEMBLY IS DEFECTIVE)

### 7.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - FRONT NO. 2 SPEAKER RH)

a. Disconnect the P2 telematics transceiver connector.

b. Disconnect the F7 front No. 2 speaker assembly RH connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P2-5 (SPO+) - F7-1 (+) | Always | Below 1 Ω |
| P2-6 (SPO-) - F7-3 (-) | Always | Below 1 Ω |
| P2-5 (SPO+) - | | |

| | | |
|---|---|---|
| Body ground | Always | 10 kΩ or higher |
| P2-6 (SPO-) - Body ground | Always | 10 kΩ or higher |

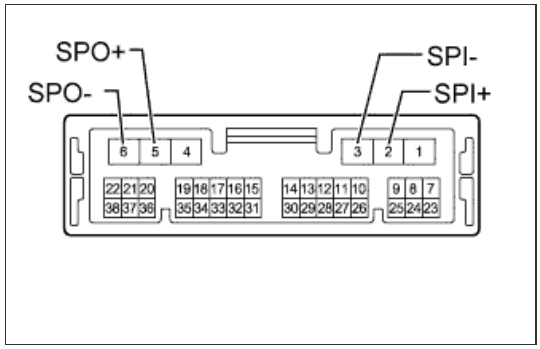
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 8.INSPECT TELEMATICS TRANSCEIVER

a. Remove the telematics transceiver (Click here).

b. Measure the resistance according to the value(s) in the table below.




**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 2 (SPI+) - 5 (SPO+) | Always | Below 1 Ω |
| 3 (SPI-) - 6 (SPO-) | Always | Below 1 Ω |
| 2 (SPI+) - Body ground | Always | 10 kΩ or higher |
| 3 (SPI-) - Body ground | Always | 10 kΩ or higher |

NG → REPLACE TELEMATICS TRANSCEIVER (Click here)

OK

## 9.CHECK HARNESS AND CONNECTOR (FRONT NO. 2 SPEAKER - FRONT NO. 3 SPEAKER)

*1: for RH Side
*2: for LH Side

a. Disconnect the F7*1 and/or F8*2 front No. 2 speaker assembly connector.

b. Disconnect the F13*1 and/or F14*2 front No. 3 speaker assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for RH Side**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F7-2 (TWR+) - F13-1 | Always | Below 1 Ω |
| F7-4 (TWR-) - F13-2 | Always | Below 1 Ω |
| F7-2 (TWR+) - Body ground | Always | 10 kΩ or higher |
| F7-4 (TWR-) - Body ground | Always | 10 kΩ or higher |

**for LH Side**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F8-2 (TWL+) - F14-1 | Always | Below 1 Ω |
| F8-4 (TWL-) - F14-2 | Always | Below 1 Ω |
| F8-2 (TWL+) - Body ground | Always | 10 kΩ or higher |
| F8-4 (TWL-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

10.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY

a. Disconnect the front No. 4 speaker assembly connector.

b. Inspect the front No. 4 speaker assembly (Click here).

NG → REPLACE FRONT NO. 4 SPEAKER ASSEMBLY (Click here)

OK

11.INSPECT REAR SPEAKER SET

a. Disconnect the rear speaker set connector.

b. Inspect the rear speaker set (Click here).

Result

| Result | Proceed to |
|---|---|
| OK (for 19 speakers) | A |
| OK (for 9 speakers) | B |
| NG | C |

B → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

C → REPLACE REAR SPEAKER SET (Click here)

A

12.CHECK REAR NO. 3 SPEAKER ASSEMBLY

a. Temporarily replace the rear No. 3 speaker assembly with a new or normally functioning one ( Click here).

b. Check for DTCs and check if the same DTCs is output ( Click here).

OK:
No DTCs are output.

NG → Go to step 13

OK

END (REAR NO. 3 SPEAKER ASSEMBLY IS DEFECTIVE)

13.INSPECT REAR NO. 2 SPEAKER ASSEMBLY

a. Disconnect the rear No. 2 speaker assembly connector.

b. Inspect the rear No. 2 speaker assembly (Click here).

NG → REPLACE REAR NO. 2 SPEAKER ASSEMBLY (Click here)

OK

14.INSPECT REAR HEADER SPEAKER ASSEMBLY

a. Disconnect the rear header assembly connector.

b. Inspect the rear header assembly (Click here).

NG → REPLACE REAR HEADER SPEAKER ASSEMBLY (Click here)

OK

15.INSPECT NO. 1 WOOFER BOX SPEAKER ASSEMBLY

a. Disconnect the No. 1 woofer box speaker assembly connector.

b. Inspect the No. 1 woofer box speaker assembly ( Click here).

NG → REPLACE NO. 1 WOOFER BOX SPEAKER ASSEMBLY (Click here)

OK → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## DTC 45-44 DVD Malfunction

## DTC 45-48 Excess Current

## DTC 45-50 Tray Insertion / Ejection Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-44 | An operation error in the DVD mechanism. | Radio receiver assembly |
| 45-48 | Excess current is present in the DVD changer. | |
| 45-50 | A malfunction in the insertion/ejection system. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.RECHECK DTC**

a. Recheck for DTCs and check if the same trouble code is output.

**HINT:**

If DTCs are output frequently, replace the radio receiver.

**OK:**
**No DTC is output.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

# DTC B15D0 MOST Communication Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when the MOST network cannot be established after the master unit is activated.

**HINT:**

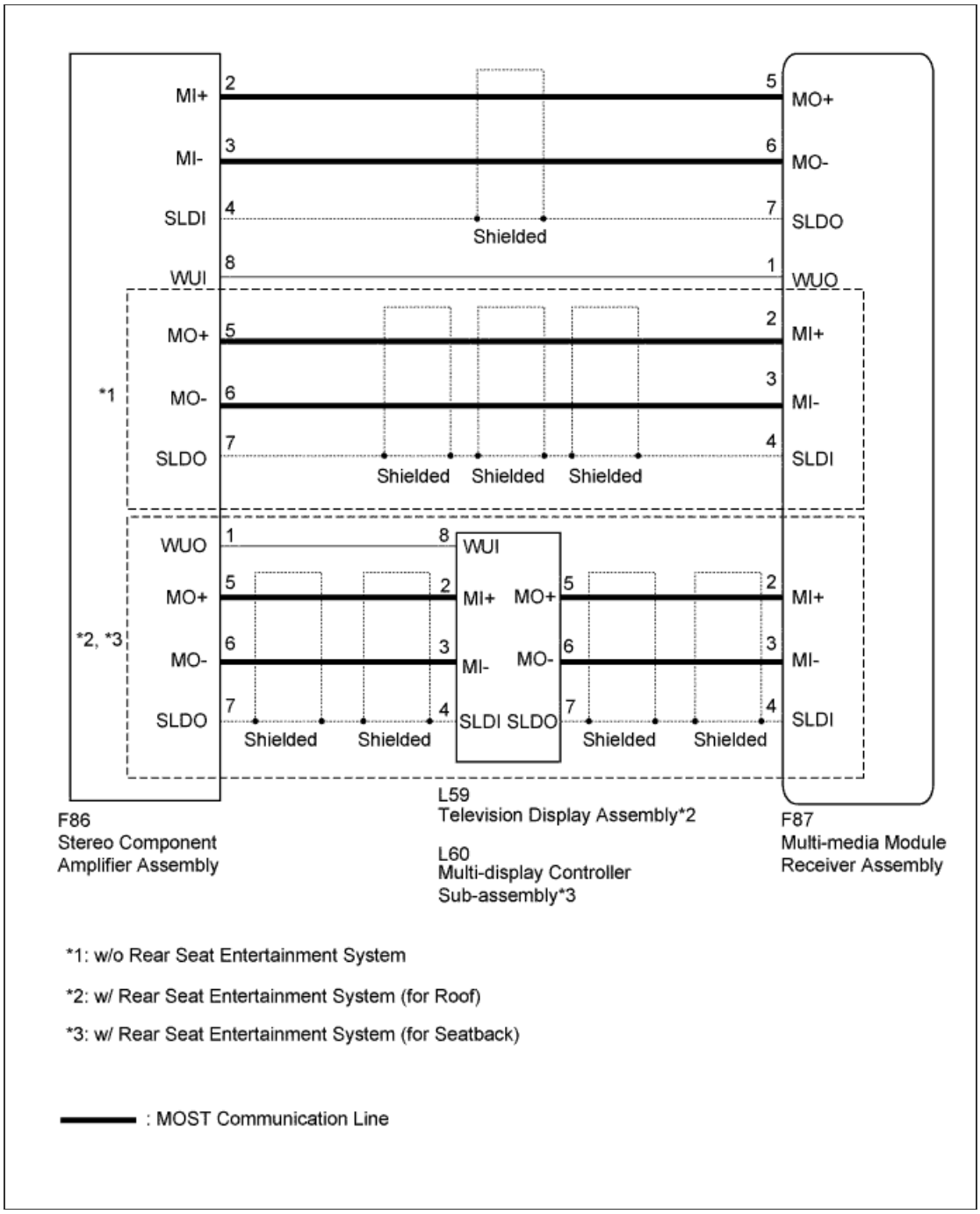
- **If a short occurs in a speaker circuit, the sound from the corresponding speaker will be low or almost impossible to hear. If the volume is turned up in this situation, to prevent excessive current flow due to the short circuit, the stereo component amplifier assembly stops operating when its output exceeds a certain level. When the operation of the stereo component amplifier assembly stops, the navigation system will not function normally. This is because MOST communication will stop due to the shut down of the amplifier causing an error in the MOST network. The stereo component amplifier assembly will start operating again when the engine switch is turned off and back on (ACC) again. However, the amplifier will stop operating again if its output exceeds a certain level.**
- **When the stereo component amplifier assembly stops operating and a malfunction occurs in the navigation system due to a short in a speaker circuit, this DTC will be stored.**

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15D0 | MOST network cannot be established. | • MOST line check<br>• MOST communication line connector<br>• MOST communication line<br>• Television display assembly (w/ Rear Seat Entertainment System [for Roof])<br>• Multi-display controller sub-assembly (w/ Rear Seat Entertainment System [for Seatback])<br>• Stereo component amplifier assembly<br>• Multi-media module receiver assembly |

**HINT:**

- **For the MOST network, the multi-media module receiver assembly is the master unit.**
- **Errors may occur in MOST communication between devices due to problems such as electrical noise.**

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are installed.<br>DTCs are not output. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect AVC-LAN communication.**
- **These DTCs may be stored when an AVC-LAN communication error occurs due to electrical noise.**

| | |
|---|---|
| B | Go to step 3 |

A

## 2.CONFIRM SYMPTOMS

a. Turn the engine switch off.

b. Turn the engine switch on (ACC) and check if the audio system activates and if the speakers operate.

**HINT:**

- **Choose a source such as radio so that sound can be output from the speakers.**
- **If sound from the speakers is low, turn up the volume.**

**Result**

| Result | Proceed to |
|---|---|
| Even after the engine switch is turned on (ACC), the navigation system does not activate and sound is not output from the speakers. (w/o Rear Seat Entertainment System) | A |
| Even after the engine switch is turned on (ACC), the navigation system does not activate and sound is not output from the speakers. (w/ Rear Seat Entertainment System) | B |
| The audio system activates when the engine switch is turned on (ACC) but the sound stops being output when the amplifier output exceeds a certain level. | C |

**HINT:**

- **If a short occurs in a speaker circuit, the sound from the corresponding speaker will be low or almost impossible to hear. If the volume is turned up in this situation, to prevent excessive current flow due to the short circuit, the stereo component amplifier assembly stops operating when its output exceeds a certain level. When the operation of the stereo component amplifier assembly stops, the navigation system will not function normally. This is because MOST communication will stop due to the shut down of the amplifier causing an error in the MOST network. The stereo component amplifier assembly will start operating again when the engine switch is turned off and back on (ACC) again. However, the amplifier will stop operating again if its output exceeds a certain level.**
- **When the stereo component amplifier assembly stops operating and a malfunction occurs in the navigation system due to a short in a speaker circuit, this DTC will be stored. In this case, check each speaker circuit and repair or replace malfunctioning parts, and then recheck for DTCs.**

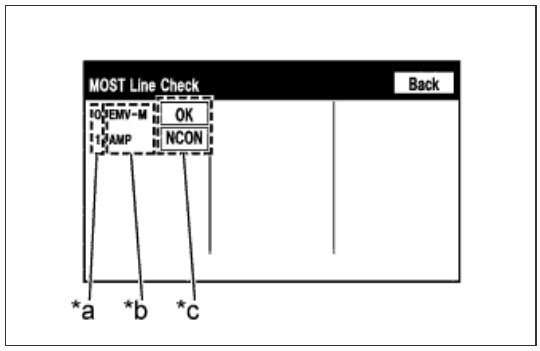
| | |
|---|---|
| B | Go to step 11 |
| C | GO TO PROBLEM SYMPTOMS TABLE (Click here) |

A

## 3.CHECK MOST COMMUNICATION CONNECTORS

a. Display the "MOST Line Check" screen ( Click here).

b. Check the result on the "MOST Line Check" screen.




**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "AMP". | A |
| "OK" is displayed for all items. | B |

- When "NCON" is displayed for more than 1 item, proceed to the step for the device that has the smallest node position number.
- The "MOST Line Check" screen can be displayed only when DTC B15D0 is stored.

**Text in Illustration**

| | |
|---|---|
| *a | Node position number for devices that use MOST communication |
| *b | Device name |
| | |

| *c | Result |
|---|---|

B → Go to step 7

A

## 4.CONFIRM SYMPTOMS

a. Check the MOST communication line connectors.

i. Check if the MOST communication line connector between the multi-media module receiver assembly and stereo component amplifier assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "AMP". | A |
| The screen cannot be changed to the "MOST Line Check" screen. | B |

**HINT:**

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

B → USE SIMULATION METHOD TO CHECK (Click here)

A

## 5.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY WAKE UP LINE)

a. Disconnect the stereo component amplifier assembly connector.

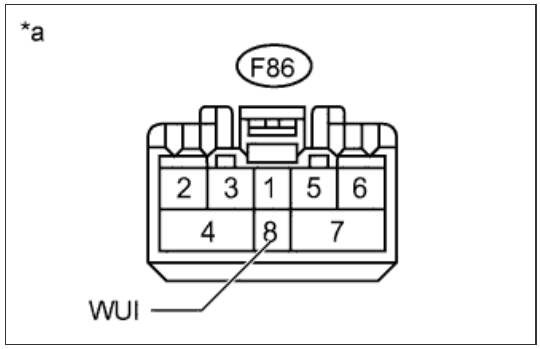
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F86-8 (WUI) - Body ground | Engine switch on (ACC) | 4.5 V or higher |

**Text in Illustration**

| *a | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |
|---|---|




NG → Go to step 6

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 6.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - STEREO COMPONENT AMPLIFIER ASSEMBLY)

a. Disconnect the F87 multi-media module receiver assembly connector.

b. Disconnect the F86 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F87-1 (WUO) - | Always | Below 1 Ω |

| | | |
|---|---|---|
| F86-8 (WUI) | | |
| F87-1 (WUO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**7.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - STEREO COMPONENT AMPLIFIER ASSEMBLY)**

a. Disconnect the F87 multi-media module receiver assembly connector.

b. Disconnect the F86 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F87-2 (MI+) - F86-5 (MO+) | Always | Below 1 Ω |
| F87-3 (MI-) - F86-6 (MO-) | Always | Below 1 Ω |
| F87-4 (SLDI) - F86-7 (SLDO) | Always | Below 1 Ω |
| F87-5 (MO+) - F86-2 (MI+) | Always | Below 1 Ω |
| F87-6 (MO-)- F86-3 (MI-) | Always | Below 1 Ω |
| F87-7 (SLDO) - F86-4 (SLDI) | Always | Below 1 Ω |
| F87-2 (MI+) - Body ground | Always | 10 kΩ or higher |
| F87-3 (MI-) - Body ground | Always | 10 kΩ or higher |
| F87-4 (SLDI) - Body ground | Always | 10 kΩ or higher |
| F87-5 (MO+) - Body ground | Always | 10 kΩ or higher |
| F87-6 (MO-) - Body ground | Always | 10 kΩ or higher |
| F87-7 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**8.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Replace the stereo component amplifier assembly with a new or normally functioning one ( Click here).

NEXT

**9.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

10.CHECK DTC

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output**

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (**Click here**)

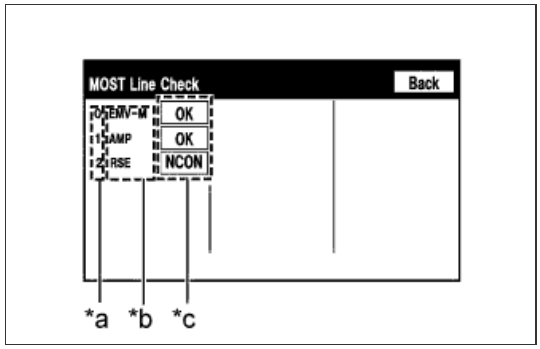
OK →

END (STEREO COMPONENT AMPLIFIER ASSEMBLY IS DEFECTIVE)

11.MOST COMMUNICATION CONNECTORS

a. Display the "MOST Line Check" screen ( Click here).

b. Check the result on the "MOST Line Check" screen.




**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "AMP". | A |
| "NCON" is displayed for "RSE". | B |
| "OK" is displayed for all items. | C |

- When "NCON" is displayed for more than 1 item, proceed to the step for the device that has the smallest node position number.
- The "MOST Line Check" screen can be displayed only when DTC B15D0 is stored.

**Text in Illustration**

| | |
|---|---|
| *a | Node position number for devices that use MOST communication |
| *b | Device name |
| *c | Result |

B → **Go to step 15**

C → **Go to step 20**

A →

12.CONFIRM SYMPTOMS

a. Check the MOST communication line connectors.

i. Check if the MOST communication line connector between the multi-media module receiver assembly and stereo component amplifier assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "AMP". | A |
| The screen cannot be changed to the "MOST Line Check" screen. | B |

**HINT:**

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

B → USE SIMULATION METHOD TO CHECK (**Click here**)

A

13.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY WAKE UP LINE)

a. Disconnect the stereo component amplifier assembly connector.

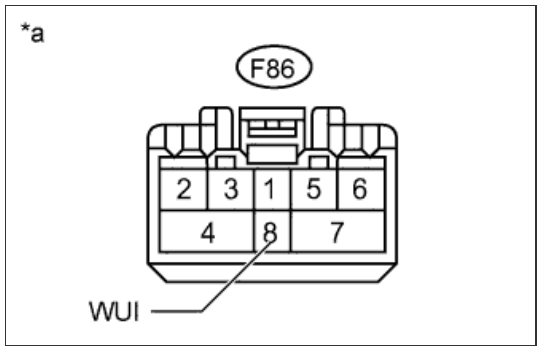
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F86-8 (WUI) - Body ground | Engine switch on (ACC) | 4.5 V or higher |

**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |




NG → Go to step 14

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

14.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - STEREO COMPONENT AMPLIFIER ASSEMBLY)

a. Disconnect the F87 multi-media module receiver assembly connector.

b. Disconnect the F86 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F87-1 (WUO) - F86-8 (WUI) | Always | Below 1 Ω |
| F87-1 (WUO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

15.CONFIRM SYMPTOMS

a. Check the MOST communication line connectors.

i. Check if the MOST communication line connector between the multi-media module receiver assembly and stereo component amplifier assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "RSE" (w/ Rear Seat Entertainment System [for Roof]). | A |
| "NCON" is displayed for "RSE" (w/ Rear Seat Entertainment System [for Seatback]). | B |
| The screen cannot be changed to the "MOST Line Check" screen. | C |

**HINT:**

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

| | |
|---|---|
| B | Go to step 18 |
| C | USE SIMULATION METHOD TO CHECK (Click here) |

A

**16.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY Wake Up LINE)**

a. Disconnect the television display assembly connector.

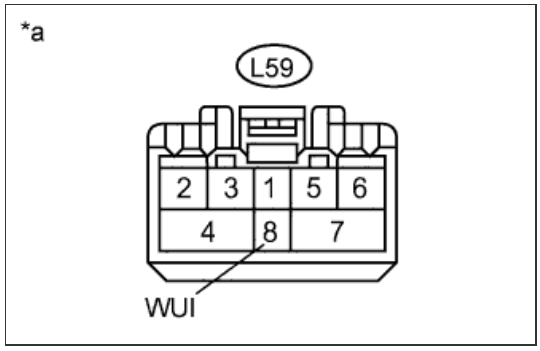
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| L59-8 (WUI) - Body ground | Engine switch on (ACC) | 4.5 V or higher |

**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Television Display Assembly) |




| | |
|---|---|
| NG | Go to step 17 |

OK

REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

**17.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - TELEVISION DISPLAY ASSEMBLY)**

a. Disconnect the F86 stereo component amplifier assembly connector.

b. Disconnect the L59 television display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F86-1 (WUO) - L59-8 (WUI) | Always | Below 1 Ω |
| F86-1 (WUO) - Body ground | Always | 10 kΩ or higher |

| | |
|---|---|
| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR |

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

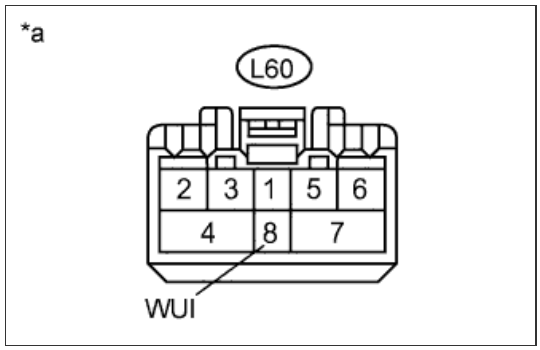
**18.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY Wake Up LINE)**

a. Disconnect the multi-display controller sub-assembly connector.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| L60-8 (WUI) - Body ground | Engine switch on (ACC) | 4.5 V or higher |




**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Multi-display Controller Sub-assembly) |

NG → Go to step 19

OK

REPLACE MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY (Click here)

**19.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY)**

a. Disconnect the F86 stereo component amplifier assembly connector.

b. Disconnect the L60 multi-display controller sub-assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F86-1 (WUO) - L60-8 (WUI) | Always | Below 1 Ω |
| F86-1 (WUO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**20.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - STEREO COMPONENT AMPLIFIER ASSEMBLY)**

a. Disconnect the F87 multi-media module receiver assembly connector.

b. Disconnect the F86 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F87-5 (MO+) - F86-2 (MI+) | Always | Below 1 Ω |
| F87-6 (MO-) - F86-3 (MI-) | Always | Below 1 Ω |
| F87-7 (SLDO) - F86-4 (SLDI) | Always | Below 1 Ω |
| F87-5 (MO+) - Body ground | Always | 10 kΩ or higher |
| F87-6 (MO-) - Body ground | Always | 10 kΩ or higher |
| F87-7 (SLDO) - Body ground | Always | 10 kΩ or higher |

**Result**

| Result | Proceed to |
|---|---|

| | |
|---|---|
| OK (w/ Rear Seat Entertainment System [for Roof]) | A |
| OK (w/ Rear Seat Entertainment System [for Seatback]) | B |
| NG | C |

B → Go to step 26

C → REPAIR OR REPLACE HARNESS OR CONNECTOR

A

### 21.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - TELEVISION DISPLAY ASSEMBLY)

a. Disconnect the F86 stereo component amplifier assembly connector.

b. Disconnect the L59 television display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F86-5 (MO+) - L59-2 (MI+) | Always | Below 1 Ω |
| F86-6 (MO-) - L59-3 (MI-) | Always | Below 1 Ω |
| F86-7 (SLDO) - L59-4 (SLDI) | Always | Below 1 Ω |
| F86-5 (MO+) - Body ground | Always | 10 kΩ or higher |
| F86-6 (MO-) - Body ground | Always | 10 kΩ or higher |
| F86-7 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 22.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - TELEVISION DISPLAY ASSEMBLY)

a. Disconnect the F87 multi-media module receiver assembly connector.

b. Disconnect the L59 television display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F87-2 (MI+) - L59-5 (MO+) | Always | Below 1 Ω |
| F87-3 (MI-) - L59-6 (MO-) | Always | Below 1 Ω |
| F87-4 (SLDI) - L59-7 (SLDO) | Always | Below 1 Ω |
| F87-2 (MI+) - Body ground | Always | 10 kΩ or higher |
| F87-3 (MI-) - Body ground | Always | 10 kΩ or higher |
| F87-4 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**23.REPLACE TELEVISION DISPLAY ASSEMBLY**

a. Replace the television display assembly with a new or normally functioning one ( Click here).

NEXT

**24.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

**25.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (**Click here**)

OK

**END (TELEVISION DISPLAY ASSEMBLY IS DEFECTIVE)**

**26.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY)**

a. Disconnect the F86 stereo component amplifier assembly connector.

b. Disconnect the L60 multi-display controller sub-assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F86-5 (MO+) - L60-2 (MI+) | Always | Below 1 Ω |
| F86-6 (MO-) - L60-3 (MI-) | Always | Below 1 Ω |
| F86-7 (SLDO) - L60-4 (SLDI) | Always | Below 1 Ω |
| F86-5 (MO+) - Body ground | Always | 10 kΩ or higher |
| F86-6 (MO-) - Body ground | Always | 10 kΩ or higher |
| F86-7 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**27.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY)**

a. Disconnect the F87 multi-media module receiver assembly connector.

b. Disconnect the L60 multi-display controller sub-assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F87-2 (MI+) - L60-5 (MO+) | Always | Below 1 Ω |
| F87-3 (MI-) - L60-6 (MO-) | Always | Below 1 Ω |
| F87-4 (SLDI) - L60-7 (SLDO) | Always | Below 1 Ω |
| F87-2 (MI+) - Body ground | Always | 10 kΩ or higher |
| F87-3 (MI-) - Body ground | Always | 10 kΩ or higher |
| F87-4 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

**28.REPLACE MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY**

a. Replace the multi-display controller sub-assembly with a new or normally functioning one ( Click here).

NEXT ↓

**29.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT ↓

**30.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (**Click here**)

OK ↓

**END (MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY IS DEFECTIVE)**

## DTC 45-44 DVD Malfunction

## DTC 45-48 Excess Current

## DTC 45-50 Tray Insertion / Ejection Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-44 | An operation error in the DVD mechanism. | Radio receiver assembly |
| 45-48 | Excess current is present in the DVD changer. | |
| 45-50 | A malfunction in the insertion/ejection system. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.RECHECK DTC**

a. Recheck for DTCs and check if the same trouble code is output.

**HINT:**

If DTCs are output frequently, replace the radio receiver.

**OK:**
**No DTC is output.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

# DTC B15D3 Stereo Component Amplifier Disconnected

**for Preparation** Click here

## DESCRIPTION

The multi-media module receiver assembly, television display assembly*1, multi-display controller sub-assembly*2 and stereo component amplifier assembly are connected by the MOST network.
When a MOST network error occurs between the multi-media module receiver assembly, television display assembly*1, multi-display controller sub-assembly*2 and stereo component amplifier assembly, these DTCs will be stored.

*1: w/ Rear Seat Entertainment System (for Roof)
*2: w/ Rear Seat Entertainment System (for Seatback)

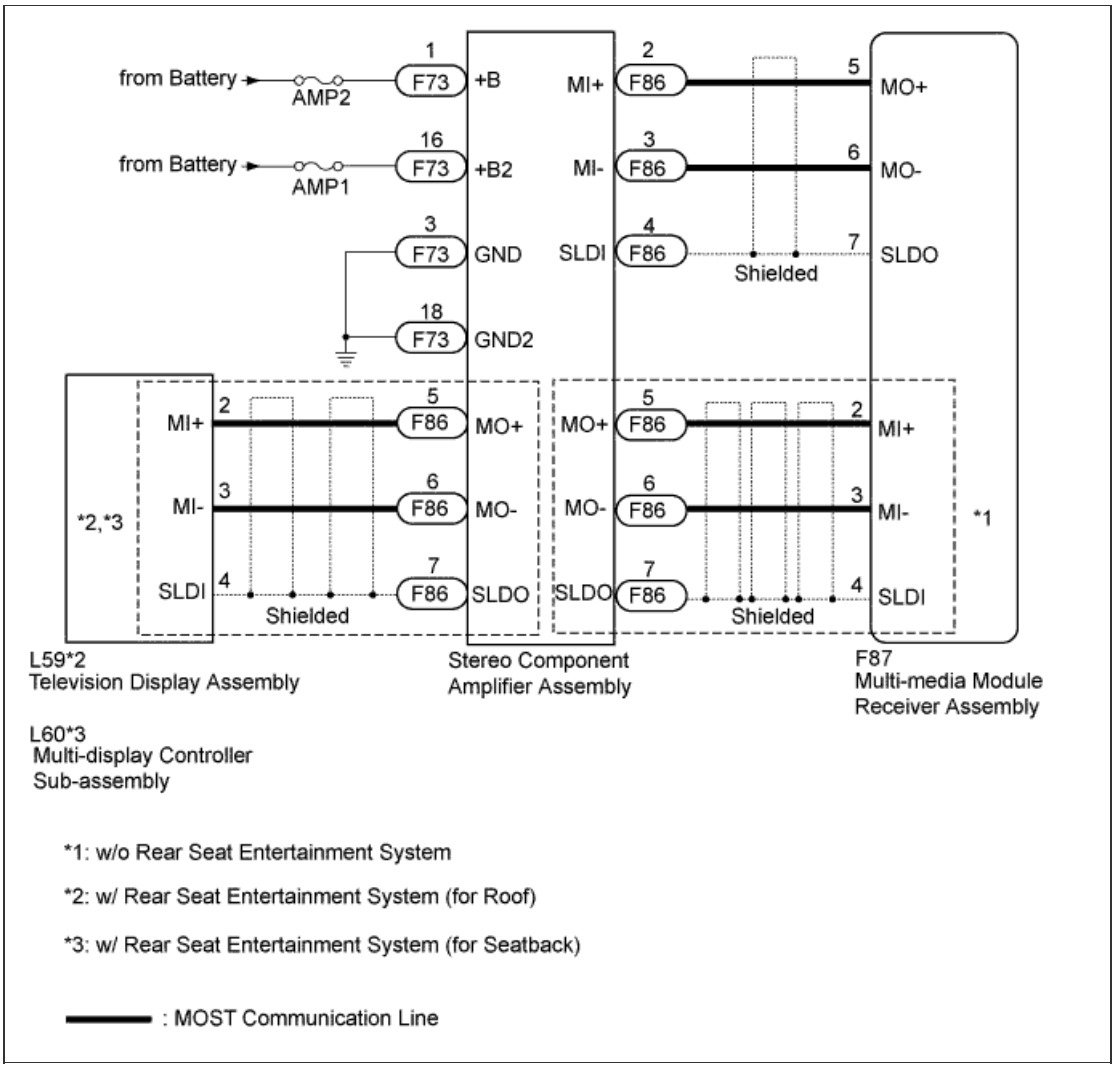
| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15D3 | A device that is listed in the MOST network connected device record of the master unit is missing. | • Stereo component amplifier assembly power source circuit<br>• MOST circuit between multi-media module receiver assembly and stereo component amplifier assembly<br>• MOST circuit between television display assembly and stereo component amplifier assembly*1<br>• MOST circuit between multi-display controller sub-assembly and stereo component amplifier assembly*2<br>• Stereo component amplifier assembly<br>• Multi-media module receiver assembly<br>• Television display assembly*1<br>• Multi-display controller sub-assembly*2 |

*1: w/ Rear Seat Entertainment System (for Roof)
*2: w/ Rear Seat Entertainment System (for Seatback)

**HINT:**

For the MOST network, the multi-media module receiver assembly is the master unit.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when a MOST communication error occurs due to electrical noise.**

B → Go to step 3

A

### 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

### 3.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

### 4.CHECK DTC

a. Recheck for DTCs and check if the same DTCs are output again ( Click here).

**OK:**
**No DTCs are output.**

NG → Go to step 5

OK

### END (COMMUNICATION MALFUNCTION DUE TO NOISE)

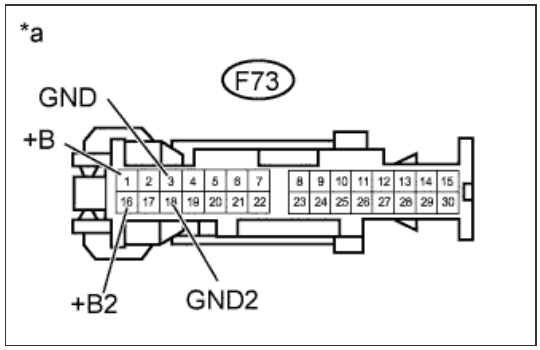
### 5.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - BATTERY AND BODY GROUND)

a. Disconnect the stereo component amplifier assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F73-3 (GND) - Body ground | Always | Below 1 Ω |
| F73-18 (GND2) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F73-1 (+B) - F73-3 (GND) | Always | 11 to 14 V |
| F73-16 (+B2) - F73-3 (GND) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |

**Result**

| Result | Proceed to |
|---|---|
| OK (w/o Rear Seat Entertainment System) | A |
| OK (w/ Rear Seat Entertainment System) (for Roof) | B |
| OK (w/ Rear Seat Entertainment System) (for Seatback) | C |
| NG | D |

B → Go to step 10

| | |
|---|---|
| C | Go to step 17 |
| D | REPAIR OR REPLACE HARNESS OR CONNECTOR |

A

### 6.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - STEREO COMPONENT AMPLIFIER ASSEMBLY)

a. Disconnect the F87 multi-media module receiver assembly connector.

b. Disconnect the F86 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F87-2 (MI+) - F86-5 (MO+) | Always | Below 1 Ω |
| F87-3 (MI-) - F86-6 (MO-) | Always | Below 1 Ω |
| F87-4 (SLDI) - F86-7 (SLDO) | Always | Below 1 Ω |
| F87-5 (MO+) - F86-2 (MI+) | Always | Below 1 Ω |
| F87-6 (MO-) - F86-3 (MI-) | Always | Below 1 Ω |
| F87-7 (SLDO) - F86-4 (SLDI) | Always | Below 1 Ω |
| F87-2 (MI+) - Body ground | Always | 10 kΩ or higher |
| F87-3 (MI-) - Body ground | Always | 10 kΩ or higher |
| F87-4 (SLDI) - Body ground | Always | 10 kΩ or higher |
| F87-5 (MO+) - Body ground | Always | 10 kΩ or higher |
| F87-6 (MO-) - Body ground | Always | 10 kΩ or higher |
| F87-7 (SLDO) - Body ground | Always | 10 kΩ or higher |

| | |
|---|---|
| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR |

OK

### 7.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY

a. Replace the stereo component amplifier assembly with a new or normally functioning one ( Click here).

NEXT

### 8.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

### 9.CHECK DTC

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

END (STEREO COMPONENT AMPLIFIER ASSEMBLY IS DEFECTIVE)

10.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - MULTI-MEDIA MODULE RECEIVER AND TELEVISION DISPLAY)

a. Disconnect the F87 multi-media module receiver assembly connector.

b. Disconnect the F86 stereo component amplifier assembly connector.

c. Disconnect the L59 television display assembly connector.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F87-5 (MO+) - F86-2 (MI+) | Always | Below 1 Ω |
| F87-6 (MO-) - F86-3 (MI-) | Always | Below 1 Ω |
| F87-7 (SLDO) - F86-4 (SLDI) | Always | Below 1 Ω |
| F86-5 (MO+) - L59-2 (MI+) | Always | Below 1 Ω |
| F86-6 (MO-) - L59-3 (MI-) | Always | Below 1 Ω |
| F86-7 (SLDO) - L59-4 (SLDI) | Always | Below 1 Ω |
| F86-2 (MI+) - Body ground | Always | 10 kΩ or higher |
| F86-3 (MI-) - Body ground | Always | 10 kΩ or higher |
| F86-4 (SLDI) - Body ground | Always | 10 kΩ or higher |
| F86-5 (MO+) - Body ground | Always | 10 kΩ or higher |
| F86-6 (MO-) - Body ground | Always | 10 kΩ or higher |
| F86-7 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

11.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY

a. Replace the stereo component amplifier assembly with a new or normally functioning one ( Click here).

NEXT

12.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

13.CHECK DTC

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

NG → Go to step 14

OK

END (STEREO COMPONENT AMPLIFIER ASSEMBLY IS DEFECTIVE)

14.REPLACE TELEVISION DISPLAY ASSEMBLY

a. Replace the television display assembly with a new or normally functioning one ( Click here).

NEXT

15.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

16.CHECK DTC

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

END (TELEVISION DISPLAY ASSEMBLY IS DEFECTIVE)

17.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - MULTIMEDIA MODULE RECEIVER AND MULTI-DISPLAY CONTROLLER)

a. Disconnect the F87 multi-media module receiver assembly connector.

b. Disconnect the F86 stereo component amplifier assembly connector.

c. Disconnect the L60 multi-display controller sub-assembly connector.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F87-5 (MO+) - F86-2 (MI+) | Always | Below 1 Ω |
| F87-6 (MO-) - F86-3 (MI-) | Always | Below 1 Ω |
| F87-7 (SLDO) - F86-4 (SLDI) | Always | Below 1 Ω |
| F86-5 (MO+) - L60-2 (MI+) | Always | Below 1 Ω |
| F86-6 (MO-) - L60-3 (MI-) | Always | Below 1 Ω |
| F86-7 (SLDO) - L60-4 (SLDI) | Always | Below 1 Ω |
| F86-2 (MI+) - Body ground | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| F86-3 (MI-) - Body ground | Always | 10 kΩ or higher |
| F86-4 (SLDI) - Body ground | Always | 10 kΩ or higher |
| F86-5 (MO+) - Body ground | Always | 10 kΩ or higher |
| F86-6 (MO-) - Body ground | Always | 10 kΩ or higher |
| F86-7 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**18.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Replace the stereo component amplifier assembly with a new or normally functioning one ( Click here).

NEXT

**19.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

**20.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

NG → **Go to step 21**

OK

**END (STEREO COMPONENT AMPLIFIER ASSEMBLY IS DEFECTIVE)**

**21.REPLACE MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY**

a. Replace the multi-display controller sub-assembly with a new or normally functioning one ( Click here).

NEXT

**22.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

**23.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

NG → **REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)**

OK

END (MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY IS DEFECTIVE)

## DTC 45-45 Eject Error

## DTC 45-51 Elevator Error

## DTC 45-52 Clamp Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-45 | The disc cannot be ejected. | Radio receiver assembly |
| 45-51 | A mechanical error occurs during the elevator operation. | |
| 45-52 | An error occurs in the DVD changer clamp. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK RADIO RECEIVER ASSEMBLY**

a. Check if a disc can be changed, inserted, or ejected normally.

**OK:**
**Malfunction disappears.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**END**

# DTC B15D6 Display Disconnected

**for Preparation** Click here

## DESCRIPTION

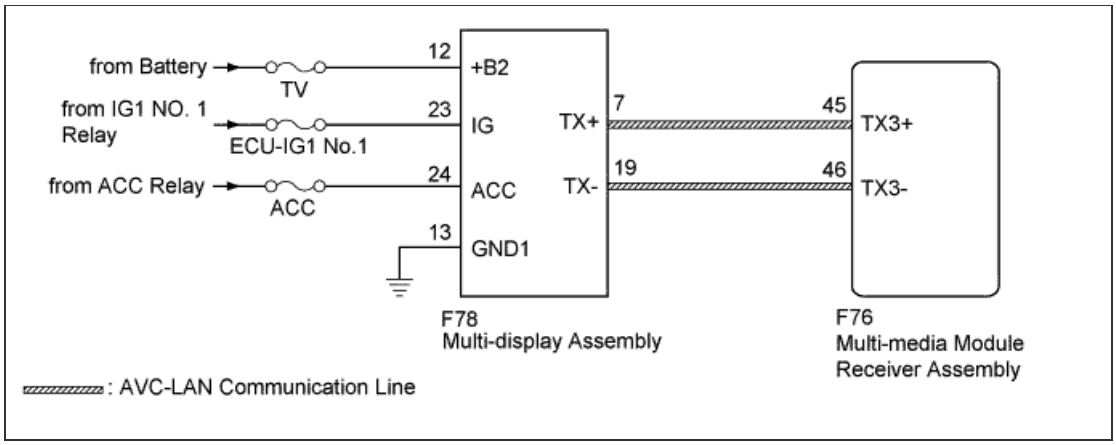
The multi-display assembly and multi-media module receiver assembly are connected by an AVC-LAN communication line.
When an AVC-LAN communication error occurs between the display module board and multi-display assembly, these DTCs will be stored.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15D6* | A device that is listed in the AVC-LAN connected device record of the master unit is missing. | • Multi-display assembly power source circuit<br>• AVC-LAN circuit<br>• Multi-display assembly<br>• Multi-media module receiver assembly |

**HINT:**

- ***: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The multi-media module receiver assembly is the master unit.**

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CLEAR DTC

a. Clear the DTCs (Click here).

**NEXT**

### 2.CHECK DTC

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

**NG** → **Go to step 3**

**OK**

### USE SIMULATION METHOD TO CHECK (**Click here**)

## 3.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY ASSEMBLY - BATTERY AND BODY GROUND)

a. Disconnect the multi-display assembly connector.

b. Measure the resistance according to the value(s) in the table below.

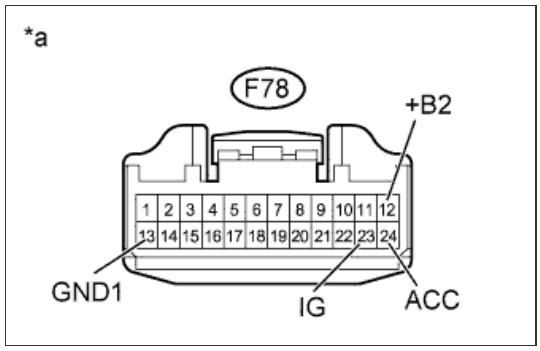
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F78-13 (GND1) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F78-12 (+B2) - F78-13 (GND1) | Always | 11 to 14 V |
| F78-23 (IG) - F78-13 (GND1) | Engine switch on (IG) | 11 to 14 V |
| F78-24 (ACC) - F78-13 (GND1) | Engine switch on (ACC) | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Multi-display assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

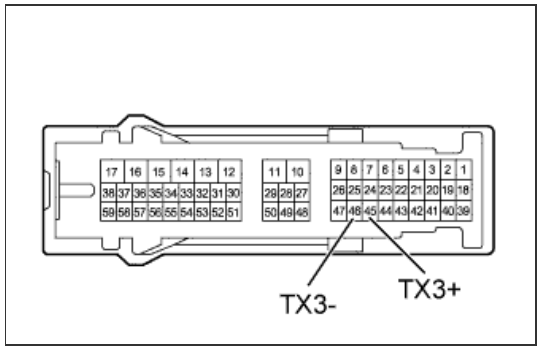
## 4.INSPECT MULTI-MEDIA MODULE RECEIVER ASSEMBLY

a. Remove the multi-media module receiver assembly (Click here).

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 45 (TX3+) - 46 (TX3-) | Always | 60 to 80 Ω |




NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

## 5.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - MULTI-DISPLAY ASSEMBLY)

a. Disconnect the F76 multi-media module receiver assembly connector.

b. Disconnect the F78 multi-display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| F76-45 (TX3+) - F78-7 (TX+) | Always | Below 1 Ω |
| F76-46 (TX3-) - F78-19 (TX-) | Always | Below 1 Ω |
| F76-45 (TX3+) - Body ground | Always | 10 kΩ or higher |
| F76-46 (TX3-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**6.REPLACE MULTI-DISPLAY ASSEMBLY**

a. Replace the multi-display assembly with a new or normally functioning one ( Click here).

NEXT

**7.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

**8.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (**Click here**)

OK

**END (MULTI-DISPLAY ASSEMBLY IS DEFECTIVE)**

## DTC 45-45 Eject Error

## DTC 45-51 Elevator Error

## DTC 45-52 Clamp Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-45 | The disc cannot be ejected. | Radio receiver assembly |
| 45-51 | A mechanical error occurs during the elevator operation. | |
| 45-52 | An error occurs in the DVD changer clamp. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK RADIO RECEIVER ASSEMBLY**

a. Check if a disc can be changed, inserted, or ejected normally.

**OK:**
**Malfunction disappears.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**END**

## DTC B15E7 Harddisk Reading/Writing Malfunction(Low Temperature)

## DTC B15E8 Harddisk Reading/Writing Malfunction(High Temperature)

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when the temperature is higher or lower than the operation range of the hard disc built into the multi-media module receiver assembly, and hard disk drive read/write errors occur more than a specified number of times.

**HINT:**

The hard disk drive may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15E7 | Hard disk drive read/write error at low temperature. | Hard disc |
| B15E8 | Hard disk drive read/write error at high temperature. | |

### INSPECTION PROCEDURE

**1.CHECK CABIN**

Move the vehicle to an area that is at room temperature and allow the cabin temperature to adjust to between -20°C (-4°F) and 65°C (149°F).

**HINT:**

- **The hard disc may not operate normally at very high or low temperatures.**
- **Perform the DTC check at room temperature.**

**NEXT**

**2.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**3.CHECK DTC**

a. Recheck for DTCs and check if the same DTCs are output again ( Click here).

**OK:**
**No DTCs are output.**

**NG** → **REPLACE HARD DISC (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC 45-45 Eject Error

## DTC 45-51 Elevator Error

## DTC 45-52 Clamp Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-45 | The disc cannot be ejected. | Radio receiver assembly |
| 45-51 | A mechanical error occurs during the elevator operation. | |
| 45-52 | An error occurs in the DVD changer clamp. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK RADIO RECEIVER ASSEMBLY**

a. Check if a disc can be changed, inserted, or ejected normally.

**OK:**
**Malfunction disappears.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**END**

## DTC B15E7 Harddisk Reading/Writing Malfunction(Low Temperature)

## DTC B15E8 Harddisk Reading/Writing Malfunction(High Temperature)

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when the temperature is higher or lower than the operation range of the hard disc built into the multi-media module receiver assembly, and hard disk drive read/write errors occur more than a specified number of times.

**HINT:**

The hard disk drive may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15E7 | Hard disk drive read/write error at low temperature. | Hard disc |
| B15E8 | Hard disk drive read/write error at high temperature. | |

### INSPECTION PROCEDURE

**1.CHECK CABIN**

Move the vehicle to an area that is at room temperature and allow the cabin temperature to adjust to between -20°C (-4°F) and 65°C (149°F).

**HINT:**

- **The hard disc may not operate normally at very high or low temperatures.**
- **Perform the DTC check at room temperature.**

**NEXT**

**2.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**3.CHECK DTC**

a. Recheck for DTCs and check if the same DTCs are output again ( Click here).

**OK:**
**No DTCs are output.**

**NG** → **REPLACE HARD DISC (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

# DTC 45-46 Scratched/Reversed Disc

**for Preparation** Click here

## DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-46 | Scratches or dirt is found on the disc surface or the disc is inserted upside down. | • Disc<br>• Radio receiver assembly |

## INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

### 1.CHECK THAT DISC IS INSERTED PROPERLY

a. Check whether or not the disc is inserted upside down.

**OK:**
**Disc is properly inserted.**

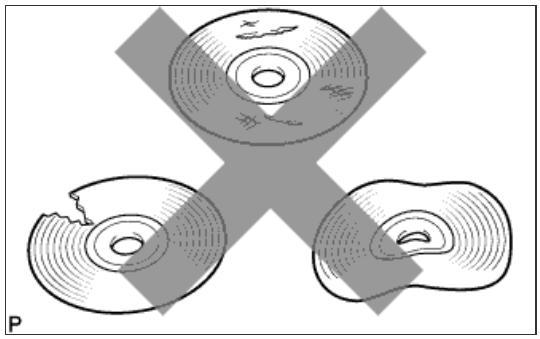
NG → INSERT DISC PROPERLY

OK

### 2.CHECK DISC

a. Check that the disc is not deformed or cracked.

**OK:**
**No deformation or cracks on the disc.**




NG → CHANGE DISC

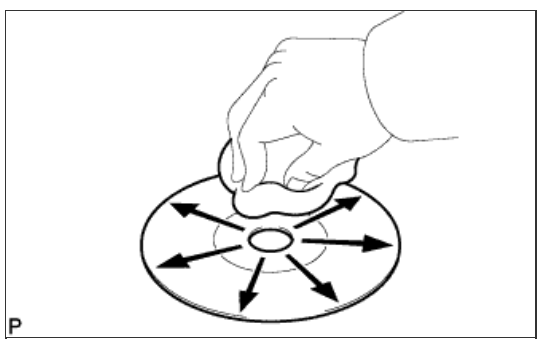
OK

### 3.DISC CLEANING

a. If dirt is on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

**NOTICE:**

Do not use a conventional record cleaner or antistatic preservative.



NEXT

4.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

5.RECHECK DTC

a. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → Go to step 6

OK

DISC WAS DIRTY

6.REPLACE DISC WITH ANOTHER AND RECHECK

a. Replace the disc with a normal one.

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

DISC IS FAULTY

# DTC B15F5 Air Conditioner ECU Vehicle Information Reading/Writing Processor Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when items controlled by the air conditioning amplifier assembly cannot be customized via the audio and visual system vehicle customization screen.

**HINT:**

The Air conditioning amplifier assembly controls the air conditioning system related items that are customizable via the multi-display assembly screen.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15F5 | Air conditioning amplifier assembly vehicle setting processing error. | • CAN communication system<br>• Air conditioning system<br>• Air conditioning amplifier assembly<br>• Multi-media module receiver assembly |

## INSPECTION PROCEDURE

### 1.CHECK CAN COMMUNICATION SYSTEM

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

for LHD (Click here)
for RHD (Click here)

**OK:**
**CAN communication DTCs are not output.**

Result

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**B** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**C** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**A**

### 2.CHECK AIR CONDITIONING SYSTEM

a. Check if the air conditioning system is malfunctioning (Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the air conditioning system.

**OK:**
**No malfunctions are present in the air conditioning system.**

**NG** → GO TO AIR CONDITIONING SYSTEM (Click here)

**OK**

### 3.CHECK CUSTOMIZE ITEMS

a. Display the "Vehicle Customization" screen.

b. Make a note of the customizable items for the air conditioning system.

**HINT:**

These air conditioning system items shown as customizable via the multi-display assembly vehicle customization screen can also be changed using the intelligent tester. In the following steps, the intelligent tester will be used.

i. To match-up the items in the multi-display assembly with the items on the intelligent tester, check the customize parameters list for the air conditioning system related items that can be customized via the multi-display assembly screen (Click here).

c. Using the intelligent tester, confirm that it is possible to change the settings of the air conditioning system related customize parameters that are shown as customizable via the multi-display assembly screen.

**OK:**
**The items available for customization via the multi-display assembly screen can be customized successfully using the intelligent tester.**

NG → REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY (**Click here**)

OK → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (**Click here**)

## DTC 45-47 High Temperature

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-47 | The sensor detects that the DVD unit temperature is high (higher than 80°C (176°F)). | Radio receiver assembly |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK RADIO RECEIVER ASSEMBLY**

a. Park the vehicle in a cool place.

b. Check that the temperature of the radio receiver has become sufficiently low, and start the engine. Check that the malfunction disappears.

**OK:**
**Malfunction disappears.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**END**

# DTC B15F6 Main Body ECU Vehicle Information Reading/Writing Process Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when items controlled by the main body ECU (cowl side junction block LH) cannot be customized via the audio and visual system vehicle customization screen.

**HINT:**

**The main body ECU (cowl side junction block LH) controls the items for the following systems that are customizable via the multi-display assembly screen:**

- **Power door lock control system**
- **Wireless door lock control system**
- **Lighting system**

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15F6 | Main body ECU (cowl side junction block LH) vehicle setting processing error. | • CAN communication system<br>• Power door lock control system<br>• Wireless door lock control system<br>• Lighting system<br>• Main body ECU (cowl side junction block LH)<br>• Multi-media module receiver assembly |

## INSPECTION PROCEDURE

### 1.CHECK CAN COMMUNICATION SYSTEM

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

for LHD (Click here)
for RHD (Click here)

**OK:**
**CAN communication DTCs are not output.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**B** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**C** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**A**

### 2.CHECK POWER DOOR LOCK CONTROL SYSTEM

a. Check if the power door lock control system is malfunctioning ( Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the power door lock control system.

**OK:**
**No malfunctions are present in the power door lock control system.**

**NG** → GO TO POWER DOOR LOCK CONTROL SYSTEM (Click here)

**OK**

### 3.CHECK WIRELESS DOOR LOCK CONTROL SYSTEM

a. Check if the wireless door lock control system is malfunctioning ( Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the wireless door lock control system.

**OK:**
**No malfunctions are present in the wireless door lock control system.**

NG → GO TO WIRELESS DOOR LOCK CONTROL SYSTEM (**Click here**)

OK

### 4.CHECK LIGHTING SYSTEM

a. Check if the lighting system is malfunctioning (Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the lighting system.

**OK:**
**No malfunctions are present in the lighting system.**

NG → GO TO LIGHTING SYSTEM (**Click here**)

OK

### 5.CHECK CUSTOMIZE ITEMS

a. Display the "Vehicle Customization" screen.

b. Make a note of the customizable items for each main body ECU (cowl side junction block LH) related system.

**HINT:**

These items shown as customizable via the multi-display assembly vehicle customization screen can also be changed using the intelligent tester. In a following step, the intelligent tester will be used.

i. To match-up the items in the multi-display assembly with the items on the intelligent tester, check the customize parameters list for the power door lock control system related items that can be customized via the multi-display assembly screen (Click here).

ii. To match-up the items in the multi-display assembly with the items on the intelligent tester, check the customize parameters list for the wireless door lock control system related items that can be customized via the multi-display assembly screen (Click here).

iii. To match-up the items in the multi-display assembly with the items on the intelligent tester, check the customize parameters list for the lighting system related items that can be customized via the multi-display assembly screen (Click here).

c. Using the intelligent tester, confirm that it is possible to change the settings of the customize parameters that are available for customization via the multi-display assembly screen.

**OK:**
**The items available for customization via the multi-display assembly screen can be customized successfully using the intelligent tester.**

NG → REPLACE MAIN BODY ECU (COWL SIDE JUNCTION BLOCK LH)

OK

REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (**Click here**)

## DTC 45-78 DSP Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-78 | An error occurs during the decode process (MP3/WMA). | Radio receiver assembly |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**NOTICE:**

- **This code may be output even if there is no malfunction.**
- **If this code is output frequently, replace the radio receiver.**

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.RECHECK DTC**

a. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**END (THIS CODE MAY BE OUTPUT EVEN IF THERE IS NO MALFUNCTION)**

# DTC B15F7 Certification ECU Vehicle Information Reading/Writing Process Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when items controlled by the certification ECU (smart key ECU assembly) cannot be customized via the audio and visual system vehicle customization screen.

**HINT:**

The certification ECU (smart key ECU assembly) controls the entry and start system (for Entry Function) related items that are customizable via the multi-display assembly screen.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15F7 | Certification ECU (smart key ECU assembly) vehicle setting processing error. | • CAN communication system<br>• Entry and start system (for Entry Function)<br>• Certification ECU (smart key ECU assembly)<br>• Multi-media module receiver assembly |

## INSPECTION PROCEDURE

### 1.CHECK CAN COMMUNICATION SYSTEM

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

for LHD (Click here)
for RHD (Click here)

**OK:**
**CAN communication DTCs are not output.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**B** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**C** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**A**

### 2.CHECK ENTRY AND START SYSTEM

a. Check if the entry and start system is malfunctioning ( Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the entry and start system.

**OK:**
**No malfunctions are present in the entry and start system.**

**NG** → GO TO ENTRY AND START SYSTEM (Click here)

**OK**

### 3.CHECK CUSTOMIZE ITEMS

a. Display the "Vehicle Customization" screen.

b. Make a note of the customizable items for each certification ECU related system.

**HINT:**

These items shown as customizable via the multi-display assembly vehicle customization screen can also be changed using the intelligent tester. In a following step, the intelligent tester will be used.

i. Check the customize parameters list for the entry and start system related items that can be customized via the multi-display assembly screen (Click here).

c. Manually change and confirm that it was possible to successfully change the settings of the customize parameters for each system that are available for customization via the multi-display assembly screen.

**OK:**

**The items available for customization via the multi-display assembly screen can be customized successfully using the manual procedure.**

NG → REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

OK → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

## DTC 45-7D Disc cannot be Played

## DTC 45-7E No Playable Files

## DTC 45-7F Copyright Protection Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-7D | When either condition below is met:<br>• An incompatible MP3 or WMA file is used.<br>• Although the file has an extension of ".mp3" or ".wma", the header information cannot be read. | • Disc<br>• Radio receiver assembly |
| 45-7E | When either condition below is met:<br>• A disc with no music data is used.<br>• Playable files are not on the disc (MP3 or WMA). | |
| 45-7F | A copy-protected file which cannot be played is used. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHANGE DISC**

a. Insert a disc with a playable file and check if the disc can be played correctly.

**HINT:**

For details on playable files and discs, refer to the Owner's Manual.

**OK:**

**The disc can be played correctly.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**DISC IS FAULTY**

# DTC B15F8 Driver Seat ECU Vehicle Information Reading/Writing Process Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when items controlled by the position control ECU assembly cannot be customized via the navigation system vehicle customization screen.

**HINT:**

The front power seat switch controls the front power seat control system related items that are customizable via the multi-display screen.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15F8 | Position control ECU assembly vehicle setting processing error. | • CAN communication system<br>• Front power seat control system<br>• Front power seat switch<br>• Multi-media module receiver assembly |

## INSPECTION PROCEDURE

### 1.CHECK CAN COMMUNICATION SYSTEM

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

for LHD (Click here)
for RHD (Click here)

**OK:**
**CAN communication DTCs are not output.**

Result

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

### 2.CHECK FRONT POWER SEAT CONTROL SYSTEM

a. Check if the front power seat control system is malfunctioning ( Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the front power seat control system.

**OK:**
**No malfunctions are present in the front power seat control system.**

NG → GO TO FRONT POWER SEAT CONTROL SYSTEM ( Click here)

OK

### 3.CHECK CUSTOMIZE ITEMS

a. Display the "Vehicle Customization" screen.

b. Make a note of the customizable items for each position control ECU assembly related system.

**HINT:**

These items shown as customizable via the navigation system vehicle customization screen can also be changed manually. In a following step, a manual procedure will be used.

i. Check the customize parameters list for the front power seat control system related items that can be customized via the multi-display screen (Click here).

c. Manually change and confirm that it was possible to successfully change the settings of the customize parameters for each system that are available for customization via the multi-display screen.

**OK:**
**The items available for customization via the multi-display screen can be customized successfully using the manual procedure.**

NG → REPLACE FRONT POWER SEAT SWITCH (Click here)

OK → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

## DTC 45-7D Disc cannot be Played

## DTC 45-7E No Playable Files

## DTC 45-7F Copyright Protection Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-7D | When either condition below is met:<br>• An incompatible MP3 or WMA file is used.<br>• Although the file has an extension of ".mp3" or ".wma", the header information cannot be read. | • Disc<br>• Radio receiver assembly |
| 45-7E | When either condition below is met:<br>• A disc with no music data is used.<br>• Playable files are not on the disc (MP3 or WMA). | |
| 45-7F | A copy-protected file which cannot be played is used. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHANGE DISC**

a. Insert a disc with a playable file and check if the disc can be played correctly.

**HINT:**

For details on playable files and discs, refer to the Owner's Manual.

**OK:**

**The disc can be played correctly.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**DISC IS FAULTY**

## DTC B15F9 UART Communication Malfunction(for A/C)

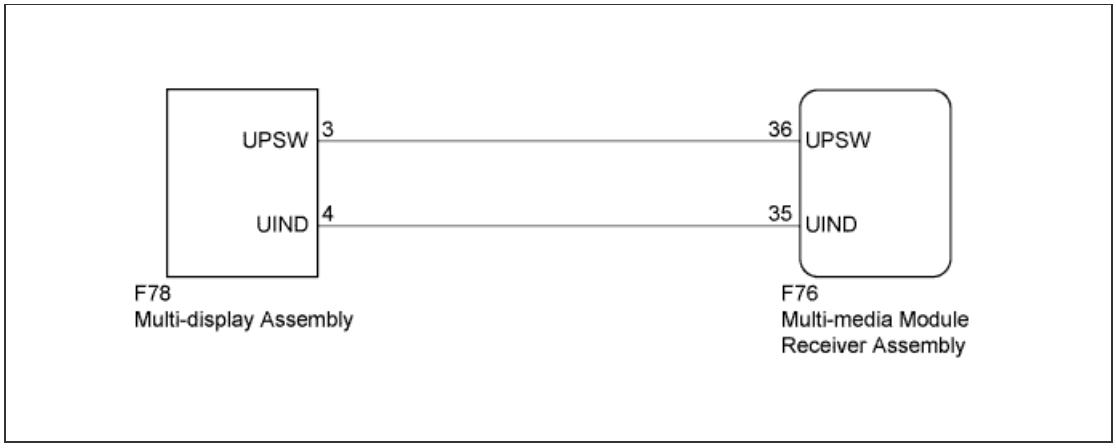
**for Preparation** Click here

### DESCRIPTION

The multi-media module receiver assembly and multi-display assembly are connected by the UART communication line.
When a UART communication error occurs between the multi-media module receiver assembly and multi-display assembly, these DTCs will be stored.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15F9 | Multi-display for air conditioning switch operation signal input malfunction. | • Multi-display assembly<br>• Multi-media module receiver assembly<br>• Harness or connector |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

**2.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

NG → **Go to step 3**

OK

**USE SIMULATION METHOD TO CHECK (Click here)**

**3.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - MULTI-DISPLAY ASSEMBLY)**

a. Disconnect the F76 multi-media module receiver assembly connector.

b. Disconnect the F78 multi-display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| | | |

| | | |
|---|---|---|
| F76-36 (UPSW) - F78-3 (UPSW) | Always | Below 1 Ω |
| F76-35 (UIND) - F78-4 (UIND) | Always | Below 1 Ω |
| F76-36 (UPSW) - Body ground | Always | 10 kΩ or higher |
| F76-35 (UIND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**4.REPLACE MULTI-DISPLAY ASSEMBLY**

a. Replace the multi-display assembly with a new or normally functioning one ( Click here).

NEXT

**5.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

**6.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (**Click here**)

OK

**END (MULTI-DISPLAY ASSEMBLY IS DEFECTIVE)**

## DTC 45-7D Disc cannot be Played

## DTC 45-7E No Playable Files

## DTC 45-7F Copyright Protection Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-7D | When either condition below is met:<br>• An incompatible MP3 or WMA file is used.<br>• Although the file has an extension of ".mp3" or ".wma", the header information cannot be read. | • Disc<br>• Radio receiver assembly |
| 45-7E | When either condition below is met:<br>• A disc with no music data is used.<br>• Playable files are not on the disc (MP3 or WMA). | |
| 45-7F | A copy-protected file which cannot be played is used. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHANGE DISC**

a. Insert a disc with a playable file and check if the disc can be played correctly.

**HINT:**

For details on playable files and discs, refer to the Owner's Manual.

**OK:**

**The disc can be played correctly.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**DISC IS FAULTY**

DTC U0073 Sending Malfunction (Navigation to APGS)

DTC U0100 Engine ECU Communication

DTC U0126 Steering Sensor Communication

DTC U0140 Lost Communication with Body Control Module

DTC U0155 Meter ECU Communication

DTC U1110 Clearance Sonar ECU Communication

**for Preparation** Click here

## DESCRIPTION

These DTCs are stored when a malfunction occurs in the CAN communication circuit.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN bus connection error | CAN communication system |
| U0100 | CAN reception error | |
| U0126 | CAN reception error | |
| U0140 | CAN reception error | |
| U0155 | CAN reception error | |
| U1110 | CAN reception error | |

## INSPECTION PROCEDURE

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK CAN COMMUNICATION SYSTEM

a. Recheck for DTCs and check if the same DTCs are output again ( Click here).

**OK:**
**No DTCs are output.**

Result

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

## DTC 57-47 Bluetooth Module Initialization Failed

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 57-47 | When one of the following conditions is met:<br>• The "Bluetooth" module is not installed.<br>• A problem with the "Bluetooth" module.<br>• A problem in the communication line to the "Bluetooth" module. | Multi-display assembly |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY ASSEMBLY**

a. w/ Navigation System: Replace the multi-display (Click here).

b. w/o Navigation System: Replace the multi-display (Click here).

**NEXT**

**END**

DTC U0073 Sending Malfunction (Navigation to APGS)

DTC U0100 Engine ECU Communication

DTC U0126 Steering Sensor Communication

DTC U0140 Lost Communication with Body Control Module

DTC U0155 Meter ECU Communication

DTC U1110 Clearance Sonar ECU Communication

**for Preparation** Click here

## DESCRIPTION

These DTCs are stored when a malfunction occurs in the CAN communication circuit.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN bus connection error | CAN communication system |
| U0100 | CAN reception error | |
| U0126 | CAN reception error | |
| U0140 | CAN reception error | |
| U0155 | CAN reception error | |
| U1110 | CAN reception error | |

## INSPECTION PROCEDURE

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK CAN COMMUNICATION SYSTEM

a. Recheck for DTCs and check if the same DTCs are output again ( Click here).

**OK:**
**No DTCs are output.**

Result

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

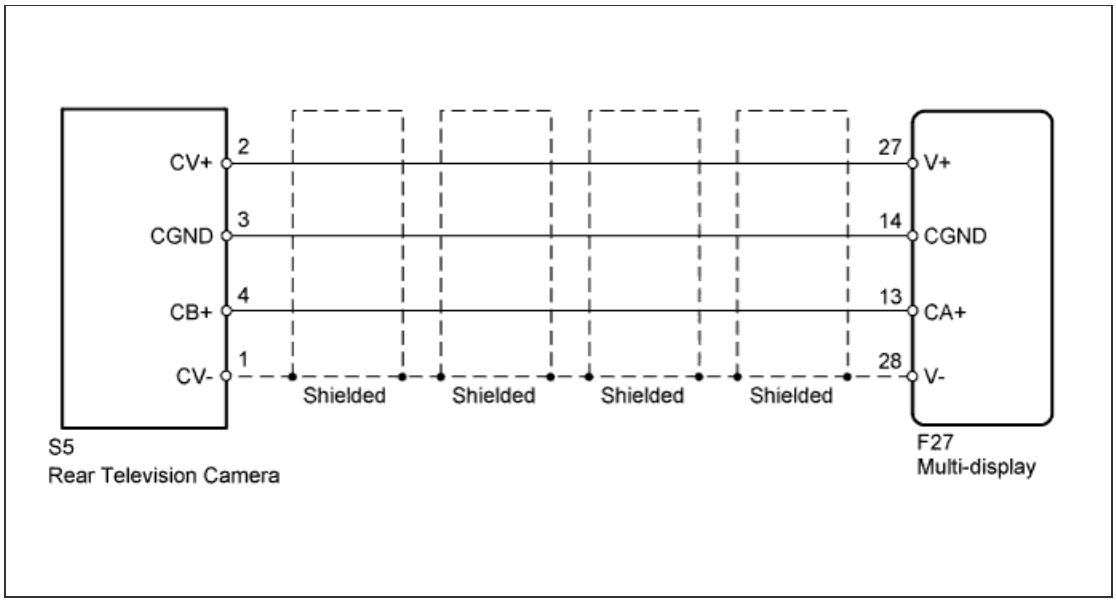
## DTC 5C-40 Camera Picture Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 5C-40 | A synchronous signal from the camera cannot be transmitted. | • Harness or connector<br>• Rear television camera<br>• Multi-display assembly |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

#### 1.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - REAR TELEVISION CAMERA)

a. Disconnect the F27 display connector.

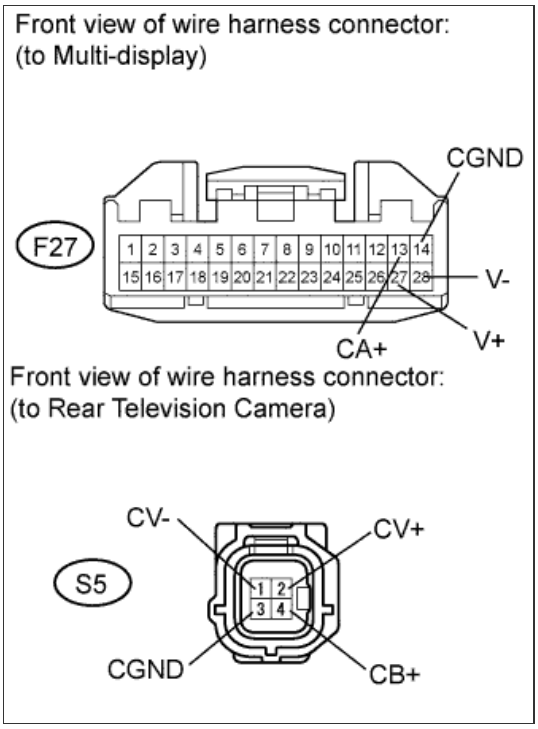
b. Disconnect the S5 camera connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| S5-4 (CB+) - F27-13 (CA+) | Always | Below 1 Ω |
| S5-3 (CGND) - F27-14 (CGND) | Always | Below 1 Ω |
| S5-2 (CV+) - F27-27 (V+) | Always | Below 1 Ω |
| S5-1 (CV-) - F27-28 (V-) | Always | Below 1 Ω |
| S5-4 (CB+) - Body ground | Always | 10 kΩ or higher |
| S5-3 (CGND) - Body ground | Always | 10 kΩ or higher |
| S5-2 (CV+) - Body ground | Always | 10 kΩ or higher |
| S5-1 (CV-) - Body | | |

| | | |
|---|---|---|
| ground | Always | 10 kΩ or higher |

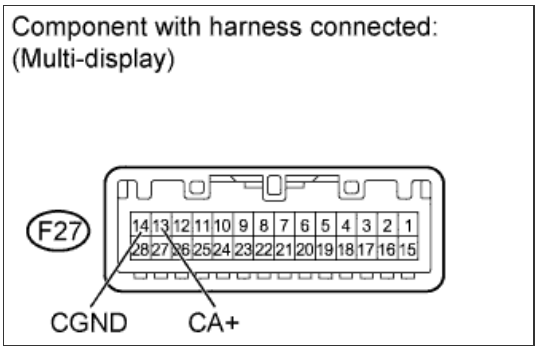



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 2.CHECK MULTI-DISPLAY (CA+ VOLTAGE)

a. Measure the voltage according to the value(s) in the table below.




**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F27-13 (CA+) - F27-14 (CGND) | Engine switch on (IG), shift lever moved to R | 5.8 to 6.5 V |

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (w/ Navigation System) | B |
| NG (w/o Navigation System) | C |

B → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

C → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

A

REPLACE REAR TELEVISION CAMERA ASSEMBLY (Click here)

DTC U0073 Sending Malfunction (Navigation to APGS)

DTC U0100 Engine ECU Communication

DTC U0126 Steering Sensor Communication

DTC U0140 Lost Communication with Body Control Module

DTC U0155 Meter ECU Communication

DTC U1110 Clearance Sonar ECU Communication

**for Preparation** Click here

## DESCRIPTION

These DTCs are stored when a malfunction occurs in the CAN communication circuit.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN bus connection error | CAN communication system |
| U0100 | CAN reception error | |
| U0126 | CAN reception error | |
| U0140 | CAN reception error | |
| U0155 | CAN reception error | |
| U1110 | CAN reception error | |

## INSPECTION PROCEDURE

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK CAN COMMUNICATION SYSTEM

a. Recheck for DTCs and check if the same DTCs are output again ( Click here).

**OK:**
**No DTCs are output.**

Result

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

## DTC 60-10 AM Tuner PLL does not Lock

## DTC 60-11 FM Tuner PLL does not Lock

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 60-10 | AM tuner PLL (phase locked loop) synchronization is impossible. | Radio receiver assembly |
| 60-11 | FM tuner PLL (phase locked loop) synchronization is impossible. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE RADIO RECEIVER ASSEMBLY**

a. Replace the radio receiver (Click here).

**NEXT**

**END**

DTC U0073 Sending Malfunction (Navigation to APGS)

DTC U0100 Engine ECU Communication

DTC U0126 Steering Sensor Communication

DTC U0140 Lost Communication with Body Control Module

DTC U0155 Meter ECU Communication

DTC U1110 Clearance Sonar ECU Communication

**for Preparation** Click here

## DESCRIPTION

These DTCs are stored when a malfunction occurs in the CAN communication circuit.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN bus connection error | CAN communication system |
| U0100 | CAN reception error | |
| U0126 | CAN reception error | |
| U0140 | CAN reception error | |
| U0155 | CAN reception error | |
| U1110 | CAN reception error | |

## INSPECTION PROCEDURE

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK CAN COMMUNICATION SYSTEM

a. Recheck for DTCs and check if the same DTCs are output again ( Click here).

**OK:**
**No DTCs are output.**

Result

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

## DTC 60-10 AM Tuner PLL does not Lock

## DTC 60-11 FM Tuner PLL does not Lock

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 60-10 | AM tuner PLL (phase locked loop) synchronization is impossible. | Radio receiver assembly |
| 60-11 | FM tuner PLL (phase locked loop) synchronization is impossible. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE RADIO RECEIVER ASSEMBLY**

a. Replace the radio receiver (Click here).

**NEXT**

**END**

DTC U0073 Sending Malfunction (Navigation to APGS)

DTC U0100 Engine ECU Communication

DTC U0126 Steering Sensor Communication

DTC U0140 Lost Communication with Body Control Module

DTC U0155 Meter ECU Communication

DTC U1110 Clearance Sonar ECU Communication

**for Preparation** Click here

## DESCRIPTION

These DTCs are stored when a malfunction occurs in the CAN communication circuit.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN bus connection error | CAN communication system |
| U0100 | CAN reception error | |
| U0126 | CAN reception error | |
| U0140 | CAN reception error | |
| U0155 | CAN reception error | |
| U1110 | CAN reception error | |

## INSPECTION PROCEDURE

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK CAN COMMUNICATION SYSTEM

a. Recheck for DTCs and check if the same DTCs are output again ( Click here).

**OK:**
**No DTCs are output.**

Result

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

## DTC 60-42 Tuner Power Source Error

## DTC 60-43 AM Tuner Error

## DTC 60-44 FM Tuner Error

## DTC 60-50 Malfunction in Internal IC

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 60-42 | The power source of the tuner is abnormal. | Radio receiver assembly |
| 60-43 | The AM tuner is abnormal. | |
| 60-44 | The FM tuner is abnormal. | |
| 60-50 | A problem occurs in the internal IC of the tuner unit and the radio reception is not normal. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.RECHECK FOR DTC**

a. Recheck for DTCs and check if the same trouble code is output.

**HINT:**

If DTCs are output frequently, replace the radio receiver.

**OK:**
**No DTC is output.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

DTC U0073 Sending Malfunction (Navigation to APGS)

DTC U0100 Engine ECU Communication

DTC U0126 Steering Sensor Communication

DTC U0140 Lost Communication with Body Control Module

DTC U0155 Meter ECU Communication

DTC U1110 Clearance Sonar ECU Communication

**for Preparation** Click here

## DESCRIPTION

These DTCs are stored when a malfunction occurs in the CAN communication circuit.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN bus connection error | CAN communication system |
| U0100 | CAN reception error | |
| U0126 | CAN reception error | |
| U0140 | CAN reception error | |
| U0155 | CAN reception error | |
| U1110 | CAN reception error | |

## INSPECTION PROCEDURE

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK CAN COMMUNICATION SYSTEM

a. Recheck for DTCs and check if the same DTCs are output again ( Click here).

**OK:**
**No DTCs are output.**

Result

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

## DTC 60-42 Tuner Power Source Error

## DTC 60-43 AM Tuner Error

## DTC 60-44 FM Tuner Error

## DTC 60-50 Malfunction in Internal IC

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 60-42 | The power source of the tuner is abnormal. | Radio receiver assembly |
| 60-43 | The AM tuner is abnormal. | |
| 60-44 | The FM tuner is abnormal. | |
| 60-50 | A problem occurs in the internal IC of the tuner unit and the radio reception is not normal. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.RECHECK FOR DTC**

a. Recheck for DTCs and check if the same trouble code is output.

**HINT:**

If DTCs are output frequently, replace the radio receiver.

**OK:**
**No DTC is output.**

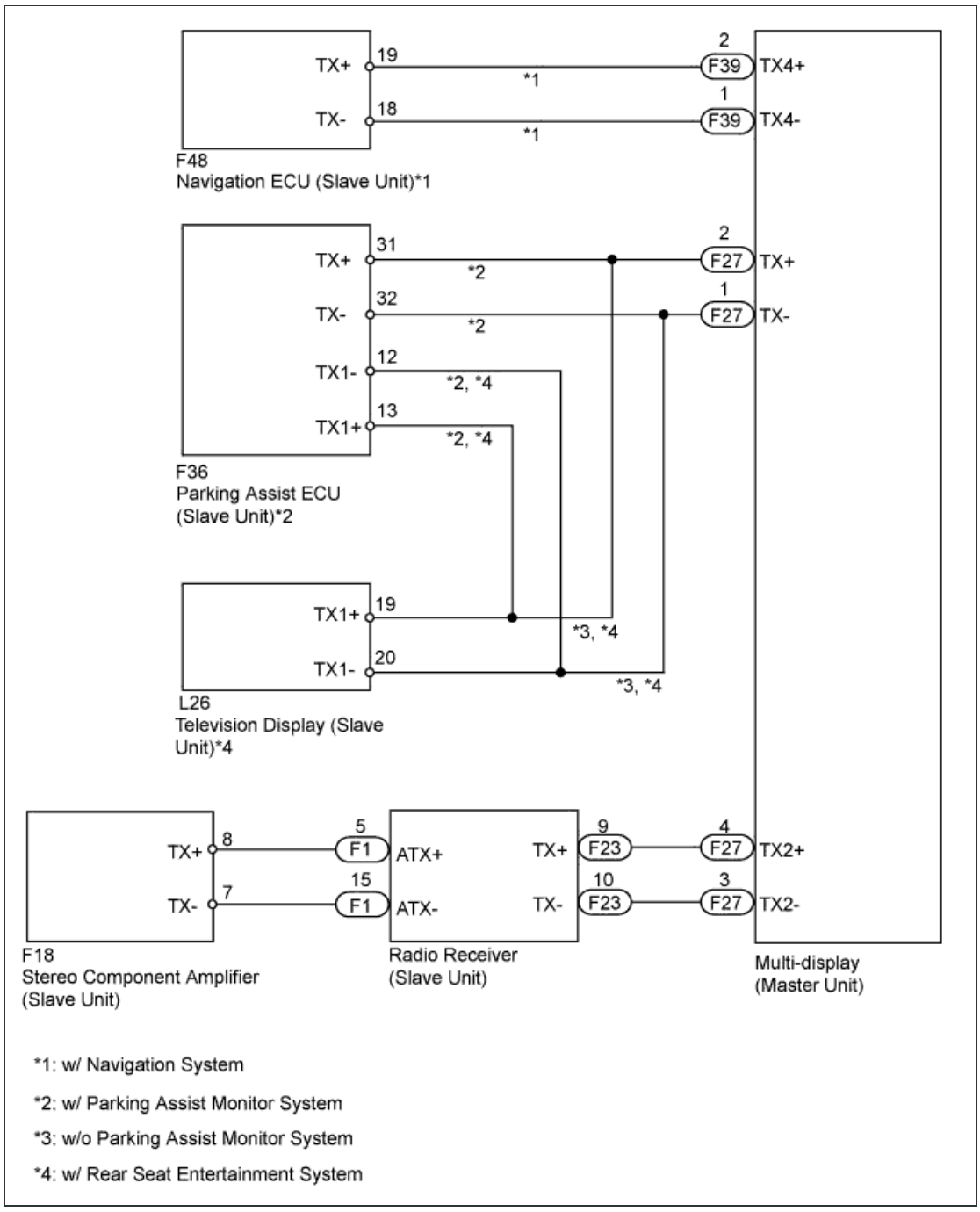
**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

**for Preparation** Click here

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.IDENTIFY COMPONENT SHOWN BY SUB-CODE

a. Enter the diagnostic mode.

b. Press the "LAN Mon" switch to change to "LAN Monitor" mode.

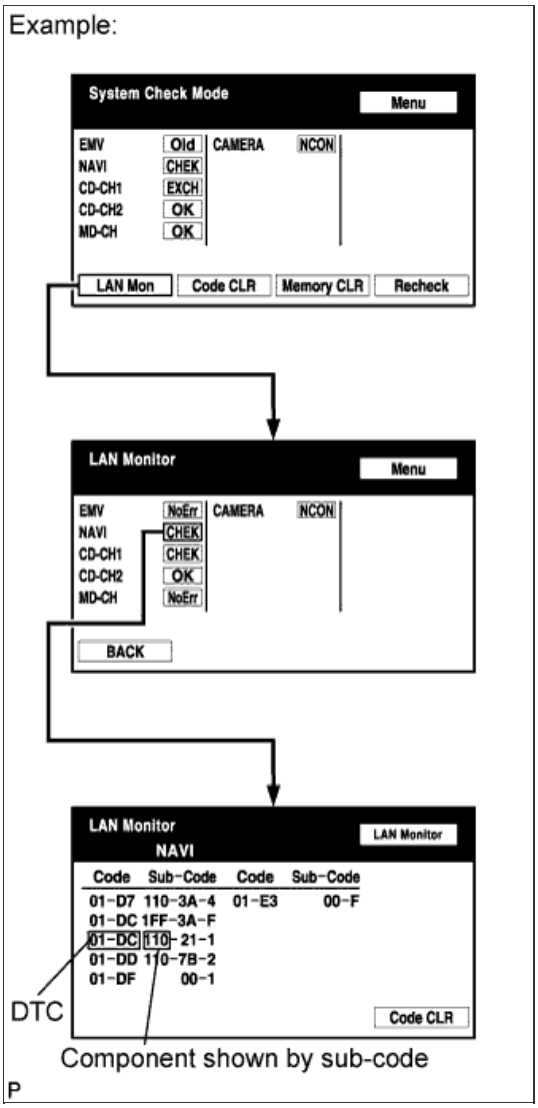
c. Identify the component shown by the sub-code.

**HINT:**

- **"110 (multi-display)" is the component shown by the sub-code**

in the example shown in the illustration.

- The sub-code will be indicated by its physical address.
- For the component list, refer to Diagnosis Display Detailed Description in the System Description (Click here).




NEXT

## 2.CHECK POWER SOURCE CIRCUIT OF COMPONENT SHOWN BY SUB-CODE

a. Inspect the power source circuit of the component shown by the sub-code.

**Component Table**

| Display | Proceed to |
|---|---|
| Radio receiver (190) | Radio receiver power source circuit (Click here) |
| Stereo component amplifier (440) | Stereo component amplifier power source circuit (Click here) |
| Navigation ECU (178)*1 | Navigation ECU power source circuit (Click here) |
| Multi-display (110) | Multi-display power source circuit (Click here) |
| Television display (1F6)*2 | Television display power source circuit (Click here) |

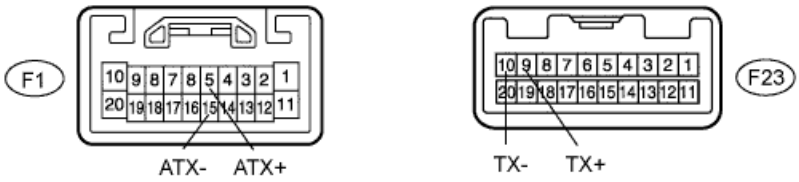
If the power source circuit is operating normally, proceed to the next step.

*1: w/ Navigation System
*2: w/ Rear Seat Entertainment System

NEXT

## 3.INSPECT RADIO RECEIVER ASSEMBLY

Component without harness connected:
(Radio Receiver)




a. Disconnect the F1 and F23 receiver connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-5 (ATX+) - F1-15 (ATX-) | Always | 60 to 80 Ω |
| F23-9 (TX+) - F23-10 (TX-) | | |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

## 4.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - COMPONENT SHOWN BY SUB-CODE)

**HINT:**

- **Start the check from the circuit that is near the component shown by the sub-code first.**
- **For details of the connectors, refer to Terminals of ECU (Click here).**

a. Referring to the AVC-LAN wiring diagram, check the AVC-LAN circuit between the parking assist ECU and the component shown by the sub-code.

i. Disconnect all connectors between the parking assist ECU and the component shown by the sub-code.

ii. Check for an open or short in the AVC-LAN circuit between the parking assist ECU and the component shown by the sub-code.

**OK:**
**There is no open or short circuit.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.REPLACE COMPONENT SHOWN BY SUB-CODE

a. Replace the component shown by the sub-code with a normal one and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

NG → REPLACE PARKING ASSIST ECU (Click here)

OK

END

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK SPEAKER INSTALLATION

a. Check that each speaker is securely installed.

**OK:**
**Each speaker is securely installed.**

NG → INSTALL SPEAKER PROPERLY

OK

### 2.IDENTIFY NOISE SOURCE

a. Check the noise condition.

**HINT:**

The radio has a noise prevention function to reduce noise when listening to the radio. If a loud noise occurs, check whether the ground at the antenna mounting base and the noise prevention unit are installed and wired correctly.

| Condition in Which Noise Occurs | Noise Type |
|---|---|
| Depressing accelerator pedal increases noise, and stopping engine stops noise immediately | Generator noise |
| When A/C or heater is operating | Blower motor noise |
| • When rapidly accelerating on unpaved road<br>• When engine switch is turned on (IG) | Fuel pump noise |
| • When horn switch is pressed and released<br>• When horn switch is pressed and held down | Horn noise |
| Running engine causes soft noise, and stopping engine stops noise immediately | Ignition noise |
| Noise occurs synchronously with turn signal flash | Flasher noise |
| Noise occurs during window washer operation | Washer noise |
| Running engine causes noise, but stopping engine does not stop noise | Water temperature sensor noise |
| When wiper is operating | Wiper noise |
| When brake pedal is depressed | Stop light switch noise |
| Other | Static electricity on vehicle |

**HINT:**

- **In the left column of the chart, find the situation that matches the vehicle of the customer. Then, in the right column, find the part that is causing the noise. Check the noise filter on the part.**
- **To save time and avoid a misdiagnosis, first make sure that the noise is not originating from outside the vehicle.**
- **Troubleshoot noise problems in order of loudness, starting with the loudest noise.**
- **Setting the radio to a frequency that receives no signal may make recognition of the noise problem easier.**

**OK:**
**The noise source can be determined.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

### REPAIR NOISE SOURCE

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.NOISE CONDITION

a. Check from which direction the noise comes (front left or right, rear left or right).

**OK:**
**The location of the noise source can be determined.**

NG → Go to step 3

OK

### 2.CHECK SPEAKERS

a. Check the installation conditions of the speaker units that are located near the noise source and that there are no cracks, scratches, deformation or other malfunctions.

**Result**

| Result | Proceed to |
|---|---|
| No malfunction is found. | A |
| The speaker is installed incorrectly. | B |
| Foreign objects are in the speaker. | C |
| The speaker cone paper is broken. | D |

B → REINSTALL SPEAKER

C → REMOVE FOREIGN OBJECT

D → REPLACE SPEAKER

A

### 3.CHECK NOISE CONDITION

a. Check the noise condition.

**HINT:**

The radio has a noise prevention function to reduce noise when listening to the radio. If a loud noise occurs, check whether the ground at the antenna mounting base and the noise prevention unit are installed and wired correctly.

| Condition under which Noise Occurs | Noise Source |
|---|---|
| Noise increases when the accelerator pedal is depressed, but stops when the engine is stopped. | Generator |
| Noise occurs during A/C or heater operation. | Blower motor |
| Noise occurs when the horn switch is pressed and released or when pressed and held. | Horn |
| Noise occurs synchronously with the blink of the turn signal. | Flasher |
| Noise occurs during window washer operation. | Washer |
| Noise occurs during wiper operation. | Wiper |
| Noise occurs when the brake pedal is depressed. | Stop light switch |
| Noise occurs when the sliding roof moves. | Sliding roof motor |
| Others | Static electricity |

**HINT:**

- **In the left column of the table, find the situation that matches the customer's complaint. Then, in the right column, find the part that is causing the noise. Check the respective noise filter.**
- **To save time and avoid a misdiagnosis, first make sure that the noise is not coming from outside the vehicle.**

- **Troubleshoot noises in descending order of loudness.**
- **Setting the radio to a frequency where no signal is received may make recognition of the noise problem easier.**

**Result**

| Condition | Proceed to |
|---|---|
| The noise source cannot be determined. | A |
| The noise source can be determined. | B |

B → REPAIR OR REPLACE NOISE SOURCE

A → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.CHECK VEHICLE CONDITION**

a. Check that conditions in the cabin are not likely to cause condensation.

**HINT:**

This problem occurs if the cabin is humid and the temperature changes rapidly. This may produce condensation, resulting in a short circuit.

**OK:**

**Condensation is not likely being produced.**

NG → **DRY OUT CABIN AND RECHECK CONDITION**

OK

**PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)**

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK SOUND SETTING

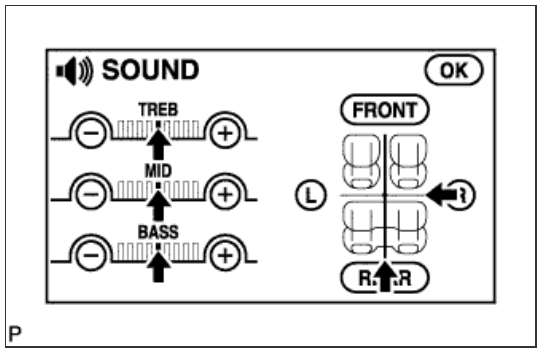
a. Enter the sound adjustment screen by pressing the "SOUND" switch on the AUDIO display.

b. Set volume, fader, and balance to the initial values and check that the sound is normal.

**OK:**
**Sound returns to normal.**

**HINT:**

Sound quality adjustment items vary depending on the type of the amplifier.




NG → GO TO "SPEAKER CIRCUIT" (Click here)

OK → END

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK AUDIO SETTINGS

a. Display the "Sound Settings" screen.

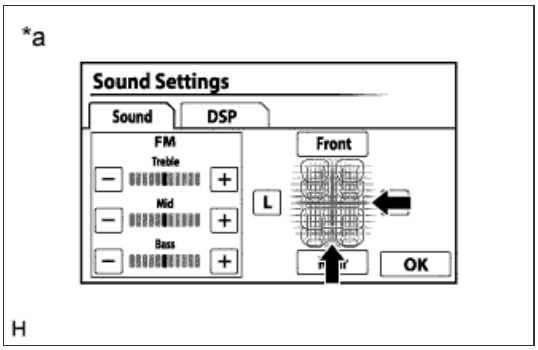
b. Set volume, fader and balance to the initial values and check that sound is normal.

**OK:**

**Audio system returns to normal.**

**HINT:**

Sound quality adjustment measures vary according to the type of amplifier.




**Text in Illustration**

| | |
|---|---|
| *a | Example |

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK → END

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.REPLACE CD WITH ANOTHER AND RECHECK**

a. Replace the CD with a normal one and check if the same problem occurs again.

**OK:**
**Malfunction disappears.**

NG → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

OK → **CD IS FAULTY**

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.REPLACE DISC AND RECHECK**

a. Replace the disc with a known good one and recheck.

i. Check if the same trouble occurs again.

**OK:**
**Malfunction disappears.**

NG → **REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)**

OK

**END**

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK IF PROPER DISC IS INSERTED

a. Make sure that the disc is a normal audio disc, and that it is not deformed, flawed, burred or otherwise defective.

**OK:**
**Normal audio disc.**

**HINT:**

For details on playable discs, refer to the Owner's Manual.

NG → DISC IS FAULTY

OK

### 2.CHECK THAT DISC IS INSERTED PROPERLY

a. Check whether or not the disc is inserted upside down.

**OK:**
**Disc is properly inserted.**

NG → INSERT DISC PROPERLY

OK

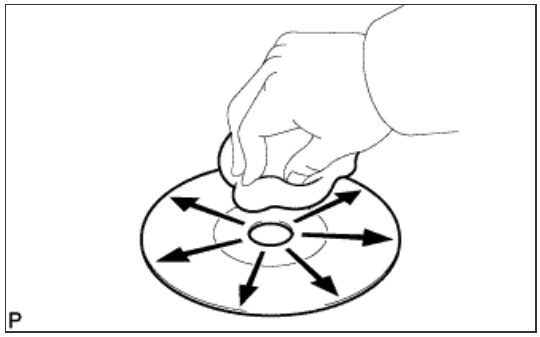
### 3.CLEAN DISC

a. Clean the disc by wiping the disc underside radially with a soft cloth.

**OK:**
**Malfunction disappears.**

**NOTICE:**

Do not use a conventional record cleaner or antistatic preservative.




NG → Go to step 4

OK

DISC WAS DIRTY

### 4.REPLACE DISC WITH ANOTHER AND RECHECK

a. Replace the disc with a normal one and check if the same problem occurs again.

**OK:**
**Malfunction disappears.**

NG → PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

**DISC IS FAULTY**

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK IF A PROPER DISC IS INSERTED

a. Make sure that the disc is an audio disc or a disc with MP3 or WMA files, and that it is not deformed, flawed, stained, deteriorated or otherwise defective.

**OK:**
**Disc is normal.**

**HINT:**

- **Translucent or uniquely-shaped discs cannot be played.**
- **CDs and DVDs with adhesive paper labels should not be played.**
- **Commercial audio CDs and DVDs can be played.**
- **CD-DA files on CD-ROMs, CD-Rs and CD-RWs can be played.**
- **MP3 and WMA files on CD-ROMs, CD-Rs and CD-RWs can be played.**
- **For details on playable CDs and DVDs, refer to the Owner's Manual.**

NG → CHANGE DISC

OK

### 2.CHECK THAT DISC IS INSERTED PROPERLY

a. Check whether or not the disc is inserted upside down.

**OK:**
**Disc is properly inserted.**

NG → INSERT DISC PROPERLY

OK

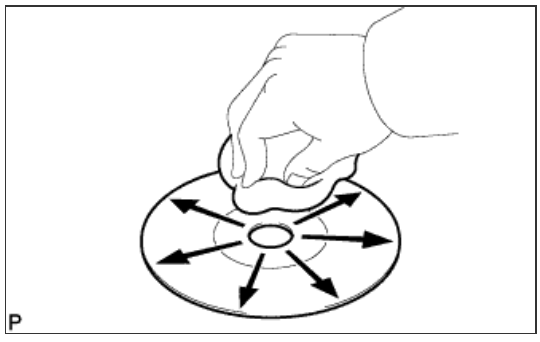
### 3.CLEAN DISC AND RECHECK

a. Clean the disc by wiping it clean with a soft cloth from the inside to the outside in a radial direction.

**OK:**
**Malfunction disappears.**

**NOTICE:**

Do not use a conventional record cleaner or anti-static preservative.




NG → Go to step 4

OK

END

### 4.REPLACE DISC AND RECHECK

a. Replace the disc with a known good one and check if the same trouble occurs again.

**OK:**
**Malfunction disappears.**

NG

REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

END

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.PRESS "EJECT" AND CHECK OPERATION

a. Press the disc eject switch of the radio receiver for 5 seconds or more, and check that the disc ejects.

**OK:**
**Disc ejects.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

### 2.REPLACE DISC WITH ANOTHER AND RECHECK

a. Replace the disc with a normal one and check that the disc ejects.

**OK:**
**Disc ejects.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

### DISC IS FAULTY

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.PRESS EJECT AND CHECK OPERATION**

a. Press the disc eject switch of the multi-media module receiver assembly for 2 seconds or more and check that the disc is ejected.

**OK:**
**Disc is ejected.**

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

**2.REPLACE DISC AND RECHECK**

a. Replace the disc with a known good one and recheck.

**OK:**
**Disc is ejected.**

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

END

**for Preparation** Click here

## INSPECTION PROCEDURE

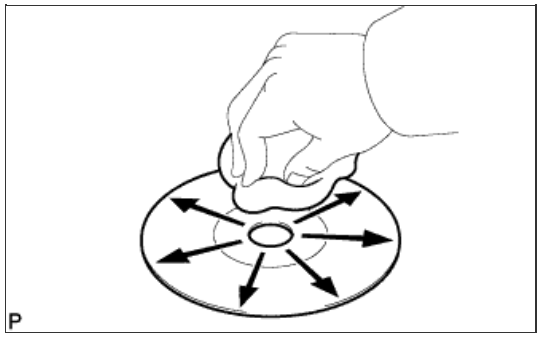
### 1.CLEAN DISC

a. Clean the disc by wiping the disc underside radially with a soft cloth.

**OK:**
**Malfunction disappears.**

**NOTICE:**

Do not use a conventional record cleaner or antistatic preservative.




NG → Go to step 2

OK →

### DISC WAS DIRTY

### 2.REPLACE DISC WITH ANOTHER AND RECHECK

a. Replace the disc with a normal one and check if the same problem occurs again.

**OK:**
**Malfunction disappears.**

NG → Go to step 3

OK →

### DISC IS FAULTY

### 3.CHECK WHEN PROBLEM OCCURS

a. Check the location in which disc skipping occurs.

**Result**

| Result | Proceed to |
|---|---|
| Driving surface is bumpy or rough | A |
| Driving surface is normal | B |

B → Go to step 5

A →

### 4.CHECK RADIO RECEIVER INSTALLATION

a. Check the installation condition of the radio receiver.

**OK:**
**Installed properly.**

NG → INSTALL RADIO RECEIVER PROPERLY (Click here)

OK →

5.INSTALL RADIO RECEIVER IN ANOTHER VEHICLE OF SAME MODEL AND COMPARE

a. Remove the radio receiver and install it in another vehicle of the same model. Check if the disc sound skips.

**OK:**
**Disc sound does not skip.**

NG → Go to step 6

OK

MALFUNCTIONS MAY NOT BE PRESENT

6.DID TEMPERATURE IN CABIN CHANGE RAPIDLY?

a. Check whether or not a rapid temperature change occurred in the cabin.

**OK:**
**Rapid temperature change occurred.**

**HINT:**

A rapid temperature change creates condensation inside the disc player, which may disable disc playback.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

CONDENSATION DUE TO TEMPERATURE CHANGE (LEAVE AS IS FOR A WHILE BEFORE USING)

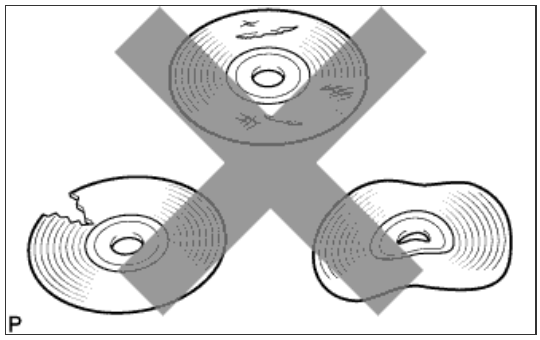
**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK DISC

a. Check that the disc is not deformed or cracked.

**OK:**
**No deformation or cracks on the disc.**




NG → CHANGE DISC

OK

### 2.CHECK DISC

a. Check the disc.

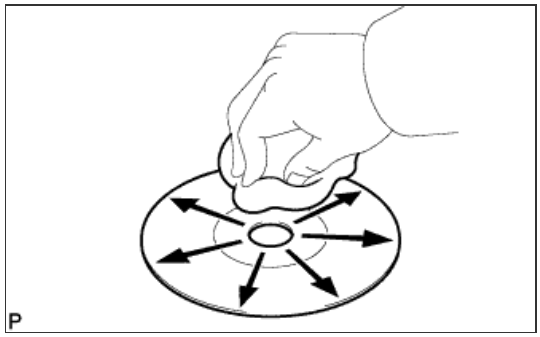
**OK:**
**The disc is clean.**

**HINT:**

If dirt is on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

**NOTICE:**

Do not use a conventional record cleaner or anti-static preservative.




NG → CLEAN DISC

OK

### 3.CHECK OPERATION

a. Check if the same problem occurs again using a known good disc.

**OK:**
**Malfunction disappears.**

NG → Go to step 4

OK

END

### 4.CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY

a. Check that the multi-media module receiver assembly is properly installed.

**OK:**

**Multi-media module receiver assembly is properly installed.**

NG → REINSTALL MULTI-MEDIA MODULE RECEIVER ASSEMBLY PROPERLY

OK

REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK IF RADIO AUTO-SEARCH FUNCTIONS PROPERLY

a. Perform the auto-search of the radio and check that it functions normally.

**OK:**
**Radio auto-search functions normally.**

NG → Go to step 2

OK →

### REPLACE RADIO RECEIVER ASSEMBLY (Click here)

### 2.CHECK OPTIONAL COMPONENTS

a. Check if a telephone antenna or other optional components are installed.

**OK:**
**Optional component(s) is installed.**

NG → Go to step 3

OK →

### EFFECT FROM OPTIONAL COMPONENTS

### 3.CHECK ANTENNA FOR NOISE PRODUCTION

a. With the engine switch on (ACC), turn on the radio and choose the AM mode.

b. Place the tip of a screwdriver on the antenna and check that noise is heard from the speakers.

**OK:**
**Noise is heard.**

NG → Go to step 4

OK →

### REPLACE RADIO RECEIVER ASSEMBLY (Click here)

### 4.CHECK RADIO RECEIVER ASSEMBLY (ANTENNA)

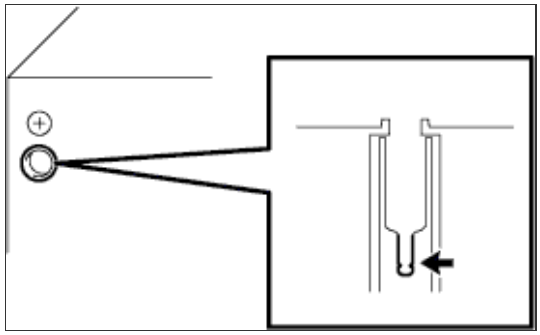
a. Remove the antenna plug of the radio receiver.

b. With the radio receiver connector connected, turn the engine switch on (ACC).

c. Turn on the radio and choose the AM mode.

d. Place a flat-head screwdriver or a piece of metal, such as a thin wire, on the antenna jack of the radio receiver. Check that noise is heard from the speakers.

**OK:**
**Noise is heard.**



NG → REPLACE ANTENNA ASSEMBLY AND ANTENNA CORD SUB-ASSEMBLY (Click here)

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY

a. Check the radio automatic station search function.

i. Check the radio automatic station search function by activating it.

**Result**

| Result | Proceed to |
|---|---|
| Automatic station search function stops on a station. | A |
| Automatic station search function does not stop. | B |

B → Go to step 2

A →

REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

### 2.CHECK OPTIONAL COMPONENTS

a. Check optional components (sunshade film, telephone antenna, etc.).

i. Check if any optional components that may decrease reception capacity, such as sunshade film or a telephone antenna, are installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components are installed. | A |
| Optional components are not installed. | B |

**NOTICE:**

Do not remove any optional components installed by the customer without his or her consent.

B → Go to step 3

A →

REMOVE OPTIONAL COMPONENTS AND CHECK AGAIN (SEE NOTICE ABOVE)

### 3.CHECK RADIO ANTENNA

a. Check for noise

i. Turn the engine switch on (ACC) with the multi-media module receiver assembly connector connected.

ii. Turn the radio on and tune into AM mode.

iii. Place a screwdriver, thin wire, or other metal object on the amplifier antenna threaded installation portion for the antenna and check that noise can be heard from the speakers.

**Result**

| Result | Proceed to |
|---|---|
| Noise does not occur. | A |
| Noise occurs. | B |

B → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

A →

## 4.CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY

a. Preparation for check

i. Remove the antenna connector from the multi-media module receiver assembly.

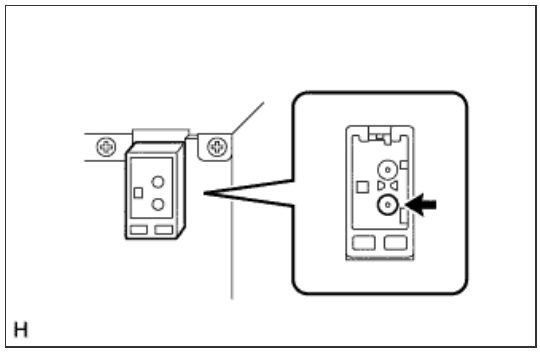
b. Check for noise

i. Turn the engine switch on (ACC) with the multi-media module receiver assembly connector connected.

ii. Turn the radio on and tune into AM mode.

iii. Place a screwdriver, thin wire or other metal object on the multi-media module receiver assembly antenna jack and check that noise can be heard from the speakers.

**OK:**
**Noise can be heard from the speaker.**




NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

## 5.CHECK WINDOW GLASS ANTENNA WIRE

a. Check for continuity of the antenna.

**HINT:**

Check for continuity at the center of each antenna wire as shown in the illustration.

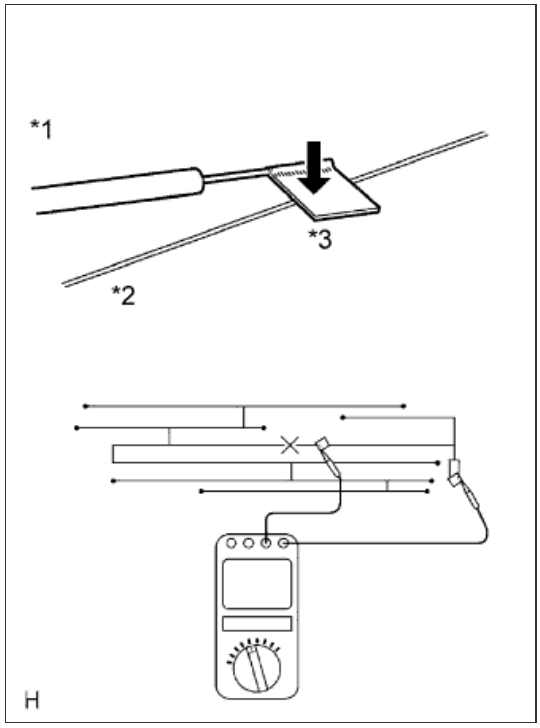
**NOTICE:**

When cleaning the glass, wipe it in the direction of the wire with a soft dry cloth. Take care not to damage the wire. Do not use detergents or glass cleaners with abrasive ingredients. When measuring resistance, wrap a piece of tin foil around the tip of each probe and press the foil against the wire with your finger, as shown in the illustration.

**OK:**
**There is continuity in the antenna.**

**Text in Illustration**

| | |
|---|---|
| *1 | Tester Probe |
| *2 | Antenna Wire |
| *3 | Tin Foil |




NG → REPAIR WINDOW GLASS ANTENNA WIRE (Click here)

OK

## 6.INSPECT MULTI-MEDIA MODULE RECEIVER ASSEMBLY

a. Disconnect the multi-media module receiver assembly connector.

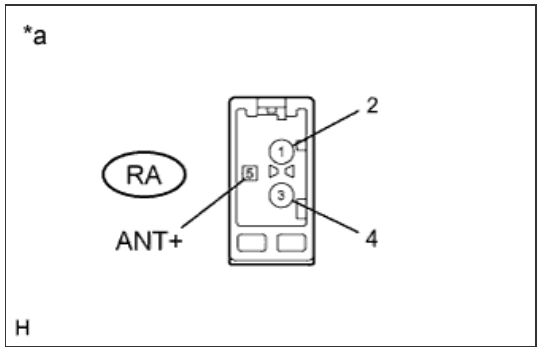
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| RA-5 (ANT+) - Body ground | Engine switch on (ACC)<br>Radio switch on | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *a | Component without harness connected (Multi-media Module Receiver Assembly) |




NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

## 7.CHECK ANTENNA CORD SUB-ASSEMBLY

a. Remove the antenna connector of the multi-media module receiver assembly and antenna.

b. Measure the resistance between the antenna and multi-media module receiver assembly to check for an open circuit in the antenna cord.

**Standard resistance:**
**Below 1 Ω**

c. Measure the resistance between the antenna cord and body ground to check for a short circuit in the antenna cord.

**Standard resistance:**
**10 kΩ or higher**

NG → REPLACE ANTENNA CORD SUB-ASSEMBLY (Click here)

OK

## 8.CHECK AMPLIFIER ANTENNA ASSEMBLY

a. Replace the amplifier antenna assembly and check if radio broadcasts can be received normally ( Click here).

**OK:**
**Radio broadcasts can be received.**

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

## NORMAL OPERATION

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK DISPLAY SETTING

a. Check that the display is not in "Screen Off" mode.

**OK:**
**The display setting is not in "Screen Off" mode.**

NG → CHANGE SCREEN TO "SCREEN ON" MODE

OK ↓

### 2.CHECK IMAGE QUALITY SETTING

a. Check that the screen color quality can be set.

**OK:**
**Setting is possible.**

NG → Go to step 3

OK ↓

PRESS PANEL SWITCH "DISPLAY" AND SET SCREEN COLOR QUALITY TO NORMAL

### 3.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

**HINT:**

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may short circuit the screen.**
- **The appropriate cabin temperature is 20 to 30°C (68 to 86°F).**

**OK:**
**Condensation is not likely and temperature is not high or extremely low.**

NG → SET CABIN TO APPROPRIATE TEMPERATURE

OK ↓

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

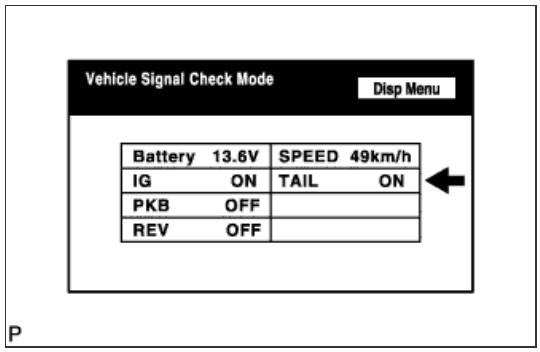
**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK VEHICLE SIGNAL (DISPLAY CHECK MODE)

a. Enter the "Display Check" mode and select "Vehicle Signal Check Mode" ( Click here).

b. Check that the display changes between ON and OFF according to the light control switch operation.




**OK:**

| Light Control Switch | Display |
|---|---|
| Tail or head | ON |
| Off | OFF |

**HINT:**

This display is updated once per second. As a result, it is normal for the display to lag behind the actual change in the switch.

**Result**

| Result | Proceed to |
|---|---|
| OK (w/ Navigation System) | A |
| OK (w/o Navigation System) | B |
| NG | C |

B → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

C → PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

A

REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

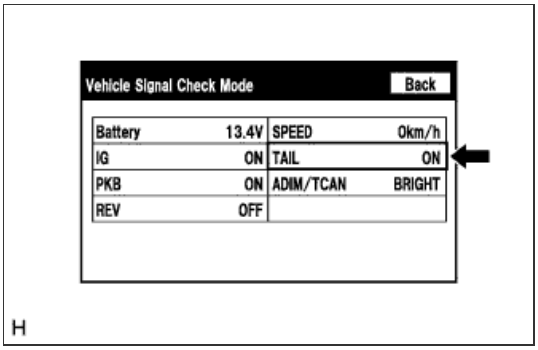
### 1.CHECK VEHICLE SIGNAL (OPERATION CHECK)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check (Click here).

b. Check that the display changes between ON and OFF according to the light control switch operation.

**OK:**

| Light Control Switch | Display |
|---|---|
| Tail or head | ON |
| Off | OFF |




**HINT:**

This display is updated once per second. As a result, it is normal for the display to lag behind the actual switch operation.

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

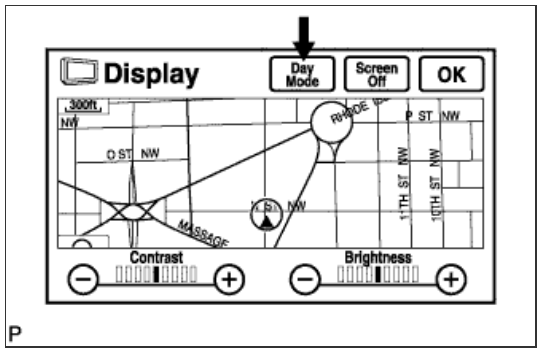
### 1.CHECK IMAGE QUALITY SETTING

a. Enter the display adjustment screen by pressing the "DISP" switch.

b. Turn the light control switch to the tail position.

c. Check if "Day Mode" on the display is on.

**OK:**
**"Day Mode" is on.**




NG → Go to step 2

OK →

### TURN "Day Mode" SETTING OFF

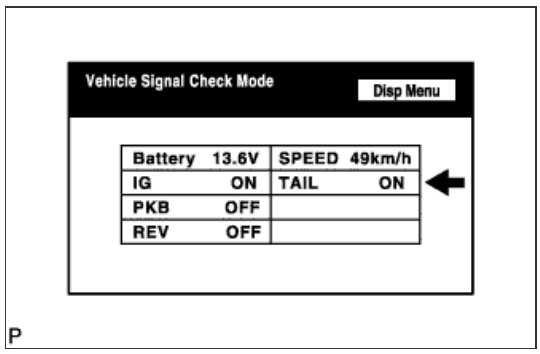
### 2.CHECK VEHICLE SIGNAL (DISPLAY VEHICLE SIGNAL)

a. Enter the "Display Check" mode and select "Vehicle Signal Check Mode" ( Click here).

b. Cover the automatic light control sensor on the instrument panel with a cloth.

c. Set the instrument panel light control to less than the maximum (to activate the dimmer function that works when the light control switch is in the tail position).

d. Check that the display changes between DIM and BRIGHT according to the light control switch operation.




**OK:**

| Light Control Switch Condition | Display Condition |
|---|---|
| Tail or head | ON |
| Off | OFF |

**HINT:**

The display is updated once per second. It is normal for the display to lag behind the actual switch operation.

**Result**

| Result | Proceed to |
|---|---|
| OK (w/ Navigation System) | A |
| OK (w/o Navigation System) | B |
| NG | C |

B → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

C → PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

A →

| REPLACE MULTI-DISPLAY ASSEMBLY (Click here) |
| --- |

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK IMAGE QUALITY SETTING

a. Display the "Display" screen.

b. Turn the light control switch to the tail or head position.

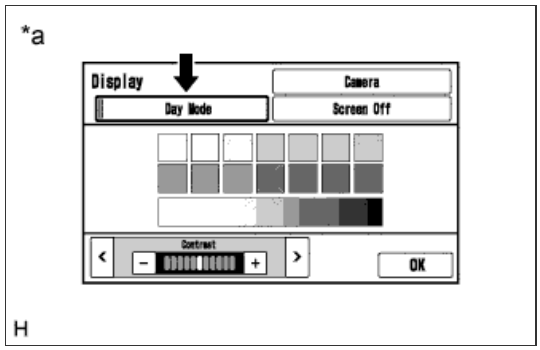
c. Check if "Day Mode" on the display adjustment screen is on.

**Text in Illustration**

| | |
|---|---|
| *a | Example |

**Result**

| Result | Proceed to |
|---|---|
| "Day Mode" setting is on. | A |
| "Day Mode" setting is off. | B |




B → Go to step 2

A

### TURN "Day Mode" SETTING OFF

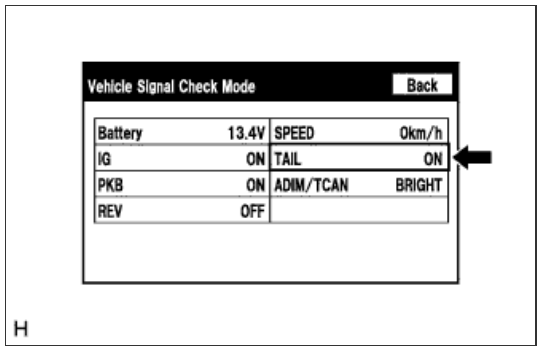
### 2.CHECK VEHICLE SIGNAL (OPERATION CHECK)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check (Click here).

b. Check that the display changes between ON and OFF according to the light control switch operation.

**OK:**

| Light Control Switch | Display |
|---|---|
| Tail or head | ON |
| Off | OFF |




**HINT:**

The display is updated once per second. It is normal for the display to lag behind the actual switch operation.

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

### REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK PANEL SWITCH

a. Check for foreign matter around the switch that might prevent operation.

**OK:**
**No foreign matter is found.**

NG → REMOVE ANY FOREIGN MATTER

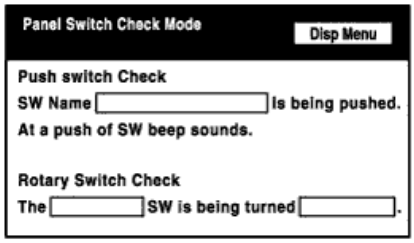
OK

### 2.CHECK PANEL SWITCH (DISPLAY CHECK MODE)

a. Enter the "Display Check" mode and select "Panel Switch Check Mode" ( Click here).

b. Operate the abnormal switch and check if the switch name and status are correctly displayed.

**OK:**
**The switch name and status are correctly displayed as operated.**




**Result**

| Result | Proceed to |
|---|---|
| OK (w/ Navigation System) | A |
| OK (w/o Navigation System) | B |
| NG | C |

B → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

C → PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

A

REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK PANEL SWITCH

a. Check for foreign matter around the switches that might prevent operation.

**OK:**
**No foreign matter is found.**

NG → REMOVE ANY FOREIGN MATTER FOUND

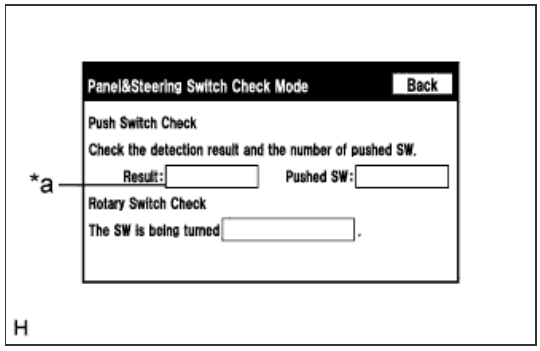
OK

### 2.CHECK PANEL SWITCH (OPERATION CHECK)

a. Enter the "Panel & Steering Switch Check Mode" screen. Refer to Check Panel & Steering Switch in Operation Check (Click here).

b. Operate the abnormal switch and check if the switch name is correctly displayed.

**OK:**
**The switch name is correctly displayed as operated.**




**Text in Illustration**

| | |
|---|---|
| *a | Name of the pushed switch is displayed |

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK TOUCH PANEL

a. Check for foreign matter on the display.

**OK:**
**The display is clean.**

NG → CLEAN DISPLAY AND RECHECK TOUCH PANEL

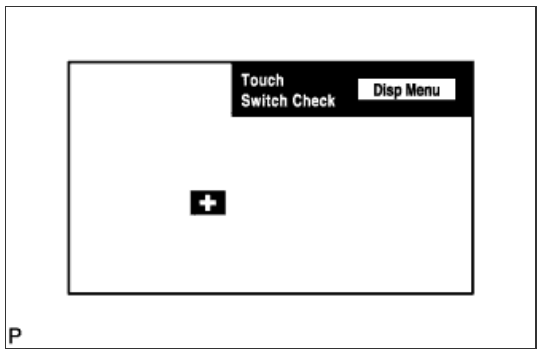
OK

### 2.CHECK TOUCH SWITCH (DISPLAY CHECK MODE)

a. Enter the "Display Check" mode and select "Touch Switch Check" ( Click here).

b. Touch the display in the area where the switch malfunction occurs.

**OK:**
**A "+" mark appears at the touched position.**




**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (w/ Navigation System) | B |
| NG (w/o Navigation System) | C |

B → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

C → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

A

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK MULTI-DISPLAY ASSEMBLY

a. Check if there is any foreign matter caught between the display and exterior frame of the multi-display assembly.

**OK:**
**No foreign matter is caught between the display and exterior frame of the multi-display assembly.**

**HINT:**

If there is foreign matter between the display and exterior frame of the multi-display assembly, the touch panel will remain pressed, preventing touch switch operation.

NG → REMOVE FOREIGN MATTER

OK

### 2.CHECK TOUCH PANEL

a. Check for foreign matter on the display.

**OK:**
**The display is clean.**

NG → CLEAN DISPLAY AND RECHECK TOUCH PANEL

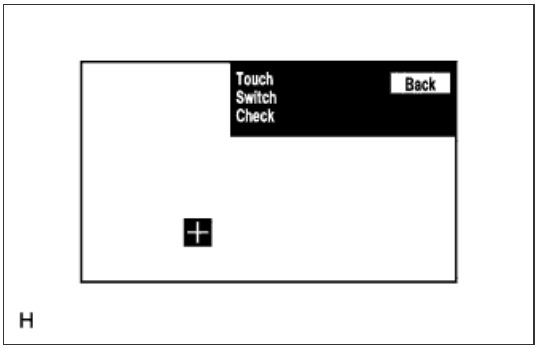
OK

### 3.CHECK TOUCH SWITCH (OPERATION CHECK)

a. Enter the "Touch Switch Check" screen. Refer to Check Touch Switch in Operation Check (Click here).

b. Touch the display in the area where the switch malfunction occurs.

**OK:**
**A "+" mark appears at the touched position.**



H

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

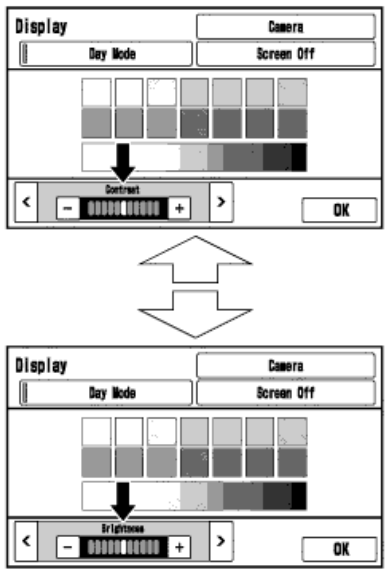
### 1.CHECK DISPLAY SETTING

a. Display the "Display (General)" screen.

b. Reset display settings (contrast, brightness) and check that the screen appears normal.

**OK:**
**The display returns to normal.**

*a




H

Text in Illustration

| | |
|---|---|
| *a | Example |

NG → Go to step 2

OK

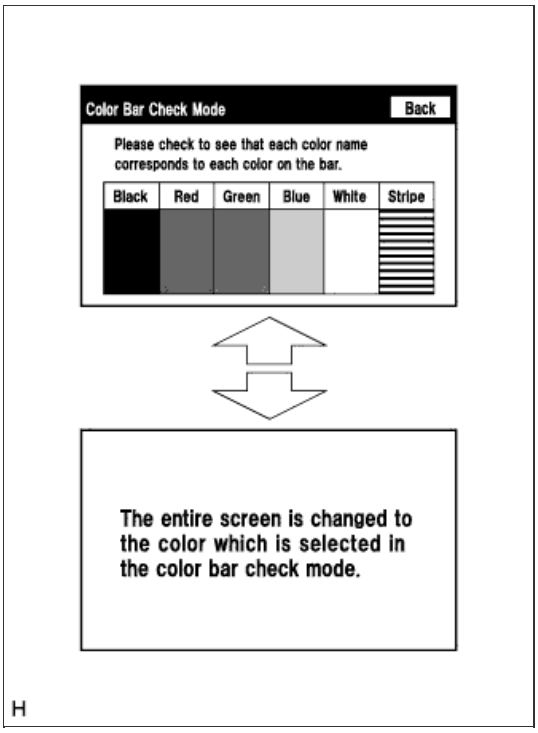
### END

### 2.CHECK COLOR BAR (OPERATION CHECK)

a. Enter the "Color Bar Check Mode" screen. Refer to Check Color Bar in Operation Check (Click here).

b. Check that the color bars match the displayed names.

**OK:**
**Color bars match the displayed names.**




NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.ADJUST SOUND QUALITY**

a. Operate the radio receiver to adjust the sound quality.

**OK:**
**Sound quality returns to normal.**

NG → Go to step 2

OK

**SYSTEM IS OK (BAD SOUND QUALITY)**

**2.COMPARE VEHICLE WITH ANOTHER VEHICLE OF SAME MODEL**

a. Compare the vehicle with another vehicle that has a normally functioning audio system. Check if there is any difference in the problem.

**OK:**
**No difference is found.**

NG → GO TO "SOUND SIGNAL CIRCUIT BETWEEN RADIO RECEIVER AND STEREO COMPONENT AMPLIFIER" (Click here)

OK

**SYSTEM IS OK (BAD SOUND QUALITY)**

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK AUDIO SETTINGS

a. Display the "Sound Settings" screen.

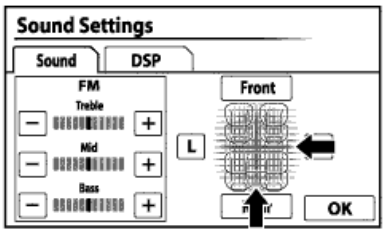
b. Set "Treble", "Mid" and "Bass" to the initial values and check that sound is normal.

**OK:**
**Malfunction disappears.**

**HINT:**

Sound quality adjustment measures vary according to the type of amplifier.

*a




H

**Text in Illustration**

| | |
|---|---|
| *a | Example |

NG → Go to step 2

OK →

END

### 2.COMPARE WITH ANOTHER VEHICLE OF SAME MODEL

a. Compare with another vehicle of the same model which does not have trouble to see if there is any difference in the sound quality.

**OK:**
**No difference is found.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK →

END

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK NAVIGATION SETTING

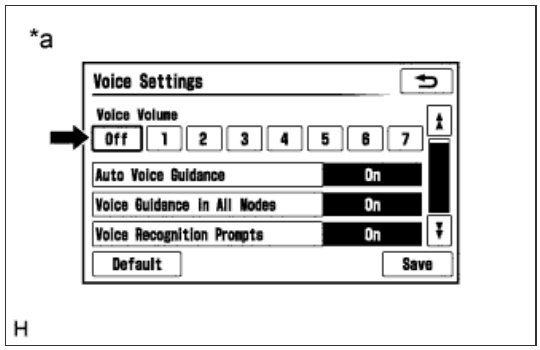
a. Display the "Voice Settings" screen.

b. Check that "Off" is not selected.

**OK:**
**"Off" is not selected.**

Text in Illustration

| | |
|---|---|
| *a | Example |




NG → SELECT VOICE VOLUME SETTING OTHER THAN "Off"

OK

### 2.CHECK NAVIGATION SETTING

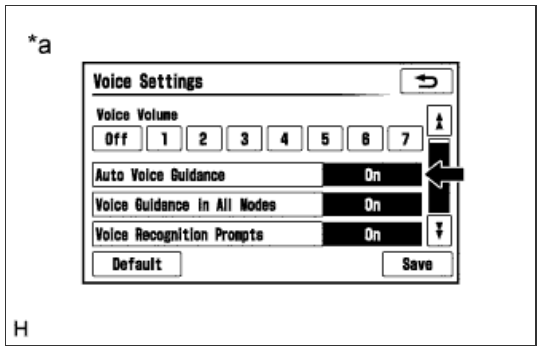
a. Display the "Voice Settings" screen.

b. Check that "Auto Voice Guidance" is not "Off".

**OK:**
**"Auto Voice Guidance" is not "Off".**

Text in Illustration

| | |
|---|---|
| *a | Example |




NG → TURN AUTO VOICE GUIDANCE "On"

OK

### 3.CHECK NAVIGATION SETTING

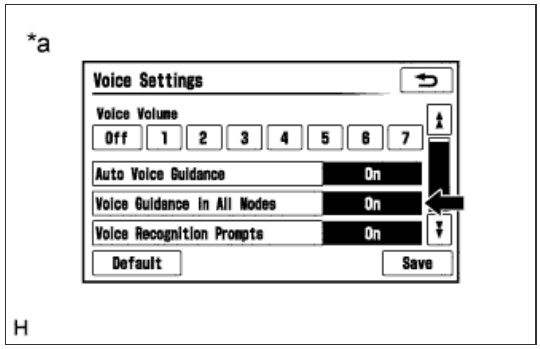
a. Display the "Voice Settings" screen.

b. Check that "Voice Guidance in All Modes" is not "Off".

**OK:**
**"Voice Guidance in All Modes" is not "Off".**

Text in Illustration

| | |
|---|---|
| *a | Example |




NG → TURN VOICE GUIDANCE IN ALL MODES "On"

OK

4.CHECK AUDIO FUNCTION

a. Check that sound can be heard from a front speaker.

**OK:**
**Sound can be heard.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CONDITION

a. Refer to the owner's manual and follow its instructions to check that the voice recognition level of the system is not too low for a particular voice.

**Result**

| Result | Proceed to |
|---|---|
| System voice recognition level is low with any voice. | A |
| System voice recognition level is low only for a particular voice. | B |

**HINT:**

System voice recognition level varies depending on voice and pronunciation. This is not a malfunction.

B → END

A

### 2.CHECK MICROPHONE (OPERATION CHECK)

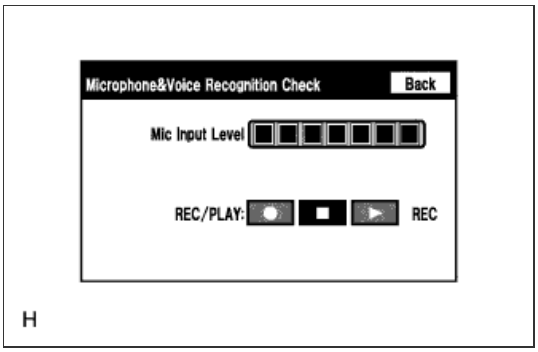
a. Enter the "Microphone&Voice Recognition Check" screen. Refer to Check Mic & Voice Recognition in Operation Check (Click here).

b. When voice is input into the microphone, check that the microphone input level meter changes according to the input voice.

c. Select the recording switch and perform voice recording.

- Select the recording switch with the blower motor of the air conditioning system stopped. If an outlet of the air conditioning system is facing the microphone, noise may be recorded.
- Voice can be recorded up to 5 seconds.

d. Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.



H

**OK:**
**All check results are normal.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

### 3.REPLACE HARD DISC

a. Replace the hard disc (Click here).

b. Check that voice recognition is normal.

**OK:**
**Voice can be recognized normally.**

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

END (HARD DISC IS DEFECTIVE)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CURRENT CONDITION

a. Check for "Bluetooth" capable cellular phones and vehicles in the area.

**Result**

| Result | Proceed to |
|---|---|
| Another "Bluetooth" compatible cellular phone is present | A |
| Another "Bluetooth" compatible vehicle is present | B |
| None of the above | C |

B → Go to step 3

C → Go to step 4

A

### 2.CHECK USING ANOTHER CELLULAR PHONE

a. Check if the system functions using another "Bluetooth" compatible cellular phone.

**HINT:**

- **Confirm that either the same or a different version of another "Bluetooth" compatible cellular phone complies with the system.**
- **Depending on the version, some "Bluetooth" compatible cellular phones cannot be used.**

**OK:**
**System functions.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (w/ Navigation System) | B |
| NG (w/o Navigation System) | C |

B → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

C → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

A

### USE "BLUETOOTH" COMPATIBLE CELLULAR PHONE (DEPENDING ON THE VERSION)

### 3.CHECK USING ANOTHER "BLUETOOTH" CAPABLE VEHICLE

a. Register the cellular phone with another vehicle and check if the system functions normally.

**HINT:**

Depending on the version, some "Bluetooth" compatible cellular phones cannot be used.

**OK:**
**System functions.**

**Result**

| Result | Proceed to |
|---|---|
| OK (w/ Navigation System) | A |
| OK (w/o Navigation System) | B |

| | |
|---|---|
| NG | C |

B → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

C → USE "BLUETOOTH" COMPATIBLE CELLULAR PHONE

A

REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

## 4.CHECK CELLULAR PHONE

a. Check if the cellular phone is "Bluetooth" compatible.

**HINT:**

Some versions of "Bluetooth" compatible cellular phones may not function.

**OK:**

**The phone is "Bluetooth" compatible.**

NG → USE "BLUETOOTH" COMPATIBLE CELLULAR PHONE

OK

## 5.CHECK CELLULAR PHONE

a. Check if a call can be made from the cellular phone.

**HINT:**

When the battery is low, registration or directory transfer cannot be performed.

**OK:**

**A call can be made from the cellular phone.**

Result

| Result | Proceed to |
|---|---|
| OK (w/ Navigation System) | A |
| OK (w/o Navigation System) | B |
| NG | C |

B → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

C → REPLACE CELLULAR PHONE

A

REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK OPERATION

a. Place the cellular phone close to the multi-media module receiver assembly.

b. Check if the cellular phone can be registered.

**OK:**
**The cellular phone can be registered.**

NG → Go to step 2

OK ↓

### NORMAL OPERATION

### 2.CHECK CURRENT CONDITIONS

a. Proceed to the next step according to the table below.

**Result**

| Result | Proceed to |
|---|---|
| Another "Bluetooth" compatible cellular phone is available. | A |
| Another "Bluetooth" compatible vehicle is available. | B |
| None of the above. | C |

B → Go to step 4

C → Go to step 5

A ↓

### 3.CHECK USING ANOTHER CELLULAR PHONE

a. Check if the system functions using another "Bluetooth" compatible cellular phone.

**HINT:**

- **Confirm that either the same or a different version of another "Bluetooth" compatible cellular phone complies with the system.**
- **Depending on the version, some "Bluetooth" compatible cellular phones cannot be used.**

**OK:**
**The system functions.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK ↓

### USE A "Bluetooth" COMPATIBLE CELLULAR PHONE

### 4.CHECK USING ANOTHER "Bluetooth" COMPATIBLE VEHICLE

a. Register the cellular phone with another vehicle and check if the system functions normally.

**HINT:**

Depending on the version, some "Bluetooth" compatible cellular phones cannot be used.

**OK:**

**The system functions.**

NG → ASK CUSTOMER TO UPDATE CELLULAR PHONE OR CHANGE IT TO A "Bluetooth" COMPATIBLE MODEL

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**5.CHECK CELLULAR PHONE**

a. Check if a call can be made from the cellular phone.

**HINT:**

The cellular phone is unable to call under any of the following conditions:

- **The cellular phone is locked.**
- **The phonebook is being transferred.**
- **The line is crossed.**
- **The cellular phone is outside service range.**
- **The power is off.**
- **The battery is low.**
- **The cellular phone is not connected via "Bluetooth".**

**OK:**

**A call can be made from the cellular phone.**

NG → REPAIR OR REPLACE CELLULAR PHONE

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK "BLUETOOTH" SETTING

a. Check if the "Bluetooth" settings are correct.

**OK:**
**"Bluetooth" settings are correct.**

NG → SET SETTINGS CORRECTLY

OK

### 2.CHECK CELLULAR PHONE

a. Check if the cellular phone is "Bluetooth" compatible.

**HINT:**

Some versions of "Bluetooth" compatible cellular phones may not function.

**OK:**
**Phone is "Bluetooth" compatible.**

NG → END (ONLY A "BLUETOOTH" COMPATIBLE CELLULAR PHONE CAN BE USED)

OK

### 3.CHECK SETTING

a. Check if the cellular phone functions.

**HINT:**

The cellular phone is unable to call under any of the following conditions.

- **The cellular phone is locked.**
- **The directory is being transferred.**
- **The line is crossed.**
- **Transmission is regulated.**
- **The engine is off.**
- **The cellular phone is not connected to "Bluetooth" ("Bluetooth" mark is displayed while connected).**

**OK:**
**Above conditions do not exist.**

NG → SET CORRECTLY

OK

### 4.CHECK CELLULAR PHONE

a. Check if the cellular phone can make calls.

**HINT:**

When the battery is low, calls cannot be made or received.

**OK:**
**Cellular phone can make calls.**

NG → REPLACE CELLULAR PHONE

OK

5.CHECK RECEPTION

a. Set the cellular phone so that it can receive calls.

b. Place the cellular phone close to the multi-display.

c. Check if the cellular phone has reception according to the multi-display.

**OK:**
**Cellular phone has reception.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (w/ Navigation System) | B |
| NG (w/o Navigation System) | C |

B → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

C → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

A

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK "Bluetooth" SETTINGS

a. Check if the cellular phone is registered as a connected device and the "Bluetooth" settings are correct.

**OK:**
**The cellular phone is registered as a connected device and "Bluetooth" settings are correct.**

NG → SET SETTINGS CORRECTLY

OK ↓

### 2.CHECK SETTINGS AND CONDITIONS

a. Check the cellular phone functions.

**HINT:**

The cellular phone is unable to call under any of the following conditions:

- **The cellular phone is locked.**
- **The phonebook is being transferred.**
- **The line is crossed.**
- **The cellular phone is outside service range.**
- **The power is off.**
- **The battery is low.**
- **The cellular phone is not connected via "Bluetooth".**

**OK:**
**None of the above conditions exist.**

NG → SET CORRECTLY

OK ↓

### 3.CHECK RECEPTION

a. Place the cellular phone close to the multi-media module receiver assembly.

b. Set the cellular phone so that it can receive calls.

c. Check if the cellular phone has reception according to the multi-media module receiver assembly.

**OK:**
**The cellular phone has reception.**

NG → Go to step 4

OK ↓

END

### 4.CHECK CELLULAR PHONE

a. Check if the cellular phone can make a call.

**HINT:**

The purpose of this step is to inspect the cellular phone when it is not connected to the vehicle.

**OK:**
**Cellular phone can make a call.**

NG → REPAIR OR REPLACE CELLULAR PHONE

OK

**5.RESTART CELLULAR PHONE**

a. Restart the cellular phone.

b. Register the cellular phone as a connected device again and check that the malfunction disappears.

**OK:**
**Malfunction disappears.**

NG → Go to step 6

OK

**END**

**6.CHECK CELLULAR PHONE**

a. Check if the cellular phone is "Bluetooth" compatible.

**HINT:**

Some versions of "Bluetooth" compatible cellular phones may not function.

**OK:**
**The phone is "Bluetooth" compatible.**

NG → END (ONLY A "Bluetooth" COMPATIBLE CELLULAR PHONE CAN BE USED)

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK SURROUNDING CONDITION

a. Check if the cellular phone can make calls in a certain location.

**OK:**
**Cellular phone can make calls.**

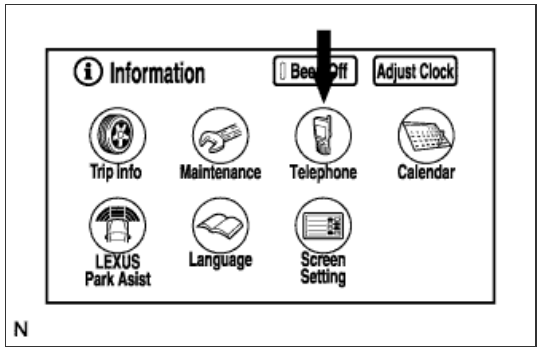
NG → END (CELLULAR PHONES CAN ONLY FUNCTION IN CELLULAR SERVICE AREAS)

OK

### 2.CHECK RECEPTION

a. Enter the "Information" screen by pressing the "INFO" switch.

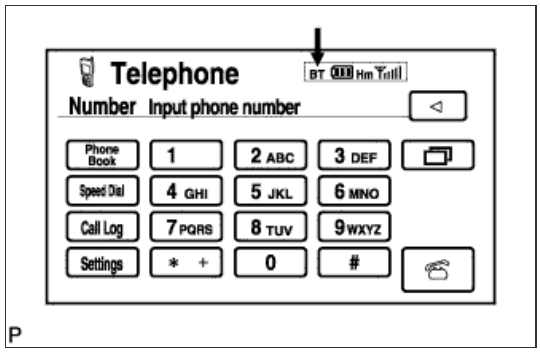
b. Select "Telephone".




c. Check the "BT" mark.

**Result**

| Result | Proceed to |
|---|---|
| Yellow color | A |
| Blue color (w/ Navigation System) | B |
| Blue color (w/o Navigation System) | C |
| No connection mark is displayed | D |




B → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

C → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

D → SELECT REGISTERED CELLULAR PHONE OR REGISTER "BLUETOOTH" COMPATIBLE PHONE

A

BRING CELLULAR PHONE TO LOCATION WHERE BT MARK TURNS BLUE

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CELLULAR PHONE

a. Check if the voice on the other side can be heard using a cellular phone.

**OK:**
**Voice can be heard.**

NG → REPLACE CELLULAR PHONE

OK

### 2.CHECK NAVIGATION SYSTEM

a. Check that voice guidance can be heard from the driver side speaker.

**OK:**
**Voice guidance can be heard.**

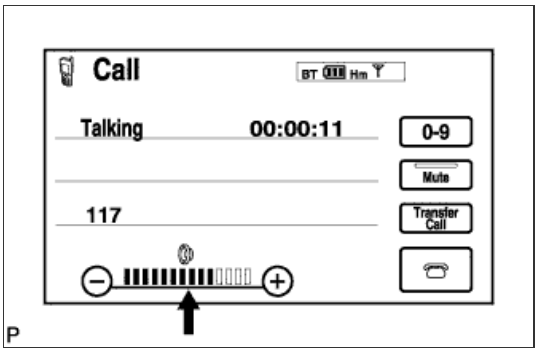
NG → GO TO "VOICE GUIDANCE DOES NOT FUNCTION" (Click here)

OK

### 3.CHECK SETTINGS

a. Check if the volume level is set to a low level on the Call screen.

**OK:**
**The level is not low.**




NG → SET VOLUME TO HIGH

OK

### 4.CHECK SETTINGS

a. Enter the "Handsfree Voice Quality Set" mode (Click here).

b. Check if the Receive Voice Level is set to "0".

**HINT:**

The Receive Voice Level can be set to 11 different levels, -5 to +5, with a 3 dB difference.

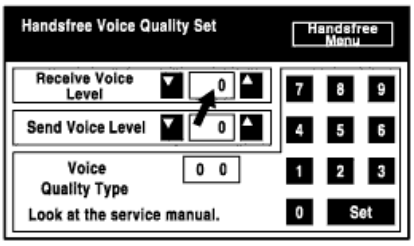
c. Check if the Receive Voice Level is set to the minimum or maximum level.

**HINT:**

When the Receive Voice Level is set to the minimum or maximum level, the sound may be distorted.

**OK:**

**The Receive Voice Level is set to "0".**




P

NG → SET RECEIVE VOICE LEVEL TO "0"

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CELLULAR PHONE

a. Check if the other caller's voice can be heard properly.

**OK:**
**Voice can be heard properly.**

**HINT:**

The purpose of this step is to inspect the cellular phone when it is not connected to the vehicle.

NG → REPAIR OR REPLACE CELLULAR PHONE

OK

### 2.CHECK AUDIO AND VISUAL SYSTEM

a. Check that audio and visual system sound can be heard from the front speaker.

**OK:**
**Sound from the audio system can be heard.**

NG → GO TO "VOICE GUIDANCE DOES NOT FUNCTION" IN PROBLEM SYMPTOMS TABLE (Click here)

OK

### 3.CHECK SETTINGS

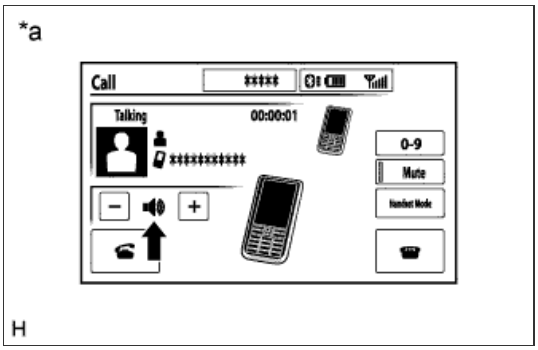
a. Display the "Call" screen.

b. Check that the volume level is not set to low.

**OK:**
**The level is not set to low.**

**Text in Illustration**

| | |
|---|---|
| *a | Example |




NG → SET VOLUME TO HIGH

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CELLULAR PHONE

a. Check if the other side can hear your voice properly.

**OK:**
**Your voice can be heard correctly.**

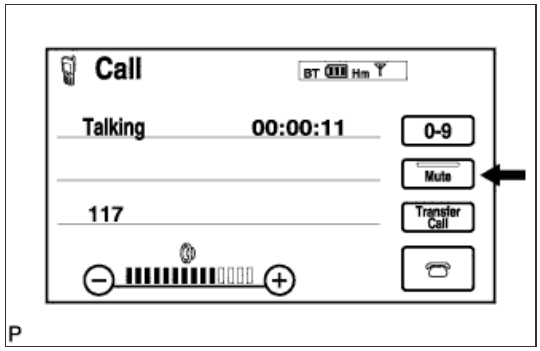
NG → REPLACE CELLULAR PHONE

OK

### 2.CHECK SETTINGS

a. Check if the mute switch is on.

**OK:**
**Mute switch is not on.**



P

NG → TURN MUTE SWITCH OFF

OK

### 3.CHECK SETTINGS

a. Enter the "Handsfree Voice Quality Set" mode (Click here).

b. Check if the Send Voice Level is set to "0".

**HINT:**

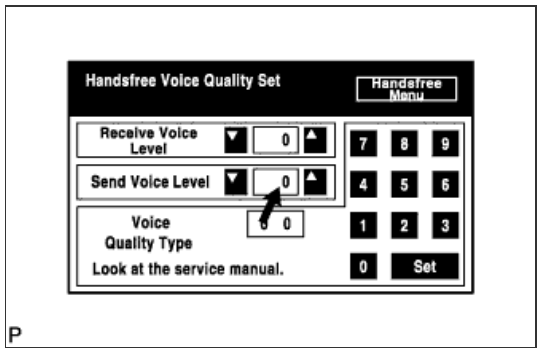
The Send Voice Level can be set to 11 different levels, -5 to +5, with a 3 dB difference.

c. Check if the Send Voice Level is set to the minimum or maximum level.

**HINT:**

When the Send Voice Level is set to the minimum or maximum level, the sound may be distorted.

**OK:**
**The Send Voice Level is set to "0".**



P

NG → SET SEND VOICE LEVEL TO "0"

OK

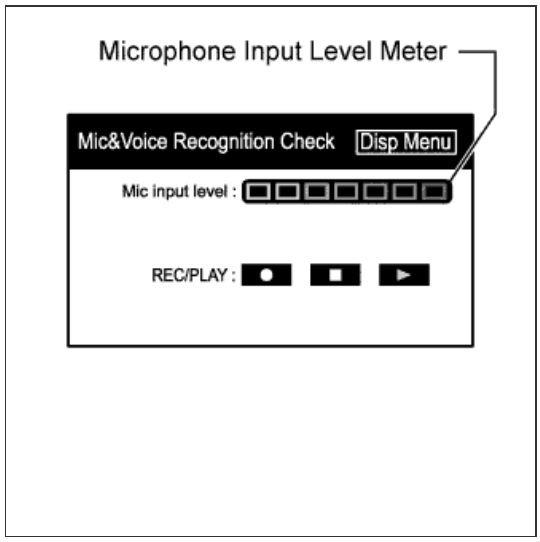
### 4.CHECK MICROPHONE (NAVIGATION CHECK MODE)

a. Enter the "Mic & Voice Recognition Check" mode ( Click here).

b. When a voice is input into the microphone, check that the microphone input level meter changes according to the input voice.

**OK:**

**All check results are normal.**




**Result**

| Result | Proceed to |
|---|---|
| OK (w/ Navigation System) | A |
| OK (w/o Navigation System) | B |
| NG | C |

**B** → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

**C** → GO TO "MICROPHONE CIRCUIT BETWEEN OVERHEAD J/B AND MULTI-DISPLAY" (Click here)

**A**

REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

If an outlet of the air conditioning system is facing the microphone, noise may be recorded and the other caller may not be able to hear your voice properly.

### 1.CHECK CELLULAR PHONE

a. Check if the other caller can hear your voice properly.

**OK:**
**Your voice can be heard properly.**

**HINT:**

The purpose of this step is to inspect the cellular phone when it is not connected to the vehicle.

NG → REPLACE CELLULAR PHONE

OK

### 2.CHECK SETTINGS

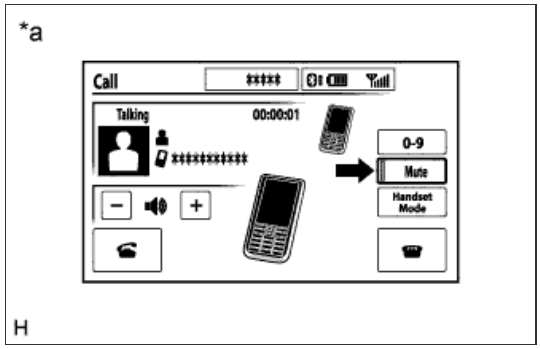
a. Display the "Call" screen.

b. Check if the "Mute" switch is set to on.

**OK:**
**"Mute" switch is not set to on.**

Text in Illustration

| | |
|---|---|
| *a | Example |




NG → TURN "Mute" SWITCH OFF

OK

### 3.CHECK MICROPHONE (OPERATION CHECK)

a. Enter the "Microphone&Voice Recognition Check" screen. Refer to Check Mic & Voice Recognition in Operation Check (Click here).

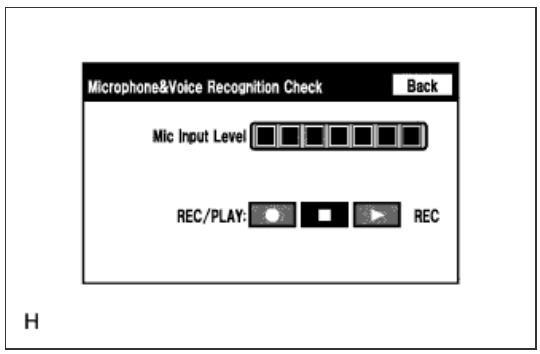
b. When voice is input into the microphone, check that the microphone input level meter changes according to the input voice.

c. Select the recording switch and perform voice recording.

- Select the recording switch with the blower motor of the air conditioning system stopped. If an outlet of the air conditioning system is facing the microphone, noise may be recorded.
- Voice can be recorded up to 5 seconds.

d. Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.

**OK:**



All check results are normal.

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK PORTABLE PLAYER SETTINGS

a. Check the portable player settings.

i. Check that the volume is not set to "0".

ii. Check that the mute is off.

b. Check that the sound of the portable player can be heard from the speakers.

**OK:**
**Sound of the portable player can be heard from the speakers.**

NG → Go to step 2

OK ↓

END

### 2.CHECK AUDIO SETTINGS

a. Check the audio settings.

i. Check that the volume is not set to "0".

b. Check that the sound of the portable player can be heard from the speakers.

**OK:**
**Sound of the portable player can be heard from the speakers.**

NG → Go to step 3

OK ↓

END

### 3.CHECK USING ANOTHER "Bluetooth" AUDIO COMPATIBLE VEHICLE OF SAME MODEL

a. Check that the sound of the portable player can be heard from the speakers on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**Sound of the portable player can be heard from the speakers.**

NG → MALFUNCTION IN PORTABLE PLAYER

OK ↓

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

Even if the portable player can play audio content, it may not be able to play via the in-vehicle device. This does not necessarily indicate a malfunction of the in-vehicle device.

### 1.CHECK OPERATION

a. Check if the portable player operates normally.

**OK:**
**The portable player operates normally.**

NG → MALFUNCTION IN PORTABLE PLAYER

OK

### 2.CHECK AUDIO SETTINGS

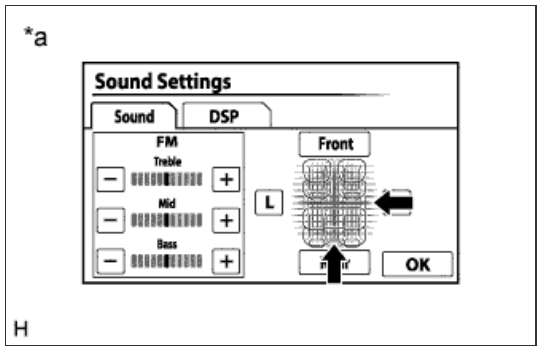
a. Enter the "Sound Settings" screen by pressing the "Sound" switch on the audio display.

b. Set volume, fader and balance to the initial values and check that sound is normal.

**OK:**
**Audio system returns to normal.**

**HINT:**

Sound quality adjustment measures vary according to the type of the amplifier.




**Text in Illustration**

| | |
|---|---|
| *a | Example |

NG → SET VOLUME TO HIGH AND TURN MUTE OFF

OK

### 3.CHECK USING ANOTHER "Bluetooth" AUDIO COMPATIBLE VEHICLE OF SAME MODEL

a. Check if the "Bluetooth" audio player plays normally on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**"Bluetooth" audio plays normally.**

NG → MALFUNCTION IN PORTABLE PLAYER

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

# AUDIO AND VISUAL SYSTEM > Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.CHECK USING ANOTHER "Bluetooth" AUDIO COMPATIBLE VEHICLE OF SAME MODEL**

a. Check if track information is displayed normally on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**Track information is displayed normally.**

NG → **PORTABLE PLAYER IS NOT COMPATIBLE**

OK ↓

**PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)**

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

- **Perform this check with the portable player volume set at an appropriate level.**
- **Make sure that there are no obstructions between the portable player and multi-media module receiver assembly that may block signals, and that the portable player and multi-media module receiver assembly are not excessively far apart.**
- **Make sure that devices other than the multi-media module receiver assembly are not connected to the portable player.**
- **Make sure that there is no interference from a wireless LAN, etc.**

**1.CHECK USING ANOTHER "Bluetooth" AUDIO COMPATIBLE VEHICLE OF SAME MODEL**

a. Check that the same problem does not occur in the sound heard from the speakers on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**The same problem does not occur in the sound heard from the speakers.**

NG → **MALFUNCTION IN PORTABLE PLAYER**

OK

**2.REMOVE ADDITIONAL DEVICES WHICH USE RADIO WAVES**

a. Remove additional devices which use radio waves.

b. Play the portable player and check that the same problem does not occur in the sound heard from the speakers.

**OK:**
**The same problem does not occur in the sound heard from the speakers.**

NG → **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)**

OK

**END**

**for Preparation** Click here

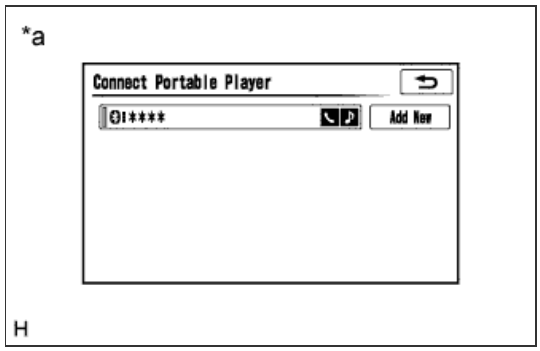
## INSPECTION PROCEDURE

**HINT:**

Some versions of "Bluetooth" compatible audio players may not function, or the function may be limited using the multi-media module receiver assembly, even if the portable audio player itself can play files (Click here).

### 1.CHECK CONNECTED DEVICE SETTINGS

a. Display the "Select Portable Player" screen and check if the portable player is registered as a connected device.




**NOTICE:**

If a cellular phone is used as a portable player, it must be registered independently from the registration that is performed for the hands-free system.

**HINT:**

Only 2 portable players can be registered.

**Text in Illustration**

| | |
|---|---|
| *a | Example |

**Result**

| Result | Proceed to |
|---|---|
| The portable player is registered as a connected device. | A |
| The portable player is not registered as a connected device. | B |

B → REGISTER PORTABLE PLAYER AS CONNECTED DEVICE

A

### 2.CHECK SYMPTOMS

a. Check the connection condition between the portable player and multi-media module receiver assembly.

**HINT:**
**The portable player cannot be connected when any of the following conditions are met:**

- **The portable player is connected to another device.**
- **The portable player is connected to the multi-media module receiver assembly using the hands-free function.**
- **The multi-media module receiver assembly has cleared the portable player registration.**
- **The portable player is off.**

**Result**

| Result | Proceed to |
|---|---|
| The portable player cannot be connected automatically. | A |
| The portable player cannot be connected manually. | B |

B → Go to step 4

A

## 3.CHECK AUTOMATIC CONNECTION SETTINGS

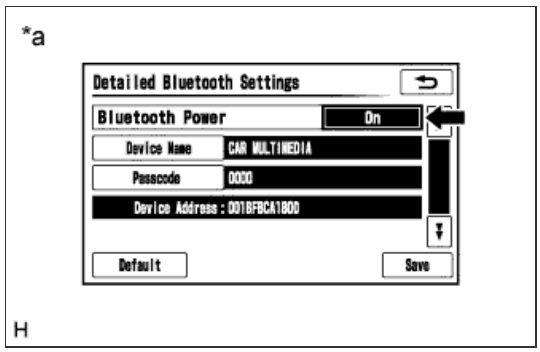
a. Display the "Detailed Bluetooth settings" screen and check automatic connection settings of the "Bluetooth" audio.

i. Check if "On" is displayed for "Bluetooth Power" on the "Detailed Bluetooth settings" screen.

**OK:**
**"On" is displayed for "Bluetooth Power".**

**Text in Illustration**

| | |
|---|---|
| *a | Example |




NG → CHANGE "Bluetooth Power" TO "ON"

OK

## 4.CHECK PORTABLE PLAYER STATUS

a. Check the status of the portable player.

i. Check that the portable player is in standby mode.

ii. Check that the portable player is not connected to another device (headphones etc.).

**OK:**
**The portable player is not in standby mode and not connected to another device (headphones etc.).**

NG → TAKE PORTABLE PLAYER OUT OF STANDBY MODE AND DISCONNECT OTHER DEVICES (HEADPHONES etc.)

OK

## 5.CHECK USING ANOTHER "Bluetooth" AUDIO COMPATIBLE VEHICLE OF SAME MODEL

a. Check if the portable player can be connected manually/automatically on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**The portable player can be connected manually/automatically.**

NG → PORTABLE PLAYER IS NOT COMPATIBLE

OK

## 6.REMOVE ADDITIONAL DEVICES WHICH USE RADIO WAVES

a. Remove additional devices which use radio waves.

b. Check if the portable player can be connected manually/automatically.

**OK:**
**The portable player can be connected manually/automatically.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

```
END
```

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.DELETE REGISTERED DEVICE**

a. Check if a registered portable player can be deleted normally.

**OK:**
**Registered portable player can be deleted normally.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

**END**

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

Some versions of "Bluetooth" compatible audio players may not function, or the function may be limited using the multi-media module receiver assembly, even if the portable audio player itself can play files (Click here).

### 1.CHECK THAT PORTABLE PLAYER IS "Bluetooth" AUDIO COMPATIBLE

a. Check if the portable player is "Bluetooth" audio compatible.

**Result**

| Result | Proceed to |
|---|---|
| The portable player is "Bluetooth" audio compatible. | A |
| The portable player is not "Bluetooth" audio compatible. | B |

B → USE A "Bluetooth" AUDIO COMPATIBLE PORTABLE PLAYER

A

### 2.CHECK CONNECTION PROCEDURE OF CONNECTED DEVICE

a. Referring to the owner's manual, correctly register the portable player.

b. Check that the portable player can be registered as a connected device.

**HINT:**
**The portable player cannot be registered when any of the following conditions are met:**

- **The A2DP (Advanced Audio Distribution Profile) is not used when registering a cellular phone.**
- **A different portable player registration remains in the multi-media module receiver assembly.**
- **A different multi-media module receiver assembly registration remains in the portable player.**
- **The portable player is off.**

**OK:**
**The portable player has been registered as a connected device.**

NG → Go to step 3

OK

END

### 3.CHECK USING ANOTHER "Bluetooth" AUDIO COMPATIBLE VEHICLE OF SAME MODEL

a. Check if the portable player can be registered normally on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**The portable player can be registered.**

NG → MALFUNCTION IN PORTABLE PLAYER

OK

### 4.REMOVE ADDITIONAL DEVICES WHICH USE RADIO WAVES

a. Remove additional devices which use radio waves.

b. Check that the portable player can be registered as a connected device.

**OK:**
**The portable player can be registered.**

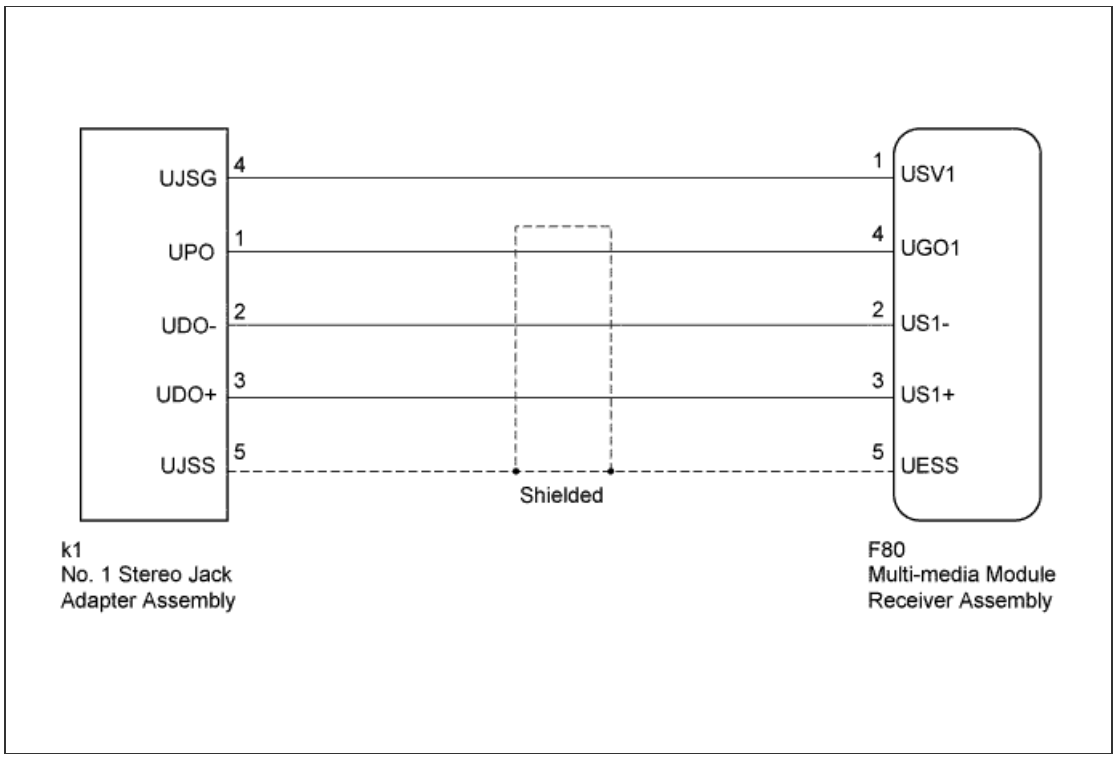
NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

END

**for Preparation** Click here

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**HINT:**

- **When a large amount of data is in a USB device, it may take a while before play begins.**
- **When using a USB device, files that are copy protected or encrypted due to copyright reasons cannot be played.**
- **When files are not played in the sorted order, perform the following procedure before inspection.**
  1. **Add numbers in front of the file names.**
  2. **Put the files in a folder and copy the folder data to the USB device.**

### 1.CHECK USB DEVICE OR "iPod"

a. Disconnect the USB device or "iPod" from the No. 1 stereo jack adapter assembly.

b. Check if playable files are present on the USB device or "iPod".

**HINT:**

Refer to System Description for playable files ( Click here).

c. Check if the USB device is a compatible format or "iPod" is a compatible version.

**HINT:**

Refer to System Description for compatible formats and versions ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| No playable files exist, or incompatible device format or version. | A |
| Playable files exist, and compatible device format or version. | B |

B → Go to step 2

A

USB DEVICE FORMAT WAS INCOMPATIBLE, "iPod" VERSION WAS INCOMPATIBLE, OR NO PLAYABLE FILES PRESENT

2.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - NO. 1 STEREO JACK ADAPTER ASSEMBLY)

a. Disconnect the F80 multi-media module receiver assembly connector.

b. Disconnect the k1 No. 1 stereo jack adapter assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F80-1 (USV1) - k1-4 (UJSG) | Always | Below 1 Ω |
| F80-2 (US1-) - k1-2 (UDO-) | Always | Below 1 Ω |
| F80-3 (US1+) - k1-3 (UDO+) | Always | Below 1 Ω |
| F80-4 (UGO1) - k1-1 (UPO) | Always | Below 1 Ω |
| F80-5 (UESS) - k1-5 (UJSS) | Always | Below 1 Ω |
| F80-1 (USV1) - Body ground | Always | 10 kΩ or higher |
| F80-2 (US1-) - Body ground | Always | 10 kΩ or higher |
| F80-3 (US1+) - Body ground | Always | 10 kΩ or higher |
| F80-4 (UGO1) - Body ground | Always | 10 kΩ or higher |
| F80-5 (UESS) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3.CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY

a. Reconnect the multi-media module receiver assembly connector.

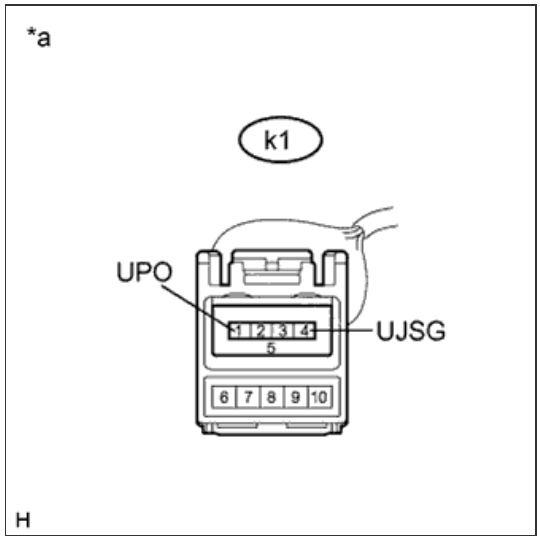
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| k1-1 (UPO) - k1-4 (UJSG) | Engine switch on (ACC) | 4.5 to 5.5 V |

**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to No. 1 Stereo Jack Adapter Assembly) |




NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

4.FORMAT USB DEVICE OR RESTORE "iPod" AND RECHECK

a. Delete all files in the USB device or "iPod" and format/restore it.

b. Save the data again and check if it can be played on the in-vehicle device.

**NOTICE:**

Formatting a USB device or restoring an "iPod" erases all music on the device.

Ensure that backup music data is available before performing this operation.

**OK:**
**Malfunction disappears.**

NG → Go to step 5

OK

END

5.REPLACE USB DEVICE OR "iPod"

a. Turn the engine switch off.

**HINT:**

When this malfunction occurs, it is necessary to turn off the engine switch to make it possible for the vehicle to recognize a new device when it is connected.

b. Turn the engine switch on (ACC).

c. Connect a known good USB device or "iPod" to the No. 1 stereo jack adapter assembly.

**HINT:**

- **If the malfunction occurred when a USB device was in use, use another USB device for the inspection. If the malfunction occurred when an "iPod" was in use, use another "iPod" for the inspection.**
- **Refer to System Description for compatible formats and versions (Click here).**

NEXT

6.CHECK USB DEVICE OR "iPod"

a. Check if the USB device or "iPod" is recognized by the multi-media module receiver assembly, or if information such as track, artist and album names are displayed on the screen.

**OK:**
**USB device or "iPod" is recognized or track information such as track, artist and album names are displayed.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

USB DEVICE OR "iPod" WAS INCOMPATIBLE OR DEFECTIVE

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK DISPLAY SETTING

a. Check that the display is not in "Screen Off" mode.

**OK:**
**The display setting is not in "Screen Off" mode.**

NG → CHANGE SCREEN TO SCREEN ON MODE

OK

### 2.CHECK IMAGE QUALITY SETTING

a. Check that the screen color quality can be set.

**OK:**
**Setting is possible.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

SET SCREEN COLOR QUALITY TO NORMAL

**for Preparation** Click here

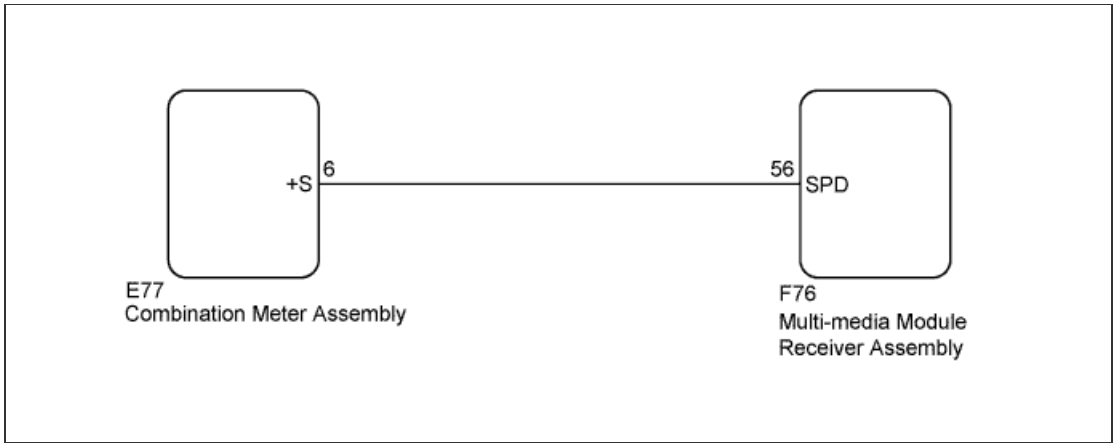
## DESCRIPTION

The multi-media module receiver assembly receives a vehicle speed signal from the combination meter assembly for DVD viewing restriction while driving, parallel parking mode of the parking assist monitor system, etc.

**HINT:**

- **A voltage of 12 V or 5 V is output from each ECU and then input to the combination meter assembly. The signal is changed to a pulse signal at the transistor in the combination meter assembly. Each ECU controls the respective system based on the pulse signal.**
- **If a short occurs in any of the ECUs or in the wire harness connected to an ECU, all systems in the following diagram will not operate normally.**

## WIRING DIAGRAM

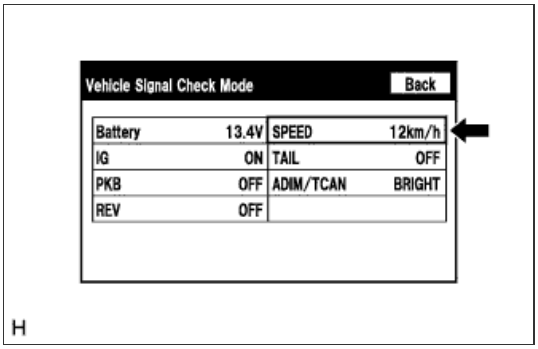



## INSPECTION PROCEDURE

### 1.CHECK VEHICLE SIGNAL (OPERATION CHECK)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal Check Mode in Operation Check (Click here).

b. While driving the vehicle, compare the "SPEED" indicator to the reading on the speedometer. Check if these readings are almost equal.




**HINT:**

The combination meter assembly receives the vehicle speed signal from the skid control ECU via CAN communication. Therefore, perform the following inspection referring to values on the Data List of the skid control ECU because it is the source of the vehicle speed signal.

**OK:**

**Vehicle speed displayed on the "Vehicle Signal Check Mode" screen is almost the same as the actual vehicle speed measured using the intelligent tester (Click here).**

**NG** → **Go to step 2**

**OK**

**REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)**

### 2.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - COMBINATION METER ASSEMBLY)

a. Disconnect the F76 multi-media module receiver assembly connector.

b. Disconnect the E77 combination meter assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-56 (SPD) - E77-6 (+S) | Always | Below 1 Ω |
| F76-56 (SPD) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

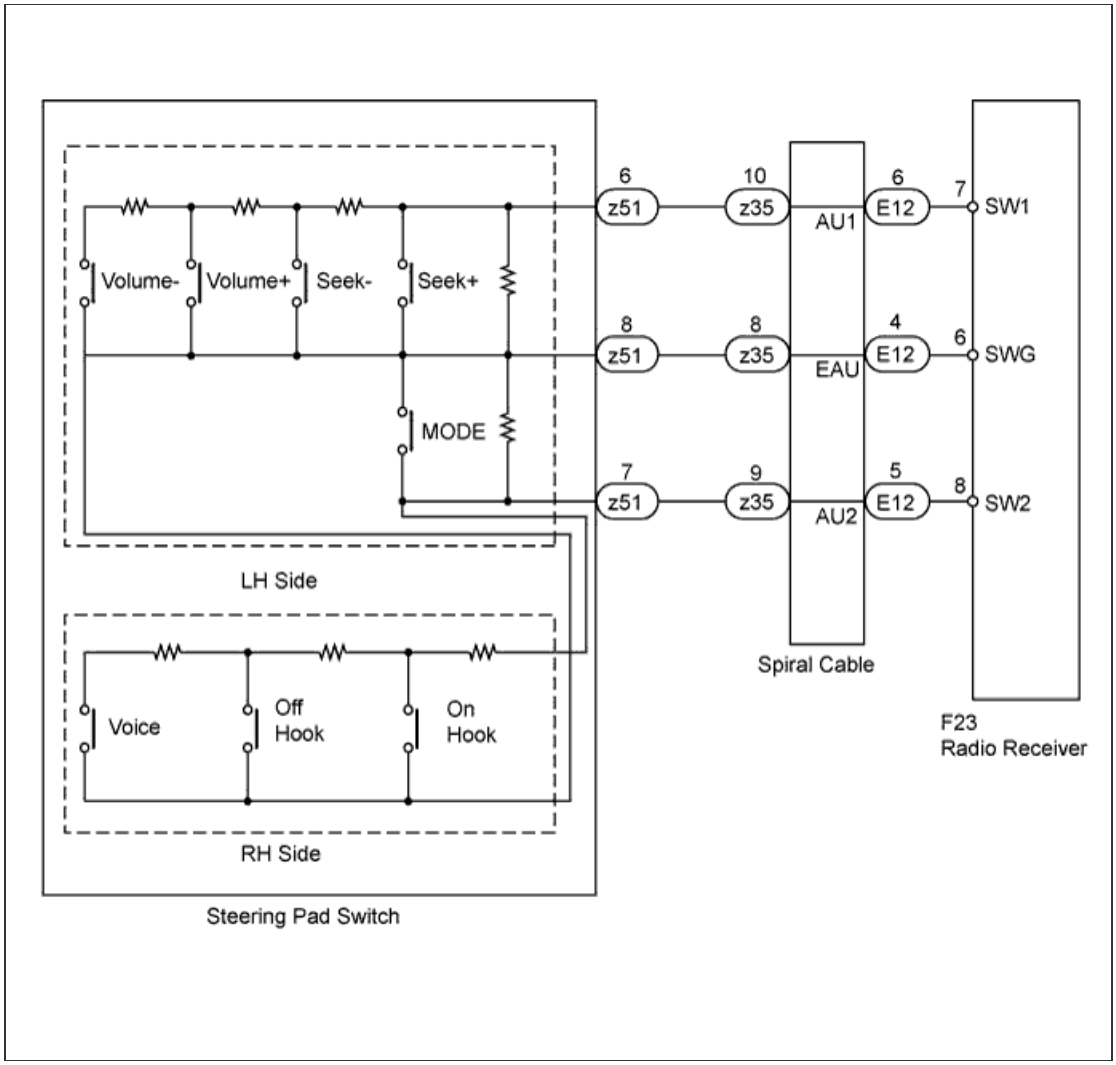
REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit sends an operation signal from the steering pad switch to the radio receiver.
If there is an open in the circuit, the navigation system cannot be operated using the steering pad switch.
If there is a short in the circuit, the resulting condition is the same as if the switch were continuously depressed. Therefore, the navigation system cannot be operated using the steering pad switch, and the navigation system itself cannot function.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**CAUTION:**

The vehicle is equipped with an SRS (Supplemental Restraint System) which includes components such as airbags. Before servicing (including removal or installation of parts), be sure to read the Precaution for the SRS (Click here).

### 1.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - SPIRAL CABLE)

a. Disconnect the F23 receiver connector.

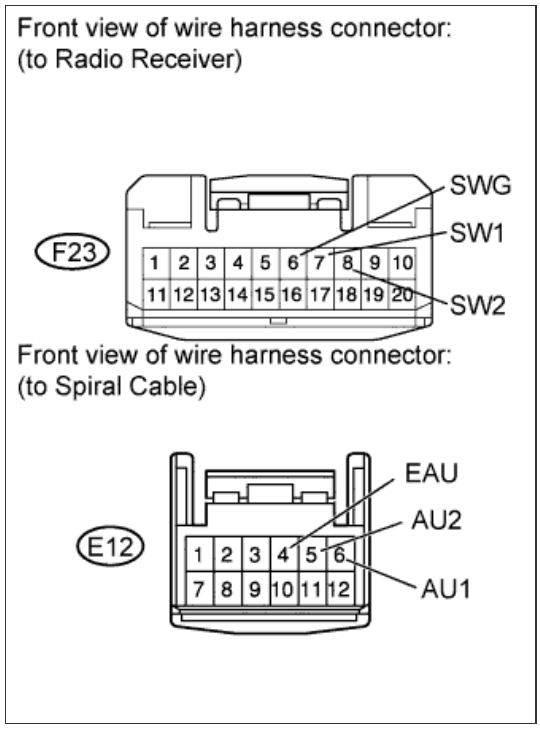
b. Disconnect the E12 cable connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| | | Specified |
|---|---|---|

| Tester Connection | Condition | Condition |
|---|---|---|
| F23-8 (SW2) - E12-5 (AU2) | Always | Below 1 Ω |
| F23-6 (SWG) - E12-4 (EAU) | | |
| F23-7 (SW1) - E12-6 (AU1) | | |
| F23-8 (SW2) - Body ground | Always | 10 kΩ or higher |
| F23-6 (SWG) - Body ground | | |
| F23-7 (SW1) - Body ground | | |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 2.CHECK NO. 1 SWITCH WIRE

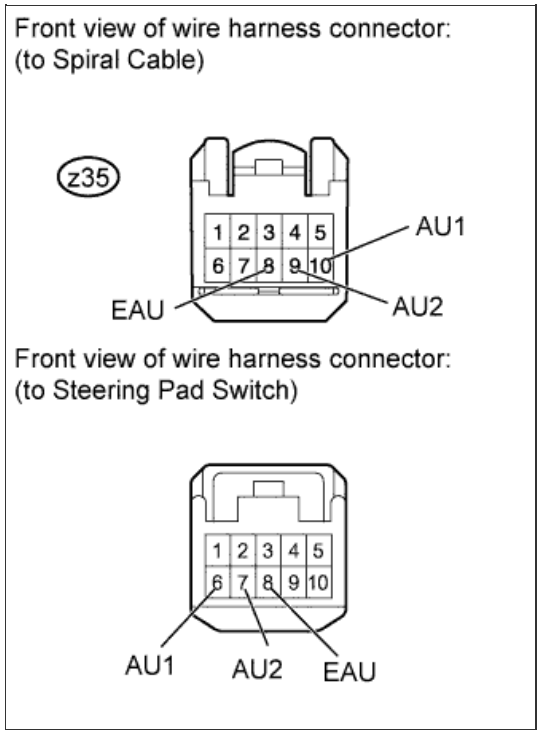
a. Disconnect the z35 cable connector.

b. Disconnect the switch connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

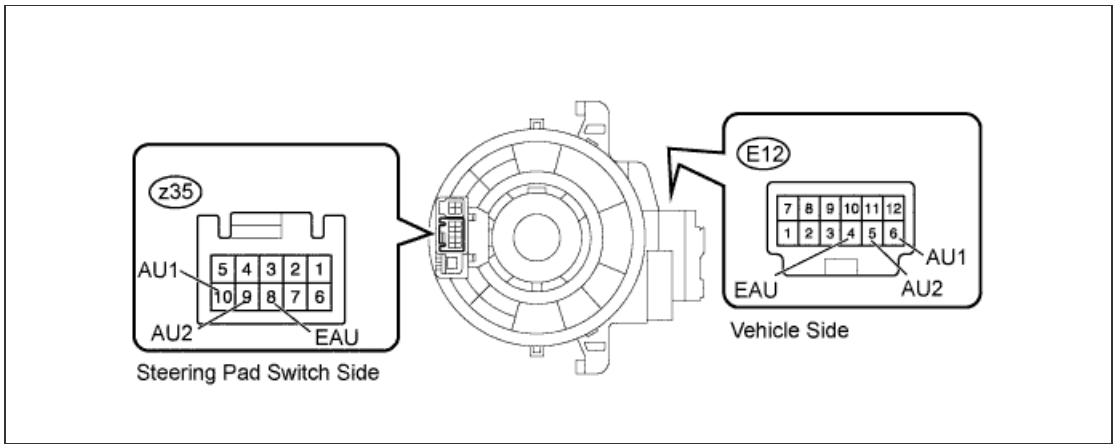
| Tester Connection | Condition | Specified Condition |
|---|---|---|
| z35-8 (EAU) - 8 (EAU) | Always | Below 1 Ω |
| z35-9 (AU2) - 7 (AU2) | | |
| z35-10 (AU1) - 6 (AU1) | | |




NG → REPLACE NO. 1 SWITCH WIRE

OK

## 3.INSPECT SPIRAL CABLE SUB-ASSEMBLY




a. Disconnect the z35 and E12 cable connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E12-4 (EAU) - z35-8 (EAU) | Spiral cable is turned 2.5 rotations counterclockwise | Below 3 Ω |
| | Spiral cable is centered | |
| | Spiral cable is turned 2.5 rotations clockwise | |
| E12-5 (AU2) - z35-9 (AU2) | Spiral cable is turned 2.5 rotations counterclockwise | Below 3 Ω |
| | Spiral cable is centered | |
| | Spiral cable is turned 2.5 rotations clockwise | |
| E12-6 (AU1) - z35-10 (AU1) | Spiral cable is turned 2.5 rotations counterclockwise | Below 3 Ω |
| | Spiral cable is centered | |
| | Spiral cable is turned 2.5 rotations clockwise | |

**CAUTION:**

The spiral cable is an important part of the SRS airbag system. Incorrect removal or installation of the spiral cable may prevent the airbag from deploying. Be sure to read the Precaution for the SRS (Click here).

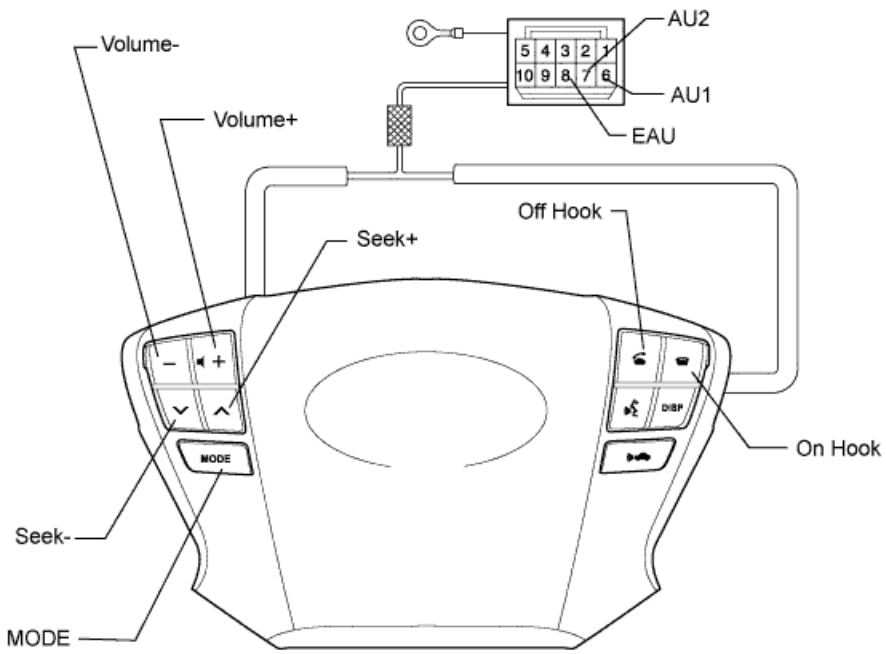
NG → REPLACE SPIRAL CABLE SUB-ASSEMBLY (Click here)

OK

**4.INSPECT STEERING PAD SWITCH**

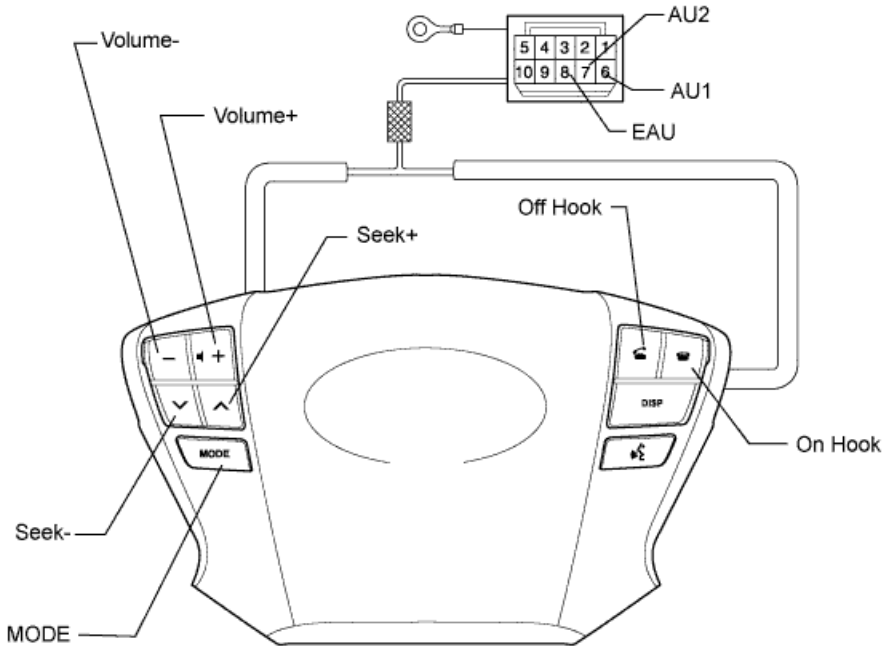
a. Disconnect the z51 switch connector.

w/ Dynamic Radar Cruise Control System:




T

w/o Dynamic Radar Cruise Control System:




T

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| 6 (AU1) - 8 (EAU) | No switch is pushed | 100 kΩ |

| | | |
|---|---|---|
| 6 (AU1) - 8 (EAU) | Seek+ switch pushed | Below 2.5 Ω |
| 6 (AU1) - 8 (EAU) | Seek- switch pushed | 329 Ω |
| 6 (AU1) - 8 (EAU) | Volume+ switch pushed | 1000 Ω |
| 7 (AU1) - 8 (EAU) | Volume- switch pushed | 3110 Ω |
| 7 (AU2) - 8 (EAU) | No switch is pushed | 100 kΩ |
| 7 (AU2) - 8 (EAU) | MODE switch pushed | Below 2.5 Ω |
| 7 (AU2) - 8 (EAU) | On hook switch pushed | 329 Ω |
| 7 (AU2) - 8 (EAU) | Off hook switch pushed | 1000 Ω |
| 7 (AU2) - 8 (EAU) | Voice switch pushed | 3110 Ω |

NG → REPLACE STEERING PAD (Click here)

OK

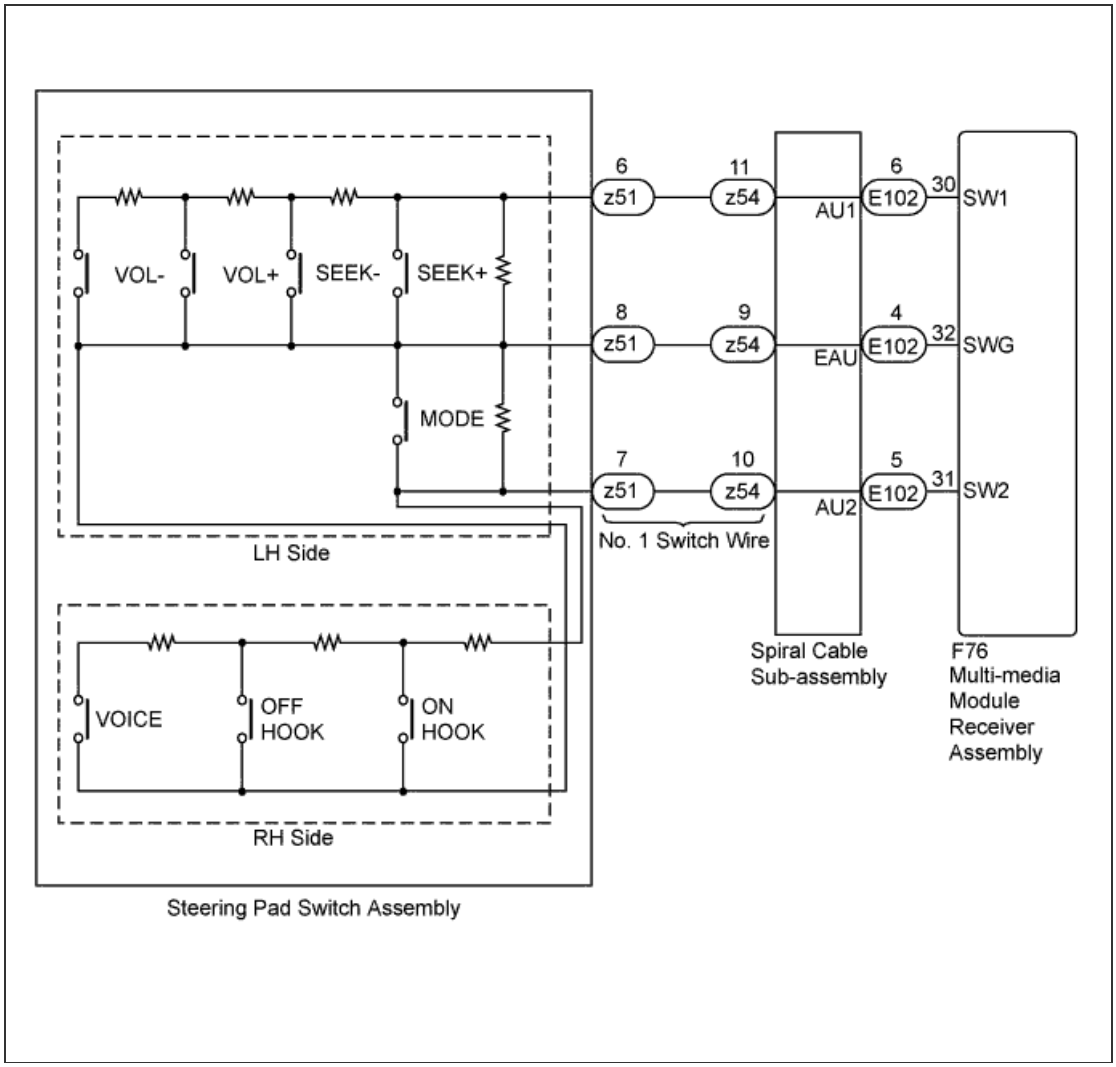
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit sends an operation signal from the steering pad switch assembly to the multi-media module receiver assembly.
If there is an open in the circuit, the audio system cannot be operated using the steering pad switch assembly.
If there is a short in the circuit, the same condition as when a switch is continuously depressed occurs.
Therefore, the multi-media module receiver assembly cannot be operated using the steering pad switch assembly, and also the multi-media module receiver assembly itself cannot function.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

The vehicle is equipped with a Supplemental Restraint System (SRS) which includes components such as airbags. Before servicing (including removal or installation of parts), be sure to read the precaution for Supplemental Restraint System (Click here).

### 1.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA NODULE RECEIVER ASSEMBLY - SPIRAL CABLE SUB-ASSEMBLY)

a. Disconnect the F76 multi-media module receiver assembly connector.

b. Disconnect the E102 spiral cable sub-assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F76-30 (SW1) - | | |

| | | |
|---|---|---|
| E102-6 (AU1) | Always | Below 1 Ω |
| F76-31 (SW2) - E102-5 (AU2) | Always | Below 1 Ω |
| F76-32 (SWG) - E102-4 (EAU) | Always | Below 1 Ω |
| F76-30 (SW1) - Body ground | Always | 10 kΩ or higher |
| F76-31 (SW2) - Body ground | Always | 10 kΩ or higher |
| F76-32 (SWG) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**2.CHECK NO. 1 SWITCH WIRE**

a. Disconnect the z54 and z51 No. 1 switch wire connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| z54-11 - z51-6 | Always | Below 1 Ω |
| z54-9 - z51-8 | Always | Below 1 Ω |
| z54-10 - z51-7 | Always | Below 1 Ω |
| z54-11 - Body ground | Always | 10 kΩ or higher |
| z54-9 - Body ground | Always | 10 kΩ or higher |
| z54-10 - Body ground | Always | 10 kΩ or higher |

NG → REPLACE NO. 1 SWITCH WIRE

OK

**3.INSPECT STEERING PAD SWITCH ASSEMBLY**

a. Remove the steering pad switch assembly (Click here).

b. Inspect the steering pad switch assembly (Click here).

NG → REPLACE STEERING PAD SWITCH ASSEMBLY (**Click here**)

OK

**4.INSPECT SPIRAL CABLE SUB-ASSEMBLY**

a. Remove the spiral cable sub-assembly (Click here).

b. Inspect the spiral cable sub-assembly (Click here).

NG → REPLACE SPIRAL CABLE SUB-ASSEMBLY (**Click here**)

OK

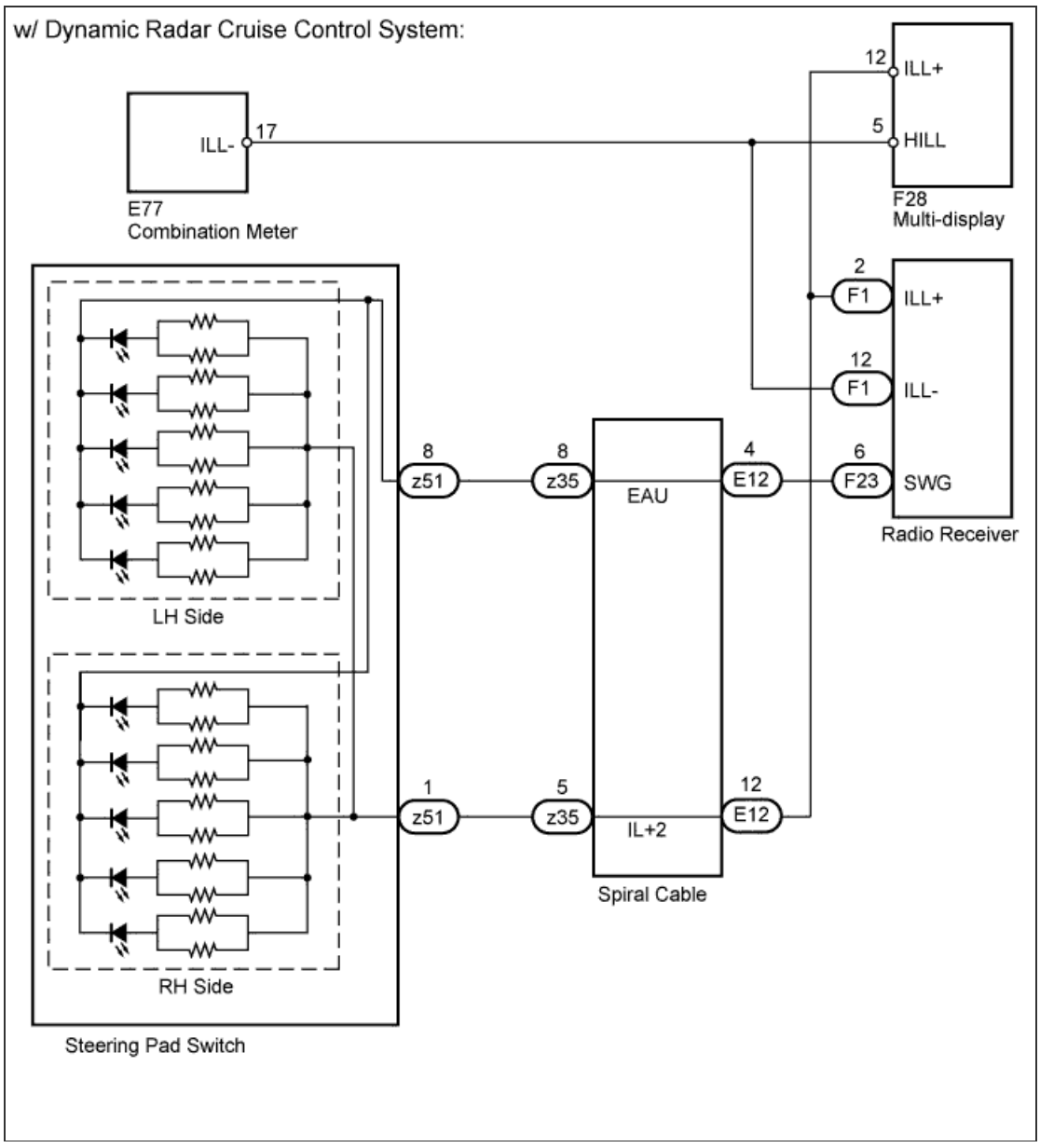
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (**Click here**)

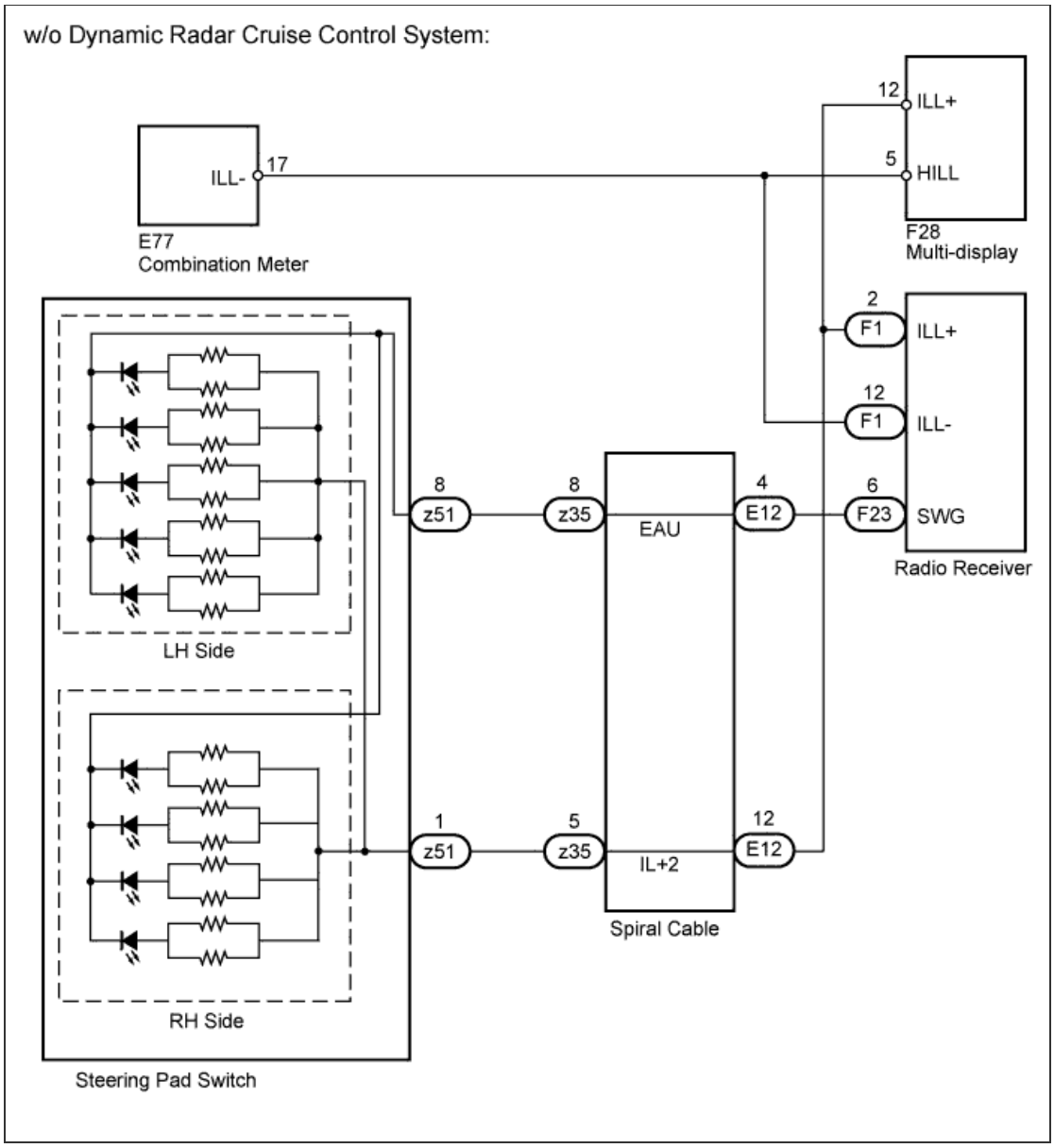
**for Preparation** Click here

## DESCRIPTION

Power is supplied to the multi-display, radio receiver and steering pad switch illumination when the light control switch is in the tail or head position.

## WIRING DIAGRAM






## INSPECTION PROCEDURE

**CAUTION:**

The vehicle is equipped with an SRS (Supplemental Restraint System) which includes components such as airbags. Before servicing (including removal or installation of parts), be sure to read the Precaution for the SRS (Click here).

### 1.CHECK ILLUMINATION

a. Check if the illumination for the multi-display, steering pad switch, glove box light, cigarette lighter, or others (seat heater switch, front seat memory switch, etc.) comes on when the light control switch is turned to the head or tail position.

**Result**

| Result | Proceed to |
|---|---|
| Illumination comes on for all components except steering pad switch. | A |
| Illumination comes on for all components except radio receiver. | B |
| Illumination comes on for all components except multi-display. | C |
| No illumination comes on for radio receiver, multi-display, glove box light, front seat memory switch, cigarette lighter, etc. | D |

| | |
|---|---|
| B | Go to step 7 |
| C | Go to step 8 |
| D | GO TO LIGHTING SYSTEM (Click here) |

A

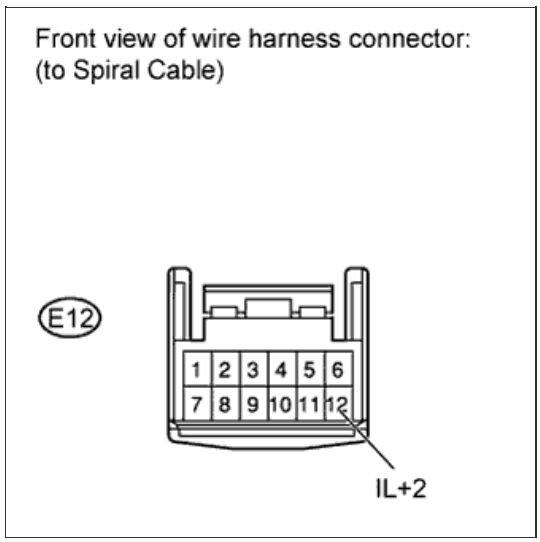
## 2.CHECK HARNESS AND CONNECTOR (BATTERY - SPIRAL CABLE)

a. Disconnect the E12 cable connector.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

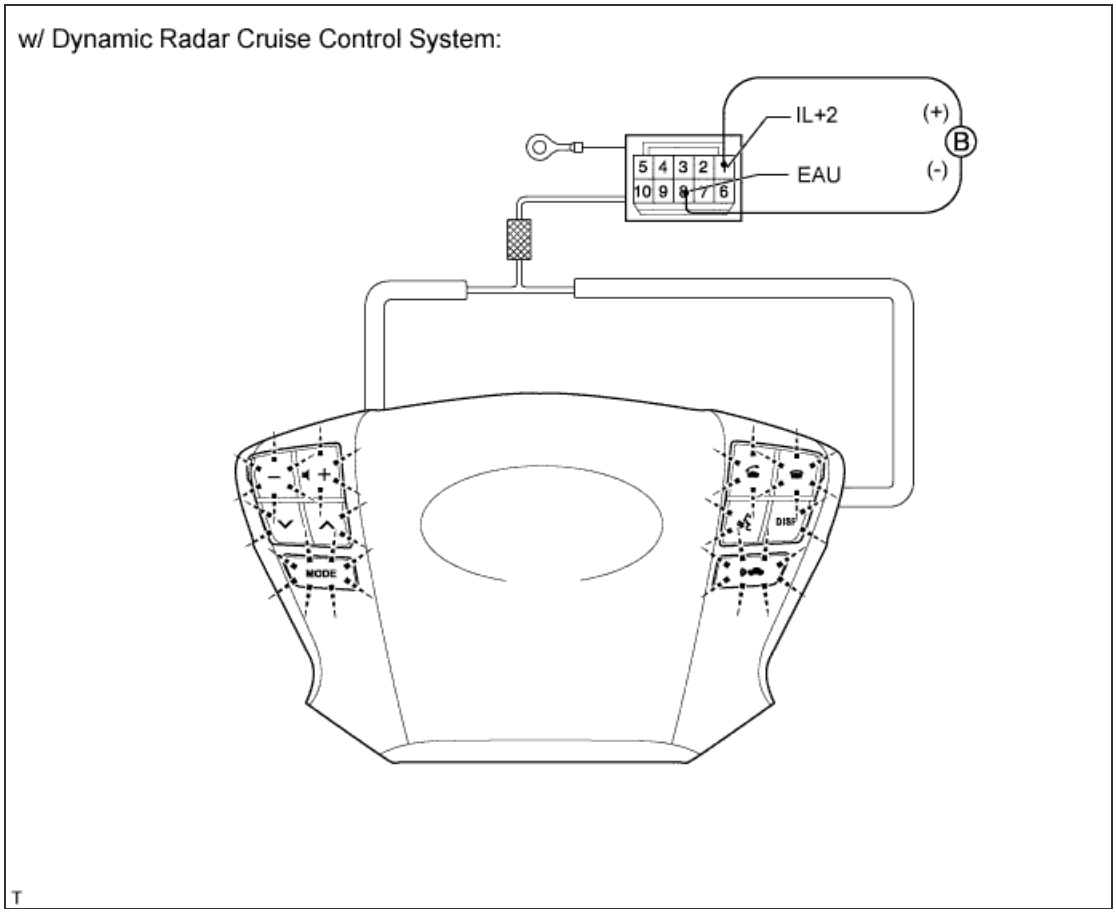
| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E12-12 (IL+2) - Body ground | Always | 11 to 14 V |



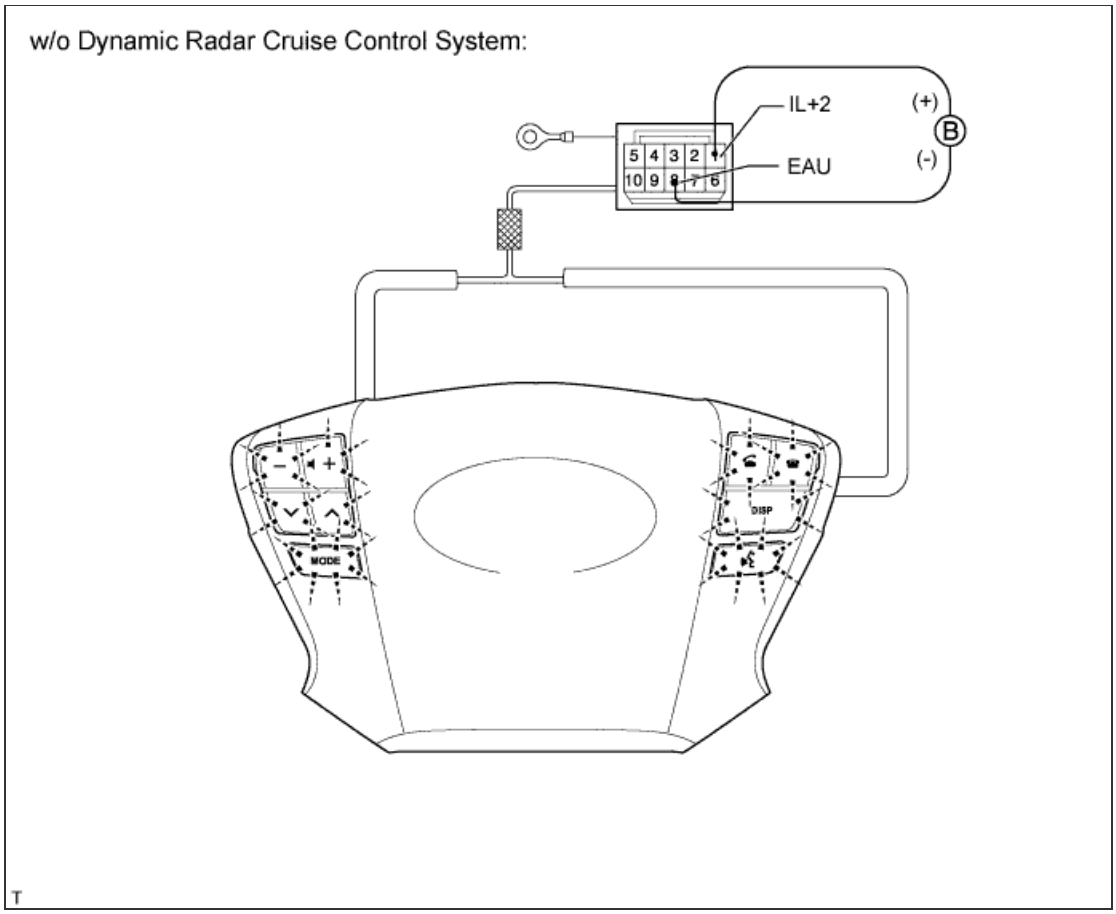

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 3.CHECK STEERING PAD SWITCH (STEERING PAD SIDE)




T




a. Disconnect the z51 switch connector.

b. Apply battery voltage to the connector, and check the LED illumination condition.

**OK:**

| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 1 (IL+2)<br>Battery negative (-) → Terminal 8 (EAU) | LED illuminates |

NG → REPLACE STEERING PAD (Click here)

OK

**4.CHECK NO. 1 SWITCH WIRE**

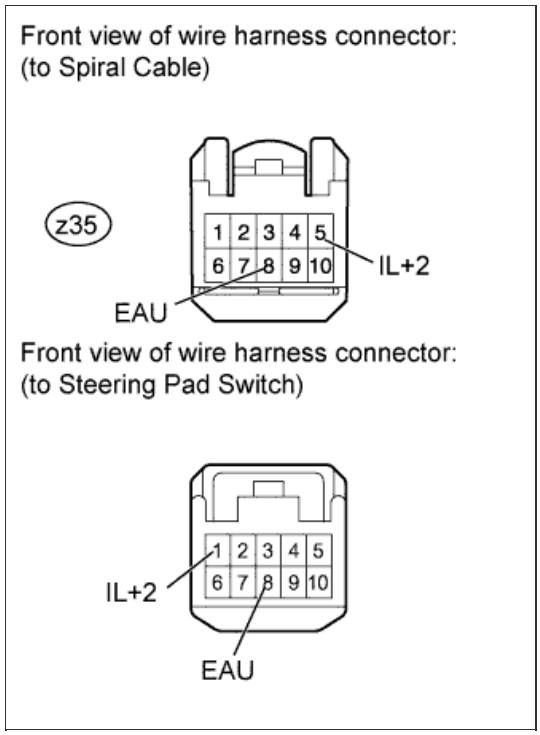
a. Disconnect the z35 cable connector.

b. Disconnect the switch connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

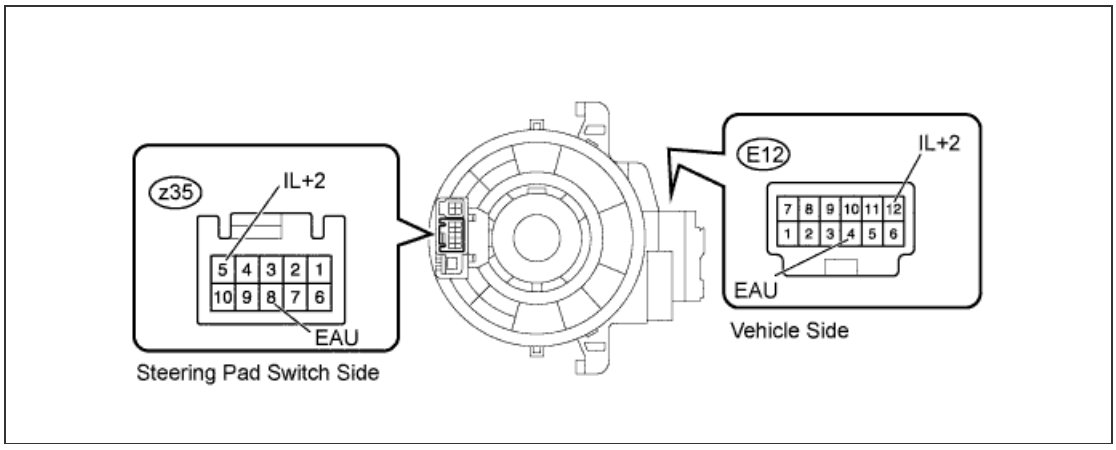
| Tester Connection | Condition | Specified Condition |
|---|---|---|
| z35-5 (IL+2) - 1 (IL+2) | Always | Below 1 Ω |
| z35-8 (EAU) - 8 (EAU) | | |




NG → REPLACE NO. 1 SWITCH WIRE

OK

## 5.INSPECT SPIRAL CABLE SUB-ASSEMBLY




a. Disconnect the E12 and z35 cable connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E12-12 (IL+2) - z35-5 (IL+2) | Spiral cable is turned 2.5 rotations counterclockwise | Below 3 Ω |
| | Spiral cable is centered | |
| | Spiral cable is turned 2.5 rotations clockwise | |
| E12-4 (EAU) - z35-8 (EAU) | Spiral cable is turned 2.5 rotations counterclockwise | Below 3 Ω |
| | Spiral cable is | |

| | | |
|---|---|---|
| | centered | |
| | Spiral cable is turned 2.5 rotations clockwise | |

**CAUTION:**

The spiral cable is an important part of the SRS airbag system. Incorrect removal or installation of the spiral cable may prevent the airbag from deploying. Be sure to read the Precaution for the SRS (Click here).

NG → REPLACE SPIRAL CABLE SUB-ASSEMBLY (Click here)

OK

## 6.CHECK HARNESS AND CONNECTOR (SPIRAL CABLE - RADIO RECEIVER)

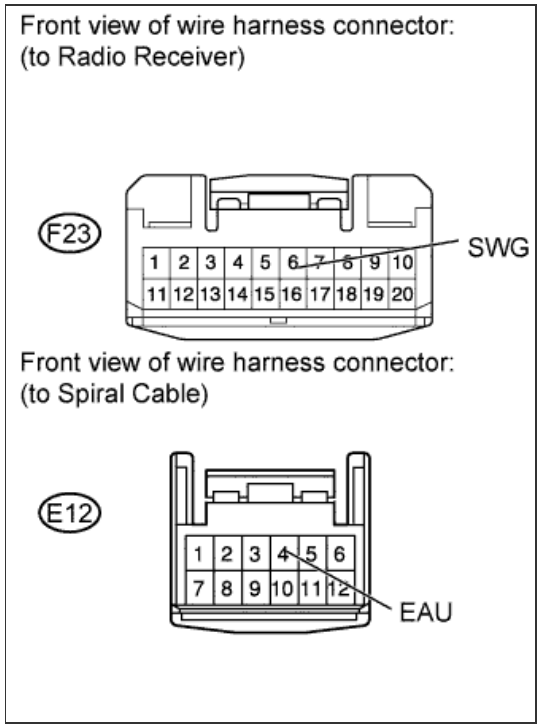
a. Disconnect the F23 receiver connector.

b. Disconnect the E12 cable connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F23-6 (SWG) - E12-4 (EAU) | Always | Below 1 Ω |
| F23-6 (SWG) - Body ground | Always | 10 kΩ or higher |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

## 7.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - COMBINATION METER AND BATTERY)

a. Disconnect the F1 receiver connector.

b. Disconnect the E77 meter connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

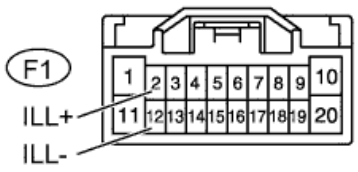
| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-12 (ILL-) - E77-17 (ILL-) | Always | Below 1 Ω |
| F1-12 (ILL-) - Body ground | Always | 10 kΩ or higher |

d. Measure the voltage according to the value(s) in the table below.

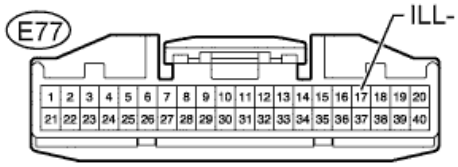
**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F1-2 (ILL+) - Body ground | Light control switch tail or head | 11 to 14 V |

Front view of wire harness connector:
(to Radio Receiver)




Front view of wire harness connector:
(to Combination Meter)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

## 8.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - COMBINATION METER AND BATTERY)

a. Disconnect the F28 display connector.

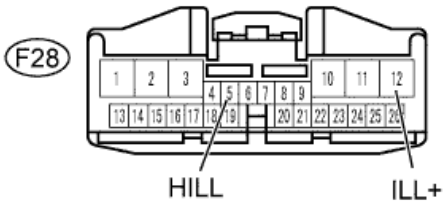
b. Disconnect the E77 meter connector.

c. Measure the resistance according to the value(s) in the table below.

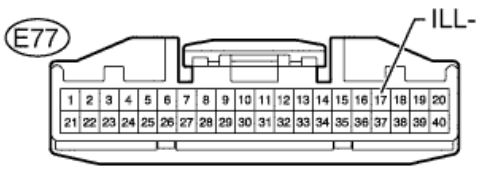
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F28-5 (HILL) - E77-17 (ILL-) | Always | Below 1 Ω |
| F28-5 (HILL) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to Multi-display)




Front view of wire harness connector:
(to Combination Meter)




d. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F28-12 (ILL+) - Body ground | Light control switch tail or head | 11 to 14 V |

**Result**

| Result | Proceed to |
|---|---|
| OK (w/ Navigation System) | A |
| OK (w/o Navigation System) | B |
| NG | C |

B → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN

C

PROBLEM SYMPTOMS TABLE

A

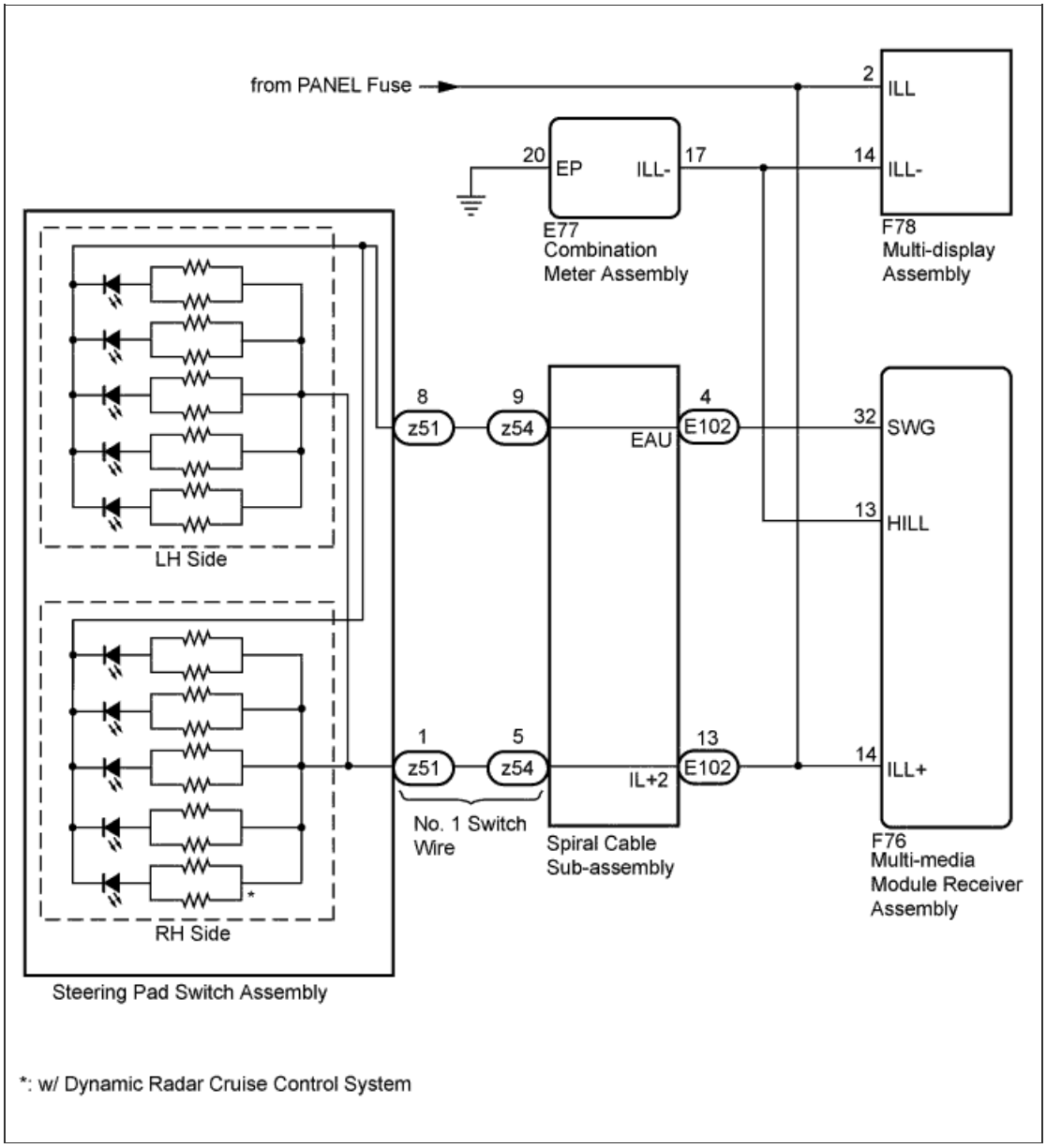
REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

**for Preparation** Click here

## DESCRIPTION

Power is supplied to the multi-media module receiver assembly, multi-display assembly and steering pad switch assembly illumination when the light control switch is in the tail or head position.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

- **The vehicle is equipped with a Supplemental Restraint System (SRS) which includes components such as airbags. Before servicing (including removal or installation of parts), be sure to read the precaution for Supplemental Restraint System (Click here).**
- **Inspect the fuse for circuits related to this system before performing the following inspection procedure.**

### 1.CHECK ILLUMINATION

a. Check if the illumination for the multi-media module receiver assembly, multi-display assembly, steering pad switch assembly or others (hazard switch etc.) comes on when the light control switch is turned to the head or tail position.

**Result**

| | |
|---|---|
| | Proceed |

| Result | to |
|---|---|
| Illumination comes on for all components except steering pad switch assembly. | A |
| Illumination comes on for all components except multi-display assembly. | B |
| Illumination comes on for all components except multi-media module receiver assembly. | C |
| No illumination comes on (multi-media module receiver assembly, steering pad switch, hazard switch, heater control switch, etc.). | D |

B → Go to step 7

C → Go to step 8

D → GO TO LIGHTING SYSTEM (Click here)

A

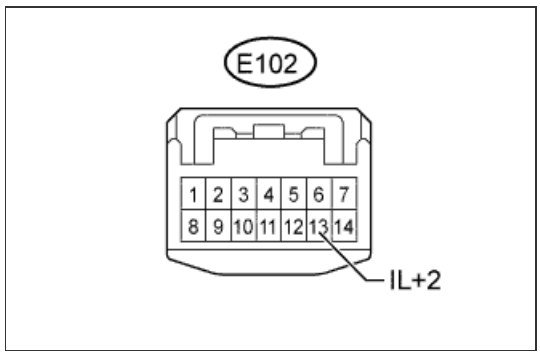
## 2.CHECK HARNESS AND CONNECTOR (ILLUMINATION SIGNAL)

a. Disconnect the spiral cable sub-assembly connector.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| E102-13 (IL+2) - Body ground | Light control switch in the tail or head position | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Spiral Cable Sub-assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 3.CHECK NO. 1 SWITCH WIRE

a. Disconnect the z54 and z51 No. 1 switch wire connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| z54-9 - z51-8 | Always | Below 1 Ω |
| z54-5 - z51-1 | Always | Below 1 Ω |
| z54-9 - Body ground | Always | 10 kΩ or higher |
| z54-5 - Body ground | Always | 10 kΩ or higher |

NG → REPLACE NO. 1 SWITCH WIRE

OK

**4.INSPECT STEERING PAD SWITCH ASSEMBLY**

a. Remove the steering pad switch assembly (Click here).

b. Inspect the steering pad switch assembly (Click here).

NG → REPLACE STEERING PAD SWITCH ASSEMBLY (Click here)

OK

**5.INSPECT SPIRAL CABLE SUB-ASSEMBLY**

a. Remove the spiral cable sub-assembly (Click here).

b. Inspect the spiral cable sub-assembly (Click here).

NG → REPLACE SPIRAL CABLE SUB-ASSEMBLY (Click here)

OK

**6.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY, MULTI-DISPLAY ASSEMBLY - SPIRAL CABLE SUB-ASSEMBLY)**

a. Disconnect the F76 multi-media module receiver assembly connector.

b. Disconnect the F78 multi-display assembly connector.

c. Disconnect the E102 spiral cable sub-assembly connector.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-14 (ILL+) - E102-13 (IL+2) | Always | Below 1 Ω |
| F76-32 (SWG) - E102-4 (EAU) | Always | Below 1 Ω |
| F78-2 (ILL) - E102-13 (IL+2) | Always | Below 1 Ω |
| F76-14 (ILL+) - Body ground | Always | 10 kΩ or higher |
| F76-32 (SWG) - Body ground | Always | 10 kΩ or higher |
| F78-2 (ILL) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

**7.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY ASSEMBLY - COMBINATION METER ASSEMBLY, BATTERY AND BODY GROUND)**

a. Disconnect the F78 multi-display assembly connector.

b. Disconnect the E77 combination meter assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F78-14 (ILL-) - | | |

| | | |
|---|---|---|
| E77-17 (ILL-) | Always | Below 1 Ω |
| F78-14 (ILL-) - Body ground | Always | 10 kΩ or higher |
| E77-20 (EP) - Body ground | Always | Below 1 Ω |

d. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F78-2 (ILL) - Body ground | Light control switch in the tail or head position | 11 to 14 V |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

**8.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - COMBINATION METER ASSEMBLY, BATTERY AND BODY GROUND)**

a. Disconnect the F76 multi-media module receiver assembly connector.

b. Disconnect the E77 combination meter assembly connector.

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F76-14 (ILL+) - Body ground | Light control switch in the tail or head position | 11 to 14 V |

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-13 (HILL) - E77-17 (ILL-) | Always | Below 1 Ω |
| E77-20 (EP) - Body ground | Always | Below 1 Ω |
| F76-13 (HILL) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

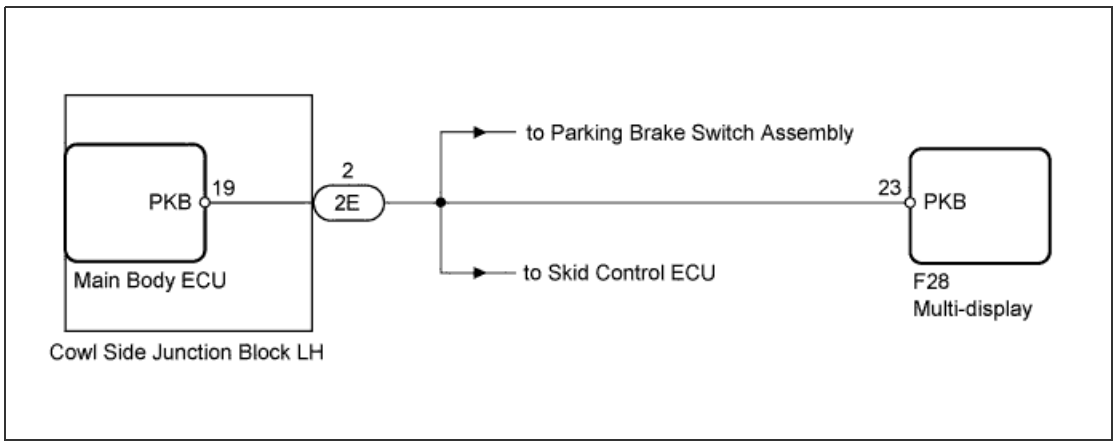
REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit is from the parking brake switch to the multi-display.

## WIRING DIAGRAM

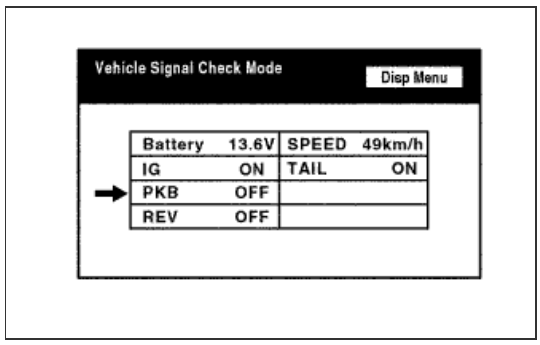



## INSPECTION PROCEDURE

### 1.CHECK PARKING BRAKE (DISPLAY CHECK MODE)

a. Enter the "Display Check" mode and select "Vehicle Signal Check Mode" ( Click here).

b. Check that the display changes between ON and OFF according to the parking brake operation.




**OK:**

| Parking Brake Position | Display |
|---|---|
| Applied | ON |
| Released | OFF |

**HINT:**

This display is updated once per second. As a result, it is normal for the display to lag behind the actual change in the switch.

NG → Go to step 2

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

### 2.CHECK MAIN BODY ECU (PARKING BRAKE SIGNAL)

a. Disconnect the F28 display connector.

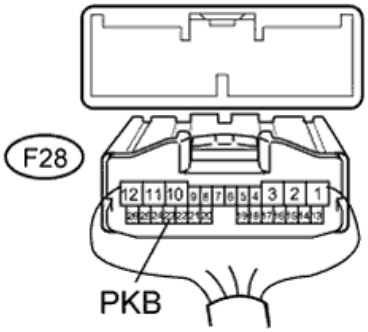
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F28-23 (PKB) - Body ground | Engine switch on (IG), parking brake applied | 11 to 14 V |

| | | |
|---|---|---|
| F28-23 (PKB) - Body ground | Engine switch on (IG), parking brake released | Below 1 V |

Rear view of wire harness connected:
(to Multi-display)




**Result**

| Result | Proceed to |
|---|---|
| OK (w/ Navigation System) | A |
| OK (w/o Navigation System) | B |
| NG | C |

B → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

C → Go to step 3

A

REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

## 3.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - MAIN BODY ECU)

a. Disconnect the F28 display connector.

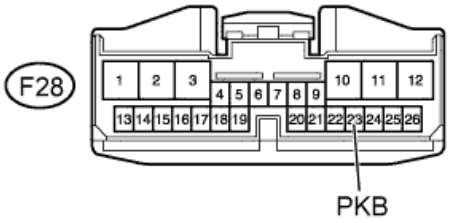
b. Disconnect the 2E ECU connector.

c. Measure the resistance according to the value(s) in the table below.

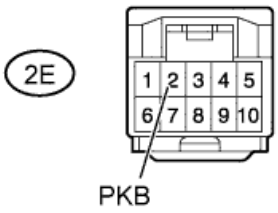
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F28-23 (PKB) - 2E-2 (PKB) | Always | Below 1 Ω |
| F28-23 (PKB) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to Multi-display)




Front view of wire harness connector:
(to Main Body ECU)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 4.REPLACE MAIN BODY ECU

a. Temporarily replace the ECU with a new or normally functioning one.

b. Check that the parking brake signal is displayed on the multi-display.

**OK:**

**Parking brake signal is displayed on the multi-display.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (w/ Navigation System) | B |
| NG (w/o Navigation System) | C |

B → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

C → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

A

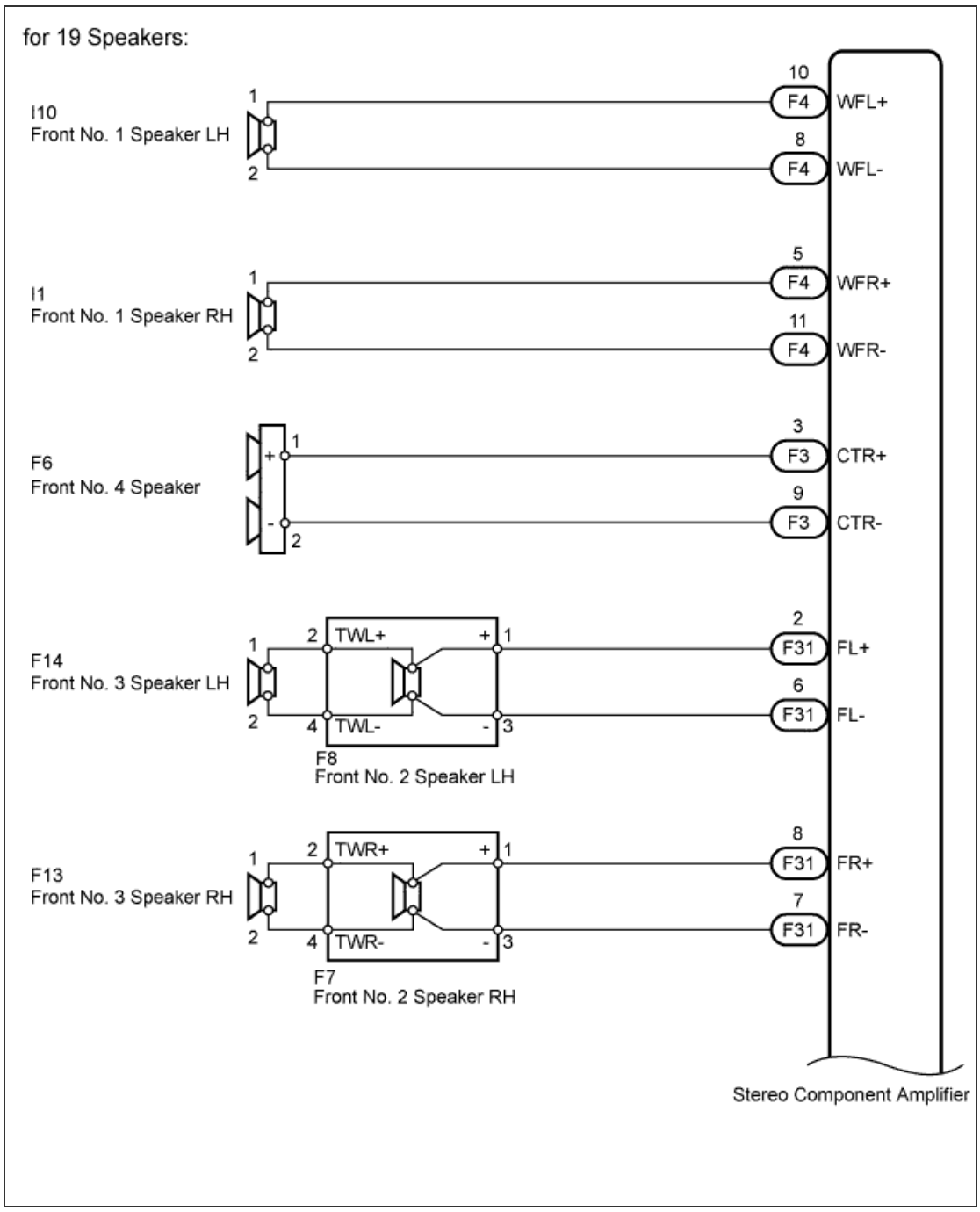
END (MAIN BODY ECU IS DEFECTIVE)

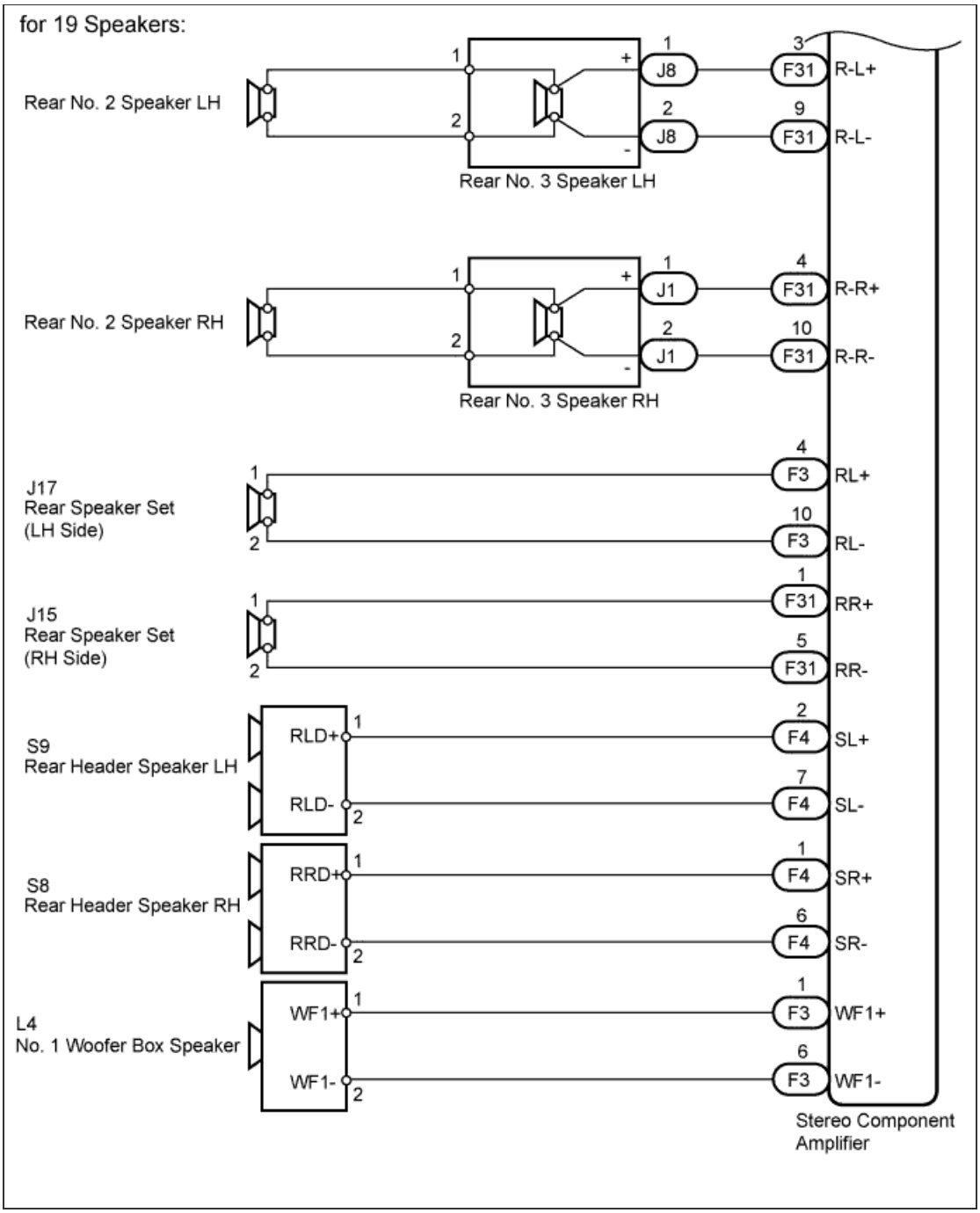
**for Preparation** Click here

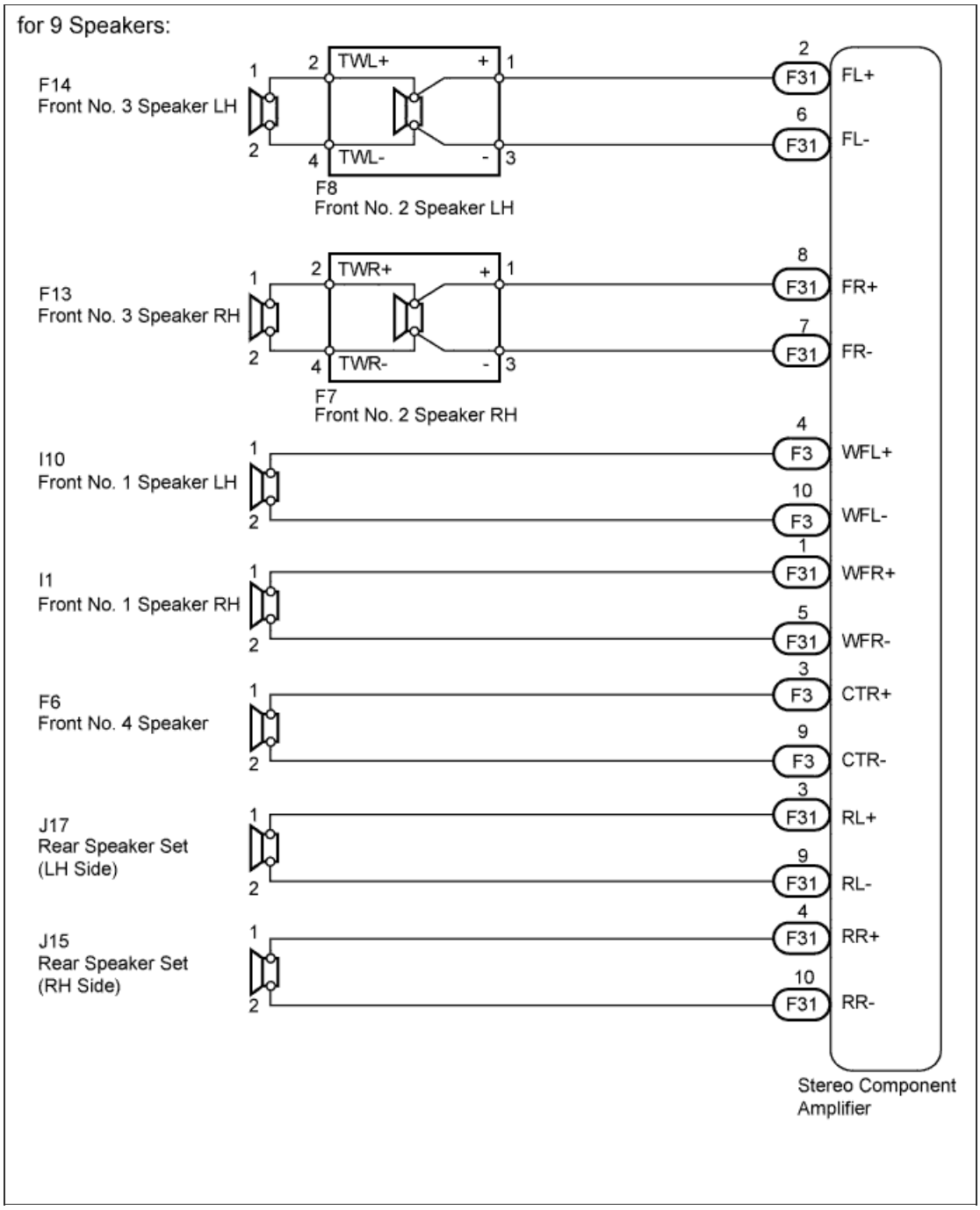
## DESCRIPTION

The stereo component amplifier sends sound signals to the speakers.

## WIRING DIAGRAM




for 19 Speakers:
Rear No. 2 Speaker LH
1
2
+
-
1
J8
2
J8
Rear No. 3 Speaker LH
3
F31
R-L+
9
F31
R-L-
Rear No. 2 Speaker RH
1
2
+
-
1
J1
2
J1
Rear No. 3 Speaker RH
4
F31
R-R+
10
F31
R-R-
J17
Rear Speaker Set
(LH Side)
1
2
4
F3
RL+
10
F3
RL-
J15
Rear Speaker Set
(RH Side)
1
2
1
F31
RR+
5
F31
RR-
S9
Rear Header Speaker LH
RLD+
RLD-
1
2
2
F4
SL+
7
F4
SL-
S8
Rear Header Speaker RH
RRD+
RRD-
1
2
1
F4
SR+
6
F4
SR-
L4
No. 1 Woofer Box Speaker
WF1+
WF1-
1
2
1
F3
WF1+
6
F3
WF1-
Stereo Component
Amplifier




## INSPECTION PROCEDURE

### 1.CHECK AUDIO MODELS

a. Check the audio model.

**Result**

| Result | Proceed to |
|---|---|
| 19 speakers | A |
| 9 speakers | B |

**B** → Go to step 22

**A**

### 2.CHECK SPEAKER

a. Check the malfunctioning speakers.

**Result**

| Result | Proceed to |
|---|---|
| Malfunction in front speaker area | A |

| | |
|---|---|
| Malfunction in rear speaker area | B |

B → Go to step 12

A

### 3.CHECK SPEAKER

a. Check the malfunctioning speakers.

**Result**

| Result | Proceed to |
|---|---|
| Front No. 4 speaker | A |
| Front No. 2 speaker | B |
| Front No. 1 speaker | C |
| Front No. 3 speaker | D |

B → Go to step 6

C → Go to step 8

D → Go to step 10

A

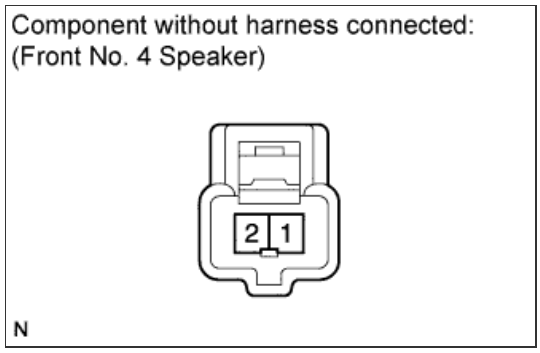
### 4.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY

a. Disconnect the F6 speaker connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 6.0 +/-1.0 Ω |




NG → REPLACE FRONT NO. 4 SPEAKER ASSEMBLY (Click here)

OK

### 5.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 4 SPEAKER)

a. Disconnect the F6 speaker connector.

b. Disconnect the F3 amplifier connector.

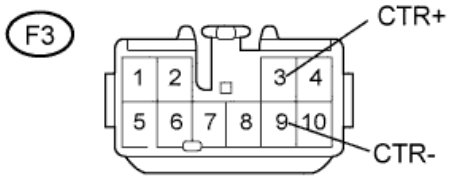
c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

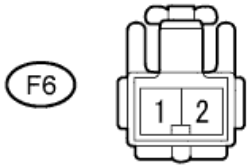
| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-3 (CTR+) - F6-1 | Always | Below 1 Ω |
| F3-9 (CTR-) - F6-2 | Always | Below 1 Ω |
| F3-3 (CTR+) - | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| Body ground | | |
| F3-9 (CTR-) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to Stereo Component Amplifier)




Front view of wire harness connector:
(to Front No. 4 Speaker)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 6.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

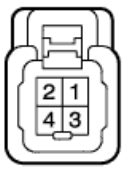
a. Disconnect the F8 and F7 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | Below 1 Ω |
| 3 - 4 | Always | Below 1 Ω |
| 2 - 4 | Always | 6.0 +/-1.0 Ω |

Component without harness connected:
(Front No. 2 Speaker)




NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

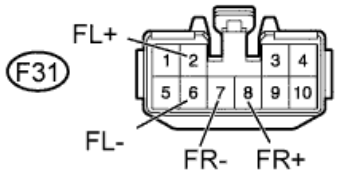
## 7.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 2 SPEAKER)

a. Disconnect the F31 amplifier connector.

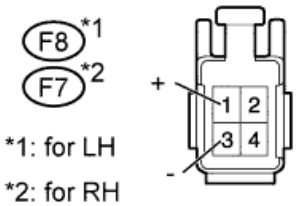
b. Disconnect the F8 and F7 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

Front view of wire harness connector:
(to Stereo Component Amplifier)




Front view of wire harness connector:
(to Front No. 2 Speaker)




**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-2 (FL+) - F8-1 (+) | Always | Below 1 Ω |
| F31-6 (FL-) - F8-3 (-) | Always | Below 1 Ω |
| F31-2 (FL+) - Body ground | Always | 10 kΩ or higher |
| F31-6 (FL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-8 (FR+) - F7-1 (+) | Always | Below 1 Ω |
| F31-7 (FR-) - F7-3 (-) | Always | Below 1 Ω |
| F31-8 (FR+) - Body ground | Always | 10 kΩ or higher |
| F31-7 (FR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 8.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY

a. Disconnect the I10 and I1 speaker connectors.

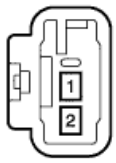
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| 1 - 2 | Always | 1.9 +/-0.4 Ω |

Component without harness connected:
(Front No. 1 Speaker)




N

NG → REPLACE FRONT NO. 1 SPEAKER ASSEMBLY (Click here)

OK

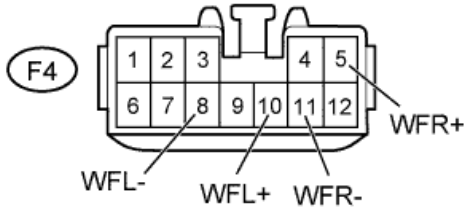
## 9.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 1 SPEAKER)

a. Disconnect the I10 and I1 speaker connectors.

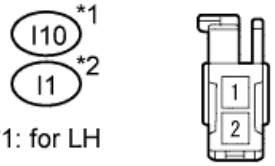
b. Disconnect the F4 amplifier connector.

c. Measure the resistance according to the value(s) in the table below.

Front view of wire harness connector:
(to Stereo Component Amplifier)




Front view of wire harness connector:
(to Front No. 1 Speaker)




*1: for LH

*2: for RH

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-10 (WFL+) - I10-1 | Always | Below 1 Ω |
| F4-8 (WFL-) - I10-2 | Always | Below 1 Ω |
| F4-10 (WFL+) - Body ground | Always | 10 kΩ or higher |
| F4-8 (WFL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-5 (WFR+) - I1-1 | Always | Below 1 Ω |
| F4-11 (WFR-) - I1-2 | Always | Below 1 Ω |
| F4-5 (WFR+) - Body ground | Always | 10 kΩ or higher |
| F4-11 (WFR-) - | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

10.CHECK FRONT NO. 3 SPEAKER ASSEMBLY

a. Disconnect the F14 and F13 speaker connectors.

b. Interchange the front No. 3 speaker LH with RH.

c. Check that the malfunction disappears.

**OK:**
**Malfunction disappears.**

**HINT:**

- **Connect all the connectors to the front No. 3 speakers.**
- **When there is a possibility that either the right or left front speaker is defective, inspect by interchanging the right one with the left one.**
- **Perform the inspection above on both the LH and RH sides.**

NG → Go to step 11

OK ↓

REPLACE FRONT NO. 3 SPEAKER ASSEMBLY (Click here)

11.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

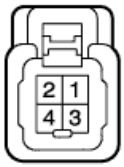
a. Disconnect the F8 and F7 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 2 - 4 | Always | 6.0 +/-1.0 Ω |

Component without harness connected:
(Front No. 2 Speaker)




NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK ↓

REPAIR OR REPLACE HARNESS OR CONNECTOR (FRONT NO. 2 SPEAKER - FRONT NO. 3 SPEAKER)

12.CHECK SPEAKER

a. Check the malfunctioning speakers.

**Result**

| Result | Proceed to |
|---|---|
| Rear No. 2 speaker | A |
| Rear No. 3 speaker | B |
| Rear speaker set | C |
| No. 1 woofer box speaker | D |
| Rear header speaker | E |

| | |
|---|---|
| B | Go to step 14 |
| C | Go to step 16 |
| D | Go to step 18 |
| E | Go to step 20 |

A

13.INSPECT REAR NO. 2 SPEAKER ASSEMBLY

a. Disconnect the rear No. 2 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 6.0 +/-1.0 Ω |

Component without harness connected:
(Rear No. 2 Speaker)




NG → REPLACE REAR NO. 2 SPEAKER ASSEMBLY (Click here)

OK

REPLACE REAR NO. 3 SPEAKER ASSEMBLY (Click here)

14.CHECK REAR NO. 3 SPEAKER ASSEMBLY

a. Disconnect the rear No. 3 speaker connectors

b. Interchange the rear No. 3 speaker LH with RH.

c. Check that the malfunction disappears.

**OK:**
**Malfunction disappears.**

**HINT:**

- **Connect all the connectors to the rear No. 3 speakers.**
- **When there is a possibility that either the right or left rear speaker is defective, inspect by interchanging the right one with the left one.**
- **Perform the inspection above on both the LH and RH sides.**

NG → Go to step 15

OK

REPLACE REAR NO. 3 SPEAKER ASSEMBLY (Click here)

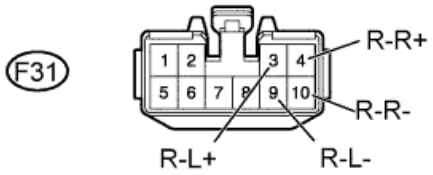
15.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - REAR NO. 3 SPEAKER)

a. Disconnect the F31 amplifier connector.

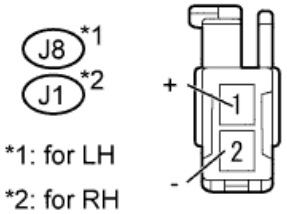
b. Disconnect the J8 and J1 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

Front view of wire harness connector:
(to Stereo Component Amplifier)




Front view of wire harness connector:
(to Rear No. 3 Speaker)




**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-3 (R-L+) - J8-1 (+) | Always | Below 1 Ω |
| F31-9 (R-L-) - J8-2 (-) | Always | Below 1 Ω |
| F31-3 (R-L+) - Body ground | Always | 10 kΩ or higher |
| F31-9 (R-L-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-4 (R-R+) - J1-1 (+) | Always | Below 1 Ω |
| F31-10 (R-R-) - J1-2 (-) | Always | Below 1 Ω |
| F31-4 (R-R+) - Body ground | Always | 10 kΩ or higher |
| F31-10 (R-R-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

16.INSPECT REAR SPEAKER SET

a. Disconnect the J17 and J15 speaker connectors.

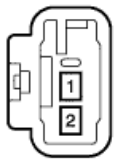
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| 1 - 2 | Always | 6.0 +/-1.2 Ω |

Component without harness connected:
(Rear Speaker Set)




N

NG → REPLACE REAR SPEAKER SET (Click here)

OK

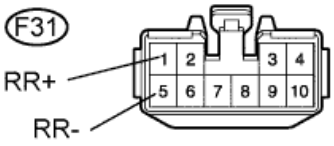
**17.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - REAR SPEAKER SET)**

a. Disconnect the F3 and F31 speaker connectors.

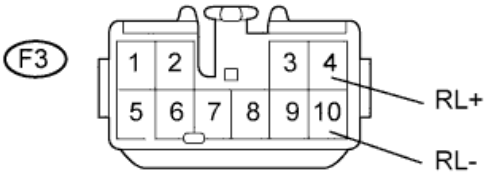
b. Disconnect the J17 and J15 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

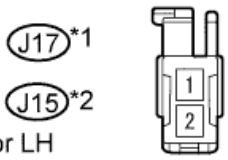
Front view of wire harness connector:
(to Stereo Component Amplifier)




Front view of wire harness connector:
(to Stereo Component Amplifier)




Front view of wire harness connector:
(to Rear No. 2 Speaker)




*1: for LH

*2: for RH

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-4 (RL+) - J17-1 | Always | Below 1 Ω |
| F3-10 (RL-) - J17-2 | | |
| F3-4 (RL+) - Body ground | Always | 10 kΩ or higher |
| F3-10 (RL-) - Body | | |

| | | |
|---|---|---|
| ground | | |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-1 (RR+) - J15-1 | Always | Below 1 Ω |
| F31-5 (RR-) - J15-2 | | |
| F31-1 (RR+) - Body ground | Always | 10 kΩ or higher |
| F31-5 (RR-) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK →

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**18.INSPECT NO. 1 WOOFER BOX SPEAKER ASSEMBLY**

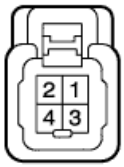
a. Disconnect the L4 speaker connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 8.0 Ω |

Component without harness connected:
(No. 1 Woofer Box Speaker)




NG → REPLACE NO. 1 WOOFER BOX SPEAKER ASSEMBLY (Click here)

OK →

**19.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - NO. 1 WOOFER BOX SPEAKER)**

a. Disconnect the F3 amplifier connector.

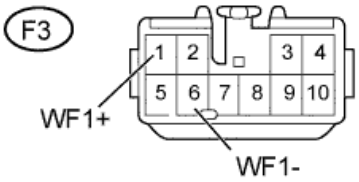
b. Disconnect the L4 speaker connector.

c. Measure the resistance according to the value(s) in the table below.

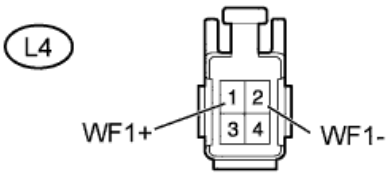
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-1 (WF1+) - L4-1 (WF1+) | Always | Below 1 Ω |
| F3-6 (WF1-) - L4-2 (WF1-) | Always | Below 1 Ω |
| F3-1 (WF1+) - Body ground | Always | 10 kΩ or higher |
| F3-6 (WF1-) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to Stereo Component Amplifier)




Front view of wire harness connector:
(to No. 1 Woofer Box Speaker)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 20.INSPECT REAR HEADER SPEAKER ASSEMBLY

a. Disconnect the S9 and S8 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 6.0 +/-1.0 Ω |

Component without harness connected:
(Rear Header Speaker)




N

NG → REPLACE REAR HEADER SPEAKER ASSEMBLY (Click here)

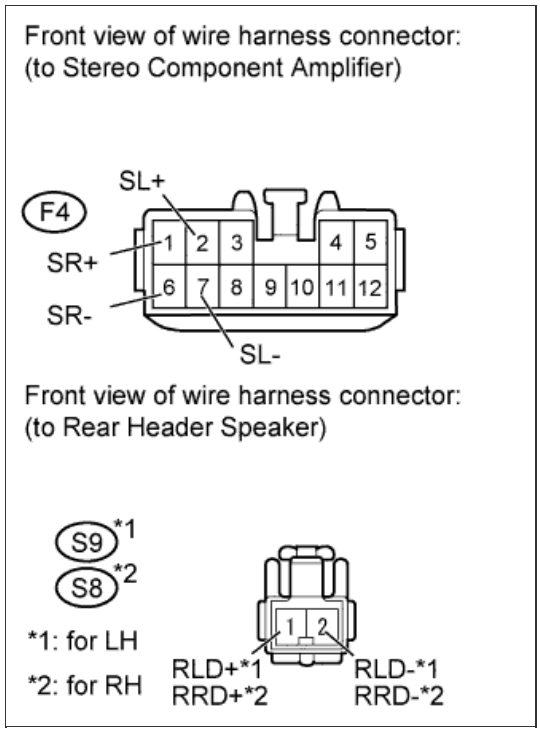
OK

## 21.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - REAR HEADER SPEAKER)

a. Disconnect the F4 amplifier connector.

b. Disconnect the S9 and S8 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.




**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-2 (SL+) - S9-1 (RLD+) | Always | Below 1 Ω |
| F4-7 (SL-) - S9-2 (RLD-) | Always | Below 1 Ω |
| F4-2 (SL+) - Body ground | Always | 10 kΩ or higher |
| F4-7 (SL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-1 (SR+) - S8-1 (RRD+) | Always | Below 1 Ω |
| F4-6 (SR-) - S8-2 (RRD-) | Always | Below 1 Ω |
| F4-1 (SR+) - Body ground | Always | 10 kΩ or higher |
| F4-6 (SR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 22.CHECK SPEAKER

a. Check the malfunctioning speakers.

**Result**

| Result | Proceed to |
|---|---|
| Front No. 4 speaker | A |
| Front No. 2 speaker | B |
| Front No. 1 speaker | C |
| Front No. 3 speaker | D |
| Rear speaker set | E |

| | |
|---|---|
| B | Go to step 25 |
| C | Go to step 27 |
| D | Go to step 29 |
| E | Go to step 31 |

A

**23.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY**

a. Disconnect the F6 speaker connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 6 Ω |

Component without harness connected:
(Front No. 4 Speaker)




N

| | |
|---|---|
| NG | REPLACE FRONT NO. 4 SPEAKER ASSEMBLY (Click here) |

OK

**24.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 4 SPEAKER)**

a. Disconnect the F6 speaker connector.

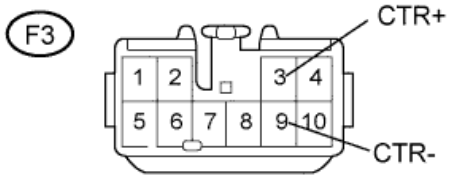
b. Disconnect the F3 amplifier connector.

c. Measure the resistance according to the value(s) in the table below.

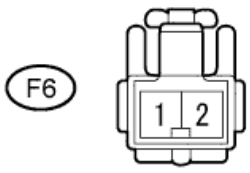
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-3 (CTR+) - F6-1 | Always | Below 1 Ω |
| F3-9 (CTR-) - F6-2 | Always | Below 1 Ω |
| F3-3 (CTR+) - Body ground | Always | 10 kΩ or higher |
| F3-9 (CTR-) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to Stereo Component Amplifier)




Front view of wire harness connector:
(to Front No. 4 Speaker)




| | |
|---|---|
| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR |

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 25.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

a. Disconnect the F8 and F7 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | Below 1 Ω |
| 3 - 4 | Always | Below 1 Ω |
| 2 - 4 | Always | 4 Ω |

Component without harness connected:
(Front No. 2 Speaker)




NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

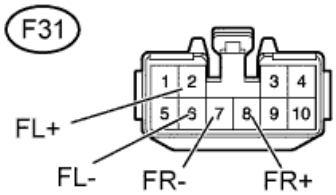
## 26.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 2 SPEAKER)

a. Disconnect the F31 amplifier connector.

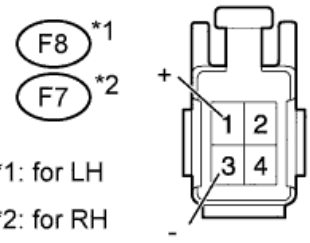
b. Disconnect the F8 and F7 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

Front view of wire harness connector:
(to Stereo Component Amplifier)




Front view of wire harness connector:
(to Front No. 2 Speaker)




*1: for LH

*2: for RH

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-2 (FL+) - F8-1 (+) | Always | Below 1 Ω |
| F31-6 (FL-) - F8-3 (-) | Always | Below 1 Ω |
| F31-2 (FL+) - Body ground | Always | 10 kΩ or higher |
| F31-6 (FL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| F31-8 (FR+) - F7-1 (+) | Always | Below 1 Ω |
| F31-7 (FR-) - F7-3 (-) | Always | Below 1 Ω |
| F31-8 (FR+) - Body ground | Always | 10 kΩ or higher |
| F31-7 (FR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

27.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY

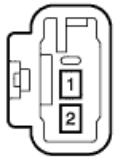
a. Disconnect the I10 and I1 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 3 Ω |

Component without harness connected:
(Front No. 1 Speaker)




N

NG → REPLACE FRONT NO. 1 SPEAKER ASSEMBLY (Click here)

OK

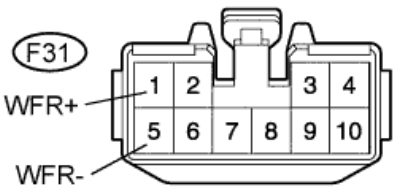
28.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 1 SPEAKER)

a. Disconnect the I10 and I1 speaker connectors.

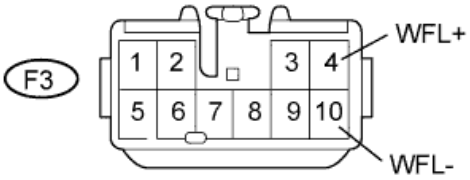
b. Disconnect the F31 and F3 amplifier connectors.

c. Measure the resistance according to the value(s) in the table below.

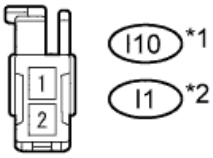
Front view of wire harness connector:
(to Stereo Component Amplifier)




Front view of wire harness connector:
(to Stereo Component Amplifier)




Front view of wire harness connector:
(to Front No. 1 Speaker)




*1: for LH

*2: for RH

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-4 (WFL+) - I10-1 | Always | Below 1 Ω |
| F3-10 (WFL-) - I10-2 | Always | Below 1 Ω |
| F3-4 (WFL+) - Body ground | Always | 10 kΩ or higher |
| F3-10 (WFL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-1 (WFR+) - I1-1 | Always | Below 1 Ω |
| F31-5 (WFR-) - I1-2 | Always | Below 1 Ω |
| F31-1 (WFR+) - Body ground | Always | 10 kΩ or higher |
| F31-5 (WFR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

### 29.INSPECT FRONT NO. 3 SPEAKER ASSEMBLY

a. Disconnect the F14 and F13 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4 Ω |

Component without harness connected:
(Front No. 3 Speaker)




NG → REPLACE FRONT NO. 3 SPEAKER ASSEMBLY (Click here)

OK

### 30.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

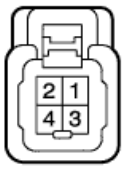
a. Disconnect the F8 and F7 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | Below 1 Ω |
| 3 - 4 | Always | Below 1 Ω |
| 2 - 4 | Always | 4 Ω |

Component without harness connected:
(Front No. 2 Speaker)




NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

REPAIR OR REPLACE HARNESS OR CONNECTOR (FRONT NO. 2 SPEAKER - FRONT NO. 3 SPEAKER)

### 31.INSPECT REAR SPEAKER SET

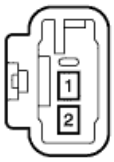
a. Disconnect the J17 and J15 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4 Ω |

Component without harness connected:
(Rear Speaker Set)




N

NG → REPLACE REAR SPEAKER SET (Click here)

OK

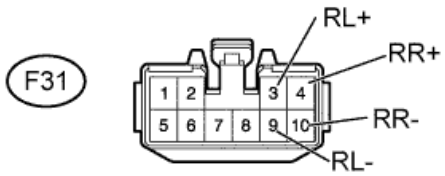
### 32.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - REAR SPEAKER SET)

a. Disconnect the F31 amplifier connector.

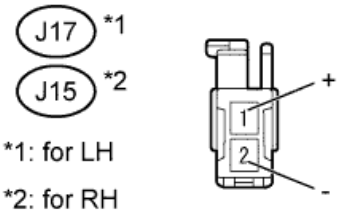
b. Disconnect the J17 and J15 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

Front view of wire harness connector:
(to Stereo Component Amplifier)




Front view of wire harness connector:
(to Rear Speaker Set)




**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-3 (RL+) - J17-1 (+) | Always | Below 1 Ω |
| F31-9 (RL-) - J17-2 (-) | Always | Below 1 Ω |
| F31-3 (RL+) - Body ground | Always | 10 kΩ or higher |
| F31-9 (RL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-4 (RR+) - J15-1 (+) | Always | Below 1 Ω |
| F31-10 (RR-) - J15-2 (-) | Always | Below 1 Ω |
| F31-4 (RR+) - Body ground | Always | 10 kΩ or higher |
| F31-10 (RR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

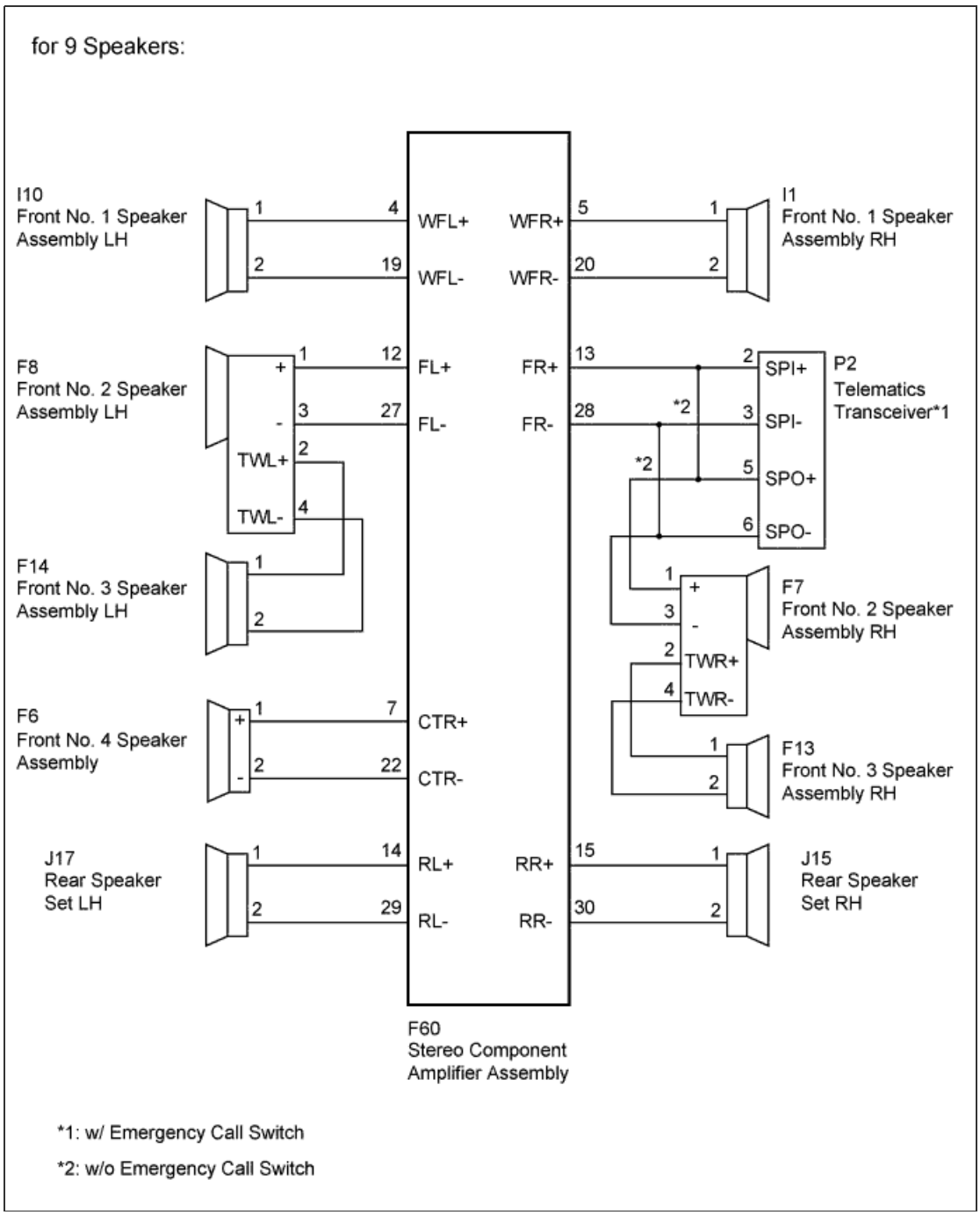
REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

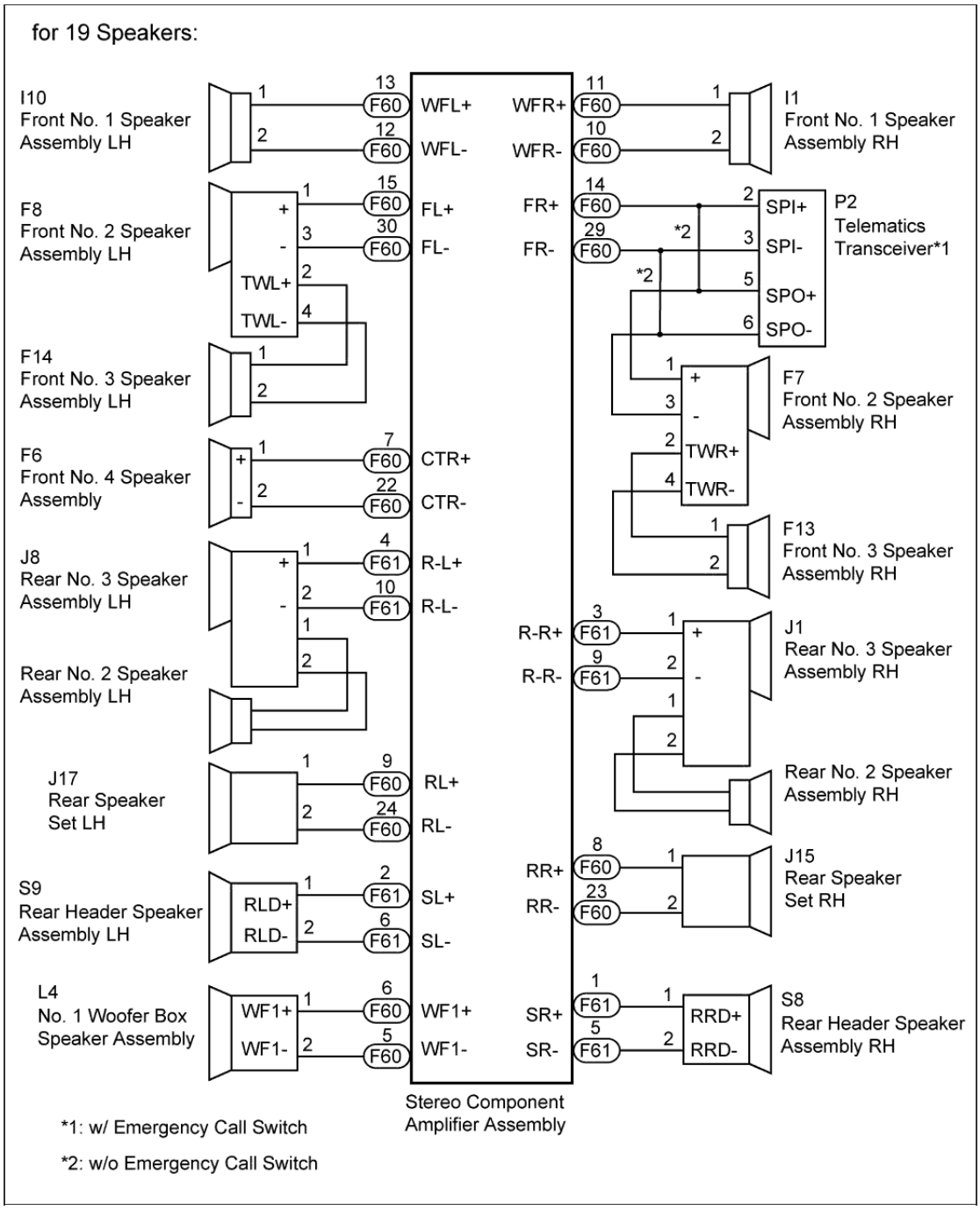
**for Preparation** Click here

## DESCRIPTION

The stereo component amplifier assembly sends a sound signal to the speakers.

## WIRING DIAGRAM






## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - SPEAKERS)

*1: for RH Side
*2: for LH Side
*3: w/ Emergency Call Switch
*4: w/o Emergency Call Switch
*5: for 9 speakers
*6: for 19 speakers

a. Disconnect the F60 and/or F61*6 stereo component amplifier assembly connector.

b. Disconnect the I1*1 and/or I10*2 front No. 1 speaker assembly connector.

c. Disconnect the F7*1 and/or F8*2 front No. 2 speaker assembly connector.

d. Disconnect the F6 front No. 4 speaker assembly connector.

e. Disconnect the J15*1 and/or J17*2 rear speaker set connector.

f. Disconnect the J1*1 and/or J8*2 rear No. 3 speaker connector*6.

g. Disconnect the S8*1 and/or S9*2 rear header speaker assembly connector*6.

h. Disconnect the L4 No. 1 woofer box speaker connector*6.

i. Disconnect the P2*3 telematics transceiver connector.

j. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**
**for 9 speakers:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F60-5 (WFR+) - I1-1*1 | Always | Below 1 Ω |
| F60-20 (WFR-) - I1-2*1 | Always | Below 1 Ω |
| F60-4 (WFL+) - I10-1*2 | Always | Below 1 Ω |
| F60-19 (WFL-) - I10-2*2 | Always | Below 1 Ω |
| F60-13 (FR+) - P2-2 (SPI+)*1, *3 | Always | Below 1 Ω |
| F60-28 (FR-) - P2-3 (SPI-)*1, *3 | Always | Below 1 Ω |
| F60-13 (FR+) - F7-1 (+)*1, *4 | Always | Below 1 Ω |
| F60-28 (FR-) - F7-3 (-)*1, *4 | Always | Below 1 Ω |
| F60-12 (FL+) - F8-1 (+)*2 | Always | Below 1 Ω |
| F60-27 (FL-) - F8-3 (-)*2 | Always | Below 1 Ω |
| F60-7 (CTR+) - F6-1 (+) | Always | Below 1 Ω |
| F60-22 (CTR-) - F6-2 (-) | Always | Below 1 Ω |
| F60-15 (RR+) - J15-1*1 | Always | Below 1 Ω |
| F60-30 (RR-) - J15-2*1 | Always | Below 1 Ω |
| F60-14 (RL+) - J17-1*2 | Always | Below 1 Ω |
| F60-29 (RL-) - J17-2*2 | Always | Below 1 Ω |
| F60-5 (WFR+) - Body ground | Always | 10 kΩ or higher |
| F60-20 (WFR-) - Body ground | Always | 10 kΩ or higher |
| F60-4 (WFL+) - Body ground | Always | 10 kΩ or higher |
| F60-19 (WFL-) - Body ground | Always | 10 kΩ or higher |
| F60-13 (FR+) - Body ground | Always | 10 kΩ or higher |
| F60-28 (FR-) - Body ground | Always | 10 kΩ or higher |
| F60-12 (FL+) - Body ground | Always | 10 kΩ or higher |
| F60-27 (FL-) - Body ground | Always | 10 kΩ or higher |
| F60-7 (CTR+) - Body ground | Always | 10 kΩ or higher |
| F60-22 (CTR-) - Body ground | Always | 10 kΩ or higher |
| F60-15 (RR+) - Body ground | Always | 10 kΩ or higher |
| F60-30 (RR-) - Body ground | Always | 10 kΩ or higher |
| F60-14 (RL+) - | | |

| | | |
|---|---|---|
| Body ground | Always | 10 kΩ or higher |
| F60-29 (RL-) - Body ground | Always | 10 kΩ or higher |

**for 19 speakers:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F60-11 (WFR+) - I1-1*1 | Always | Below 1 Ω |
| F60-10 (WFR-) - I1-2*1 | Always | Below 1 Ω |
| F60-13 (WFL+) - I10-1*2 | Always | Below 1 Ω |
| F60-12 (WFL-) - I10-2*2 | Always | Below 1 Ω |
| F60-14 (FR+) - P2-2 (SPI+)*1, *3 | Always | Below 1 Ω |
| F60-29 (FR-) - P2-3 (SPI-)*1, *3 | Always | Below 1 Ω |
| F60-14 (FR+) - F7-1 (+)*1, *4 | Always | Below 1 Ω |
| F60-29 (FR-) - F7-3 (-)*1, *4 | Always | Below 1 Ω |
| F60-15 (FL+) - F8-1 (+)*2 | Always | Below 1 Ω |
| F60-30 (FL-) - F8-3 (-)*2 | Always | Below 1 Ω |
| F60-7 (CTR+) - F6-1 (+) | Always | Below 1 Ω |
| F60-22 (CTR-) - F6-2 (-) | Always | Below 1 Ω |
| F61-3 (R-R+) - J1-1 (+)*1 | Always | Below 1 Ω |
| F61-9 (R-R-) - J1-2 (-)*1 | Always | Below 1 Ω |
| F61-4 (R-L+) - J8-1 (+)*2 | Always | Below 1 Ω |
| F61-10 (R-L-) - J8-2 (-)*2 | Always | Below 1 Ω |
| F60-8 (RR+) - J15-1*1 | Always | Below 1 Ω |
| F60-23 (RR-) - J15-2*1 | Always | Below 1 Ω |
| F60-9 (RL+) - J17-1*2 | Always | Below 1 Ω |
| F60-24 (RL-) - J17-2*2 | Always | Below 1 Ω |
| F61-1 (SR+) - S8-1 (RRD+)*1 | Always | Below 1 Ω |
| F61-5 (SR-) - S8-2 (RRD-)*1 | Always | Below 1 Ω |
| F61-2 (SL+) - S9-1 (RLD+)*2 | Always | Below 1 Ω |
| F61-6 (SL-) - S9-2 (RLD-)*2 | Always | Below 1 Ω |
| F60-6 (WF1+) - L4-1 (WF1+) | Always | Below 1 Ω |
| F60-5 (WF1-) - L4-2 (WF1-) | Always | Below 1 Ω |
| F60-11 (WFR+) - Body ground | Always | 10 kΩ or higher |
| F60-10 (WFR-) - Body ground | Always | 10 kΩ or higher |
| F60-13 (WFL+) - Body ground | Always | 10 kΩ or higher |
| F60-12 (WFL-) - | | |

| | | |
|---|---|---|
| Body ground | Always | 10 kΩ or higher |
| F60-14 (FR+) - Body ground | Always | 10 kΩ or higher |
| F60-29 (FR-) - Body ground | Always | 10 kΩ or higher |
| F60-15 (FL+) - Body ground | Always | 10 kΩ or higher |
| F60-30 (FL-) - Body ground | Always | 10 kΩ or higher |
| F60-7 (CTR+) - Body ground | Always | 10 kΩ or higher |
| F60-22 (CTR-) - Body ground | Always | 10 kΩ or higher |
| F61-3 (R-R+) - Body ground | Always | 10 kΩ or higher |
| F61-9 (R-R-) - Body ground | Always | 10 kΩ or higher |
| F61-4 (R-L+) - Body ground | Always | 10 kΩ or higher |
| F61-10 (R-L-) - Body ground | Always | 10 kΩ or higher |
| F60-8 (RR+) - Body ground | Always | 10 kΩ or higher |
| F60-23 (RR-) - Body ground | Always | 10 kΩ or higher |
| F60-9 (RL+) - Body ground | Always | 10 kΩ or higher |
| F60-24 (RL-) - Body ground | Always | 10 kΩ or higher |
| F60-1 (SR+) - Body ground | Always | 10 kΩ or higher |
| F60-5 (SR-) - Body ground | Always | 10 kΩ or higher |
| F61-2 (SL+)- Body ground | Always | 10 kΩ or higher |
| F61-6 (SL-) - Body ground | Always | 10 kΩ or higher |
| F60-6 (WF1+) - Body ground | Always | 10 kΩ or higher |
| F60-5 (WF1-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**2.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY**

a. Disconnect the front No. 1 speaker assembly connector.

b. Inspect the front No. 1 speaker assembly (Click here).

NG → REPLACE FRONT NO. 1 SPEAKER ASSEMBLY (Click here)

OK

**3.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY**

a. Disconnect the front No. 2 speaker assembly connector.

b. Inspect the front No. 2 speaker assembly (Click here).

NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

## 4.CHECK FRONT NO. 3 SPEAKER ASSEMBLY

a. Temporarily replace the front No. 3 speaker assembly with a new or normally functioning one ( Click here).

b. Check for DTCs and check if the same DTCs is output ( Click here).

**OK:**
**No DTCs are output.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (w/ Emergency Call Switch) | B |
| NG (w/o Emergency Call Switch) | C |

B → Go to step 5

C → Go to step 7

A

## END (FRONT NO. 3 SPEAKER ASSEMBLY IS DEFECTIVE)

## 5.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - FRONT NO. 2 SPEAKER RH)

a. Disconnect the P2 telematics transceiver connector.

b. Disconnect the F7 front No. 2 speaker assembly RH connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P2-5 (SPO+) - F7-1 (+) | Always | Below 1 Ω |
| P2-6 (SPO-) - F7-3 (-) | Always | Below 1 Ω |
| P2-5 (SPO+) - Body ground | Always | 10 kΩ or higher |
| P2-6 (SPO-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 6.INSPECT TELEMATICS TRANSCEIVER

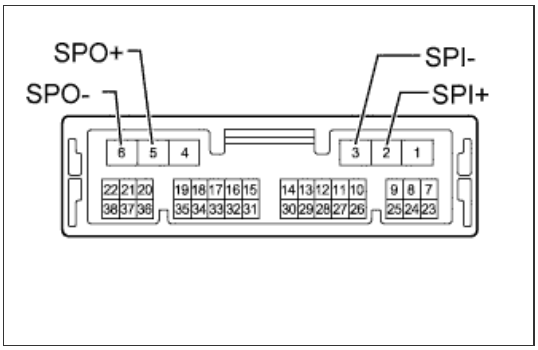
a. Remove the telematics transceiver (Click here).

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 2 (SPI+) - 5 (SPO+) | Always | Below 1 Ω |
| 3 (SPI-) - 6 (SPO-) | Always | Below 1 Ω |

| | | |
|---|---|---|
| 2 (SPI+) - Body ground | Always | 10 kΩ or higher |
| 3 (SPI-) - Body ground | Always | 10 kΩ or higher |




NG → REPLACE TELEMATICS TRANSCEIVER (Click here)

OK

## 7.CHECK HARNESS AND CONNECTOR (FRONT NO. 2 SPEAKER - FRONT NO. 3 SPEAKER)

*1: for RH Side
*2: for LH Side

a. Disconnect the F7*1 and/or F8*2 front No. 2 speaker assembly connector.

b. Disconnect the F13*1 and/or F14*2 front No. 3 speaker assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for RH Side**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F7-2 (TWR+) - F13-1 | Always | Below 1 Ω |
| F7-4 (TWR-) - F13-2 | Always | Below 1 Ω |
| F7-2 (TWR+) - Body ground | Always | 10 kΩ or higher |
| F7-4 (TWR-) - Body ground | Always | 10 kΩ or higher |

**for LH Side**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F8-2 (TWL+) - F14-1 | Always | Below 1 Ω |
| F8-4 (TWL-) - F14-2 | Always | Below 1 Ω |
| F8-2 (TWL+) - Body ground | Always | 10 kΩ or higher |
| F8-4 (TWL-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 8.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY

a. Disconnect the front No. 4 speaker assembly connector.

b. Inspect the front No. 4 speaker assembly (Click here).

NG → REPLACE FRONT NO. 4 SPEAKER ASSEMBLY (Click here)

OK

## 9.INSPECT REAR SPEAKER SET

a. Disconnect the rear speaker set connector.

b. Inspect the rear speaker set (Click here).

**Result**

| Result | Proceed to |
|---|---|
| | |

| | |
|---|---|
| OK (for 19 speakers) | A |
| OK (for 9 speakers) | B |
| NG | C |

B → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

C → REPLACE REAR SPEAKER SET (Click here)

A

**10.CHECK REAR NO. 3 SPEAKER ASSEMBLY**

a. Temporarily replace the rear No. 3 speaker assembly with a new or normally functioning one ( Click here).

b. Check for DTCs and check if the same DTCs is output ( Click here).

**OK:**
**No DTCs are output.**

NG → Go to step 11

OK

**END (REAR NO. 3 SPEAKER ASSEMBLY IS DEFECTIVE)**

**11.INSPECT REAR NO. 2 SPEAKER ASSEMBLY**

a. Disconnect the rear No. 2 speaker assembly connector.

b. Inspect the rear No. 2 speaker assembly (Click here).

NG → REPLACE REAR NO. 2 SPEAKER ASSEMBLY (Click here)

OK

**12.INSPECT REAR HEADER SPEAKER ASSEMBLY**

a. Disconnect the rear header assembly connector.

b. Inspect the rear header assembly (Click here).

NG → REPLACE REAR HEADER SPEAKER ASSEMBLY (Click here)

OK

**13.INSPECT NO. 1 WOOFER BOX SPEAKER ASSEMBLY**

a. Disconnect the No. 1 woofer box speaker assembly connector.

b. Inspect the No. 1 woofer box speaker assembly ( Click here).

NG → REPLACE NO. 1 WOOFER BOX SPEAKER (Click here)

OK

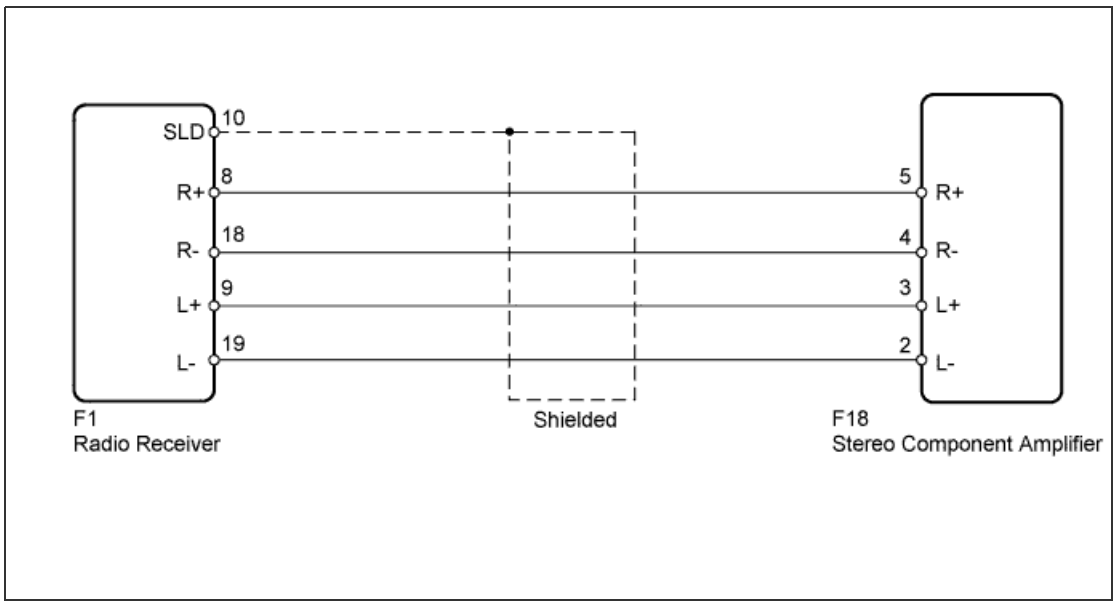
**REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)**

**for Preparation** Click here

## DESCRIPTION

This circuit sends a sound signal from the radio receiver to the stereo component amplifier.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - STEREO COMPONENT AMPLIFIER)

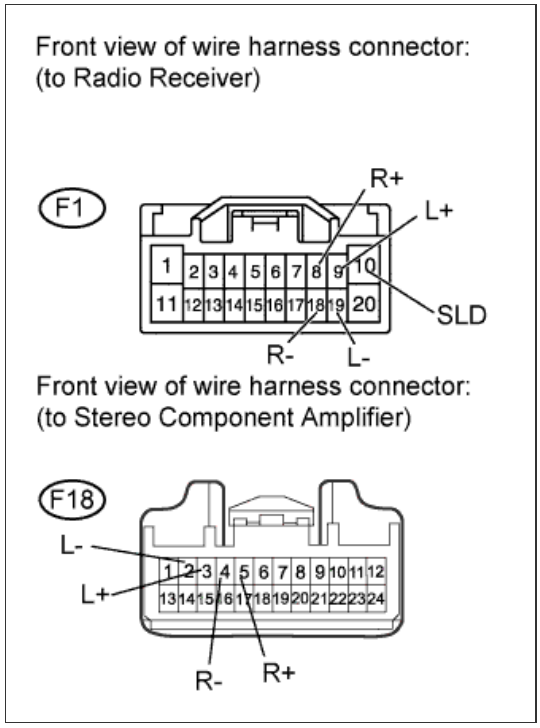
a. Disconnect the F1 receiver connector.

b. Disconnect the F18 amplifier connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-9 (L+) - F18-3 (L+) | Always | Below 1 Ω |
| F1-19 (L-) - F18-2 (L-) | | |
| F1-8 (R+) - F18-5 (R+) | | |
| F1-18 (R-) - F18-4 (R-) | | |
| F1-9 (L+) - Body ground | Always | 10 kΩ or higher |
| F1-19 (L-) - Body ground | | |
| F1-8 (R+) - Body ground | | |
| F1-18 (R-) - Body ground | | |
| F1-10 (SLD) - Body ground | | |



NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

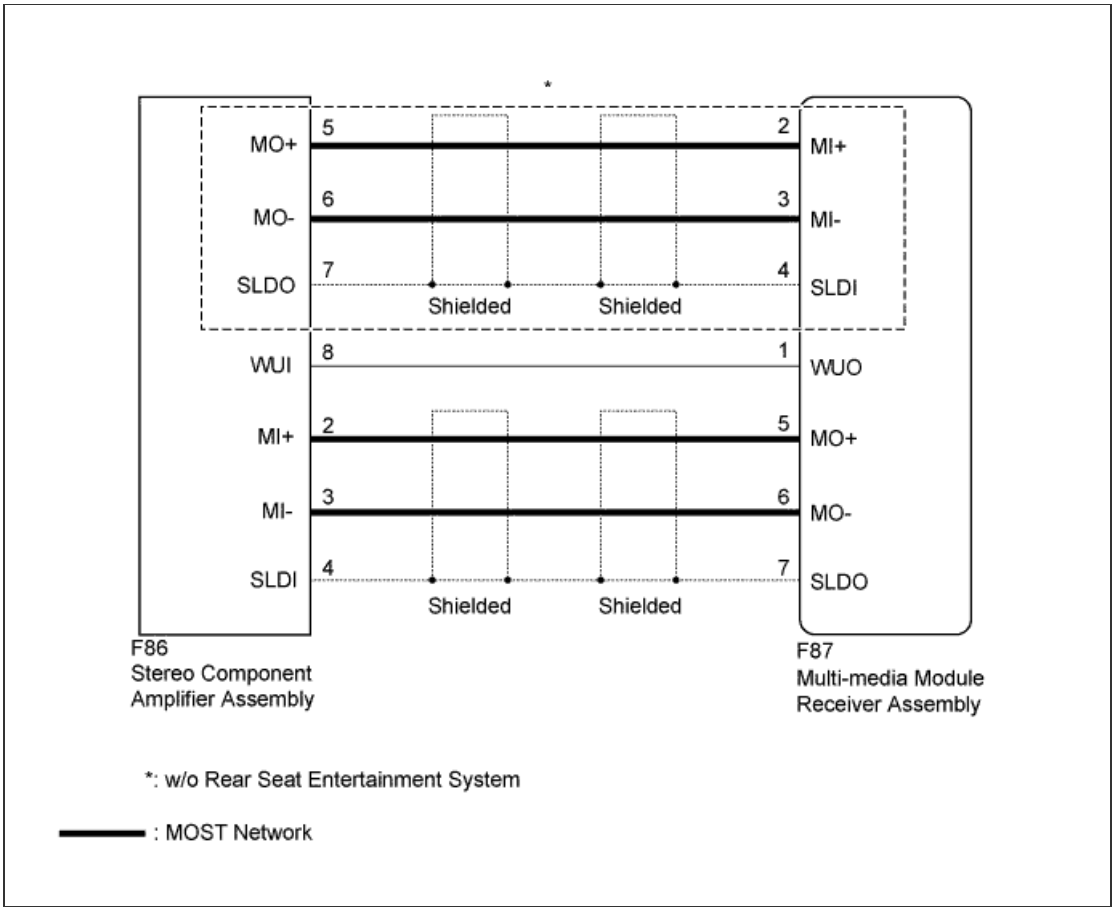
## DESCRIPTION

The multi-media module receiver assembly sends the sound signal to the stereo component amplifier assembly through this circuit.
The sound signal that has been sent is amplified by the stereo component amplifier assembly, and then is sent to the speakers.
If there is an open or short in the circuit, sound cannot be heard from the speakers even if there is no malfunction in the stereo component amplifier assembly, multi-media module receiver assembly or speakers.

**HINT:**

Refer to w/ Rear Seat Entertainment System ( Click here).

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - STEREO COMPONENT AMPLIFIER ASSEMBLY)

a. Disconnect the F87 multi-media module receiver assembly connector.

b. Disconnect the F86 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F87-1 (WUO) - F86-8 (WUI) | Always | Below 1 Ω |
| F87-2 (MI+) - F86-5 (MO+) | Always | Below 1 Ω |
| F87-3 (MI-) - F86-6 (MO-) | Always | Below 1 Ω |
| F87-4 (SLDI) - | | |

| | | |
|---|---|---|
| F86-7 (SLDO) | Always | Below 1 Ω |
| F87-5 (MO+) - F86-2 (MI+) | Always | Below 1 Ω |
| F87-6 (MO-) - F86-3 (MI-) | Always | Below 1 Ω |
| F87-7 (SLDO) - F86-4 (SLDI) | Always | Below 1 Ω |
| F87-1 (WUO) - Body ground | Always | 10 kΩ or higher |
| F87-2 (MI+) - Body ground | Always | 10 kΩ or higher |
| F87-3 (MI-) - Body ground | Always | 10 kΩ or higher |
| F87-4 (SLDI) - Body ground | Always | 10 kΩ or higher |
| F87-5 (MO+) - Body ground | Always | 10 kΩ or higher |
| F87-6 (MO-) - Body ground | Always | 10 kΩ or higher |
| F87-7 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

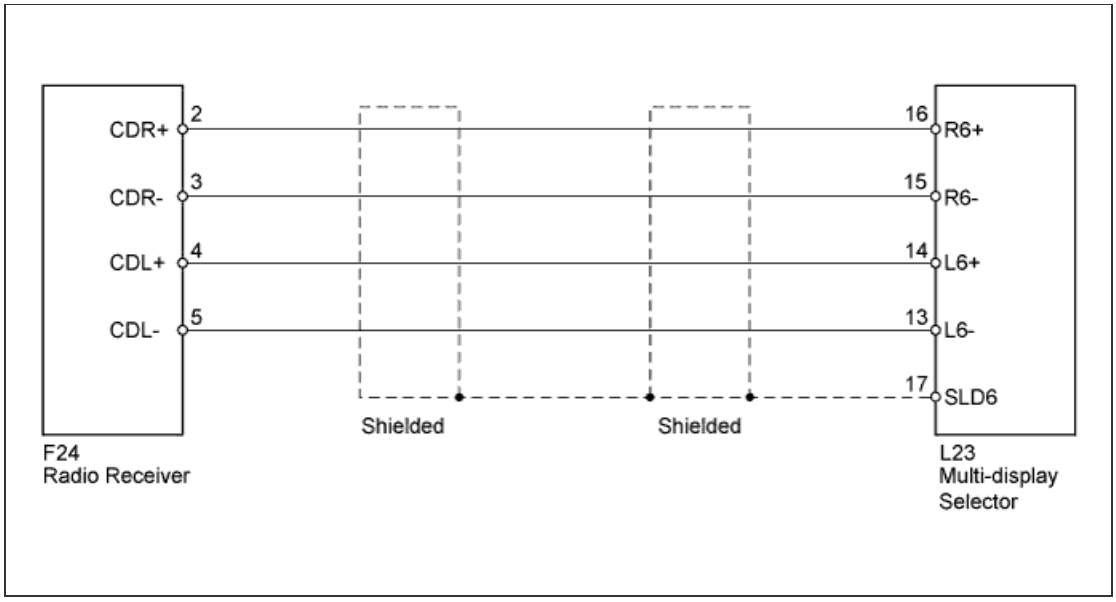
## DESCRIPTION

This is the sound signal circuit from the radio receiver to the multi-display selector.

**HINT:**

"Multi-display Controller" refers to the multi-display selector.

## WIRING DIAGRAM



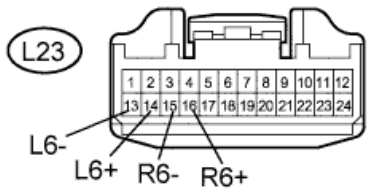

## INSPECTION PROCEDURE

### 1.INSPECT RADIO RECEIVER

a. Disconnect the L23 selector connector.

b. Using an oscilloscope, check the signal waveform between each terminal and body ground according to the conditions shown in the chart below.

Front view of wire harness connector:
(to Multi-display Selector)




**OK:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L23-13 (L6-) - Body ground | Audio sound is being produced | A waveform synchronized with sound is output |
| L23-14 (L6+) - Body ground | | |
| L23-15 (R6-) - Body ground | | |
| L23-16 (R6+) - Body ground | | |

NG → Go to step 2

OK

REPLACE MULTI-DISPLAY SELECTOR (Click here)

2.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - MULTI-DISPLAY SELECTOR)

a. Disconnect the F24 receiver connector.

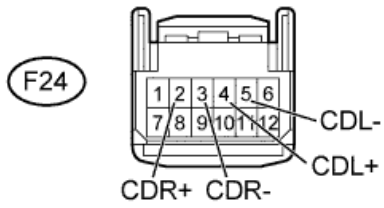
b. Disconnect the L23 selector connector.

c. Measure the resistance according to the value(s) in the table below.

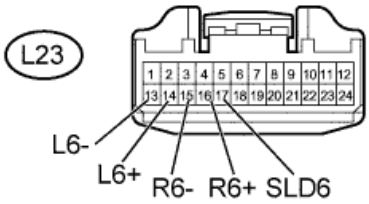
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F24-2 (CDR+) - L23-16 (R6+) | Always | Below 1 Ω |
| F24-3 (CDR-) - L23-15 (R6-) | | |
| F24-4 (CDL+) - L23-14 (L6+) | | |
| F24-5 (CDL-) - L23-13 (L6-) | | |
| L23-13 (L6-) - Body ground | Always | 10 kΩ or higher |
| L23-14 (L6+) - Body ground | | |
| L23-15 (R6-) - Body ground | | |
| L23-16 (R6+) - Body ground | | |
| L23-17 (SLD6) - Body ground | | |

Front view of wire harness connector:
(to Radio Receiver)




Front view of wire harness connector:
(to Multi-display Selector)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

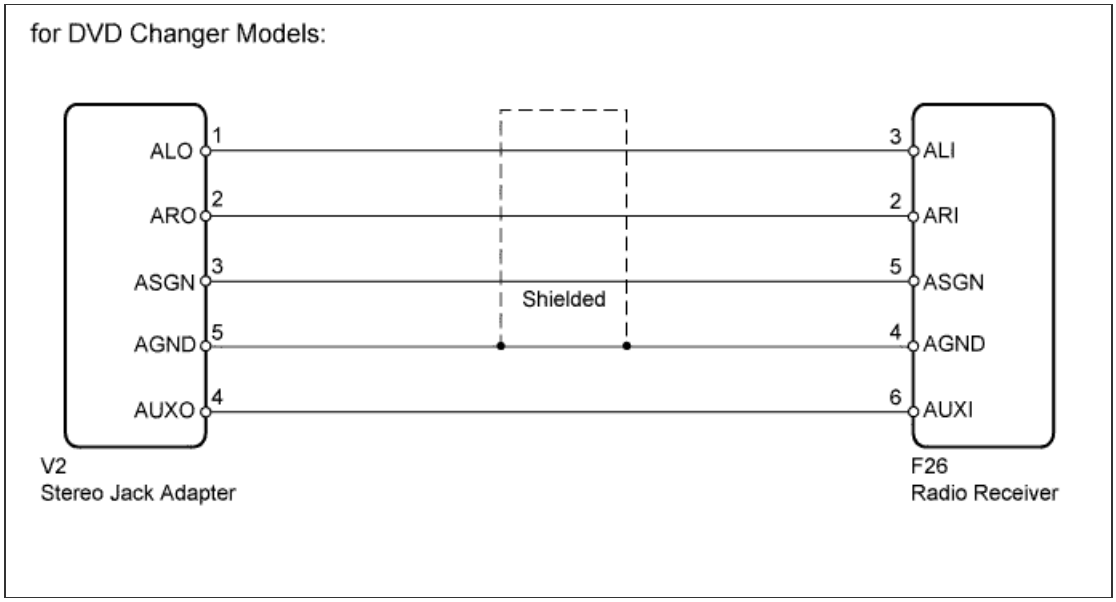
REPLACE RADIO RECEIVER ASSEMBLY (Click here)

**for Preparation** Click here

## DESCRIPTION

The stereo jack adapter sends an external device sound signal to the radio receiver through this circuit.
The sound signal that has been sent is amplified by the stereo component amplifier, and then is sent to the speakers.
If there is an open or short in the circuit, sound cannot be heard from the speakers even if there is no malfunction in the stereo component amplifier, radio receiver, or speakers.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - STEREO JACK ADAPTER)

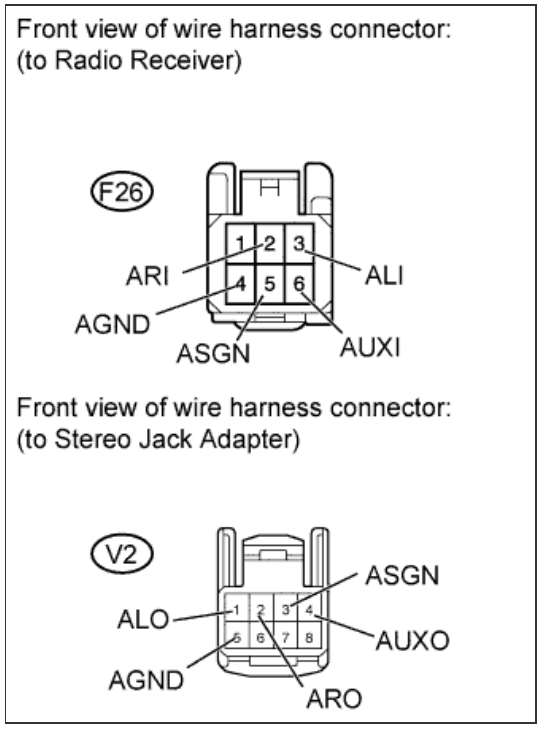
a. Disconnect the F26 receiver connector.

b. Disconnect the V2 adapter connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| V2-4 (AUXO) - F26-6 (AUXI) | Always | Below 1 Ω |
| V2-3 (ASGN) - F26-5 (ASGN) | | |
| V2-2 (ARO) - F26-2 (ARI) | | |
| V2-1 (ALO) - F26-3 (ALI) | | |
| V2-5 (AGND) - F26-4 (AGND) | | |
| V2-4 (AUXO) - Body ground | Always | 10 kΩ or higher |
| V2-3 (ASGN) - Body ground | | |
| V2-2 (ARO) - Body ground | | |
| V2-1 (ALO) - Body ground | | |



| | | |
|---|---|---|
| V2-5 (AGND) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

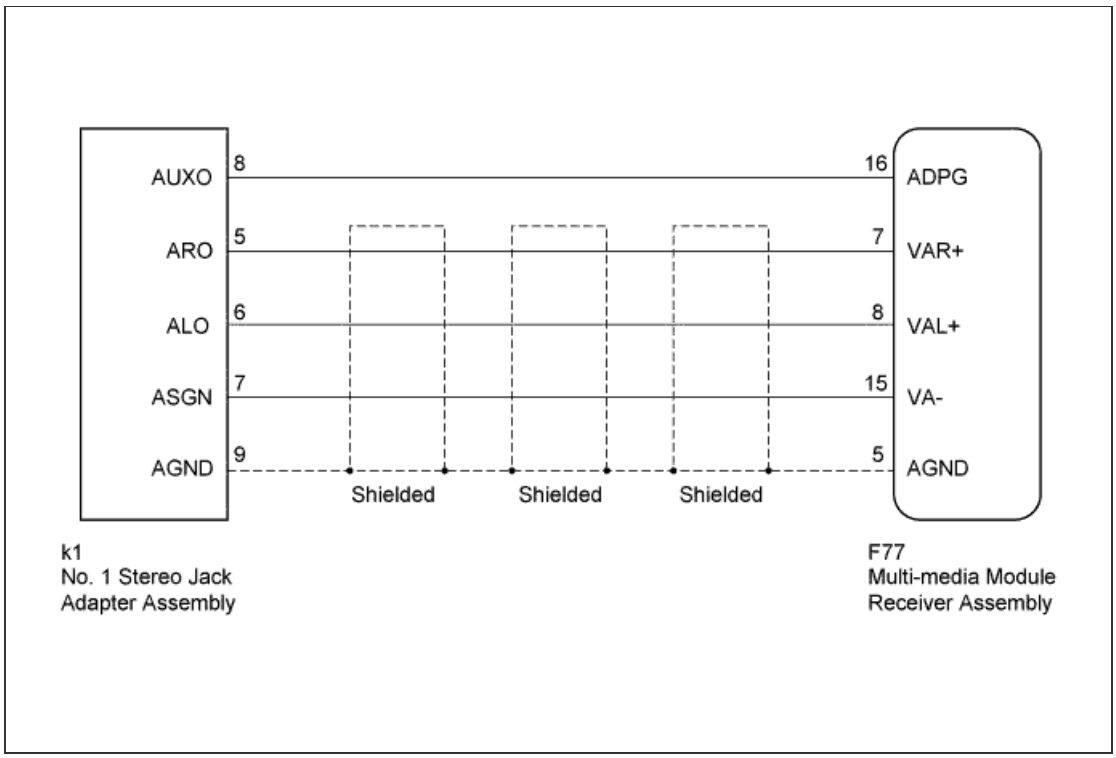
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

The No. 1 stereo jack adapter assembly sends the sound signal from an external device to the multi-media module receiver assembly through this circuit.
The sound signal that has been sent is amplified by the stereo component amplifier assembly or multi-media module receiver assembly, and then is sent to the speakers.
If there is an open or short in the circuit, sound cannot be heard from the speakers even if there is no malfunction in the stereo component amplifier assembly, multi-media module receiver assembly or speakers.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - NO. 1 STEREO JACK ADAPTER ASSEMBLY)

a. Disconnect the F77 multi-media module receiver assembly connector.

b. Disconnect the k1 No. 1 stereo jack adapter assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F77-16 (ADPG) - k1-8 (AUXO) | Always | Below 1 Ω |
| F77-7 (VAR+) - k1-5 (ARO) | Always | Below 1 Ω |
| F77-8 (VAL+) - k1-6 (ALO) | Always | Below 1 Ω |
| F77-15 (VA-) - k1-7 (ASGN) | Always | Below 1 Ω |
| F77-5 (AGND) - k1-9 (AGND) | Always | Below 1 Ω |
| F77-16 (ADPG) - Body ground | Always | 10 kΩ or higher |
| F77-7 (VAR+) - Body ground | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| F77-8 (VAL+) - Body ground | Always | 10 kΩ or higher |
| F77-15 (VA-) - Body ground | Always | 10 kΩ or higher |
| F77-5 (AGND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

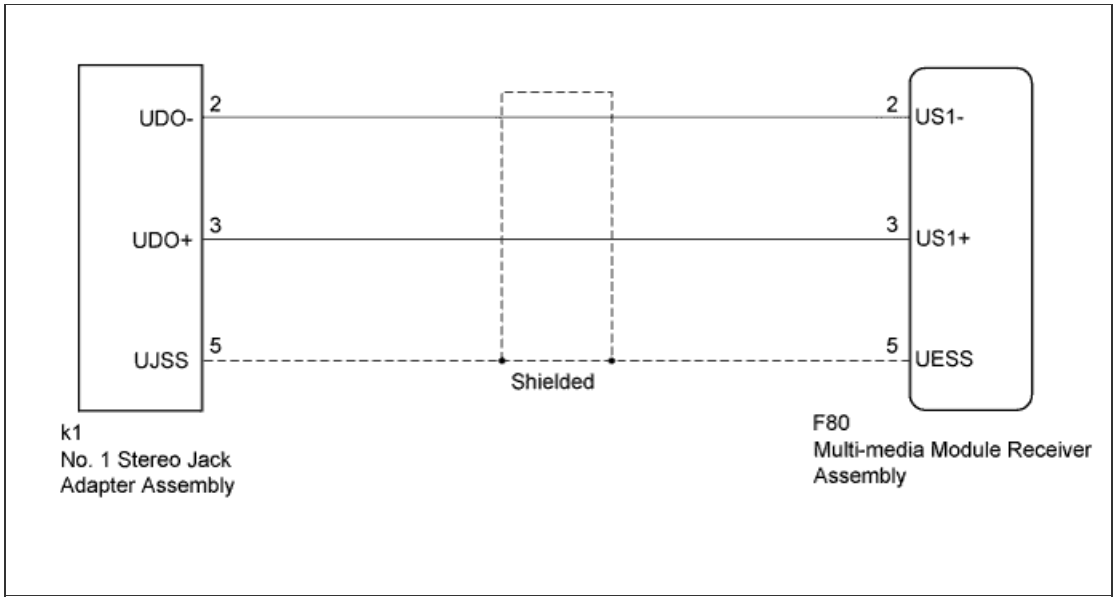
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

The No. 1 stereo jack adapter assembly sends the sound data signal or image data signal from a USB device to the multi-media module receiver assembly via this circuit.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**1.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - NO. 1 STEREO JACK ADAPTER ASSEMBLY)**

a. Disconnect the F80 multi-media module receiver assembly connector.

b. Disconnect the k1 No. 1 stereo jack adapter assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F80-2 (US1-) - k1-2 (UDO-) | Always | Below 1 Ω |
| F80-3 (US1+) - k1-3 (UDO+) | Always | Below 1 Ω |
| F80-5 (UESS) - k1-5 (UJSS) | Always | Below 1 Ω |
| F80-2 (US1-) - Body ground | Always | 10 kΩ or higher |
| F80-3 (US1+) - Body ground | Always | 10 kΩ or higher |
| F80-5 (UESS) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

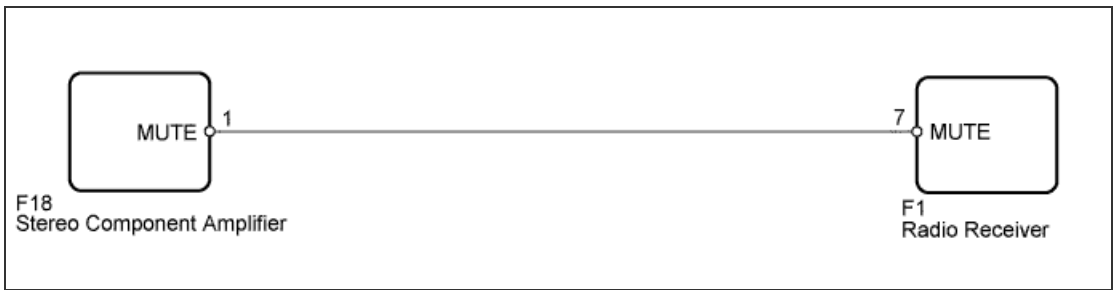
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit sends a signal to the stereo component amplifier to mute noise. Therefore, the noise produced by changing the sound source ceases.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - STEREO COMPONENT AMPLIFIER)

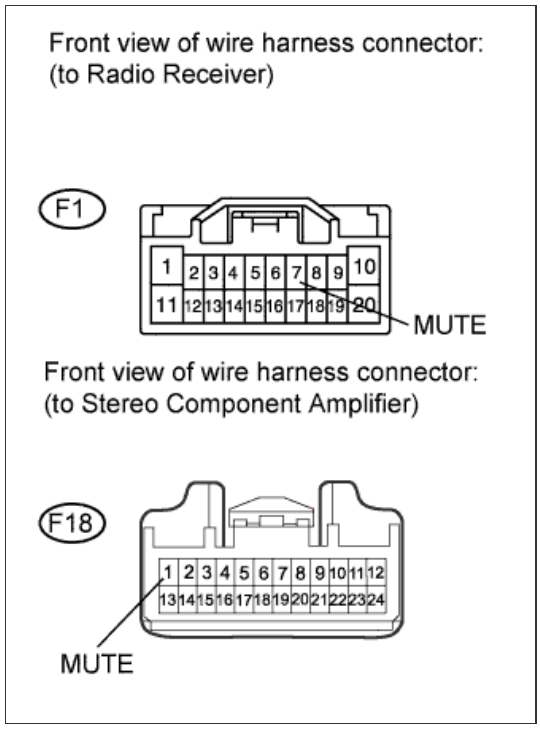
a. Disconnect the F1 receiver connector.

b. Disconnect the F18 amplifier connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-7 (MUTE) - F18-1 (MUTE) | Always | Below 1 Ω |
| F1-7 (MUTE) - Body ground | Always | 10 kΩ or higher |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 2.CHECK STEREO COMPONENT AMPLIFIER ASSEMBLY (OPERATION)

a. Replace the stereo component amplifier with a normal one and check if it operates normally ( Click here).

**OK:**

**The audio system operates normally.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

END (STEREO COMPONENT AMPLIFIER ASSEMBLY IS DEFECTIVE)

**for Preparation** Click here

## DESCRIPTION

The multi-display selector controls the volume according to the mute signal from the radio receiver.
The mute signal is sent to reduce noise and a popping sound generated when switching the mode, etc.

**HINT:**

"Multi-display Controller" refers to the multi-display selector.

## WIRING DIAGRAM



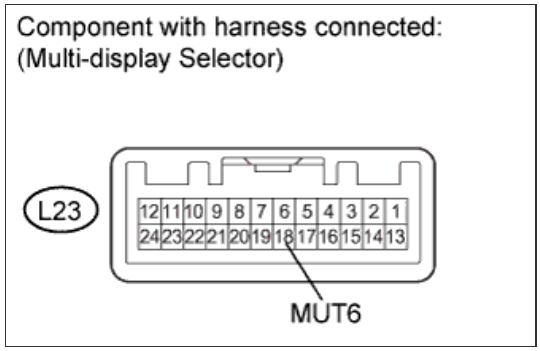

## INSPECTION PROCEDURE

### 1.CHECK MULTI-DISPLAY SELECTOR

a. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L23-18 (MUT6) - Body ground | Engine switch on (ACC), audio system is playing → changing modes | 3.5 V or higher → Below 1 V |




NG → Go to step 2

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

### 2.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - MULTI-DISPLAY SELECTOR)

a. Disconnect the F24 receiver connector.

b. Disconnect the L23 selector connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

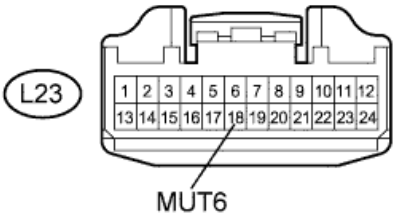
| | | Specified |
|---|---|---|

| Tester Connection | Condition | Condition |
|---|---|---|
| F24-6 (MUTE) - L23-18 (MUT6) | Always | Below 1 Ω |
| F24-6 (MUTE) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to Radio Receiver)




Front view of wire harness connector:
(to Multi-display Selector)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**3.CHECK MULTI-DISPLAY SELECTOR**

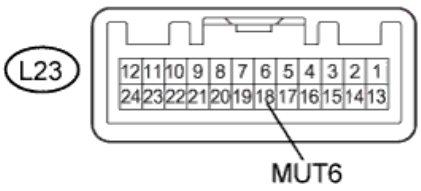
a. Reconnect the L23 selector connector.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L23-18 (MUT6) - Body ground | Engine switch on (ACC), audio system is playing → changing modes | 3.5 V or higher → Below 1 V |

Component with harness connected:
(Multi-display Selector)




NG → REPLACE MULTI-DISPLAY SELECTOR (Click here)

OK

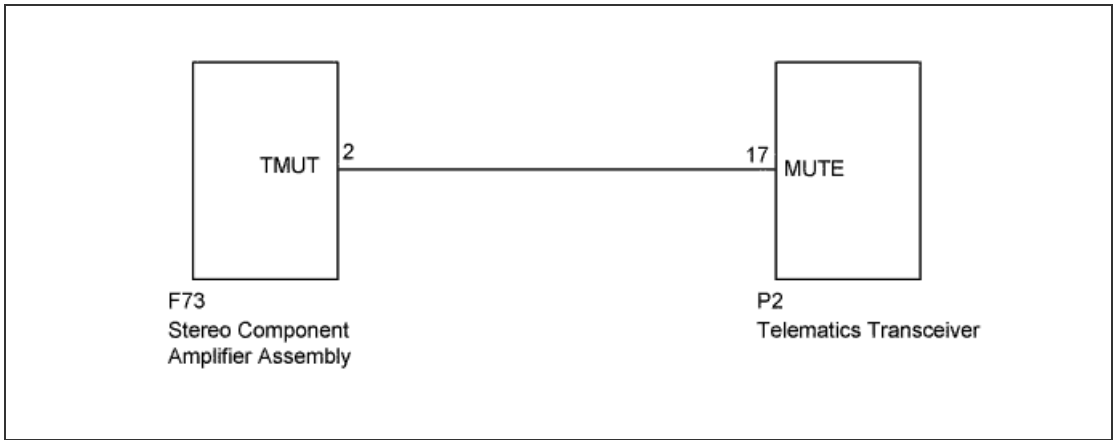
REPLACE RADIO RECEIVER ASSEMBLY (Click here)

**for Preparation** Click here

## DESCRIPTION

The telematics transceiver sends a mute signal to the stereo component amplifier assembly.
The stereo component amplifier assembly controls the volume according to the mute signal from the telematics transceiver.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK TELEMATICS TRANSCEIVER

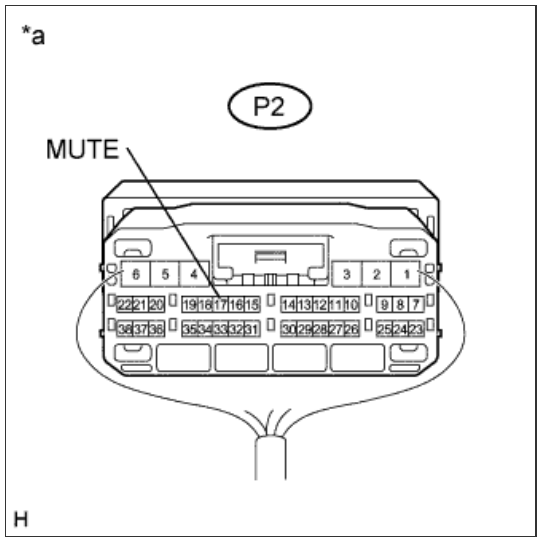
a. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P2-17 (MUTE) - Body ground | Engine switch on (ACC), audio system is playing → Emergency call mode | 3.5 V or higher → Below 1 V |

**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Telematics Transceiver) |




NG → Go to step 2

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

### 2.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - TELEMATICS TRANSCEIVER)

a. Disconnect the F73 stereo component amplifier assembly connector.

b. Disconnect the P2 telematics transceiver connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| | | Specified |
|---|---|---|

| Tester Connection | Condition | Condition |
|---|---|---|
| F73-2 (TMUT) - P2-17 (MUTE) | Always | Below 1 Ω |
| F73-2 (TMUT) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**3.CHECK STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Reconnect the stereo component amplifier assembly connector.

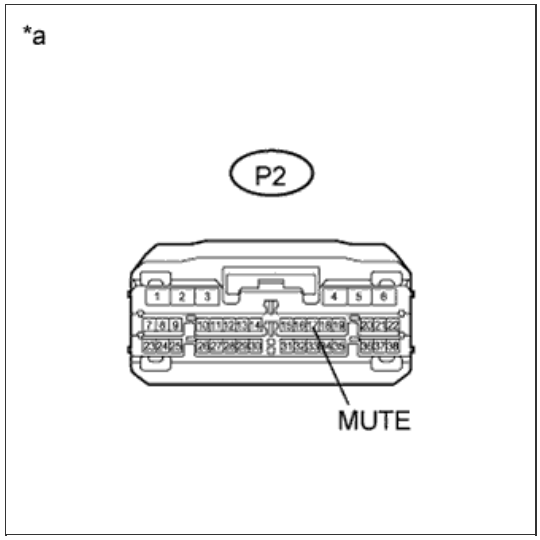
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| P2-17 (MUTE) - Body ground | Engine switch on (ACC) | 3.5 V or higher |

**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Telematics Transceiver) |




NG → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

OK

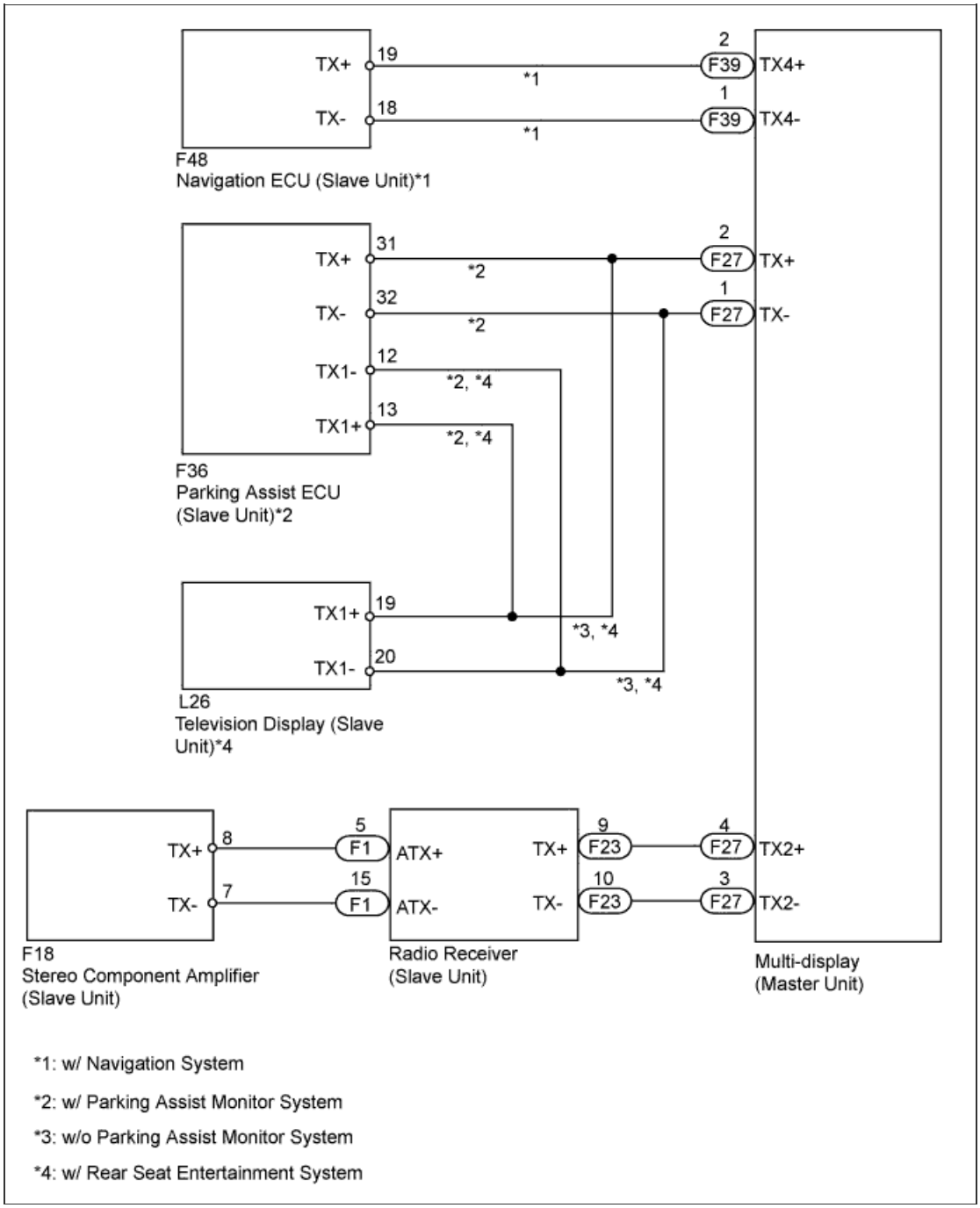
REPLACE TELEMATICS TRANSCEIVER (Click here)

**for Preparation** Click here

## DESCRIPTION

Each unit of the navigation system connected to the AVC-LAN (communication bus) communicates by transferring the signals from each switch. When a short to +B or short to ground occurs in the AVC-LAN, the navigation system will not function normally as communication is discontinued.

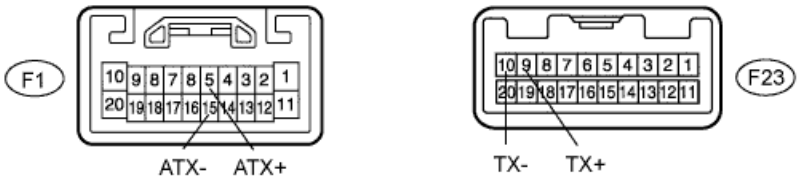
## WIRING DIAGRAM




## INSPECTION PROCEDURE

1.CHECK RADIO RECEIVER ASSEMBLY

Component without harness connected:
(Radio Receiver)




a. Disconnect the F1 and F23 receiver connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-5 (ATX+) - F1-15 (ATX-) | Always | 60 to 80 Ω |
| F23-9 (TX+) - F23-10 (TX-) | Always | 60 to 80 Ω |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

**2.CHECK HARNESS AND CONNECTOR**

**HINT:**

For details of the connectors, refer to Terminals of ECU ( Click here).

a. Referring to the AVC-LAN wiring diagram, check all AVC-LAN circuits.

i. Disconnect all connectors in all AVC-LAN circuits.

ii. Check for an open or short in all AVC-LAN circuits.

**OK:**
**There is no open or short circuit.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

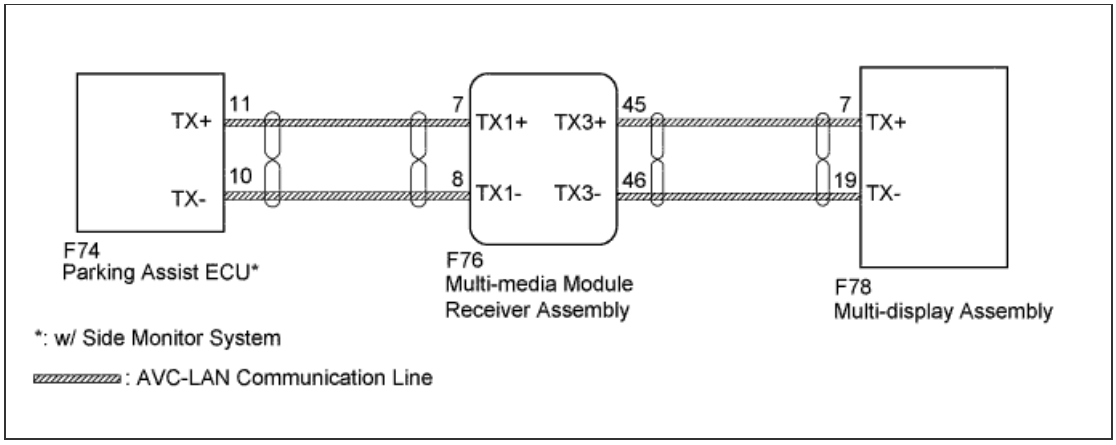
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

Each audio system component connected to the AVC-LAN (communication bus) transfers switch signals using the audio visual communication local area network.
If a short to +B or short to ground occurs in the AVC-LAN, the audio system will not function normally because communication is not possible.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

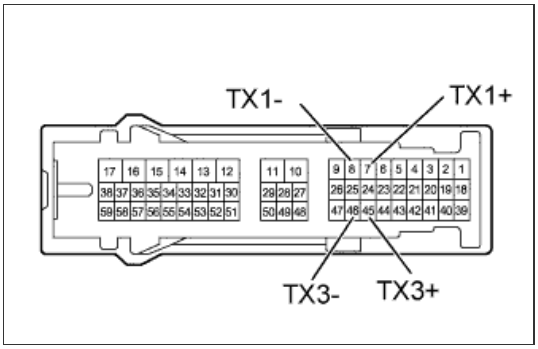
### 1.INSPECT MULTI-MEDIA MODULE RECEIVER ASSEMBLY

a. Remove the multi-media module receiver assembly (Click here).

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 7 (TX1+) - 8 (TX1-) | Always | 60 to 80 Ω |
| 45 (TX3+) - 46 (TX3-) | Always | 60 to 80 Ω |




NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

### 2.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - BATTERY AND BODY GROUND)

**HINT:**

For details of the connectors, refer to Terminals of ECU ( Click here).

a. Referring to the following AVC-LAN wiring diagram, check all AVC-LAN circuits.

i. Disconnect all connectors in all AVC-LAN circuits.

ii. Check for an open or short in all AVC-LAN circuits.

**OK:**
**There is no open or short circuit.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3.INSPECT MALFUNCTIONING PARTS

a. Disconnect and reconnect each slave unit one by one until the master unit returns to normal operation.

**HINT:**

- **Check all slave units.**
- **When disconnecting a slave unit causes the master unit to return to normal operation, this indicates that the slave unit is malfunctioning. Replace the malfunctioning slave unit.**

**OK:**
**Master unit returns to normal operation.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

REPLACE MALFUNCTIONING PARTS

**for Preparation** Click here

## DESCRIPTION

The stereo component amplifier performs switch operation control during driving by receiving a vehicle speed signal from the combination meter.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK OPERATION OF SPEEDOMETER

a. Drive the vehicle and check if the function of the speedometer in the combination meter is normal.

**OK:**

**Actual vehicle speed and the speed indicated on the speedometer are the same.**

**HINT:**

The vehicle speed sensor is functioning normally when the indication on the speedometer is normal.

**NG** → GO TO METER/GAUGE SYSTEM (Click here)

**OK**

### 2.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - COMBINATION METER)

a. Disconnect the F18 amplifier connector.

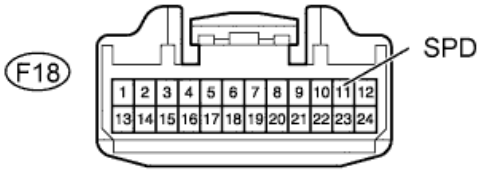
b. Disconnect the E77 meter connector.

c. Measure the resistance according to the value(s) in the table below.

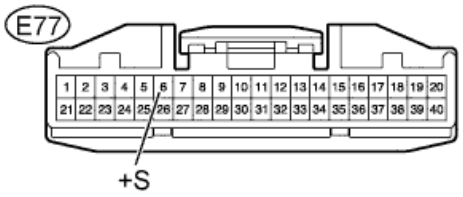
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F18-11 (SPD) - E77-6 (+S) | Always | Below 1 Ω |
| F18-11 (SPD) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to Stereo Component Amplifier)




Front view of wire harness connector:
(to Combination Meter)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

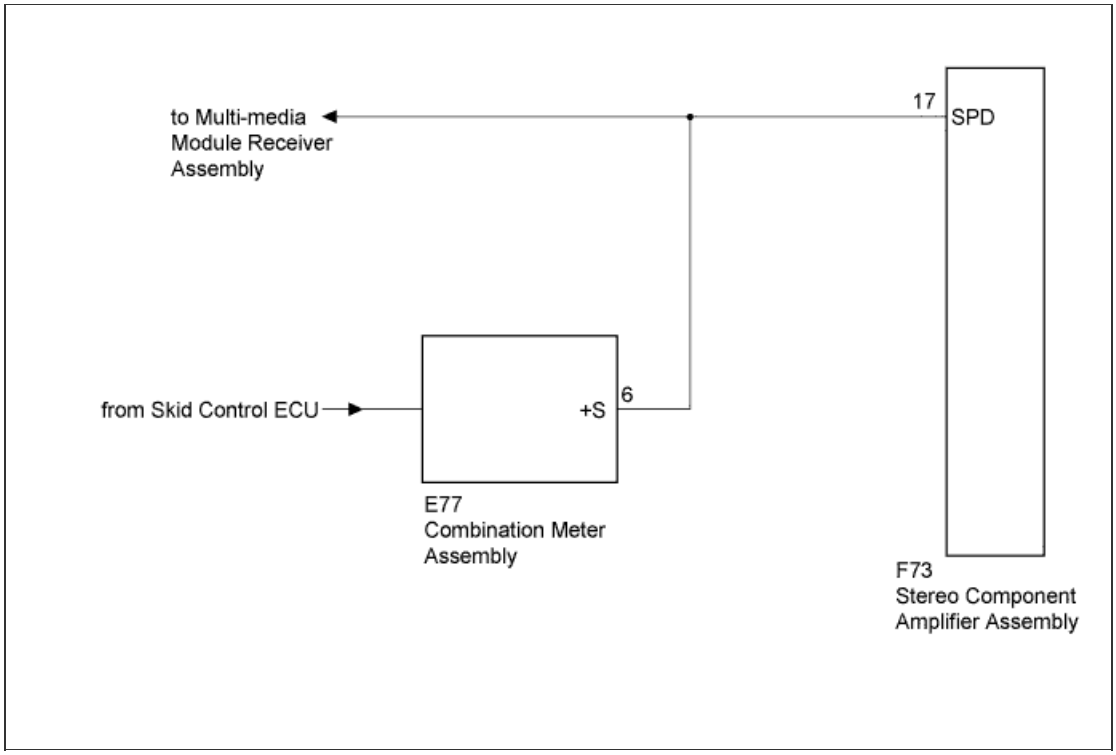
## DESCRIPTION

The circuit is necessary for the Automatic Sound Levelizer (ASL) built into the stereo component amplifier assembly.
Speed signals are received from the combination meter assembly and used for the ASL.
The ASL function automatically adjusts the sound volume in order to clear audio quality even when vehicle noise increases (as vehicle noise increases, the volume is turned up etc.).

**HINT:**

- **A voltage of 12 V or 5 V is output from each ECU and then input to the combination meter assembly. The signal is changed to a pulse signal at the transistor in the combination meter assembly. Each ECU controls the respective system based on the pulse signal.**
- **If a short occurs in any of the ECUs or in the wire harness connected to an ECU, all systems in the diagram below will not operate normally.**

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - COMBINATION METER ASSEMBLY)

a. Disconnect the F73 stereo component amplifier assembly connector and E77 combination meter assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F73-17 (SPD) - E77-6 (+S) | Always | Below 1 Ω |
| F73-17 (SPD) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 2.INSPECT COMBINATION METER ASSEMBLY (OUTPUT WAVEFORM)

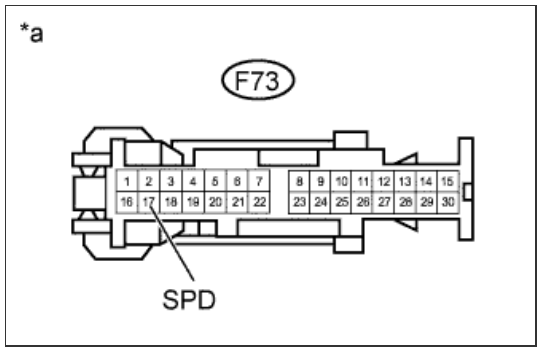
a. Reconnect the E77 combination meter assembly connector.

b. Check the input waveform.

i. Connect an oscilloscope to terminal F73-17 (SPD) and body ground.

ii. Turn the engine switch on (IG).

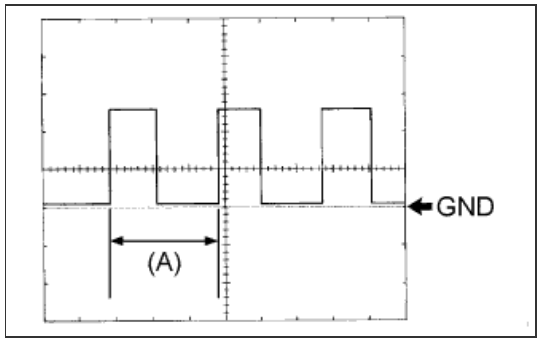
iii. Turn a wheel slowly.




**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |

iv. Check the signal waveform according to the condition(s) in the table below.




| Item | Condition |
|---|---|
| Measurement terminal | F73-17 (SPD) - Body ground |
| Tool setting | 5 V/DIV., 20 ms./DIV. |
| Vehicle condition | Driving at approx. 20 km/h (12 mph) |

**OK:**

**The waveform is displayed as shown in the illustration.**

**HINT:**

When the system is functioning normally, one wheel revolution generates 4 pulses. As the vehicle speed increases, the width indicated by (A) in the illustration narrows.

**NG** → GO TO METER / GAUGE SYSTEM (Click here)

**OK** →

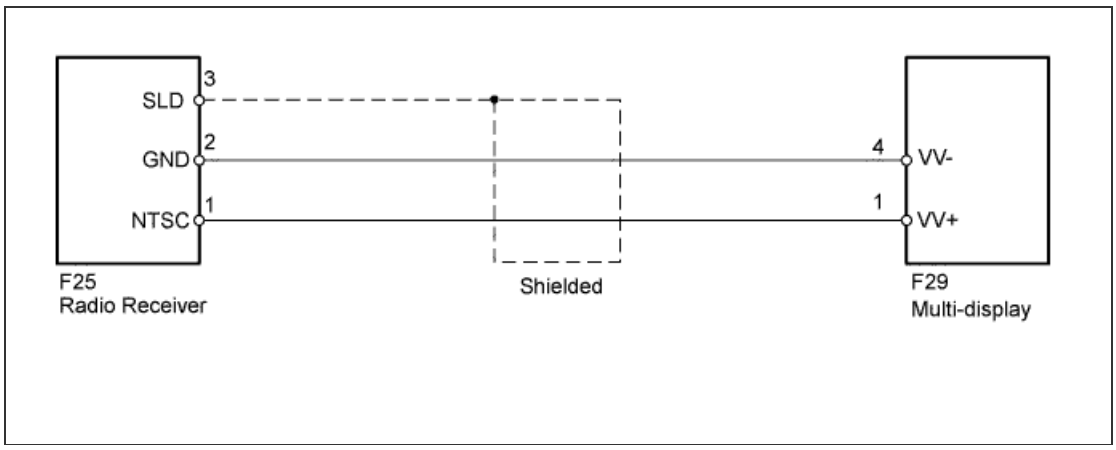
REPLACE PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit sends a DVD image signal from the radio receiver to the multi-display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - RADIO RECEIVER)

a. Disconnect the F29 display connector.

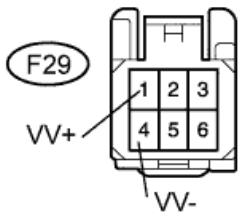
b. Disconnect the F25 receiver connector.

c. Measure the resistance according to the value(s) in the table below.

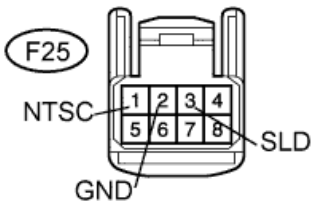
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F29-4 (VV-) - F25-2 (GND) | Always | Below 1 Ω |
| F29-1 (VV+) - F25-1 (NTSC) | Always | Below 1 Ω |
| F29-4 (VV-) - Body ground | Always | 10 kΩ or higher |
| F29-1 (VV+) - Body ground | Always | 10 kΩ or higher |
| F25-3 (SLD) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to Multi-display)




Front view of wire harness connector:
(to Radio Receiver)




N

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 2.INSPECT RADIO RECEIVER (NTSC SIGNAL)

a. Reconnect the F25 receiver connector.

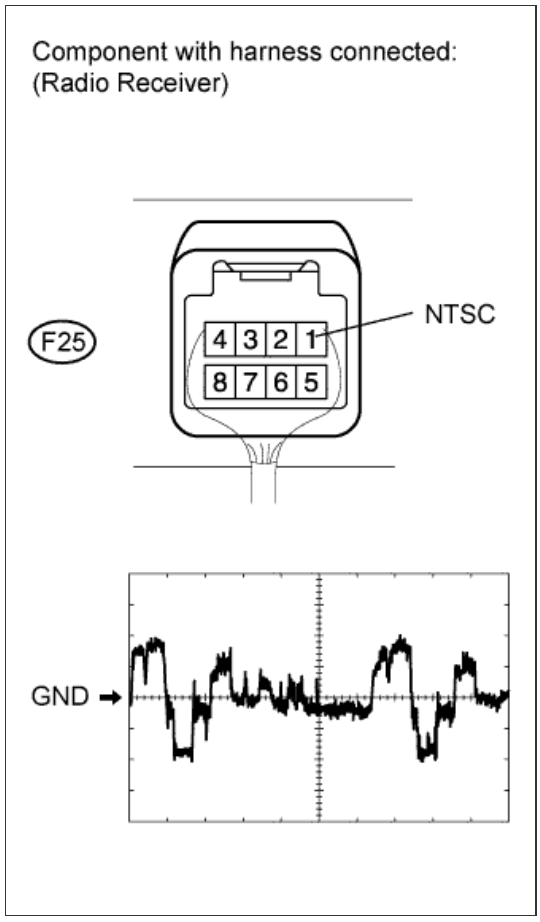
b. Check the waveform of the radio receiver using an oscilloscope.

**Measurement Condition**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | NTSC (F25-1) - Body ground |
| Tool Setting | 0.2 V/DIV., 10 µsec./DIV. |
| Condition | DVD played on radio receiver |

**OK:**

**Waveform is as shown in the illustration.**




NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

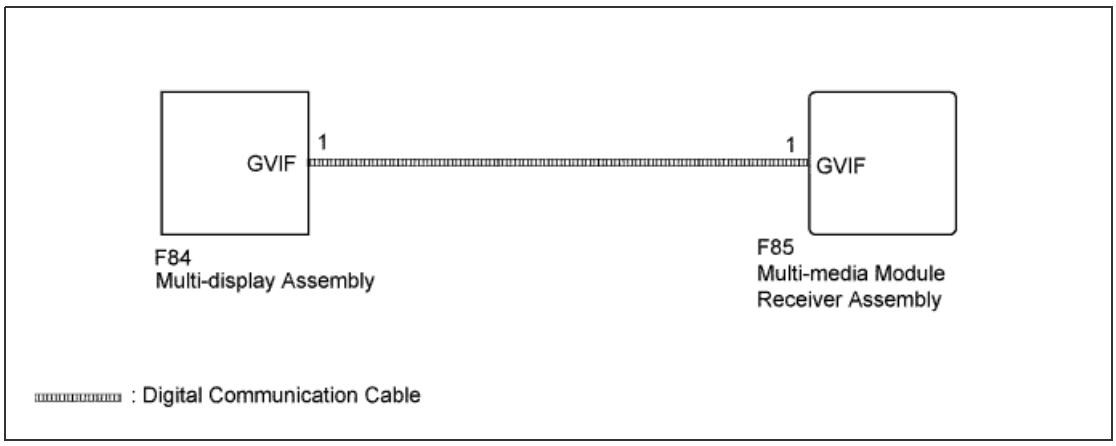
OK → PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

The display image signal from the multi-media module receiver assembly is sent to the multi-display assembly using a digital communication cable.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK DIGITAL COMMUNICATION CABLE CONNECTOR

a. Check if the digital communication cable connectors between the multi-media module receiver assembly and the multi-display assembly have any connection problems (Click here).

b. Check that the screen display is normal.

**OK:**
**Screen display is normal.**

NG → **Go to step 2**

OK ↓

USE SIMULATION METHOD TO CHECK (**Click here**)

### 2.REPLACE MULTI-DISPLAY ASSEMBLY

a. Replace the multi-display assembly with a new or normally functioning one ( Click here).

b. Check that the screen display is normal.

**OK:**
**Screen display is normal.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (**Click here**)

OK ↓

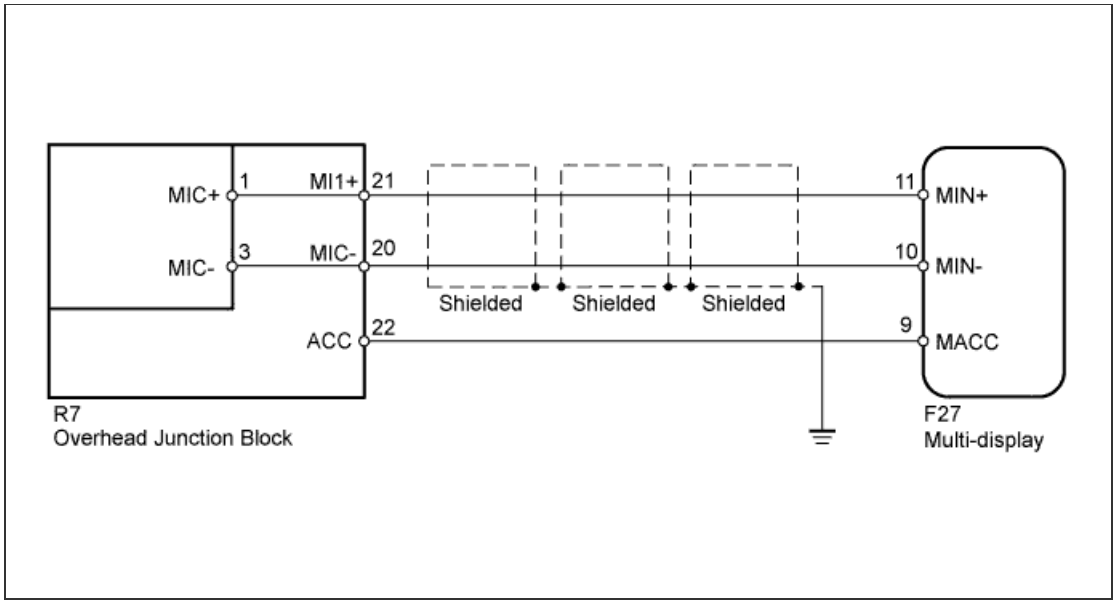
END (MULTI-DISPLAY ASSEMBLY IS DEFECTIVE)

**for Preparation** Click here

## DESCRIPTION

This circuit sends a microphone signal from the microphone to the display and module display. It also supplies power from the multi-display to the microphone.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

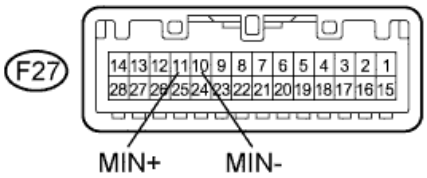
### 1.CHECK MULTI-DISPLAY

a. Tester Connection

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F27-11 (MIN+) - F27-10 (MIN-) | Engine switch on (ACC) and "Voice" switch of steering pad switch pressed | Waveform that matches sound spoken into microphone is output |

Component with harness connected: (Multi-display)




**Result**

| Result | Proceed to |
|---|---|
| OK (w/ Navigation System) | A |
| OK (w/o Navigation System) | B |
| NG | C |

B → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

C → Go to step 2

A

REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

### 2.CHECK HARNESS AND CONNECTOR (OVERHEAD JUNCTION BLOCK - MULTI-DISPLAY)

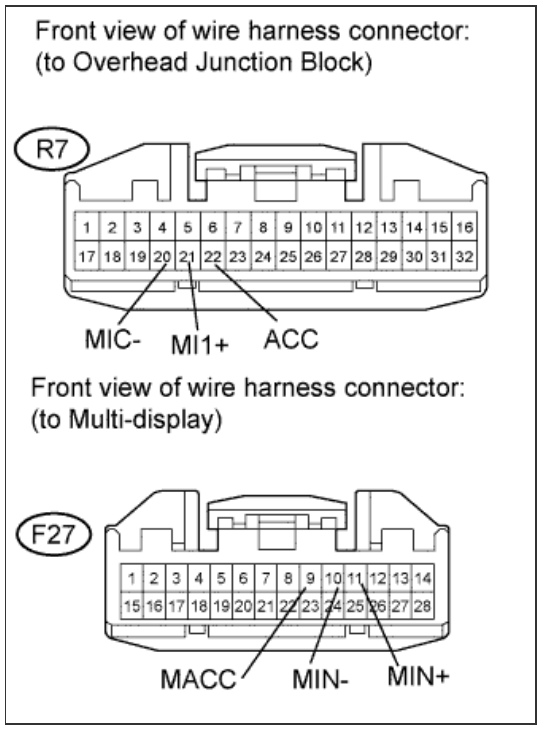
a. Disconnect the R7 overhead junction block connector.

b. Disconnect the F27 display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F27-9 (MACC) - R7-22 (ACC) | Always | Below 1 Ω |
| F27-11 (MIN+) - R7-21 (MI1+) | Always | Below 1 Ω |
| F27-10 (MIN-) - R7-20 (MIC-) | Always | Below 1 Ω |
| F27-9 (MACC) - Body ground | Always | 10 kΩ or higher |
| F27-11 (MIN+) - Body ground | Always | 10 kΩ or higher |
| F27-10 (MIN-) - Body ground | Always | 10 kΩ or higher |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 3.CHECK MULTI-DISPLAY ASSEMBLY (MACC VOLTAGE)

a. Reconnect the F27 display connector.

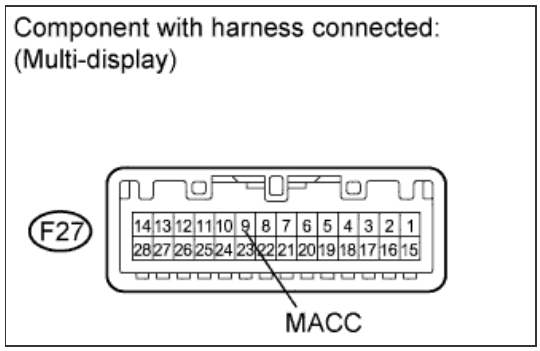
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F27-9 (MACC) - Body ground | Engine switch on (ACC) | 4 to 6 V |

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (w/ Navigation System) | B |
| NG (w/o Navigation System) | C |




B → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

C → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

A

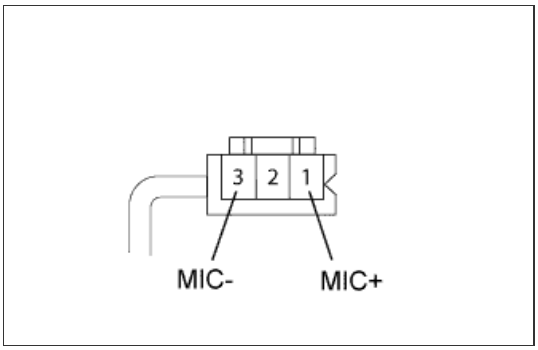
## 4.CHECK MICROPHONE ASSEMBLY

a. Remove the microphone from the overhead junction block ( Click here).

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 (MIC+) - 3 (MIC-) | Always | 1.9 to 2.2 kΩ |




NG → REPLACE MICROPHONE ASSEMBLY (Click here)

OK

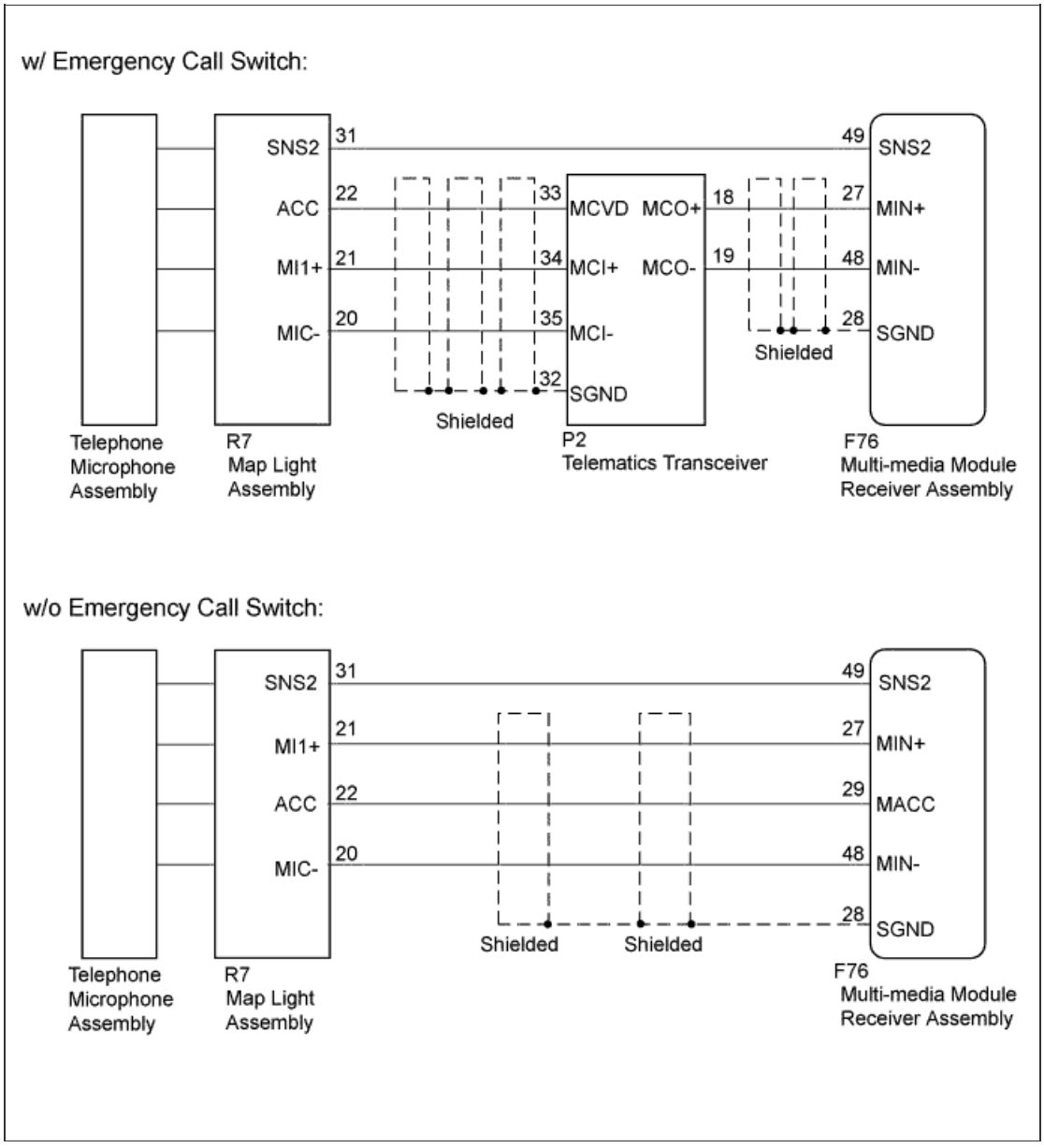
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

- The multi-media module receiver assembly and map light assembly (telephone microphone assembly) are connected to each other using the microphone connection detection signal lines.
- Using this circuit, the multi-media module receiver assembly sends power to the map light assembly (telephone microphone assembly), and the map light assembly (telephone microphone assembly) sends microphone signals to the multi-media module receiver assembly (w/o Emergency Call Switch).
- Using this circuit, the telematics transceiver sends power to the map light assembly (telephone microphone assembly), and the map light assembly (telephone microphone assembly) sends microphone signals to the multi-media module receiver assembly via the telematics transceiver (w/ Emergency Call Switch).

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**HINT:**

When replacing the multi-media module receiver assembly or the telematics transceiver, perform the vehicle contract setting ( Click here).

### 1.CONFIRM MODEL

a. Choose the model to be inspected.

**Model**

| Model | Proceed to |
|---|---|
| w/o Emergency Call Switch | A |
| w/ Emergency Call Switch | B |

B → Go to step 7

A

## 2.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - MAP LIGHT ASSEMBLY)

a. Disconnect the F76 multi-media module receiver assembly connector.

b. Disconnect the R7 map light assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-27 (MIN+) - R7-21 (MI1+) | Always | Below 1 Ω |
| F76-29 (MACC) - R7-22 (ACC) | Always | Below 1 Ω |
| F76-48 (MIN-) - R7-20 (MIC-) | Always | Below 1 Ω |
| F76-49 (SNS2) - R7-31 (SNS2) | Always | Below 1 Ω |
| F76-27 (MIN+) - Body ground | Always | 10 kΩ or higher |
| F76-28 (SGND) - Body ground | Always | 10 kΩ or higher |
| F76-29 (MACC) - Body ground | Always | 10 kΩ or higher |
| F76-48 (MIN-) - Body ground | Always | 10 kΩ or higher |
| F76-49 (SNS2) - Body ground | Always | 10 kΩ or higher |

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

## 3.CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY

a. Measure the voltage according to the value(s) in the table below.

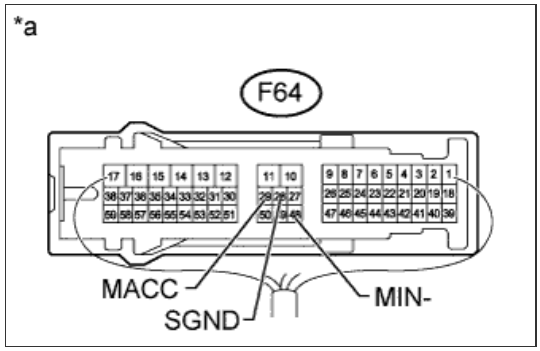
**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F76-29 (MACC) - Body ground | Engine switch on (ACC) | 4 to 6 V |

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-28 (SGND) - Body ground | Always | Below 1 Ω |



| | | |
|---|---|---|
| F76-48 (MIN-) - Body ground | Always | Below 1 Ω |

**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Multi-media Module Receiver Assembly) |

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

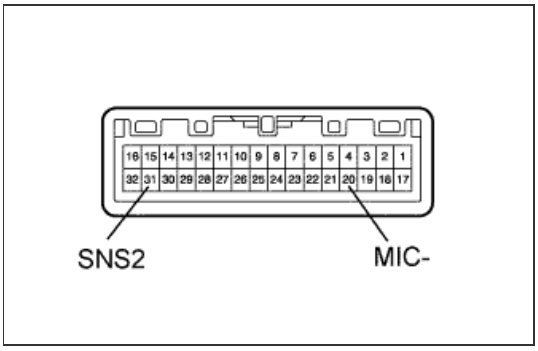
## 4.INSPECT MAP LIGHT ASSEMBLY

a. Remove the map light assembly (Click here).

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 20 (MIC-) - 31 (SNS2) | Always | Below 1 Ω |




NG → Go to step 6

OK

## 5.CHECK MAP LIGHT ASSEMBLY

a. Turn the engine switch on (ACC).

b. Connect an oscilloscope to terminals R7-21 (MI1+) and R7-20 (MIC-) of the map light assembly connector.

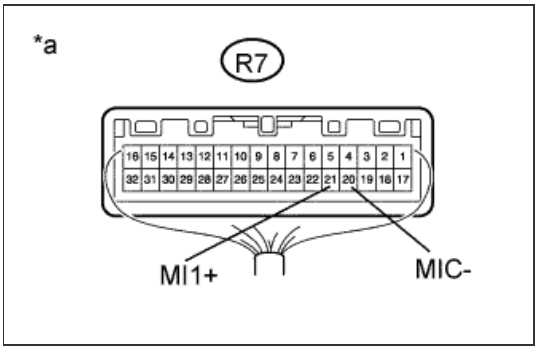
c. Check the waveform of the telephone microphone assembly using the oscilloscope.

**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Map Light Assembly) |

**Result**

| Result | Proceed to |
|---|---|
| A waveform synchronized with the voice input to the map light assembly is output. | A |
| A waveform synchronized with the voice input to the map light assembly is not output. | B |




B → Go to step 6

A

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

## 6.CHECK TELEPHONE MICROPHONE ASSEMBLY

a. Replace the telephone microphone assembly with a new or normally functioning one ( Click here).

b. Check if the same malfunction recurs.

**Result**

| Result | Proceed to |
|---|---|
| Malfunction does not recur (returns to normal). | A |
| Malfunction recurs. | B |

B → REPLACE MAP LIGHT ASSEMBLY (Click here)

A

END (TELEPHONE MICROPHONE ASSEMBLY IS DEFECTIVE)

## 7.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - MAP LIGHT ASSEMBLY)

a. Disconnect the F76 multi-media module receiver assembly connector.

b. Disconnect the R7 map light assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-49 (SNS2) - R7-31 (SNS2) | Always | Below 1 Ω |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 8.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - TELEMATICS TRANSCEIVER)

a. Disconnect the F76 multi-media module receiver assembly connector.

b. Disconnect the P2 telematics transceiver connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-27 (MIN+) - P2-18 (MCO+) | Always | Below 1 Ω |
| F76-48 (MIN-) - P2-19 (MCO-) | Always | Below 1 Ω |
| F76-27 (MIN+) - Body ground | Always | 10 kΩ or higher |
| F76-48 (MIN-) - Body ground | Always | 10 kΩ or higher |
| F76-28 (SGND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 9.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - MAP LIGHT ASSEMBLY)

a. Disconnect the P2 telematics transceiver connector.

b. Disconnect the R7 map light assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P2-33 (MCVD) - R7-22 (ACC) | Always | Below 1 Ω |
| P2-34 (MCI+) - R7-21 (MI1+) | Always | Below 1 Ω |
| P2-35 (MCI-) - R7-20 (MIC-) | Always | Below 1 Ω |
| P2-33 (MCVD) - Body ground | Always | 10 kΩ or higher |
| P2-34 (MCI+) - Body ground | Always | 10 kΩ or higher |
| P2-35 (MCI-) - Body ground | Always | 10 kΩ or higher |
| P2-32 (SGND) - Body ground | Always | 10 kΩ or higher |

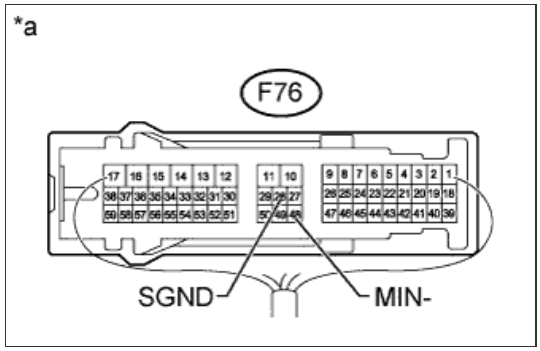
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 10.CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY

a. Disconnect the P2 telematics transceiver connector.

b. Measure the resistance according to the value(s) in the table below.




**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-28 (SGND) - Body ground | Always | Below 1 Ω |
| F76-48 (MIN-) - Body ground | Always | Below 1 Ω |

**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Multi-media Module Receiver Assembly) |

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

## 11.CHECK TELEMATICS TRANSCEIVER

a. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

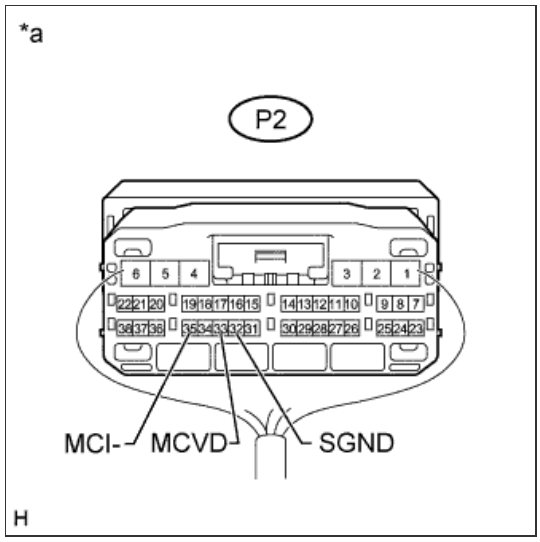
| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| P2-33 (MCVD) - Body ground | Engine switch on (ACC) | 4 to 6 V |

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| | | Specified |
|---|---|---|

| Tester Connection | Condition | Condition |
|---|---|---|
| P2-32 (SGND) - Body ground | Always | Below 1 Ω |
| P2-35 (MCI-) - Body ground | Always | Below 1 Ω |




**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Telematics Transceiver) |

NG → REPLACE TELEMATICS TRANSCEIVER (Click here)

OK

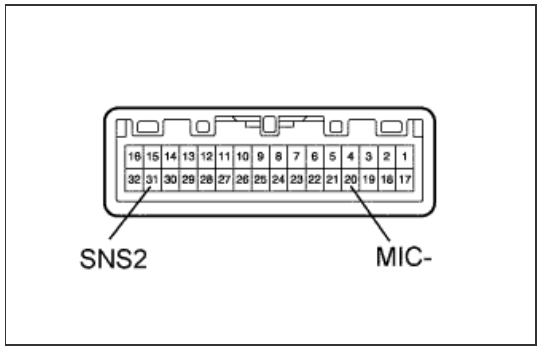
## 12.INSPECT MAP LIGHT ASSEMBLY

a. Remove the map light assembly (Click here).

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 20 (MIC-) - 31 (SNS2) | Always | Below 1 Ω |




NG → Go to step 14

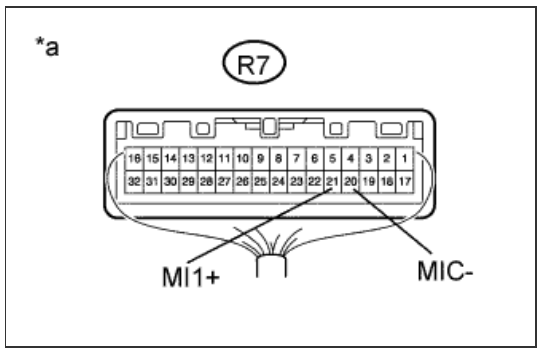
OK

## 13.CHECK MAP LIGHT ASSEMBLY

a. Turn the engine switch on (ACC).

b. Connect an oscilloscope to terminals R7-21 (MI1+) and R7-20 (MIC-) of the map light assembly connector.

c. Check the waveform of the telephone microphone assembly using the oscilloscope.




**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Map Light Assembly) |

**Result**

| Result | Proceed to |
|---|---|
| A waveform synchronized with the voice input to the map light assembly is output. | A |
| A waveform synchronized with the voice input to the map light assembly is not output. | B |

B → Go to step 14

A

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

14.CHECK TELEPHONE MICROPHONE ASSEMBLY

a. Replace the telephone microphone assembly with a new or normally functioning one ( Click here).

b. Check if the same malfunction recurs.

**Result**

| Result | Proceed to |
|---|---|
| Malfunction does not recur (returns to normal). | A |
| Malfunction recurs. | B |

B → REPLACE MAP LIGHT ASSEMBLY (Click here)

A

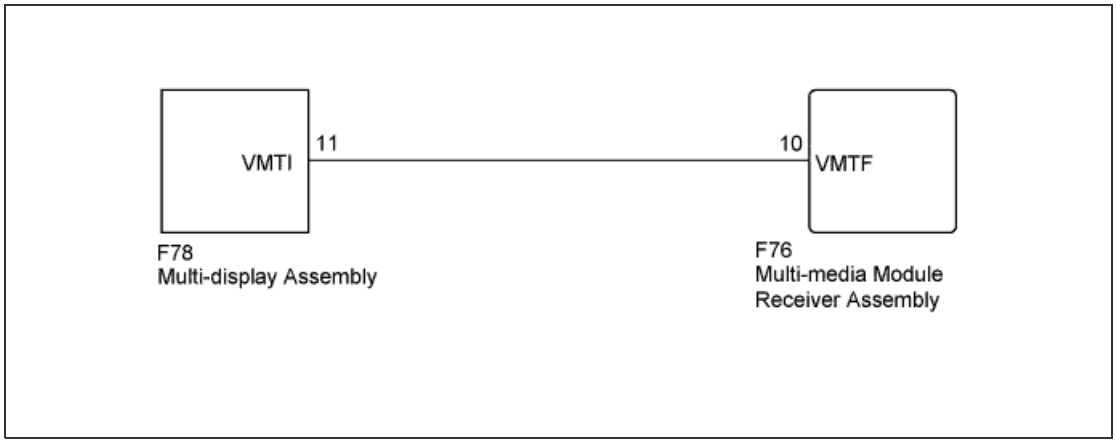
END (TELEPHONE MICROPHONE ASSEMBLY IS DEFECTIVE)

**for Preparation** Click here

## DESCRIPTION

The multi-media module receiver assembly sends a visual mute signal to the multi-display assembly. As a result, a black screen is inserted when the screen changes so that noise and distorted images are not displayed.
When an open exists in the circuit, noise and distorted images will be displayed instead of a black screen.
When a short exists in the circuit, even though the multi-display assembly is operating normally, noise and distorted images will be displayed (black screen will not be displayed) during screen changes or the black screen will always be displayed.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY

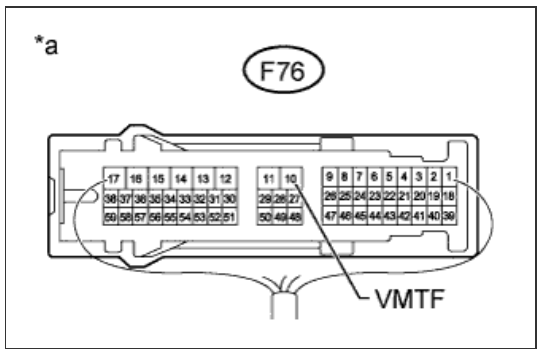
a. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-10 (VMTF) - Body ground | Engine switch on (ACC), screen display changes. | 3.5 V or higher → Below 1 V → 3.5 V or higher |

**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Multi-media Module Receiver Assembly) |




NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

### 2.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - MULTI-DISPLAY ASSEMBLY)

a. Disconnect the F76 multi-media module receiver assembly connector.

b. Disconnect the F78 multi-display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-10 (VMTF) - F78-11 (VMTI) | Always | Below 1 Ω |

| | | |
|---|---|---|
| F76-10 (VMTF) - Body ground | Always | 10 kΩ or higher |

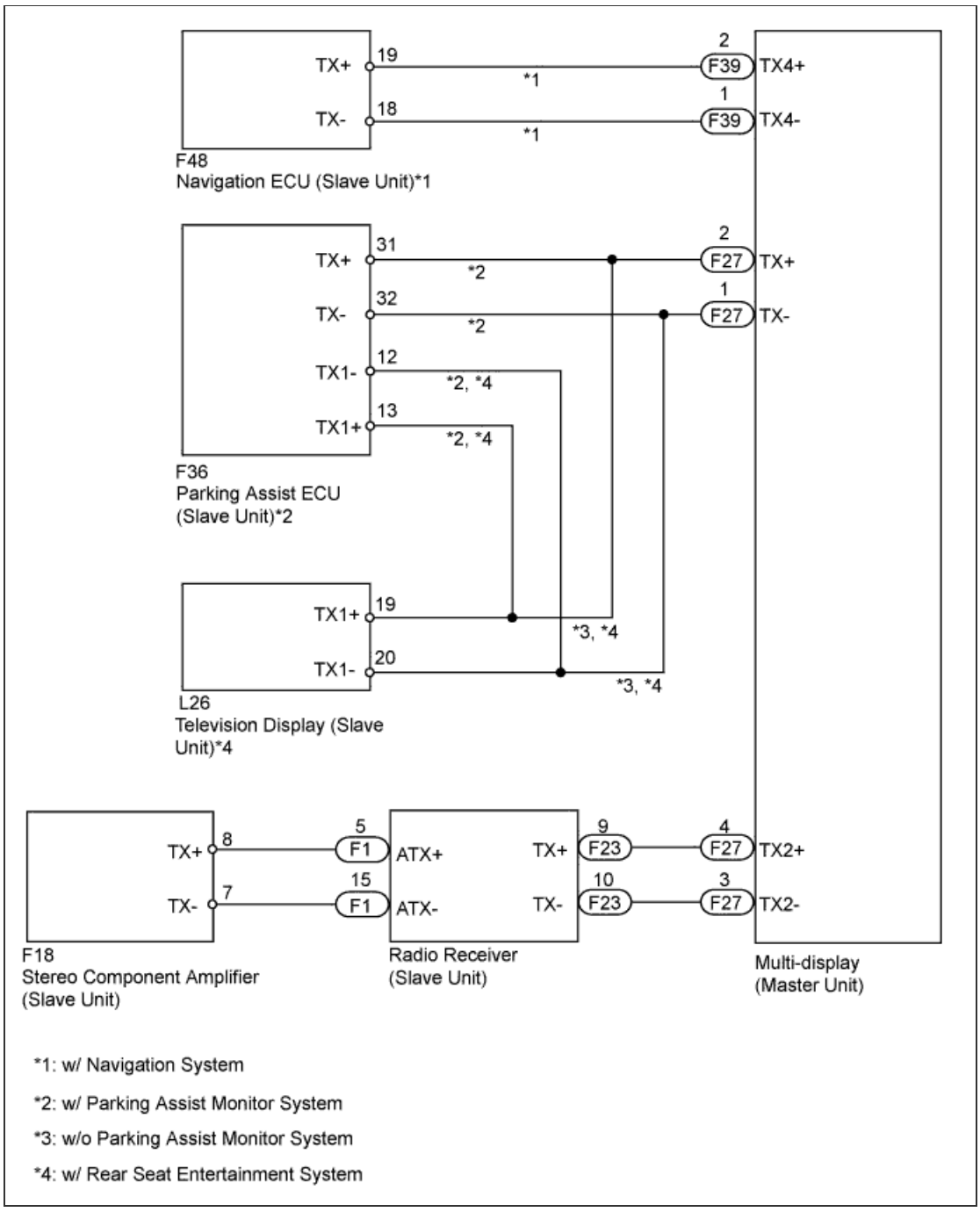
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.IDENTIFY COMPONENT SHOWN BY SUB-CODE

a. Enter the diagnostic mode.

b. Press the "LAN Mon" switch to change to "LAN Monitor" mode.

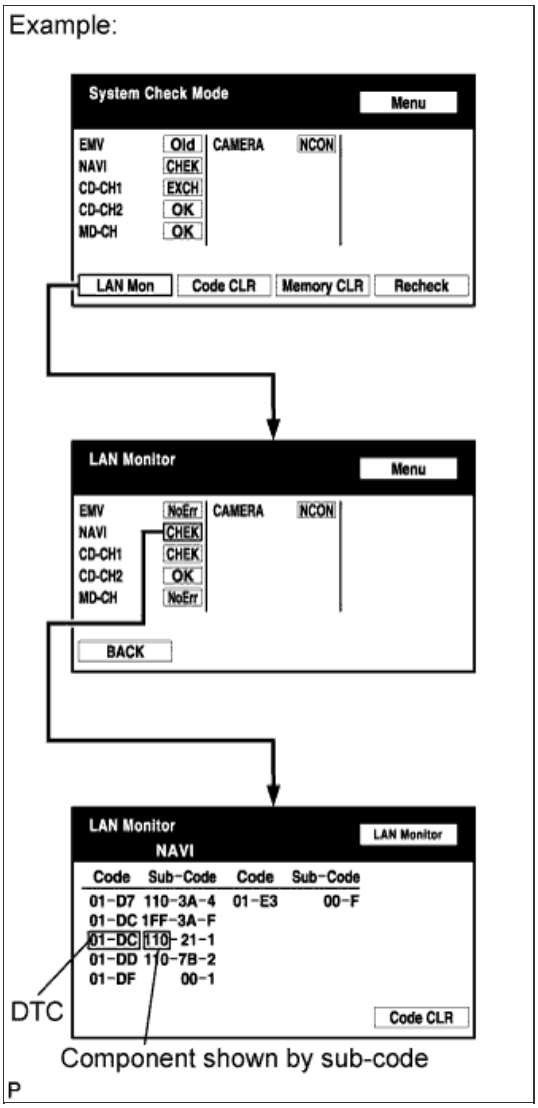
c. Identify the component shown by the sub-code.

**HINT:**

- **"110 (multi-display)" is the component shown by the sub-code**

in the example shown in the illustration.

- The sub-code will be indicated by its physical address.
- For the component list, refer to Diagnosis Display Detailed Description in the System Description (Click here).




NEXT

## 2.CHECK POWER SOURCE CIRCUIT OF COMPONENT SHOWN BY SUB-CODE

a. Inspect the power source circuit of the component shown by the sub-code.

**Component Table**

| Display | Proceed to |
|---|---|
| Stereo component amplifier (440) | Stereo component amplifier power source circuit (Click here) |
| Multi-display (110) | Multi-display power source circuit (Click here) |
| Navigation ECU (178)*1 | Navigation ECU power source circuit (Click here) |
| Parking assist ECU (1AC)*2 | Parking assist ECU power source circuit (Click here) |
| Television display (1F6)*3 | Television display power source circuit (Click here) |

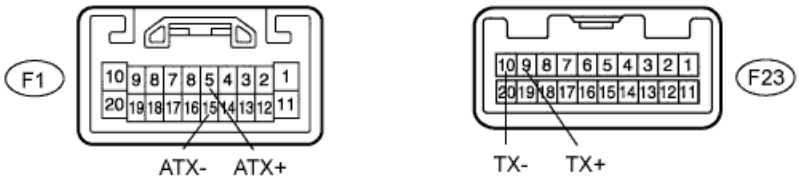
If the power source circuit is operating normally, proceed to the next step.

*1: w/ Navigation System
*2: w/ Parking Assist Monitor System
*3: w/ Rear Seat Entertainment System

NEXT

## 3.INSPECT RADIO RECEIVER ASSEMBLY

Component without harness connected:
(Radio Receiver)




a. Disconnect the F1 and F23 receiver connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-5 (ATX+) - F1-15 (ATX-) | Always | 60 to 80 Ω |
| F23-9 (TX+) - F23-10 (TX-) | Always | 60 to 80 Ω |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

## 4.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - COMPONENT SHOWN BY SUB-CODE)

**HINT:**

- **Start the check from the circuit that is near the component shown by the sub-code first.**
- **For details of the connectors, refer to Terminals of ECU (Click here).**

a. Referring to the AVC-LAN wiring diagram, check the AVC-LAN circuit between the radio receiver and the component shown by the sub-code.

i. Disconnect all connectors between the radio receiver and the component shown by the sub-code.

ii. Check for an open or short in the AVC-LAN circuit between the radio receiver and the component shown by the sub-code.

**OK:**
**There is no open or short circuit.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.REPLACE COMPONENT SHOWN BY SUB-CODE

a. Replace the component shown by the sub-code with a normal one and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

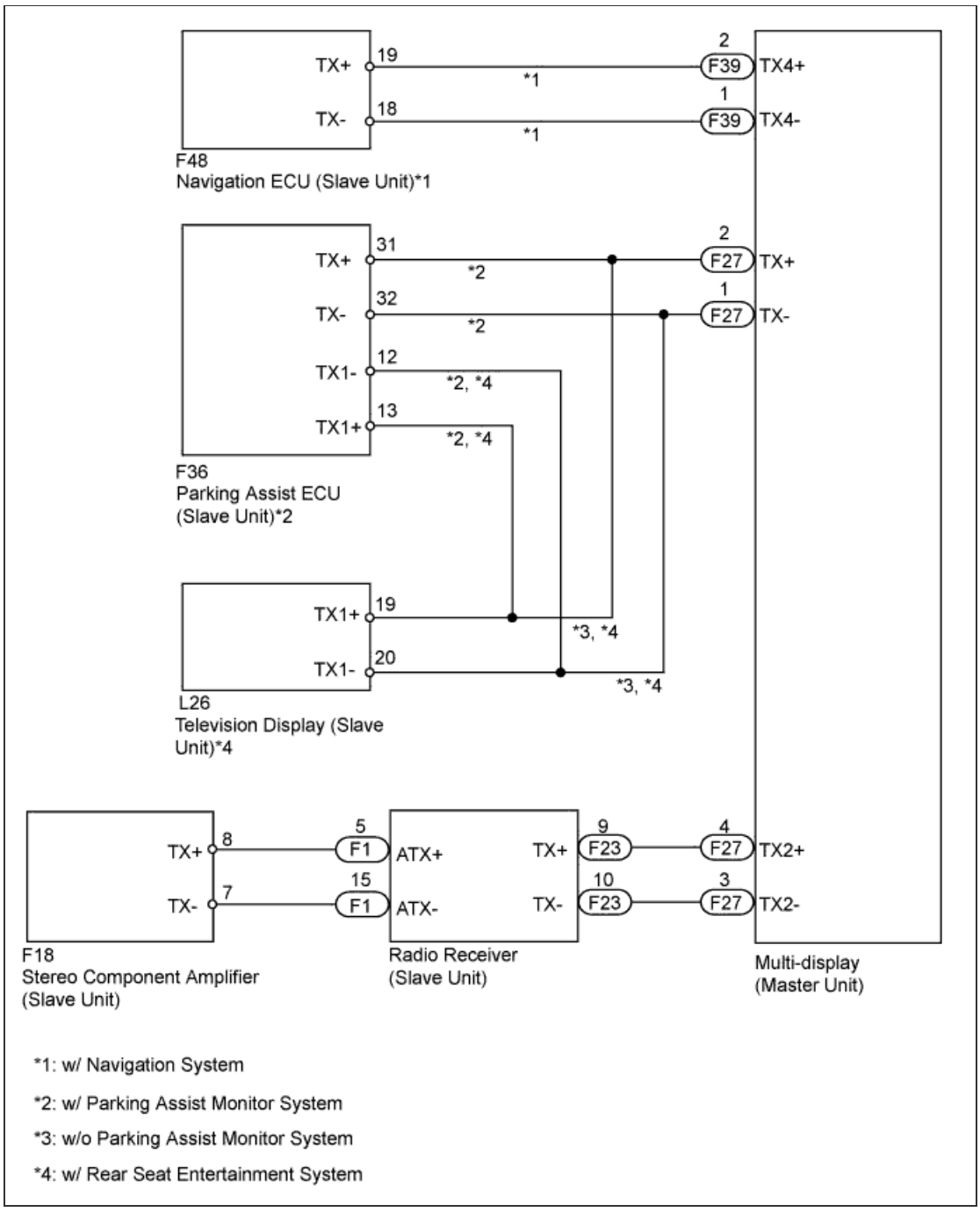
NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

END

**for Preparation** Click here

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.IDENTIFY COMPONENT SHOWN BY SUB-CODE

a. Enter the diagnostic mode.

b. Press the "LAN Mon" switch to change to "LAN Monitor" mode.

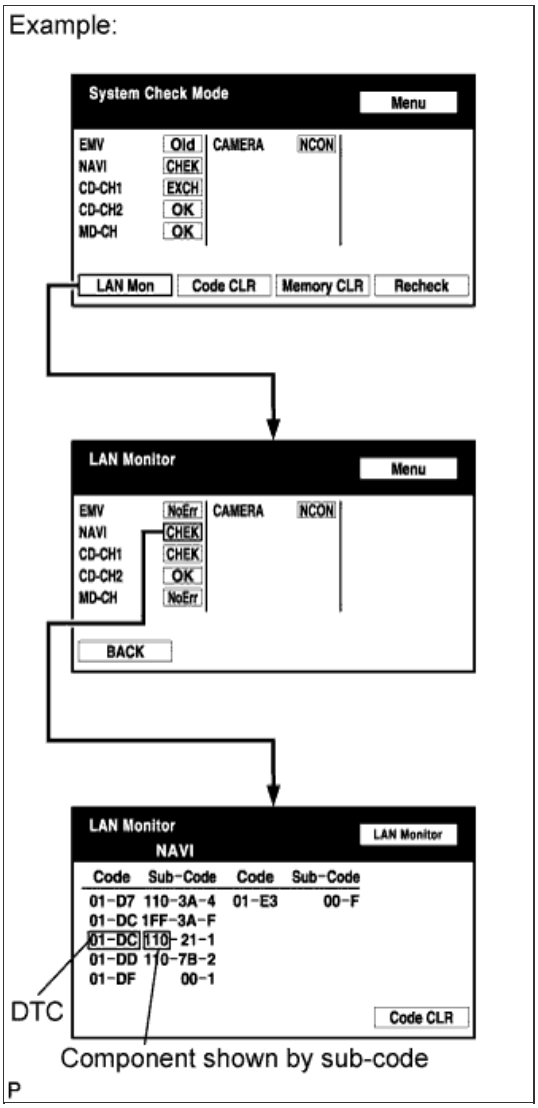
c. Identify the component shown by the sub-code.

**HINT:**

- **"110 (multi-display)" is the component shown by the sub-code**

in the example shown in the illustration.

- The sub-code will be indicated by its physical address.
- For the component list, refer to Diagnosis Display Detailed Description in the System Description (Click here).




NEXT

## 2.CHECK POWER SOURCE CIRCUIT OF COMPONENT SHOWN BY SUB-CODE

a. Inspect the power source circuit of the component shown by the sub-code.

**Component Table**

| Display | Proceed to |
|---|---|
| Radio receiver (190) | Radio receiver power source circuit (Click here) |
| Multi-display (110) | Multi-display power source circuit (Click here) |
| Navigation ECU (178)*1 | Navigation ECU power source circuit (Click here) |
| Parking assist ECU (1AC)*2 | Parking assist ECU power source circuit (Click here) |
| Television display (1F6)*3 | Television display power source circuit (Click here) |

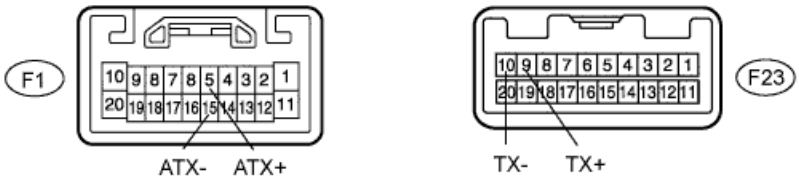
If the power source circuit is operating normally, proceed to the next step.

*1: w/ Navigation System
*2: w/ Parking Assist Monitor System
*3: w/ Rear Seat Entertainment System

NEXT

## 3.INSPECT RADIO RECEIVER ASSEMBLY

Component without harness connected:
(Radio Receiver)




a. Disconnect the F1 and F23 receiver connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-5 (ATX+) - F1-15 (ATX-) | Always | 60 to 80 Ω |
| F23-9 (TX+) - F23-10 (TX-) | Always | 60 to 80 Ω |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK ↓

**4.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - COMPONENT SHOWN BY SUB-CODE)**

**HINT:**

- **Start the check from the circuit that is near the component shown by the sub-code first.**
- **For details of the connectors, refer to Terminals of ECU (Click here).**

a. Referring to the AVC-LAN wiring diagram, check the AVC-LAN circuit between the stereo component amplifier and the component shown by the sub-code.

i. Disconnect all connectors between the stereo component amplifier and the component shown by sub-code.

ii. Check for an open or short in the AVC-LAN circuit between the stereo component amplifier and the component shown by the sub-code.

**OK:**
**There is no open or short circuit.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

**5.REPLACE COMPONENT SHOWN BY SUB-CODE**

a. Replace the component shown by the sub-code with a normal one and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

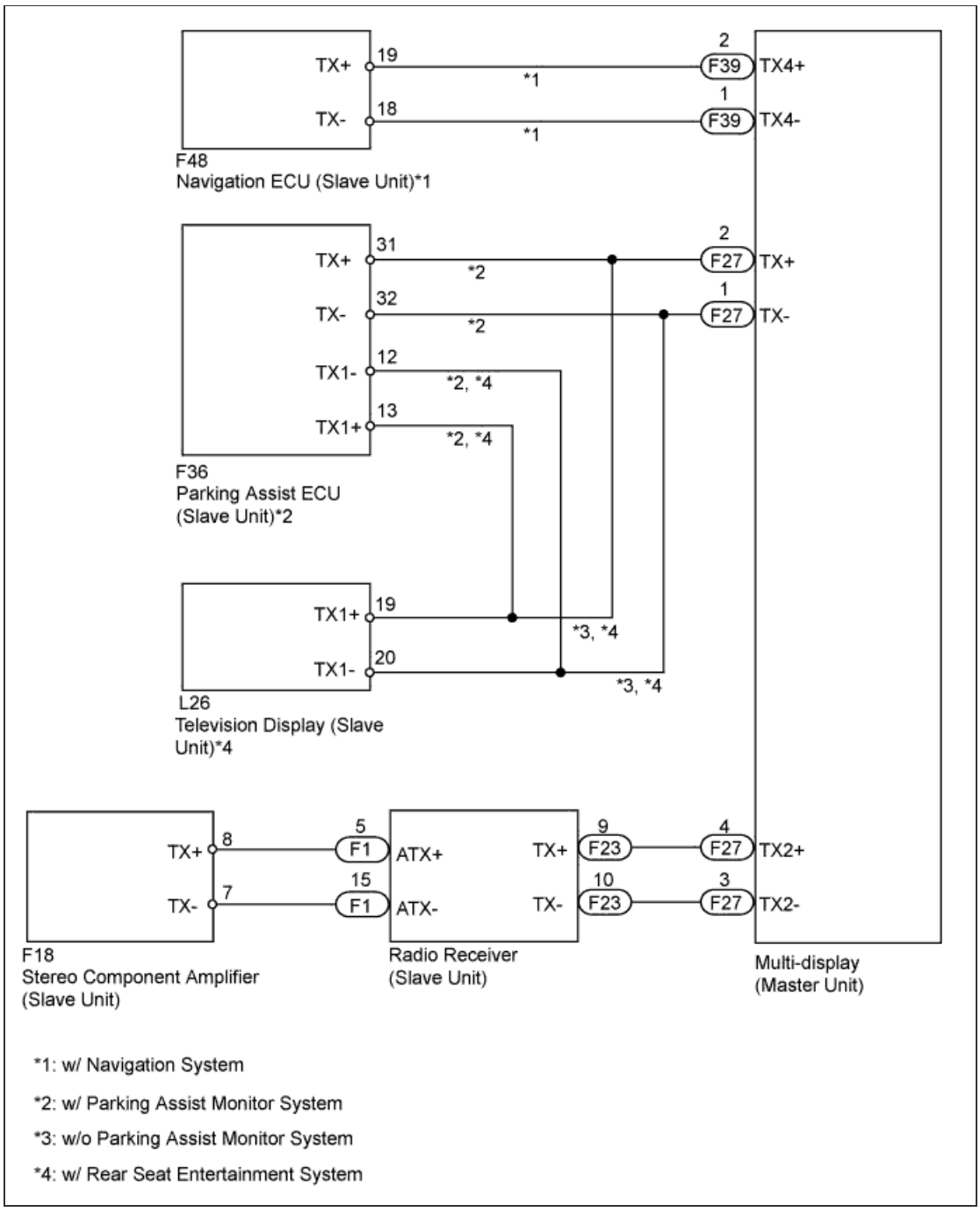
NG → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

OK ↓

**END**

**for Preparation** Click here

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.IDENTIFY COMPONENT SHOWN BY SUB-CODE

a. Enter the diagnostic mode.

b. Press the "LAN Mon" switch to change to "LAN Monitor" mode.

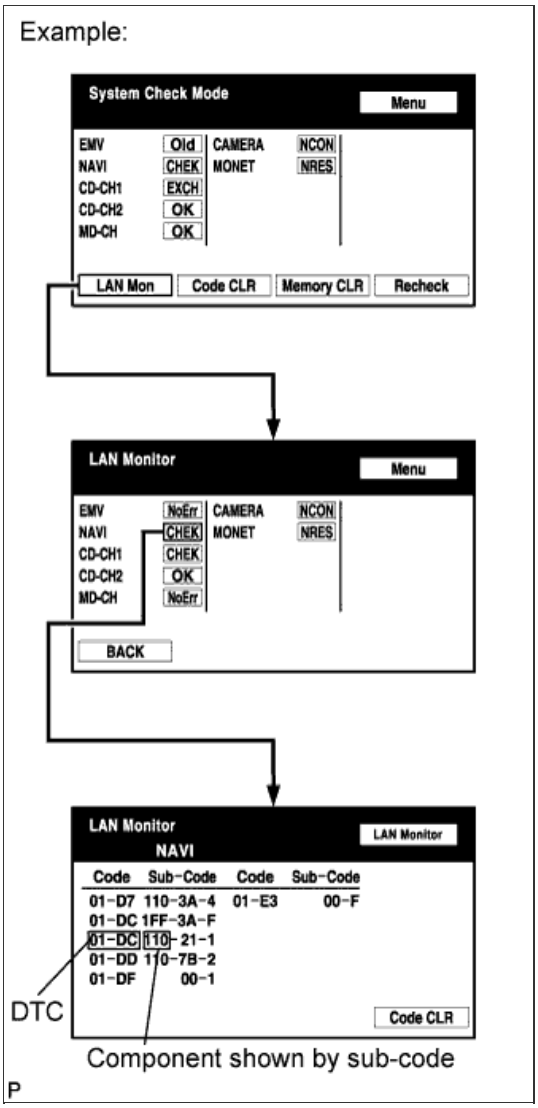
c. Identify the component shown by the sub-code.

**HINT:**

- **"110 (multi-display)" is the component shown by the sub-code**

in the example shown in the illustration.

- The sub-code will be indicated by its physical address.
- For the component list, refer to Diagnosis Display Detailed Description in the System Description (Click here).




NEXT

## 2.CHECK POWER SOURCE CIRCUIT OF COMPONENT SHOWN BY SUB-CODE

a. Inspect the power source circuit of the component shown by the sub-code.

**Component Table**

| Display | Proceed to |
|---|---|
| Radio receiver (190) | Radio receiver power source circuit (Click here) |
| Stereo component amplifier (440) | Stereo component amplifier power source circuit (Click here) |
| Navigation ECU (178)*1 | Navigation ECU power source circuit (Click here) |
| Television display (1F6)*2 | Television display power source circuit (Click here) |
| Parking assist ECU (1AC)*3 | Parking assist ECU power source circuit (Click here) |

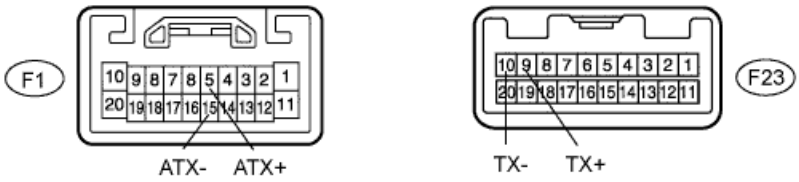
If the power source circuit is operating normally, proceed to the next step.

*1: w/ Navigation System
*2: w/ Rear Seat Entertainment System
*3: w/ Parking Assist Monitor System

NEXT

## 3.INSPECT RADIO RECEIVER ASSEMBLY

Component without harness connected:
(Radio Receiver)




a. Disconnect the F1 and F23 receiver connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-5 (ATX+) - F1-15 (ATX-) | Always | 60 to 80 Ω |
| F23-9 (TX+) - F23-10 (TX-) | | |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

## 4.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - COMPONENT SHOWN BY SUB-CODE)

**HINT:**

- **Start the check from the circuit that is near the component shown by the sub-code first.**
- **For details of the connectors, refer to Terminals of ECU (Click here).**

a. Referring to the AVC-LAN wiring diagram, check the AVC-LAN circuit between the multi-display and the component shown by the sub-code.

i. Disconnect all connectors between the multi-display and the component shown by the sub-code.

ii. Check for an open or short in the AVC-LAN circuit between the multi-display and the component shown by the sub-code.

**OK:**
**There is no open or short circuit.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.REPLACE COMPONENT SHOWN BY SUB-CODE WITH NORMAL ONE AND CHECK

a. Replace the component shown by the sub-code with a normal one and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (w/ Navigation) | B |
| NG (w/o Navigation) | C |

B → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

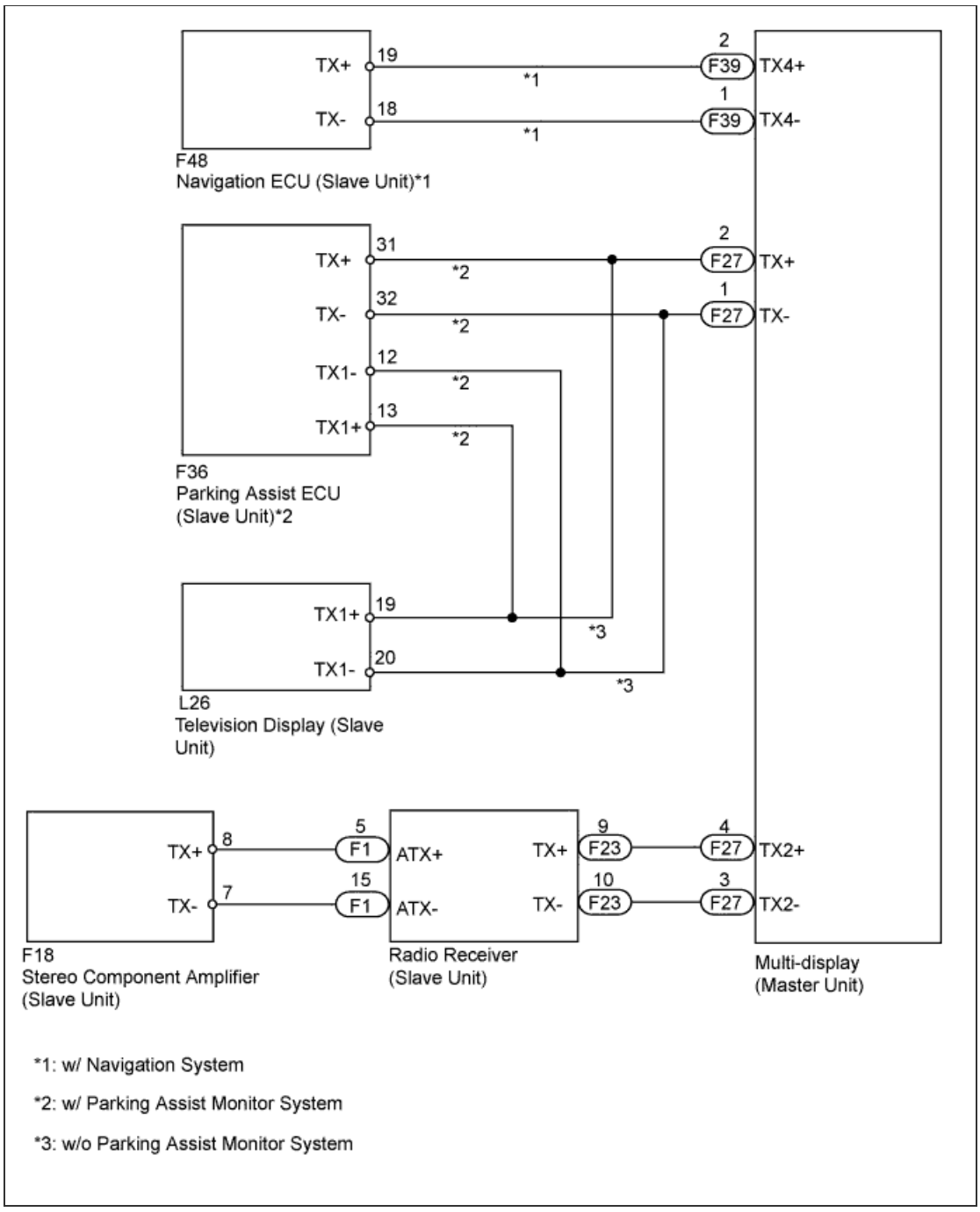
C → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

A

```
END
```

**for Preparation** Click here

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.IDENTIFY COMPONENT SHOWN BY SUB-CODE

a. Enter the diagnostic mode.

b. Press the "LAN Mon" switch to change to "LAN Monitor" mode.

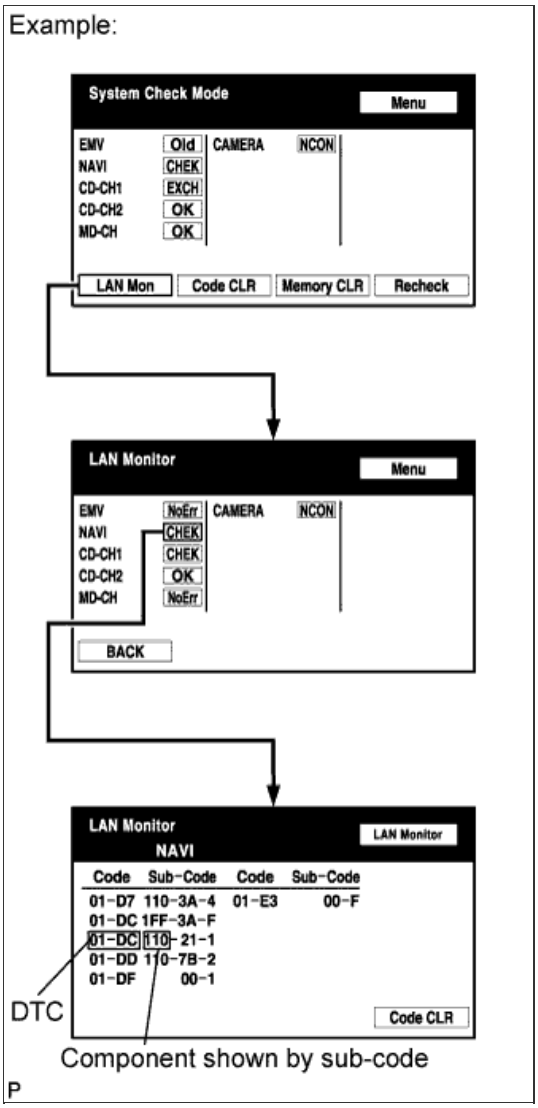
c. Identify the component shown by the sub-code.

**HINT:**

- **"110 (multi-display)" is the component shown by the sub-code**

in the example shown in the illustration.

- The sub-code will be indicated by its physical address.
- For the component list, refer to Diagnosis Display Detailed Description in the System Description (Click here).




NEXT

## 2.CHECK POWER SOURCE CIRCUIT OF COMPONENT SHOWN BY SUB-CODE

a. Inspect the power source circuit of the component shown by the sub-code.

**Component Table**

| Display | Proceed to |
|---|---|
| Radio receiver (190) | Radio receiver power source circuit (Click here) |
| Stereo component amplifier (440) | Stereo component amplifier power source circuit (Click here) |
| Multi-display (110) | Multi-display power source circuit (Click here) |
| Navigation ECU (178)*1 | Navigation ECU power source circuit (Click here) |
| Parking assist ECU (1AC)*2 | Parking assist ECU power source circuit (Click here) |

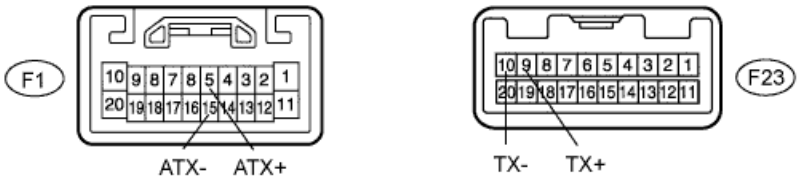
If the power source circuit is operating normally, proceed to the next step.

*1: w/ Navigation System
*2: w/ Parking Assist Monitor System

NEXT

## 3.INSPECT RADIO RECEIVER ASSEMBLY

Component without harness connected:
(Radio Receiver)




a. Disconnect the F1 and F23 receiver connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-5 (ATX+) - F1-15 (ATX-) | Always | 60 to 80 Ω |
| F23-9 (TX+) - F23-10 (TX-) | Always | 60 to 80 Ω |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

## 4.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - COMPONENT SHOWN BY SUB-CODE)

**HINT:**

- **Start the check from the circuit that is near the component shown by the sub-code first.**
- **For details of the connectors, refer to Terminals of ECU (Click here).**

a. Referring to the AVC-LAN wiring diagram, check the AVC-LAN circuit between the television display and the component shown by the sub-code.

i. Disconnect all connectors between the television display and the component shown by the sub-code.

ii. Check for an open or short in the AVC-LAN circuit between the television display and the component shown by the sub-code.

**OK:**
**There is no open or short circuit.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.REPLACE COMPONENT SHOWN BY SUB-CODE

a. Replace the component shown by the sub-code with a normal one and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

NG → REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

OK

END

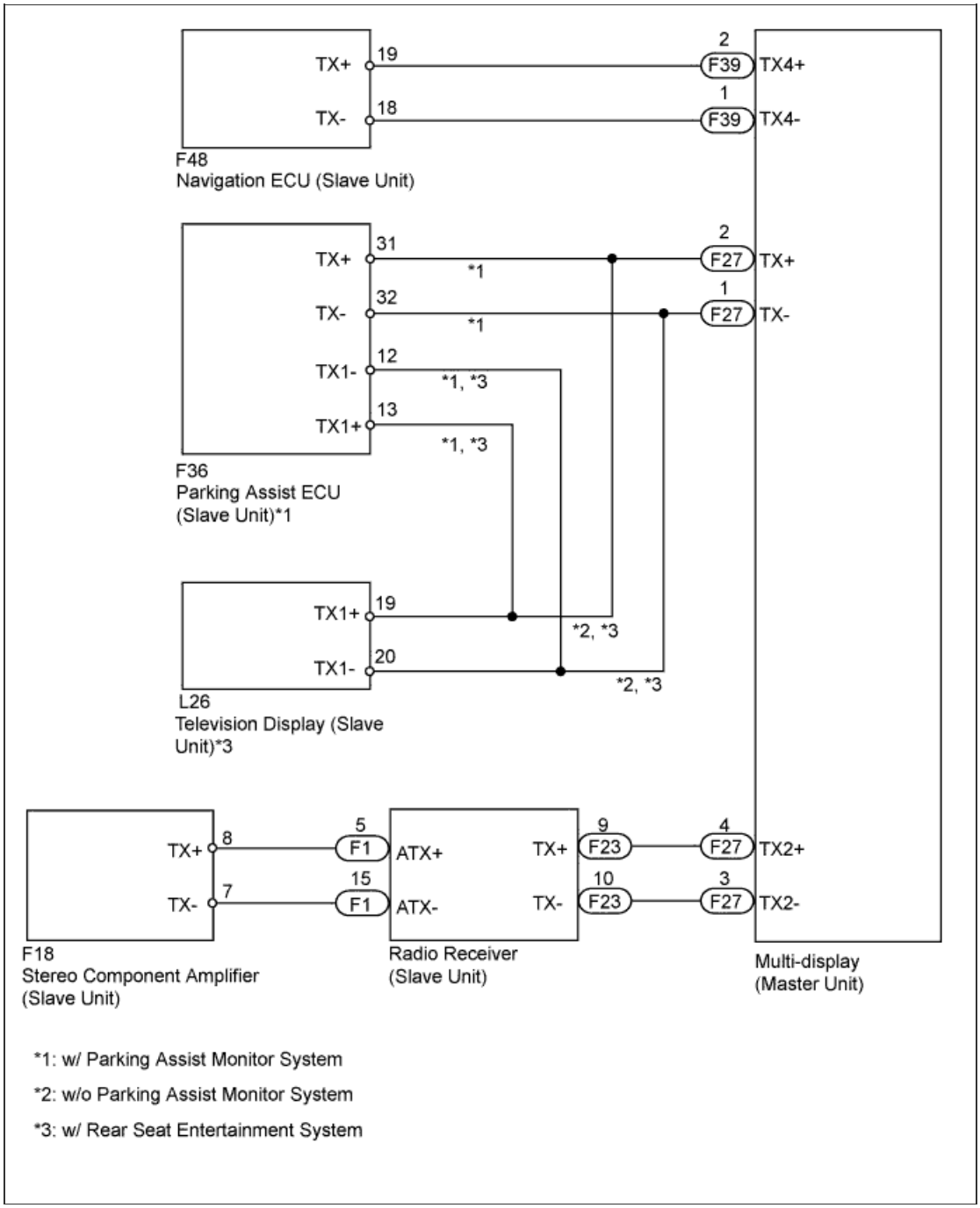
**for Preparation** Click here

## DESCRIPTION

**HINT:**

"Navigation ECU" refers to the navigation module board.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.IDENTIFY COMPONENT SHOWN BY SUB-CODE

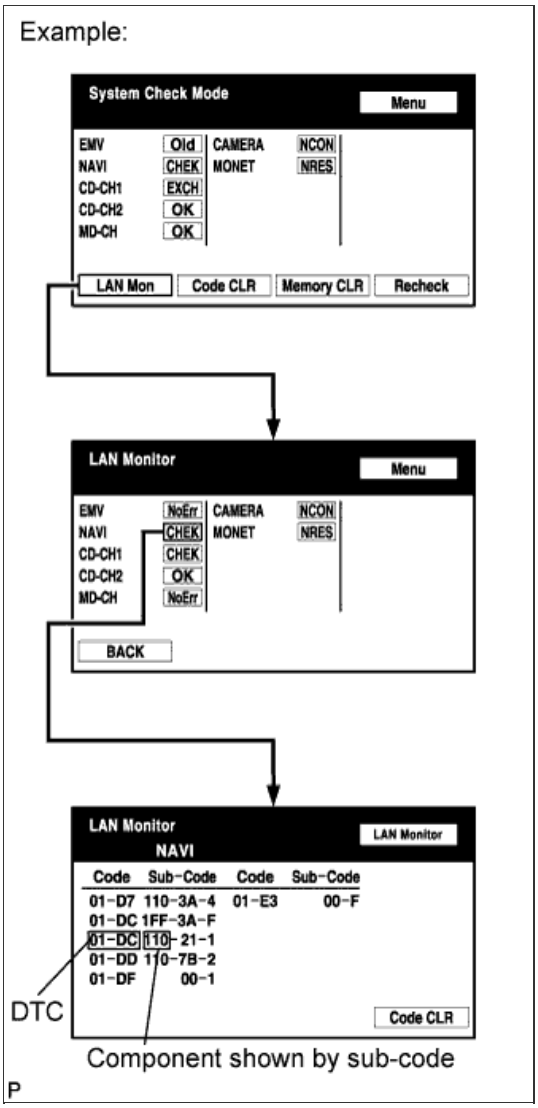
a. Enter the diagnostic mode.

b. Press the "LAN Mon" switch to change to "LAN Monitor" mode.

c. Identify the component shown by the sub-code.

**HINT:**

- **"110 (multi-display)" is the component shown by the sub-code in the example shown in the illustration.**
- **The sub-code will be indicated by its physical address.**
- **For the component list, refer to Diagnosis Display Detailed Description in the System Description (Click here).**




NEXT

## 2.CHECK POWER SOURCE CIRCUIT OF COMPONENT SHOWN BY SUB-CODE

a. Inspect the power source circuit of the component shown by the sub-code.

| Display | Proceed to |
|---|---|
| Radio receiver (190) | Radio receiver power source circuit (Click here) |
| Stereo component amplifier (440) | Stereo component amplifier power source circuit (Click here) |
| Multi-display (110) | Multi-display power source circuit (Click here) |
| Television display (1F6)*1 | Television display power source circuit (Click here) |
| Parking assist ECU (1AC)*2 | Parking assist ECU power source circuit (Click here) |

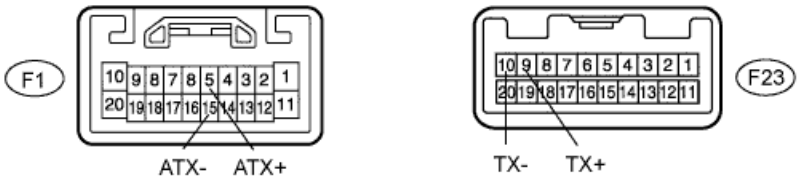
If the power source circuit is operating normally, proceed to the next step.

*1: w/ Rear Seat Entertainment System
*2: w/ Parking Assist Monitor System

NEXT

## 3.INSPECT RADIO RECEIVER ASSEMBLY

Component without harness connected:
(Radio Receiver)




a. Disconnect the F1 and F23 receiver connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-5 (ATX+) - F1-15 (ATX-) | Always | 60 to 80 Ω |
| F23-9 (TX+) -F23-10 (TX-) | | |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

## 4.CHECK HARNESS AND CONNECTOR (NAVIGATION MODULE BOARD - COMPONENT SHOWN BY SUB-CODE)

**HINT:**

- **Start the check from the circuit that is near the component shown by the sub-code first.**
- **For details of the connectors, refer to Terminal of ECU (Click here).**

a. Referring to the AVC-LAN wiring diagram, check the AVC-LAN circuit between the navigation ECU and the component shown by the sub-code.

i. Disconnect all connectors between the navigation ECU and the component shown by the sub-code.

ii. Check for an open or short in the AVC-LAN circuit between the navigation ECU and the component shown by the sub-code.

**OK:**
**There is no open or short circuit.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.REPLACE COMPONENT SHOWN BY SUB-CODE

a. Replace the component shown by the sub-code with a normal one and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

NG → REPLACE NAVIGATION MODULE BOARD (Click here)

OK

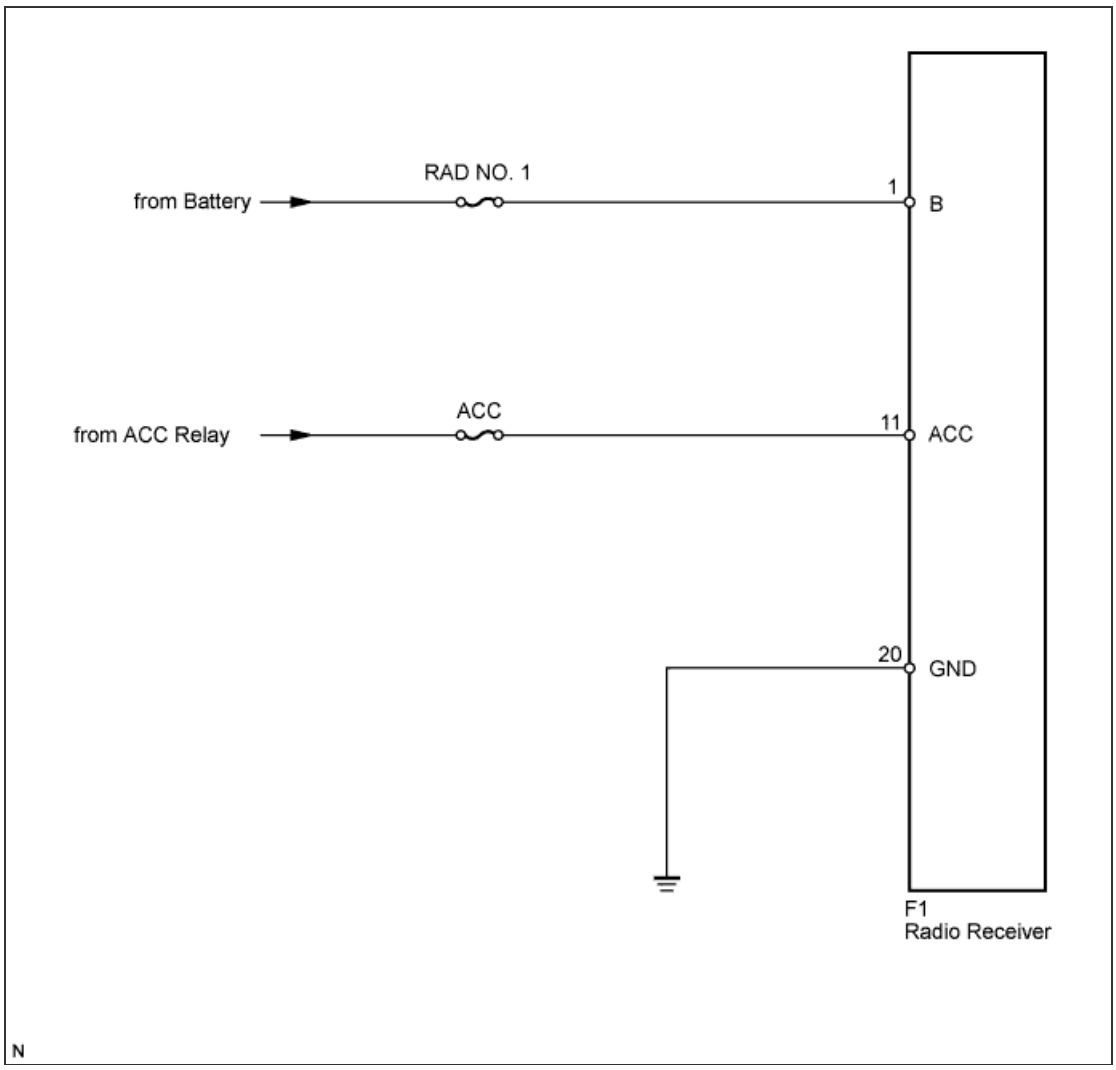
END

**for Preparation** Click here

## DESCRIPTION

This circuit provides power to the radio receiver.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**1.INSPECT FUSE (RAD NO. 1, ACC)**

a. Disconnect the RAD NO. 1 fuse from the engine room relay block.

b. Disconnect the ACC fuse from the main body ECU.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| RAD NO. 1 fuse | Always | Below 1 Ω |
| ACC fuse | | |

NG → REPLACE FUSE

OK

## 2.CHECK HARNESS AND CONNECTOR (RECEIVER - BATTERY AND BODY GROUND)

a. Disconnect the F1 receiver connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

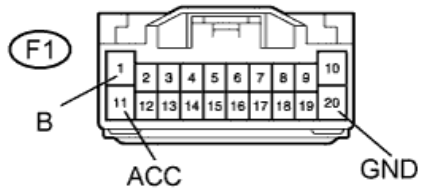
| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-20 (GND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F1-1 (B) - Body ground | Always | 11 to 14 V |
| F1-11 (ACC) - Body ground | Engine switch on (ACC) | 11 to 14 V |

Front view of wire harness connector:
(to Radio Receiver)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

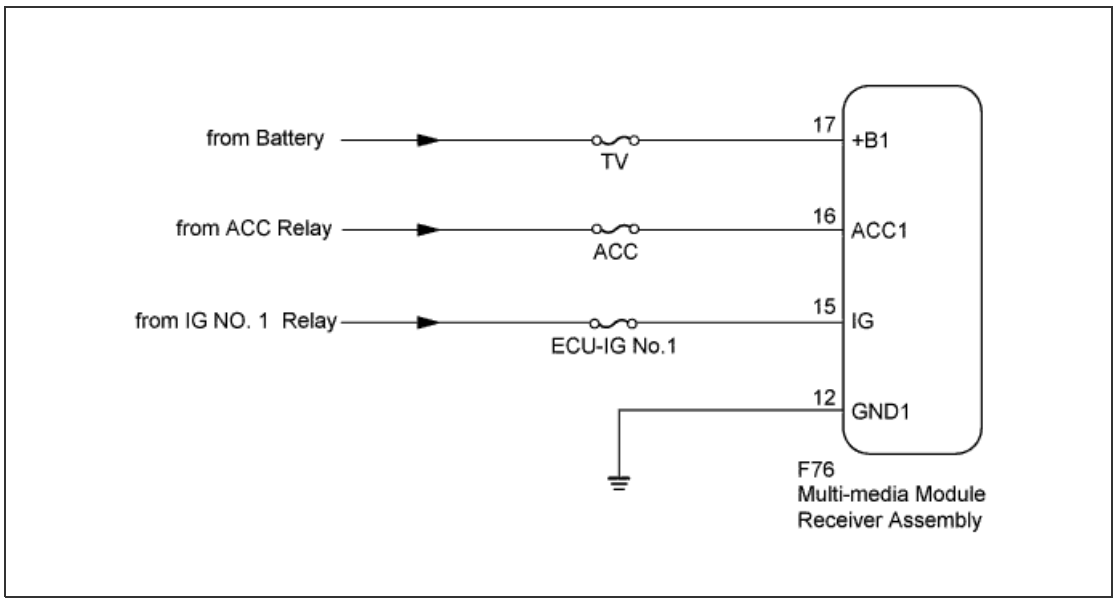
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit provides power to the multi-media module receiver assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - BATTERY AND BODY GROUND)

a. Disconnect the multi-media module receiver assembly connector.

b. Measure the resistance according to the value(s) in the table below.

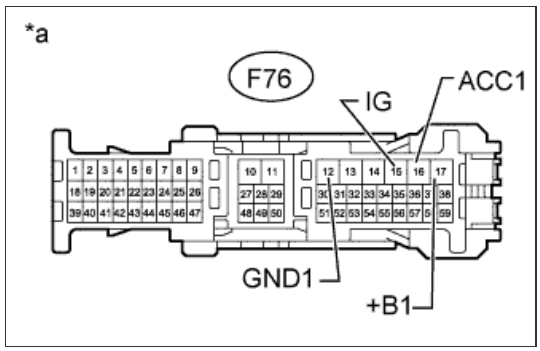
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-12 (GND1) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-15 (IG) - Body ground | Engine switch on (IG) | 11 to 14 V |
| F76-16 (ACC1) - Body ground | Engine switch on (ACC) | 11 to 14 V |
| F76-17 (+B1) - Body ground | Always | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Multi-media Module Receiver Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

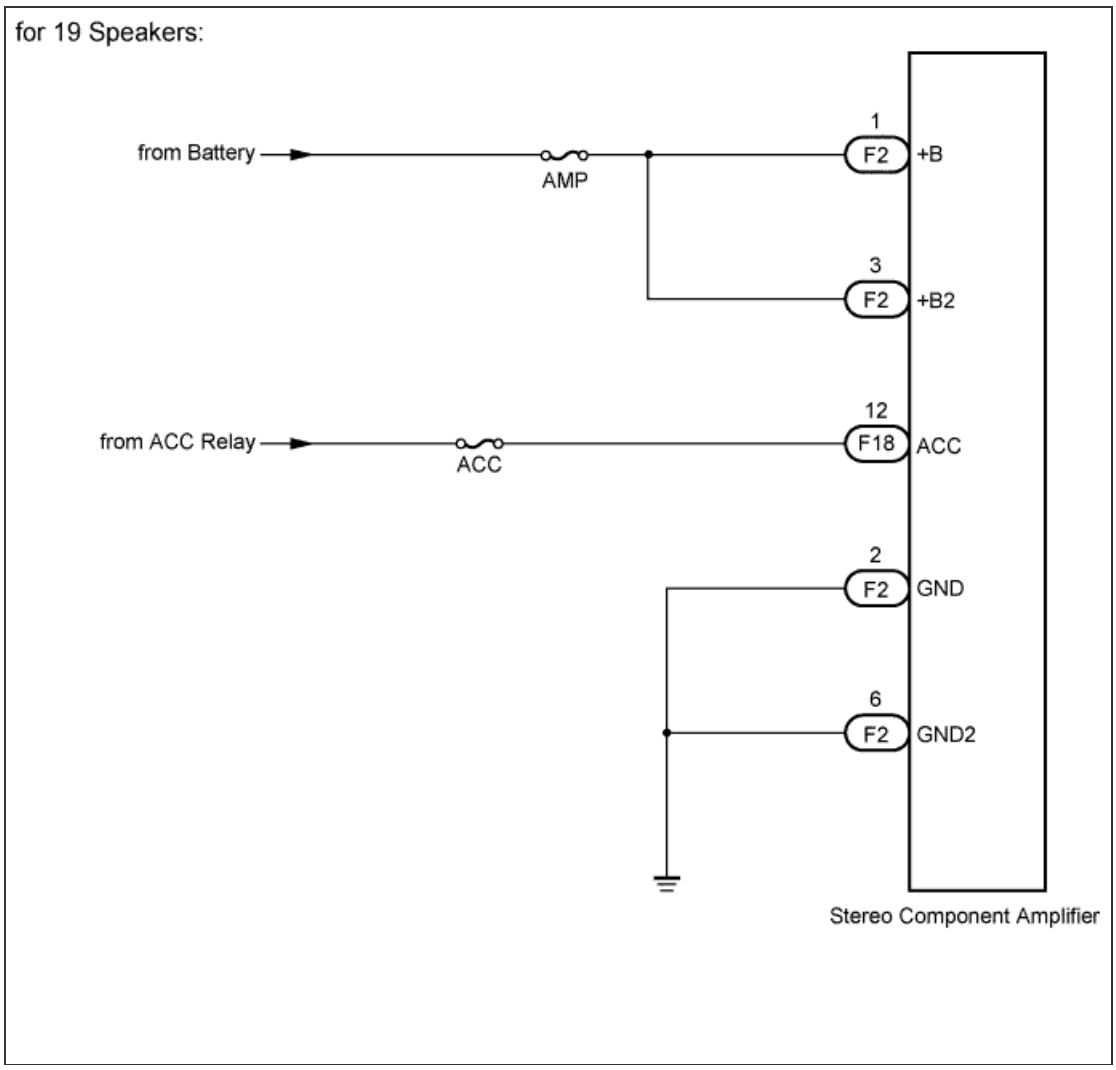
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

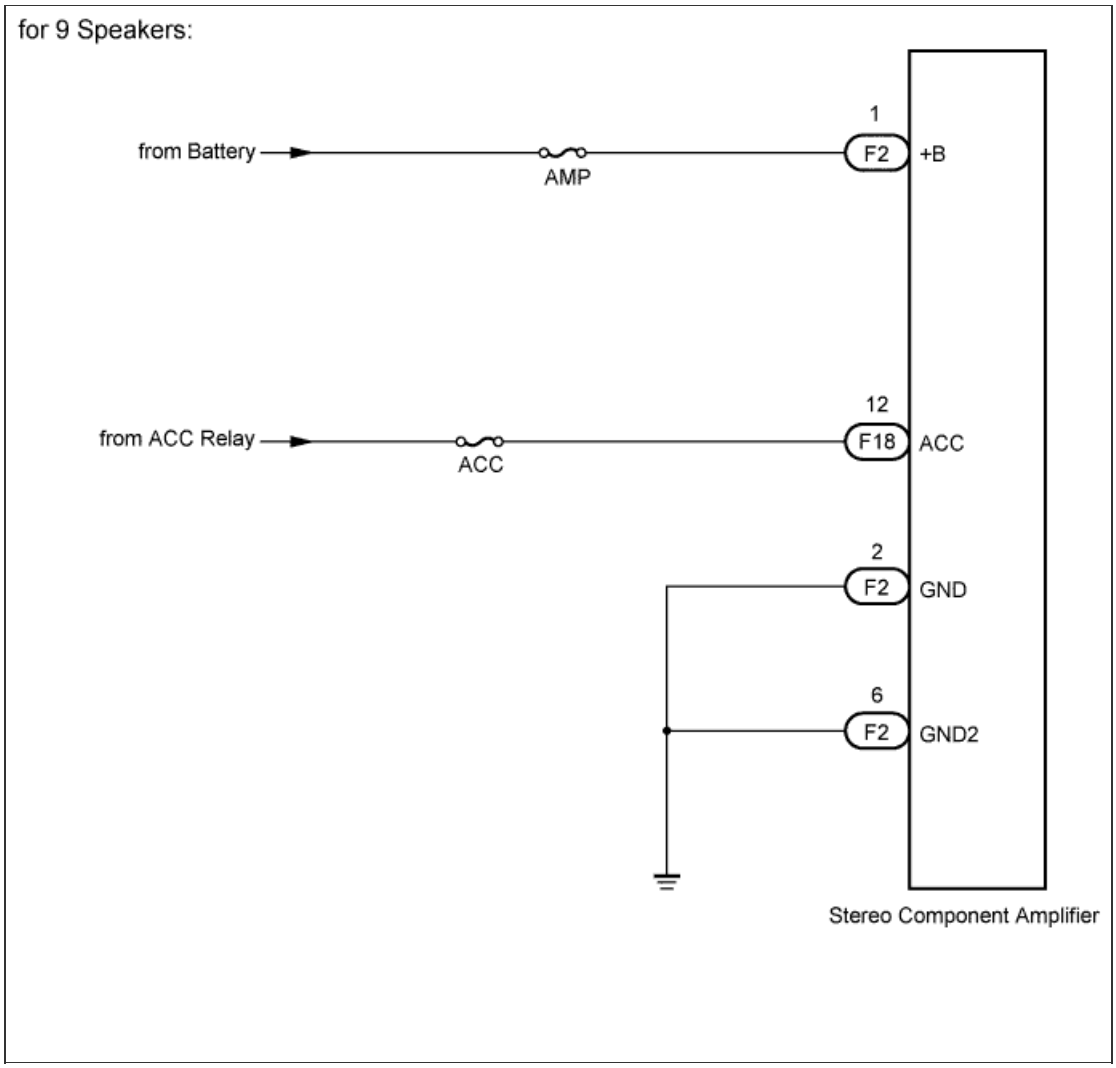
**for Preparation** Click here

## DESCRIPTION

This circuit provides power to the stereo component amplifier.

## WIRING DIAGRAM






## INSPECTION PROCEDURE

### 1.INSPECT FUSE (ACC, AMP)

a. Disconnect the ACC fuse from the main body ECU.

b. Disconnect the AMP fuse from the engine room relay block.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| ACC fuse | Always | Below 1 Ω |
| AMP fuse | Always | Below 1 Ω |

NG → REPLACE FUSE

OK

### 2.CHECK HARNESS AND CONNECTOR (AMPLIFIER - BATTERY AND BODY GROUND)

a. Disconnect the F18 and F2 amplifier connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-2 (GND) - Body | | |

| | | |
|---|---|---|
| ground | Always | Below 1 Ω |
| F2-6 (GND2) - Body ground | | |

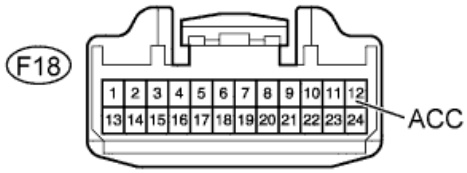
c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

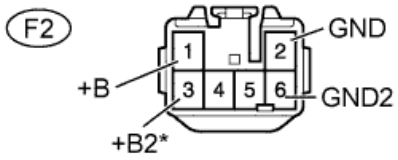
| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F2-1 (+B) - Body ground | Always | 11 to 14 V |
| F2-3 (+B2)* - Body ground | | |
| F18-12 (ACC) - Body ground | Engine switch on (ACC) | 11 to 14 V |

*: for 19 Speakers

Front view of wire harness connector:
(to Stereo Component Amplifier)




Front view of wire harness connector:
(to Stereo Component Amplifier)




*: for 19 Speakers

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

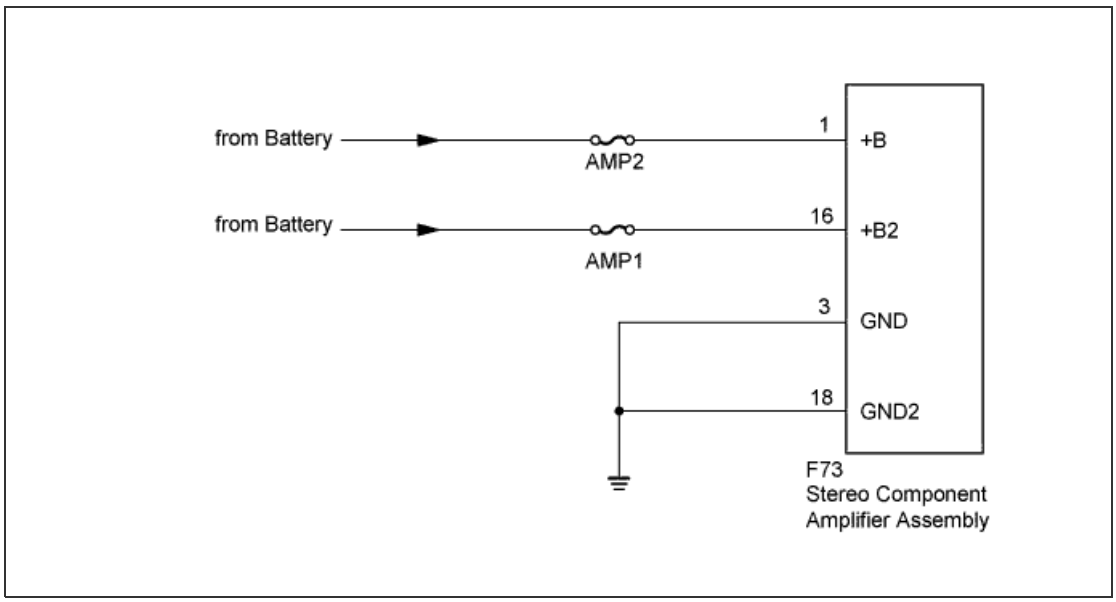
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit provides power to the stereo component amplifier assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

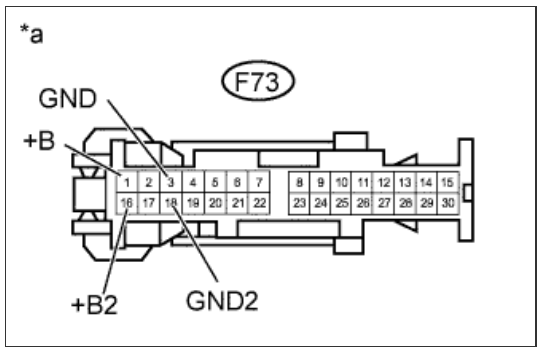
### 1.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - BATTERY AND BODY GROUND)

a. Disconnect the stereo component amplifier assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F73-3 (GND) - Body ground | Always | Below 1 Ω |
| F73-18 (GND2) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F73-1 (+B) - Body ground | Always | 11 to 14 V |
| F73-16 (+B2) - Body ground | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

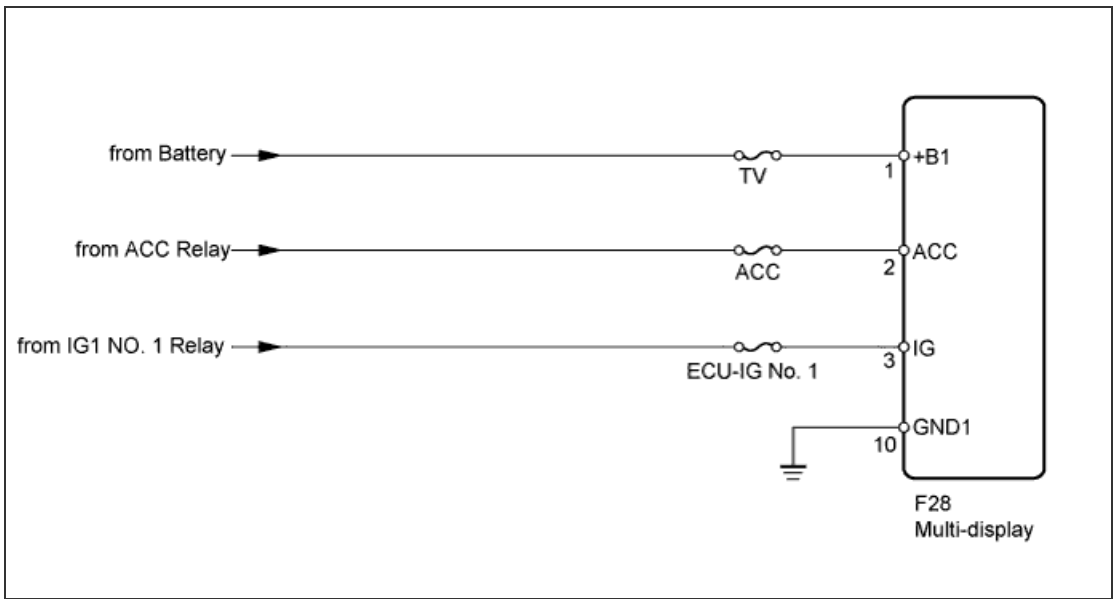
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit provides power to the multi-display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.INSPECT FUSE (TV, ACC, ECU-IG No. 1)

a. Disconnect the ACC and ECU-IG No. 1 fuses from the main body ECU.

b. Disconnect the TV fuse from the cowl side junction block RH.

c. Measure the resistance according to the values in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| TV fuse | Always | Below 1 Ω |
| ACC fuse | | |
| ECU-IG No. 1 fuse | | |

NG → REPLACE FUSE

OK

### 2.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - BATTERY AND BODY GROUND)

a. Disconnect the F28 display connector.

b. Measure the resistance according to the value(s) in the table below.

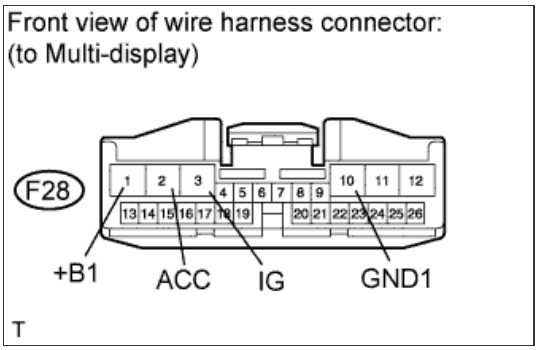
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F28-10 (GND1) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F28-1 (+B1) - Body ground | Always | 11 to 14 V |
| F28-2 (ACC) - Body ground | Engine switch on (ACC) | 11 to 14 V |
| F28-3 (IG) - Body ground | Engine switch on (IG) | 11 to 14 V |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

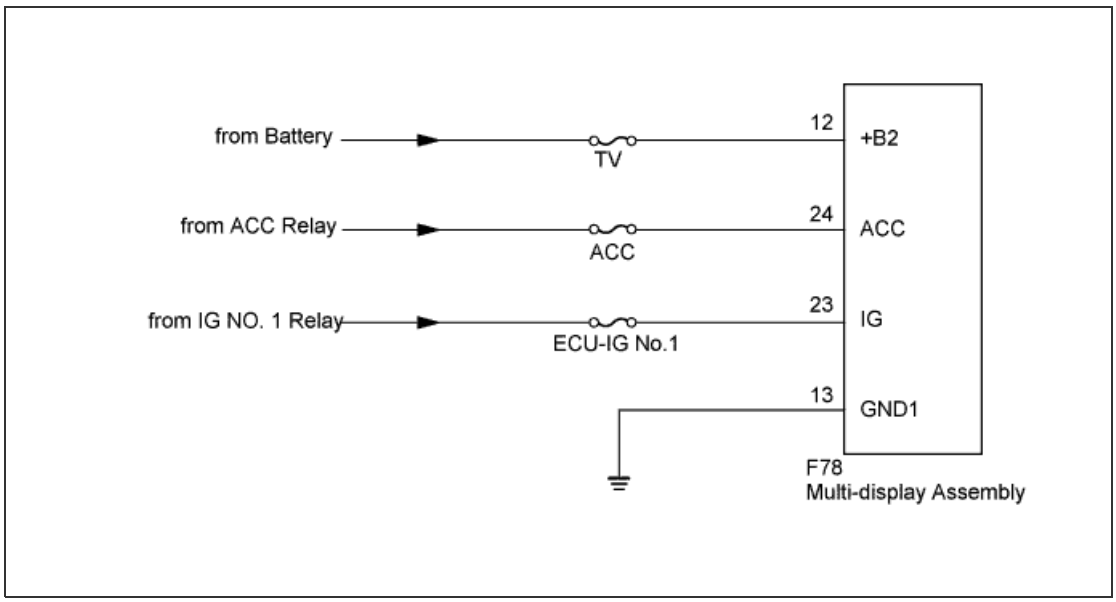
PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit provides power to the multi-display assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY ASSEMBLY - BATTERY AND BODY GROUND)

a. Disconnect the multi-display assembly connector.

b. Measure the resistance according to the value(s) in the table below.

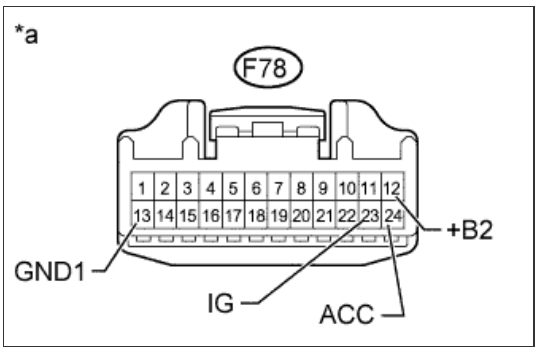
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F78-13 (GND1) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F78-12 (+B2) - Body ground | Always | 11 to 14 V |
| F78-23 (IG) - Body ground | Engine switch on (IG) | 11 to 14 V |
| F78-24 (ACC) - Body ground | Engine switch on (ACC) | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Multi-display Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## 1.PRECAUTION FOR DISCONNECTING CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

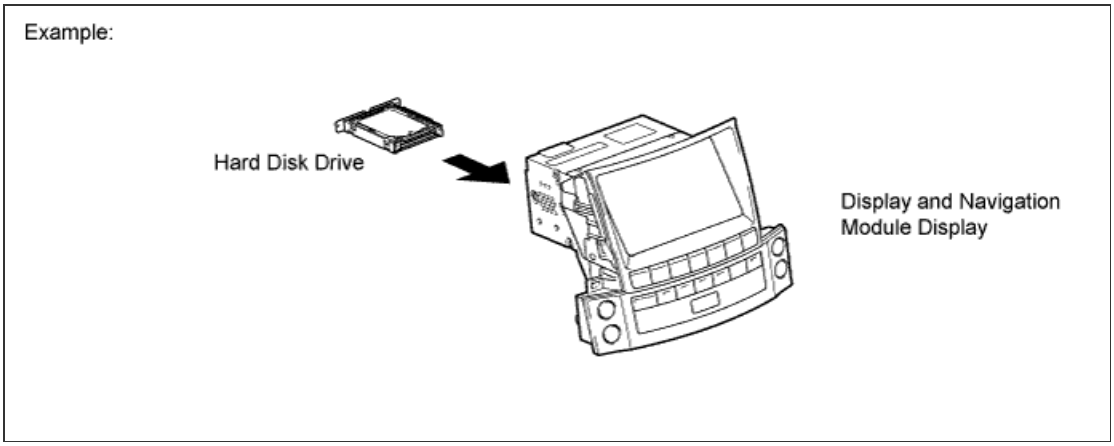
After the engine switch is turned off, the display and navigation module display (HDD navigation system) records various types of memory and settings. As a result, after turning the engine switch off, make sure to wait for the time specified in the following table before disconnecting the cable from the negative (-) battery terminal.

**Waiting Time before Disconnecting Cable from Negative (-) Battery Terminal**

| Specification | Waiting Time |
|---|---|
| w/o Telematics transceiver | 60 sec. |
| w/ Telematics transceiver | 120 sec. |

## 2.PRECAUTION FOR DISPLAY AND NAVIGATION MODULE DISPLAY

a. An HDD is built into the display and navigation module display to store map data etc. which will be used for the navigation system. Therefore, care must be taken for the following points when handling:




i. When it is necessary to replace the display and navigation module display, be sure to replace it with a new one.

**NOTICE:**

If a used display and navigation module display is installed as a replacement part, the customer's HDD will not be recognized.

ii. Do not apply any vibration or shock to the display and navigation module display.

**NOTICE:**

- **Do not drop or subject the display and navigation module display to severe impacts.**
- **Do not use the display and navigation module display if it has been dropped or subjected to a severe impact.**
- **module display without the HDD installed. (Only remove the HDD from the display and navigation module display when the replacement display and navigation module display or HDD is ready.)**

iii. Do not remove the display and navigation module display if there is a risk that condensation may occur.

**NOTICE:**

If the temperature of the display and navigation module display changes rapidly, condensation may occur inside the unit. This may cause a malfunction of the HDD.

Therefore, when the display and navigation module display is removed from the instrument panel, it needs to be kept inside the vehicle or in an environment with an equivalent temperature and humidity.

iv. Take measures to prevent static electricity.

**NOTICE:**

Touching the terminals of a connector can cause static electricity to be transmitted to the internal circuits. This may cause a malfunction of the HDD.

v. Keep the display and navigation module display away from magnets or magnetized items.

**NOTICE:**

Keep the display and navigation module display away from speakers, motors, magnetized tools and other magnetic items.

vi. The display and navigation module display functions as the G-BOOK device, it also holds the G-BOOK ID.

**NOTICE:**

When replacing the display and navigation module display, perform vehicle contract setting ( Click here).

## 3.PRECAUTIONS FOR HARD DISK DRIVE (HDD)

a. The map data for the navigation system is stored on the Hard Disk Drive (HDD). Make sure to follow the following instructions when replacing the HDD:

**NOTICE:**

Data recorded by the customer may be stored on the HDD (w/ Sound Library Function). This data will be lost when the HDD is replaced. Make sure to warn the customer that their data will be lost obtain their consent prior to replacing the HDD.

i. The HDD must only be replaced with a new one. Do not attempt to install a used HDD from another vehicle.

**NOTICE:**

The display and navigation module display can recognize only a new HDD.

ii. Do not touch the HDD cover.

**NOTICE:**

When removing or installing the HDD, only hold it by the areas shown in the illustration.

iii. Do not apply any vibration or shock to the HDD.

**NOTICE:**

- **Do not drop or allow anything to strike the HDD.**
- **Never use an HDD that has been dropped or struck.**
- **Do not store a HDD by itself if it has been removed from the display and navigation module display. (Only remove the HDD from the display and navigation module display when the replacement display and navigation module display or HDD is ready.)**

iv. Do not remove the HDD if there is a risk that condensation may occur.

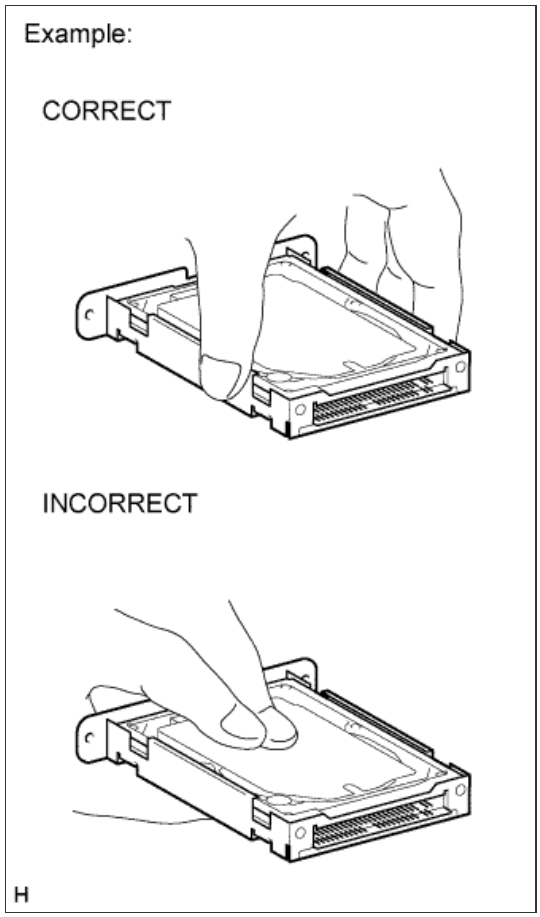
**NOTICE:**

If the temperature of the HDD changes rapidly, condensation may occur inside the unit. This may cause a malfunction of the HDD. Therefore, when the display and navigation module display is removed from the instrument panel, it needs to be kept inside the vehicle or in an environment with an equivalent temperature and humidity.

v. Take measures to prevent static electricity.

**NOTICE:**

Touching the terminals of a connector can cause static electricity to be transmitted to the internal circuits. This may cause a malfunction of the HDD.



vi. Keep the HDD away from magnets or magnetized items.

**NOTICE:**

Keep the HDD away from speakers, motors, magnetized tools and other magnetic items.

vii. Inspection after HDD replacement.

**NOTICE:**

Make sure to perform Check Hard Disk Drive in Operation Check to confirm that there are no HDD abnormalities after removal or installation (Click here).

**for Preparation** Click here

## 1.PRECAUTION FOR DISCONNECTING CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

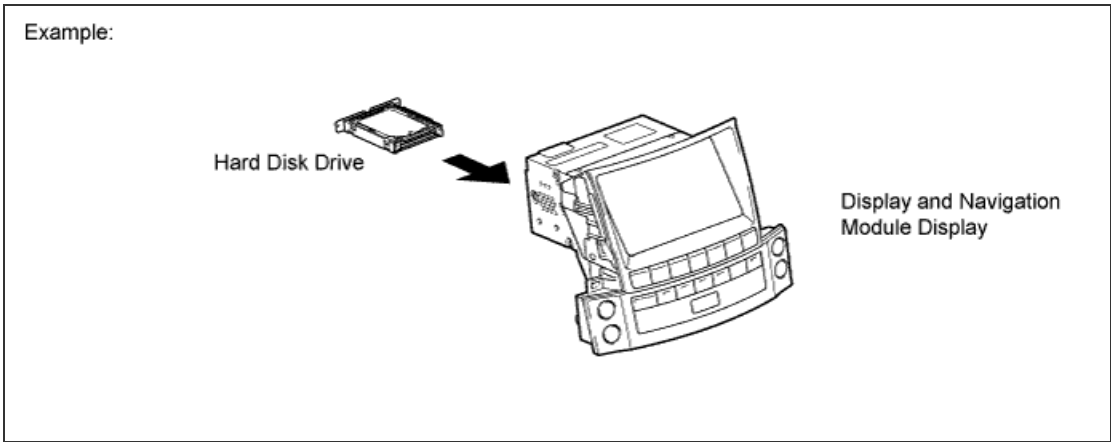
After the engine switch is turned off, the display and navigation module display (HDD navigation system) records various types of memory and settings. As a result, after turning the engine switch off, make sure to wait for the time specified in the following table before disconnecting the cable from the negative (-) battery terminal.

**Waiting Time before Disconnecting Cable from Negative (-) Battery Terminal**

| Specification | Waiting Time |
|---|---|
| w/o Telematics transceiver | 60 sec. |
| w/ Telematics transceiver | 120 sec. |

## 2.PRECAUTION FOR DISPLAY AND NAVIGATION MODULE DISPLAY

a. An HDD is built into the display and navigation module display to store map data etc. which will be used for the navigation system. Therefore, care must be taken for the following points when handling:




i. When it is necessary to replace the display and navigation module display, be sure to replace it with a new one.

**NOTICE:**

If a used display and navigation module display is installed as a replacement part, the customer's HDD will not be recognized.

ii. Do not apply any vibration or shock to the display and navigation module display.

**NOTICE:**

- **Do not drop or subject the display and navigation module display to severe impacts.**
- **Do not use the display and navigation module display if it has been dropped or subjected to a severe impact.**
- **module display without the HDD installed. (Only remove the HDD from the display and navigation module display when the replacement display and navigation module display or HDD is ready.)**

iii. Do not remove the display and navigation module display if there is a risk that condensation may occur.

**NOTICE:**

If the temperature of the display and navigation module display changes rapidly, condensation may occur inside the unit. This may cause a malfunction of the HDD.

Therefore, when the display and navigation module display is removed from the instrument panel, it needs to be kept inside the vehicle or in an environment with an equivalent temperature and humidity.

iv. Take measures to prevent static electricity.

**NOTICE:**

Touching the terminals of a connector can cause static electricity to be transmitted to the internal circuits. This may cause a malfunction of the HDD.

v. Keep the display and navigation module display away from magnets or magnetized items.

**NOTICE:**

Keep the display and navigation module display away from speakers, motors, magnetized tools and other magnetic items.

vi. The display and navigation module display functions as the G-BOOK device, it also holds the G-BOOK ID.

**NOTICE:**

When replacing the display and navigation module display, perform vehicle contract setting ( Click here).

## 3.PRECAUTIONS FOR HARD DISK DRIVE (HDD)

a. The map data for the navigation system is stored on the Hard Disk Drive (HDD). Make sure to follow the following instructions when replacing the HDD:

**NOTICE:**

Data recorded by the customer may be stored on the HDD (w/ Sound Library Function). This data will be lost when the HDD is replaced. Make sure to warn the customer that their data will be lost obtain their consent prior to replacing the HDD.

i. The HDD must only be replaced with a new one. Do not attempt to install a used HDD from another vehicle.

**NOTICE:**

The display and navigation module display can recognize only a new HDD.

ii. Do not touch the HDD cover.

**NOTICE:**

When removing or installing the HDD, only hold it by the areas shown in the illustration.

iii. Do not apply any vibration or shock to the HDD.

**NOTICE:**

- **Do not drop or allow anything to strike the HDD.**
- **Never use an HDD that has been dropped or struck.**
- **Do not store a HDD by itself if it has been removed from the display and navigation module display. (Only remove the HDD from the display and navigation module display when the replacement display and navigation module display or HDD is ready.)**

iv. Do not remove the HDD if there is a risk that condensation may occur.

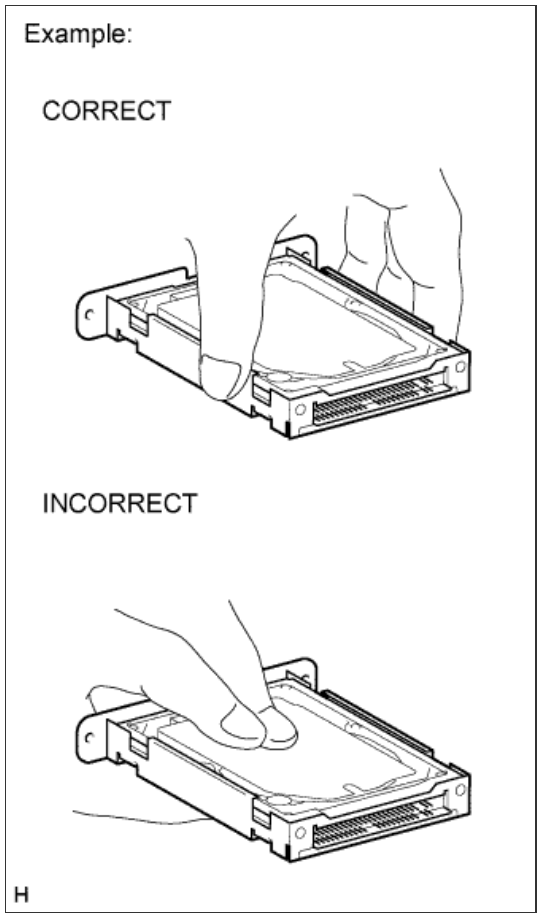
**NOTICE:**

If the temperature of the HDD changes rapidly, condensation may occur inside the unit. This may cause a malfunction of the HDD. Therefore, when the display and navigation module display is removed from the instrument panel, it needs to be kept inside the vehicle or in an environment with an equivalent temperature and humidity.

v. Take measures to prevent static electricity.

**NOTICE:**

Touching the terminals of a connector can cause static electricity to be transmitted to the internal circuits. This may cause a malfunction of the HDD.



vi. Keep the HDD away from magnets or magnetized items.

**NOTICE:**

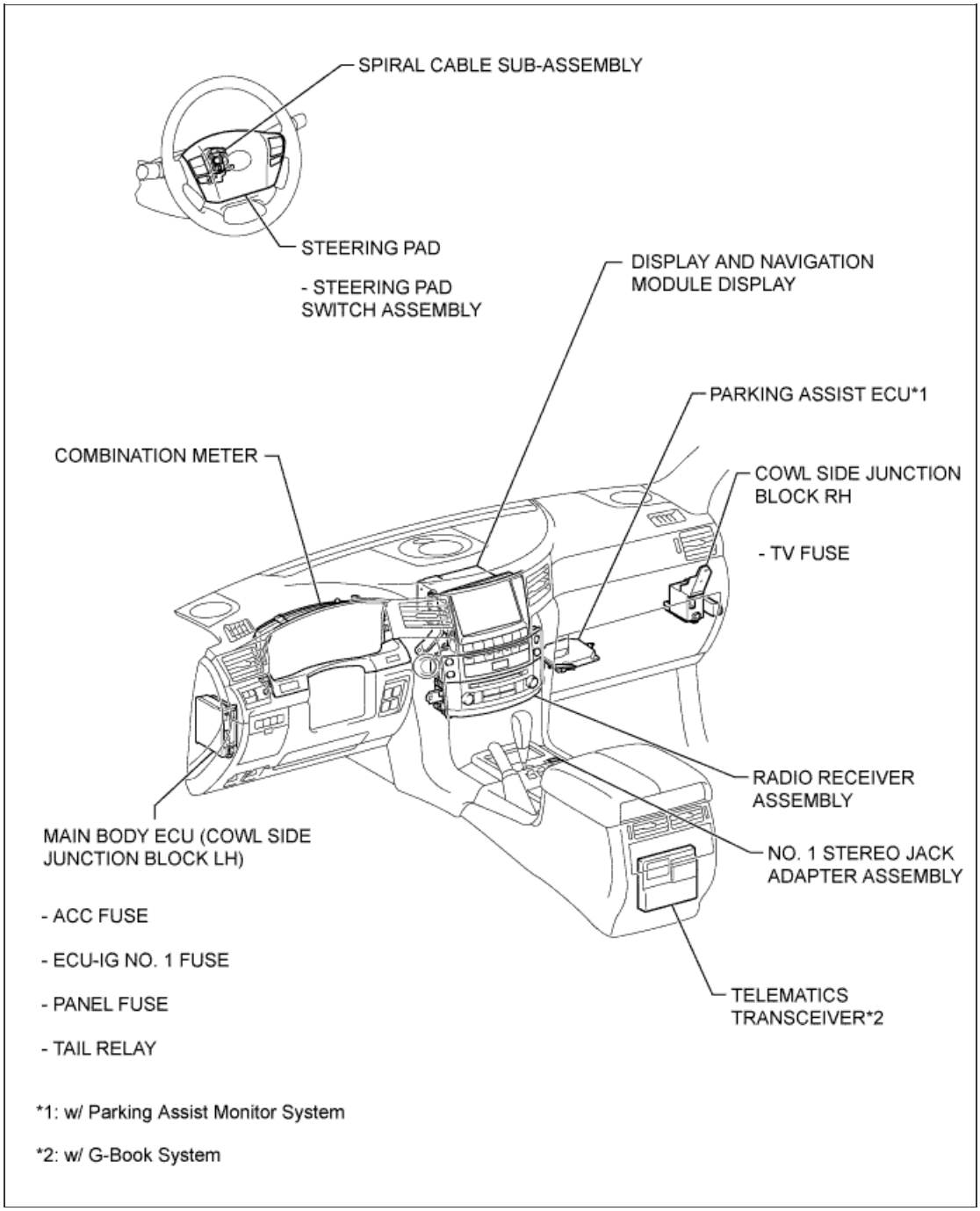
Keep the HDD away from speakers, motors, magnetized tools and other magnetic items.

vii. Inspection after HDD replacement.

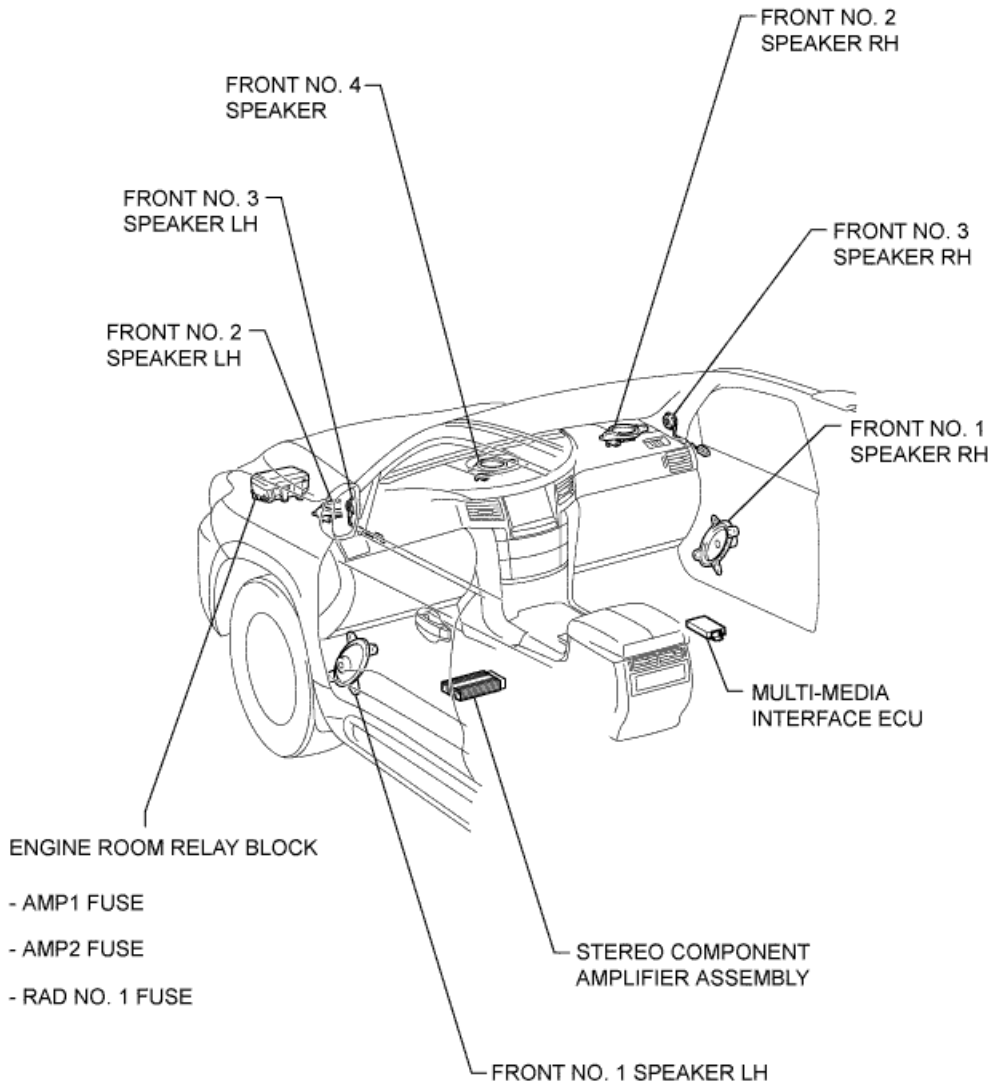
**NOTICE:**

Make sure to perform Check Hard Disk Drive in Operation Check to confirm that there are no HDD abnormalities after removal or installation (Click here).

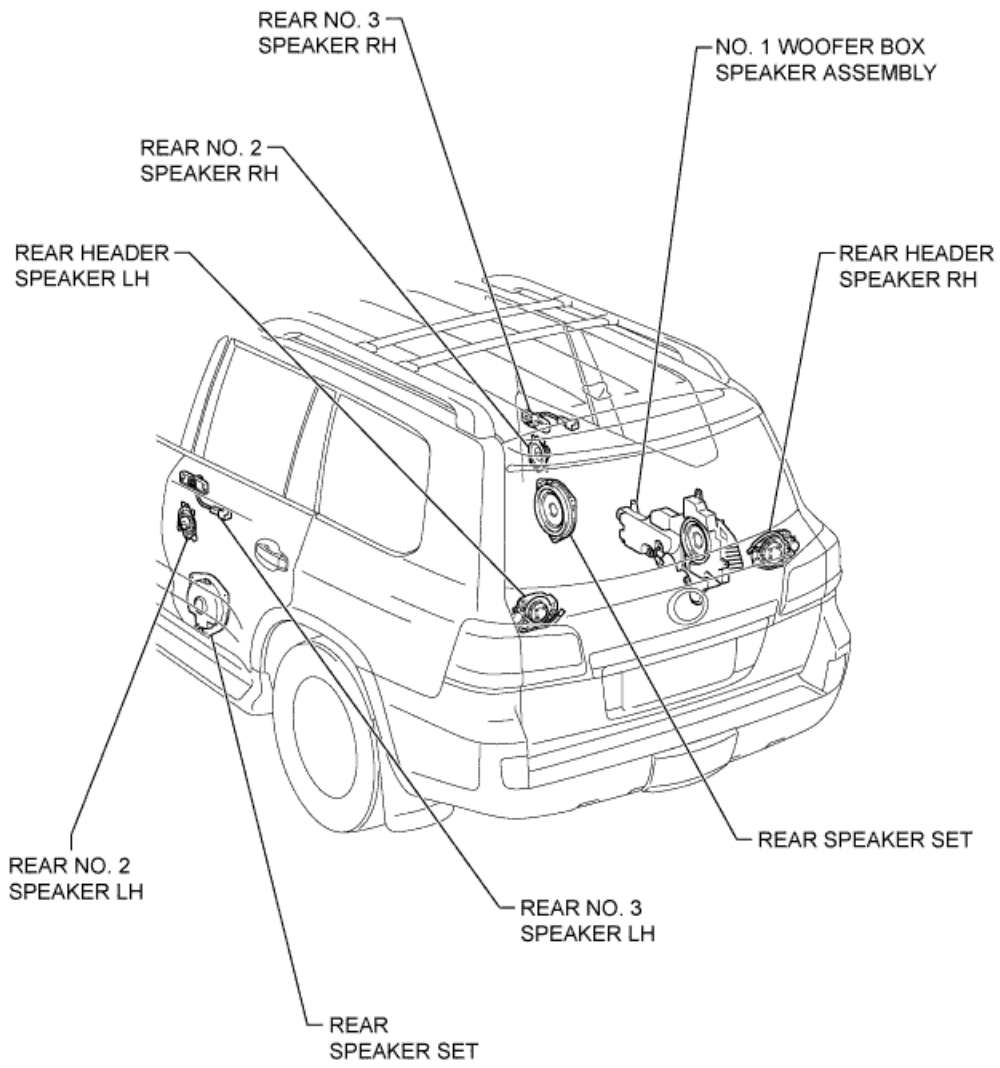
**for Preparation** Click here



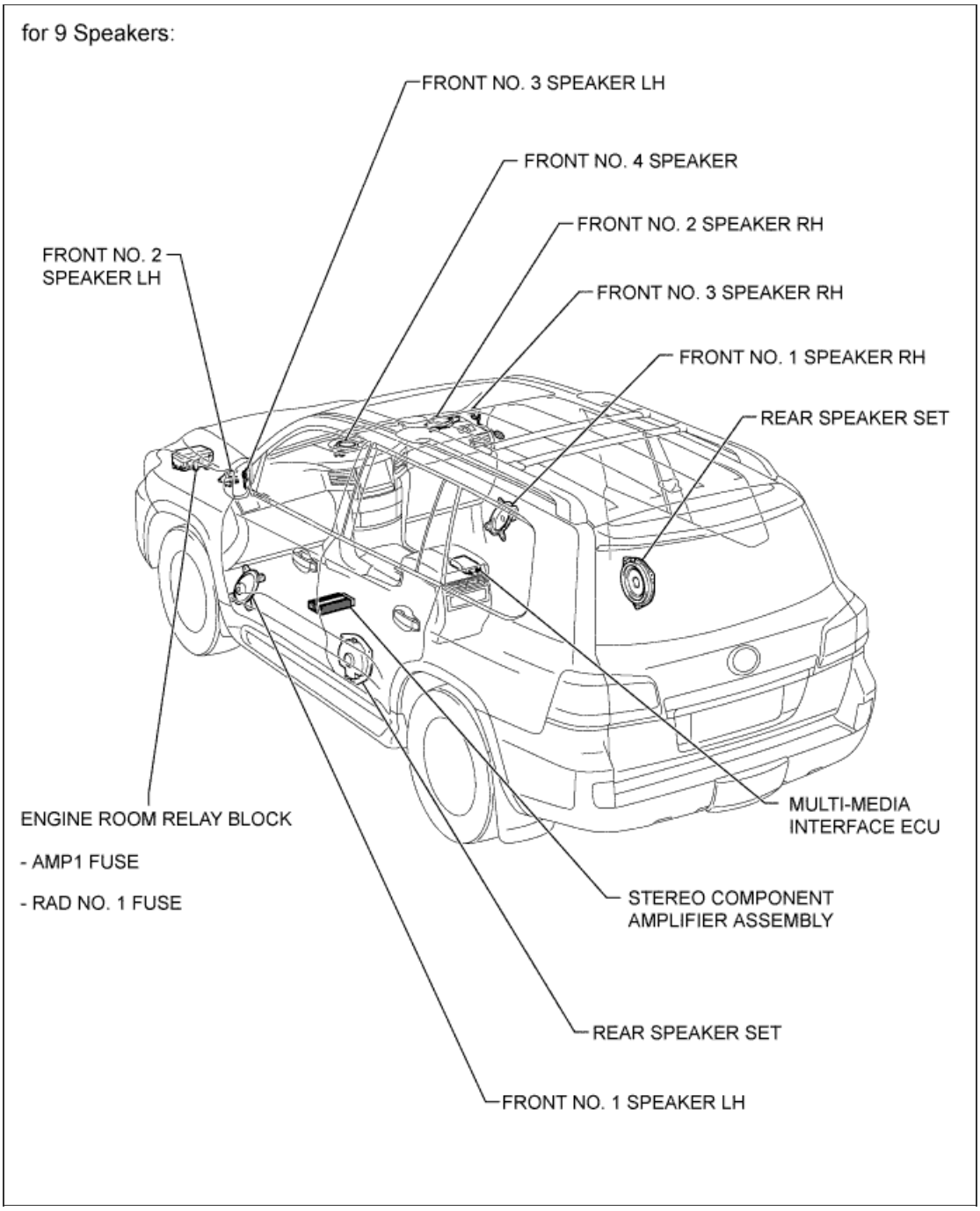
for 19 Speakers:

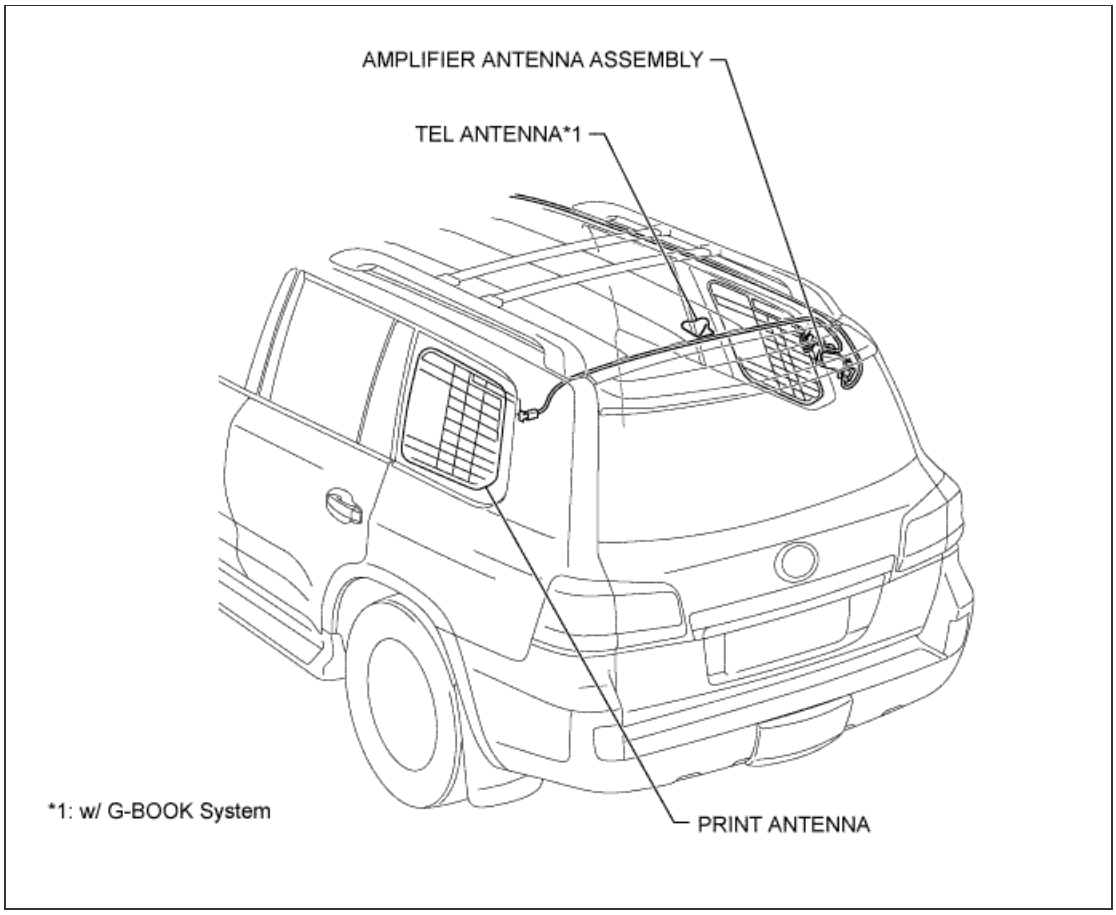


for 19 Speakers:

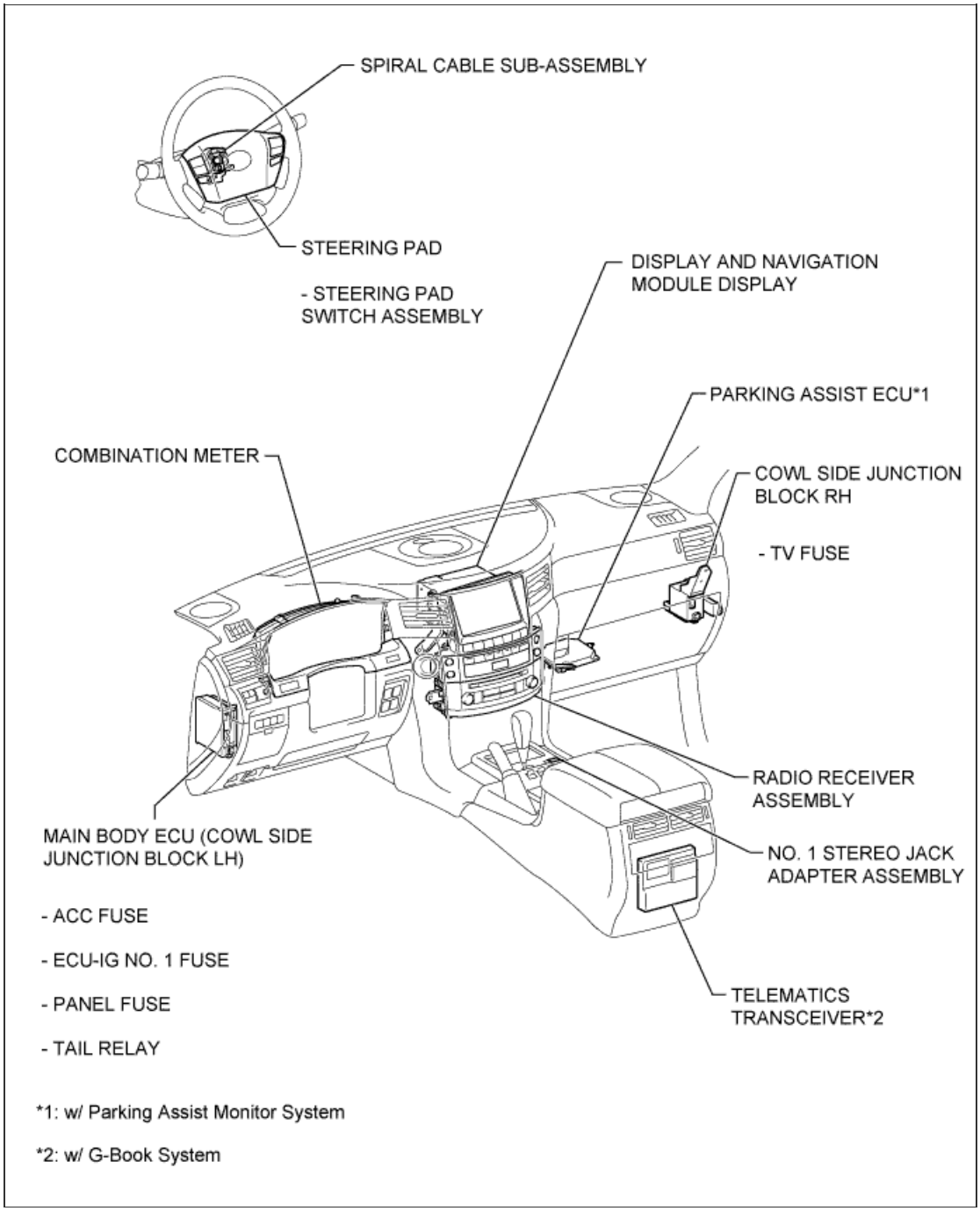


for 9 Speakers:

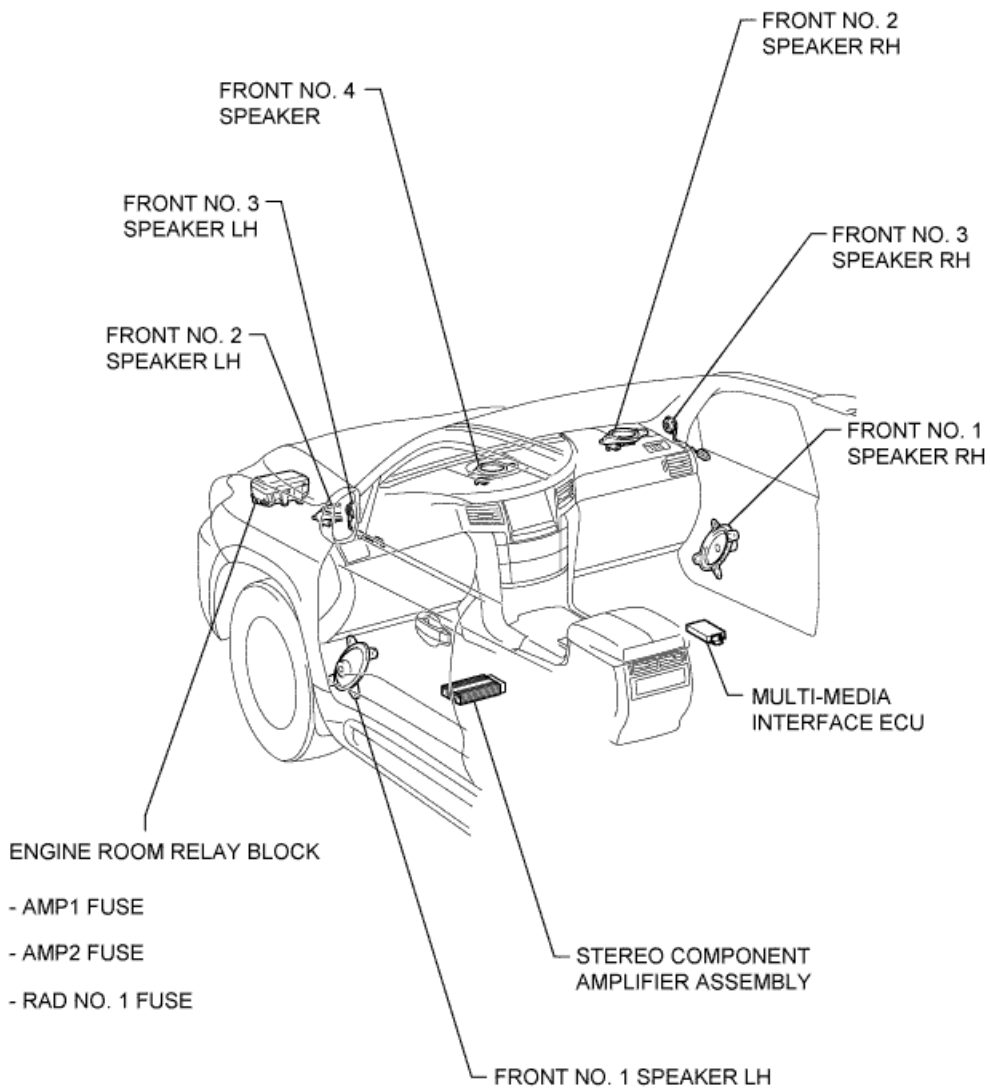



AMPLIFIER ANTENNA ASSEMBLY
TEL ANTENNA*1
PRINT ANTENNA
*1: w/ G-BOOK System

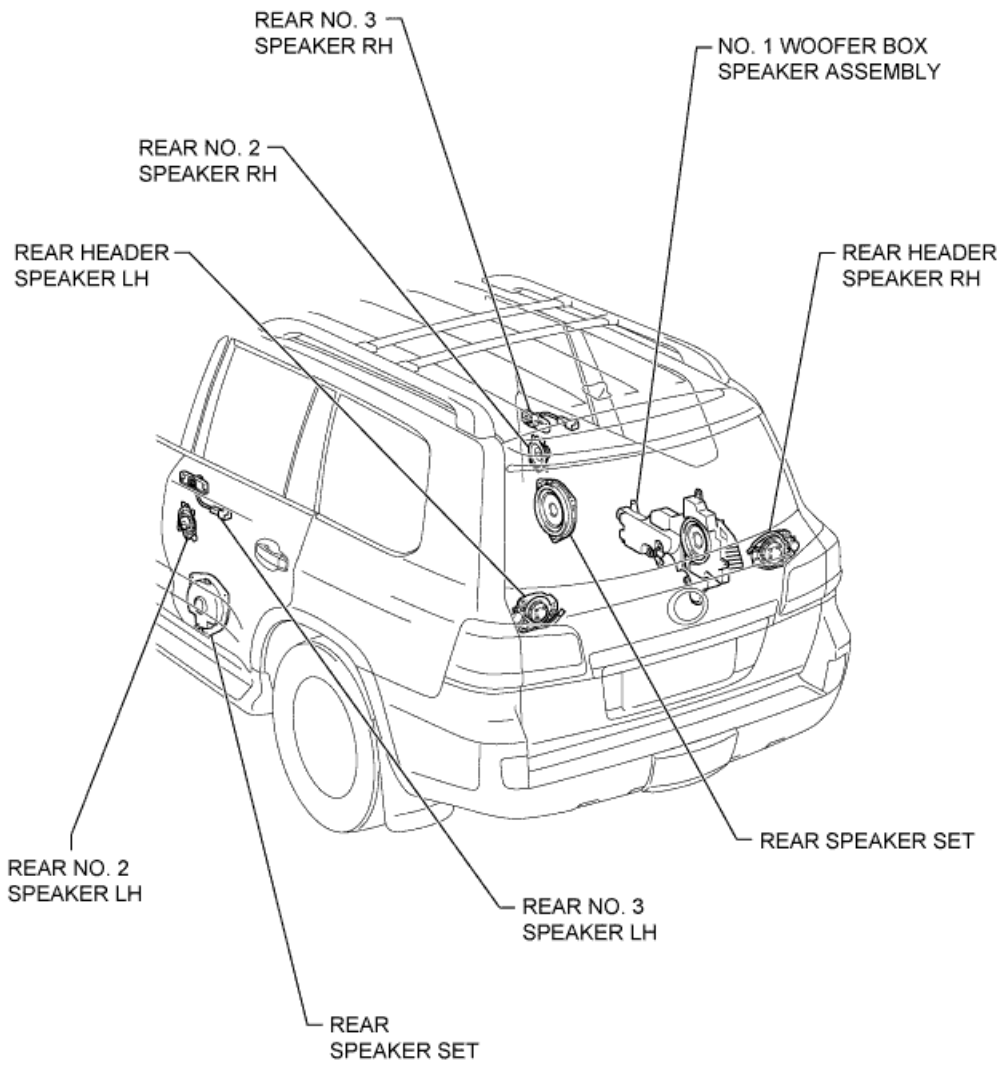
**for Preparation** Click here



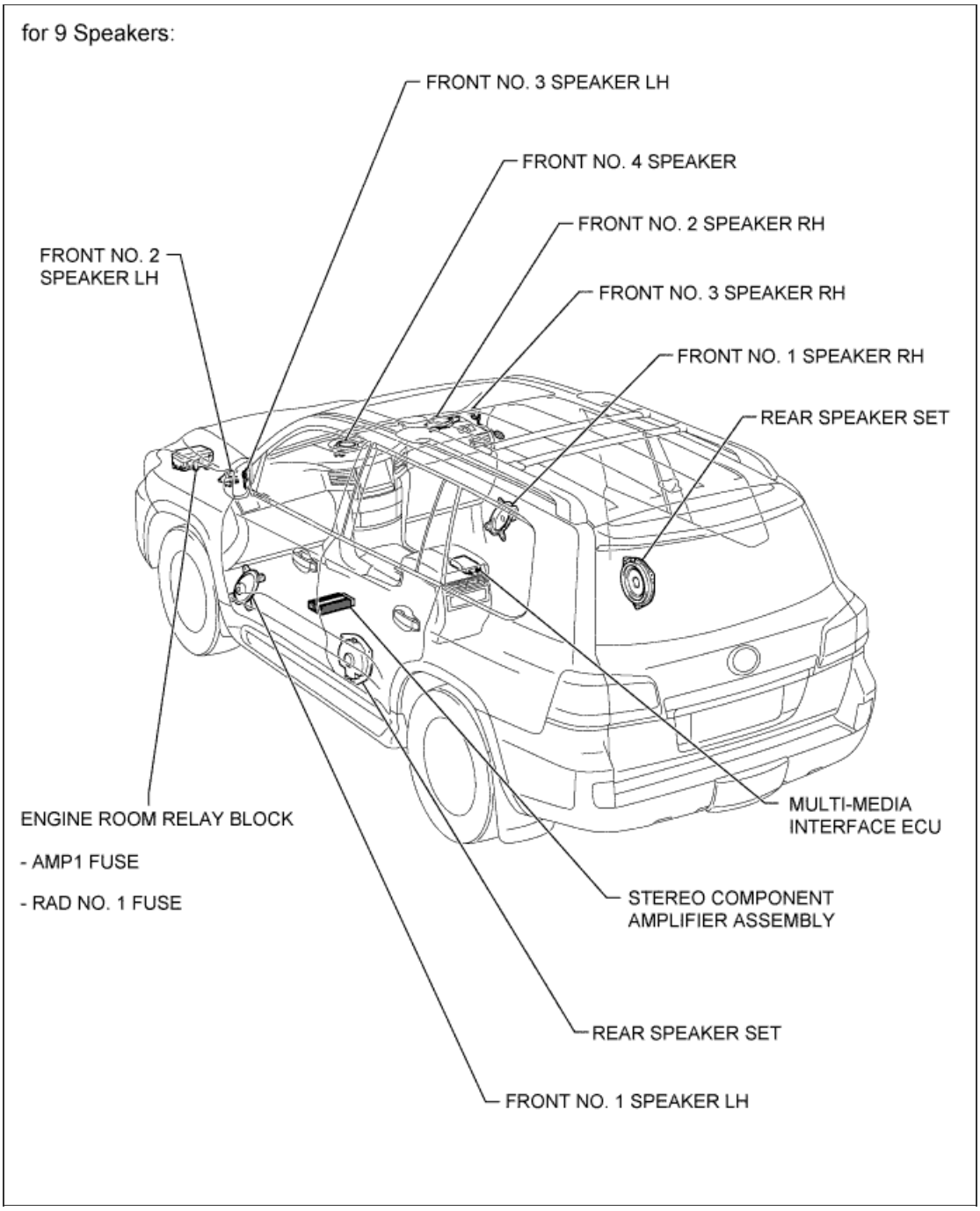
for 19 Speakers:

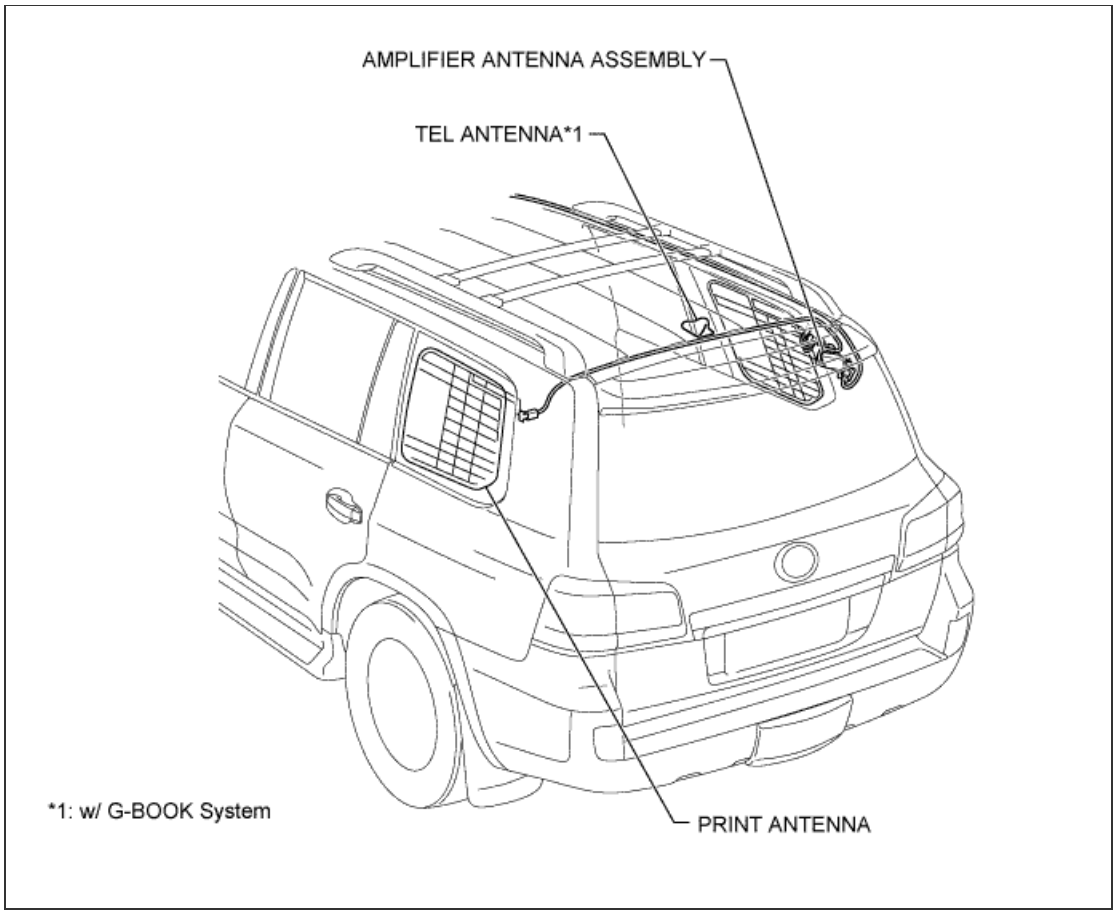


for 19 Speakers:

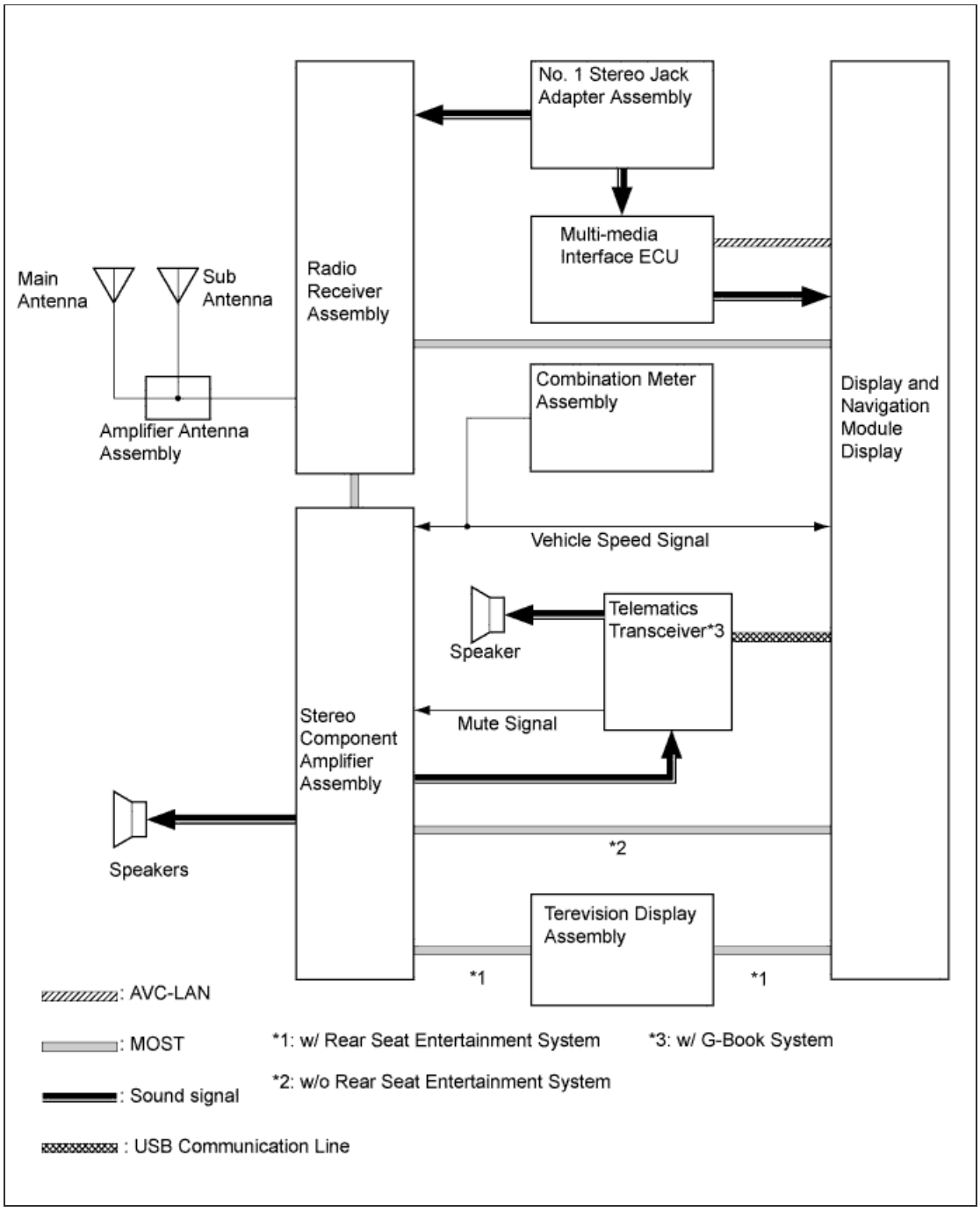


for 9 Speakers:




AMPLIFIER ANTENNA ASSEMBLY
TEL ANTENNA*1
PRINT ANTENNA
*1: w/ G-BOOK System

**for Preparation** Click here



**for Preparation** Click here

## DVD (Digital Versatile Disc) PLAYER OUTLINE

a. The DVD player can only play DVD videos, DVD audios and video CDs that have any of the following marks:




i. Precaution for use of discs

**NOTICE:**

- **SECAM color television standard discs cannot be played (PAL and NTSC discs can be played).**
- **Keep the discs away from dirt. Be careful not to damage the discs or leave fingerprints on them.**
- **Hold discs by the outer edge and center hole with the label side up.**
- **Leaving the disc exposed halfway out of the slot for a long time after pressing the disc eject button may cause deformation of the disc, making the disc unusable.**
- **Do not use odd-shaped discs because these may cause player malfunctions.**
- **Do not use discs whose recording portion is transparent or translucent because they may not be inserted, ejected or played normally.**
- **DualDiscs that combine DVD recorded material on one side with CD digital audio material on the other cannot be played.**

## CD (Compact Disc) PLAYER OUTLINE

a. A compact disc player uses a laser pickup to read digital signals recorded on a compact disc (CD). By converting the digital signals to analog, it can play music and audio.

**CAUTION:**

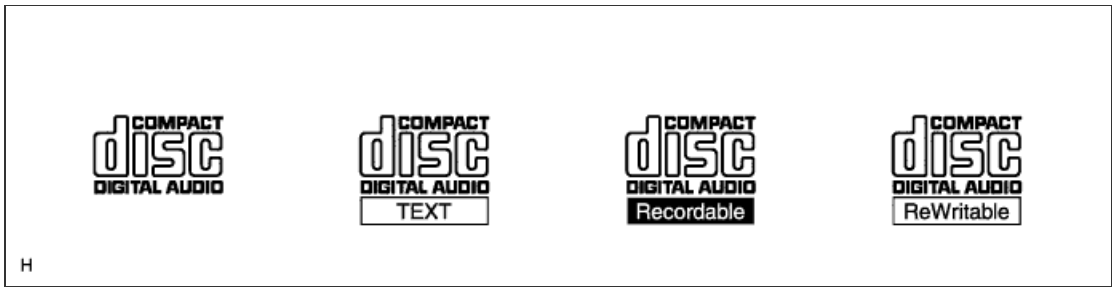
Do not look directly at the laser pickup because the CD player uses an invisible laser beam. Be sure to operate the player only as instructed.

**NOTICE:**

- **Do not disassemble any part of the CD player.**
- **Do not apply oil to the CD player.**
- **Do not insert anything but a CD into the CD player.**

b. Usable discs

i. This player can play only audio CDs, CD-Rs (CD-Recordable) and CD-RWs (CD-ReWritable) that have any of the following marks:



H

c. Precautions for use of discs

**NOTICE:**

- **Copy-protected CDs cannot be played.**
- **CD-Rs and CD-RWs may not be played depending on the recording conditions or characteristics of the discs, or due to damage, dirt or deterioration caused by leaving the discs in the cabin for a long time.**
- **Unfinalized CD-Rs and CD-RWs cannot be played.**
- **DualDiscs that combine DVD recorded material on one side with CD digital audio material on the other cannot be played.**
- **Keep the discs away from dirt. Be careful not to damage the discs or leave your fingerprints on them.**
- **Hold discs by the outer edge and center hole with the label side up.**
- **Leaving the disc exposed halfway out of the slot for a long time after pressing the disc eject button may cause deformation of the disc, making the disc unusable.**
- **If discs have adhesive tape, stickers, CD labels or any traces of such labels attached, the discs may not be ejected or player malfunctions may result.**
- **Keep the discs away from direct sunlight. (Exposure to direct sunlight may cause deformation of the disc, making the disc unusable.)**
- **Do not use odd-shaped CDs because they may cause player malfunctions.**
- **Do not use discs whose recording portion is transparent or translucent because they may not be inserted, ejected or played normally.**
- **Use only 4.7 in. (12 cm) CDs.**
- **Do not use 3 in. (8 cm) CDs, either with or without adopters.**

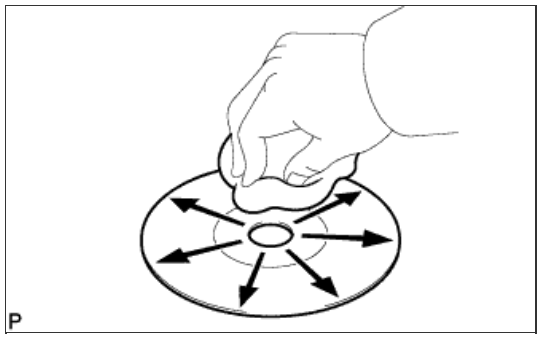
**HINT:**

- **When it is cold or it is raining, if the windows mist up, mist and condensation may form in the player. In such cases, the CD sound may skip or stop in the middle of play. Ventilate or dehumidify the cabin for a while before using the player.**
- **The CD sound may skip if the player experiences strong vibrations when the vehicle is driven on rough roads or similar uneven surface(s).**

d. Cleaning

**NOTICE:**

Do not use a lens cleaner because it may cause a malfunction in the pickup portion of the player.


P

i. If dirt is on the disc surface, wipe it clean with a soft dry cloth such as an eyeglass cleaner for plastic lenses from the inside to the outside in a radial direction.

**NOTICE:**

- **Pressing on the disc by hand or rubbing the disc with a hard cloth may scratch the disc surface.**
- **Use of solvent such as a record spray, antistatic agent, alcohol, benzine and thinner or a chemical cloth may cause damage to the disc, making the disc unusable.**

## MP3/WMA OUTLINE

a. Playable MP3 file standards

| | |
|---|---|
| Compatible standard | MP3 (MPEG1 LAYER3, MPEG2 LSF LAYER3) |
| Compatible sampling frequency | • MPEG1 LAYER3: 32, 44.1, 48 (kHz)<br>• MPEG2 LSF LAYER3: 16, 22.05, 24 (kHz) |
| Compatible bit rate | • MPEG1 LAYER3: 64, 80, 96, 112, 128, 160, 192, 224, 256, 320 (kbps)<br>• MPEG2 LSF LAYER3: 64, 80, 96, 112, 128, 144, 160 (kbps)<br>• Compatible with VBR |

| | |
|---|---|
| Compatible channel mode | Stereo, joint stereo, dual channel, monaural |

b. Playable WMA file standards

| | |
|---|---|
| Compatible standard | WMA Ver. 7, 8 and 9 |
| Compatible sampling frequency | 32, 44.1, 48 (kHz) |
| Compatible bit rate (Only compatible with 2-channel playback) | • Ver. 7, 8: CBR48, 64, 80, 96, 128, 160, 192 (kbps)<br>• Ver. 9: CBR48, 64, 80, 96, 128, 160, 192, 256, 320 (kbps) |

c. ID3 tag and WMA tag

i. Additional textual information called ID3 tag can be input to MP3 files. Information such as song titles and artist names can be stored.

**HINT:**

This player is compatible with the ID3 tags of ID3 Ver. 1.0 and 1.1, and ID3 Ver. 2.2 and 2.3. (Number of characters complies with ID3 Ver. 1.0 and 1.1.)

ii. Additional textual information called WMA tag can be input to WMA files. Information such as song titles and artist names can be stored.

d. Usable media

i. Only CD-ROMs, CD-Rs (CD-Recordable) and CD-RWs (CD-ReWritable) can be used to play MP3/WMA files.

**NOTICE:**

- **CD-Rs and CD-RWs are more easily affected by a hot and humid environment than discs used for normal audio CDs. For this reason, some CD-Rs and CD-RWs do not play.**
- **If there are fingerprints or scratches on a disc, the disc may not play or the CD sound may skip.**
- **Some CD-Rs and CD-RWs may deteriorate if they are left in the cabin for a long time.**
- **Keep CD-Rs and CD-RWs in an opaque case.**

e. Usable media format

i. Usable media format

| | |
|---|---|
| Disc format | CD-ROM Mode 1, CD-ROM XA Mode 2 Form1 |
| File format | ISO9660 Level 1 and Level 2 (Joliet, Romeo) |

**HINT:**

- **As for MP3/WMA files written in any unlisted format, the contents of the files may not be played normally or the file names or folder names may not be displayed correctly.**
- **This player is compatible with multi-session discs and can play CD-Rs and CD-RWs on which MP3/WMA files are added. However, only the first session can be played.**
- **Discs whose first session includes both music data and MP3 or WMA format data cannot be played.**

ii. Standard and restrictions

| | |
|---|---|
| Maximum directory levels | 8 levels |
| Maximum number of characters for a folder name/file name | 32 characters |
| Maximum number of folders | 192 (Including empty folders, root folders, and folders that do not contain MP3/WMA files) |
| Maximum number of files in a disc | 255 (Including non-MP3/WMA files) |

f. File names

i. Only files with an extension of ".mp3" or ".wma" can be recognized and played as MP3 or WMA files.

ii. Save MP3 or WMA files with an extension of ".mp3" or ".wma".

**NOTICE:**

If non-MP3 or non-WMA files are saved with an extension of ".mp3" or ".wma", those files may be wrongly recognized as MP3 or WMA files and played. A loud noise may occur and damage to the speakers may result.

## COMMUNICATION SYSTEM

**HINT:**

- **Refer to Navigation System (for HDD) (Click here).**
- **Refer to Navigation System (for DVD) (Click here).**

## DIAGNOSTIC FUNCTION OUTLINE

a. The navigation system has a diagnostic function (the result is indicated on the master unit or the intelligent tester).

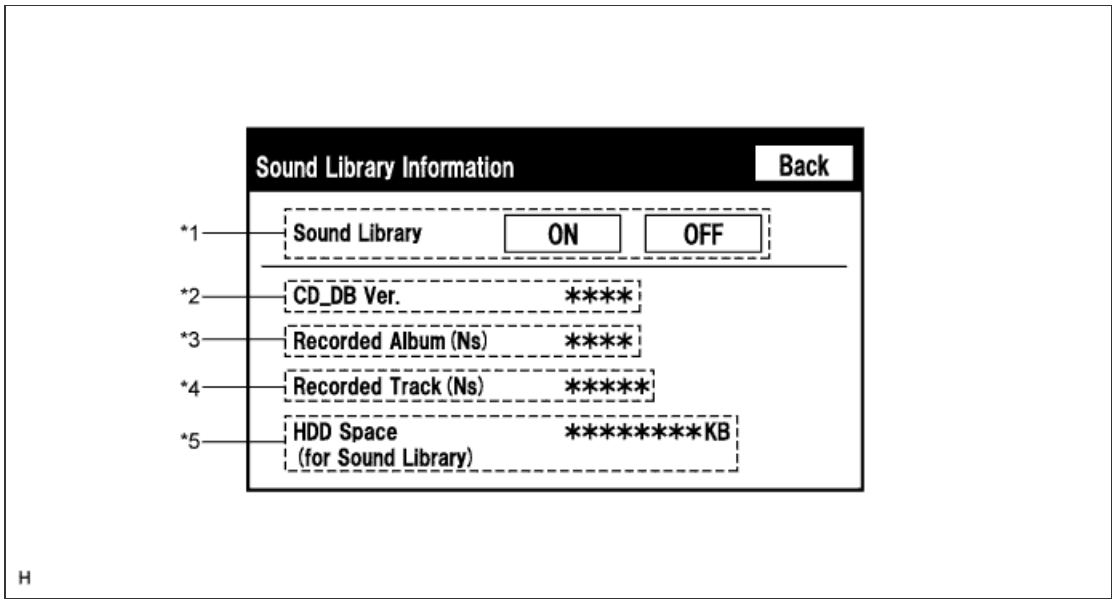
## DIAGNOSIS DISPLAY DETAILED DESCRIPTION

**HINT:**

- **This section contains a detailed description of displays in diagnostic mode.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Function Check/Setting Screen

i. Sound Library Information Screen




**Screen Description**

| Display | Content |
|---|---|
| *1: Recording function setting for HDD | Recording to HDD permitted (ON)/not permitted (OFF) |
| *2: Media database version | Media database version currently installed on HDD |
| *3: Number of albums | Number of albums recorded in HDD |
| *4: Number of tracks | Number of tracks recorded in HDD |
| *5: Free space in HDD | Free space in HDD partition for sound library |

b. Refer to the following for detailed descriptions of the diagnosis display for items other than the sound library function:

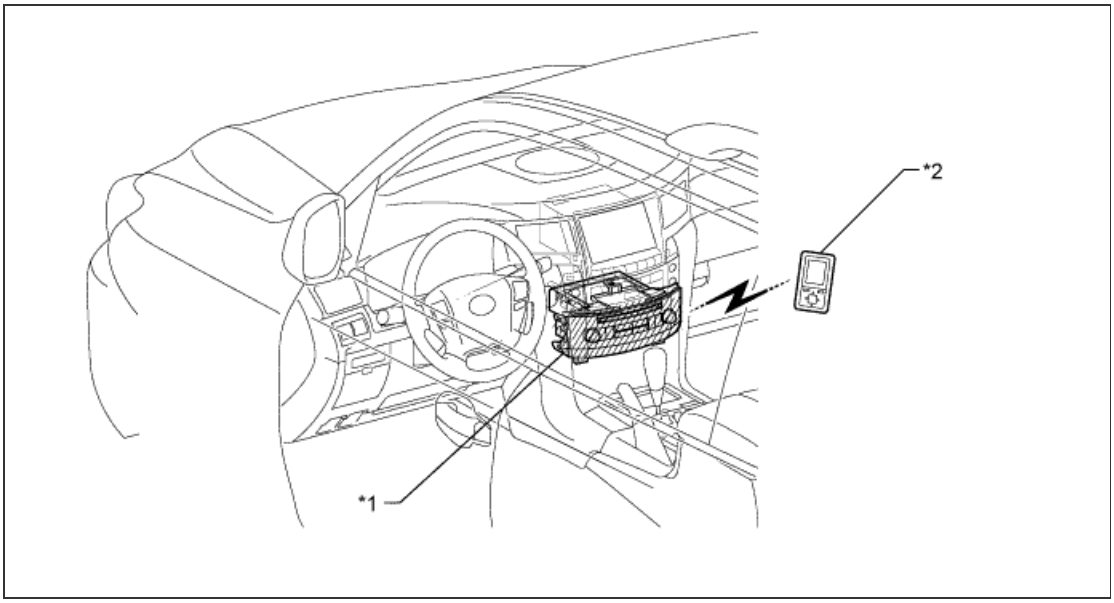
**HINT:**

Refer to Navigation System (for HDD) (Click here).

## "BLUETOOTH" OUTLINE

a. "Bluetooth" is a trademark owned by Bluetooth SIG. Inc.

b. "Bluetooth" is a wireless connection technology that uses the 2.4 GHz frequency band. This makes it possible to connect a cellular phone ("Bluetooth" compatible phone*1) to the radio receiver assembly (the "Bluetooth" system is built in), and use the hands-free function of the cellular phone, even if it is in a pocket or bag. As a result, it is not necessary to use a connector attached directly to the cellular phone.
*1: Some versions of "Bluetooth" compatible cellular phones may not function.




**Text in Illustration**

| | | | |
|---|---|---|---|
| *1 | Radio Receiver Assembly<br>(Built-in "Bluetooth" receiver antenna) | *2 | Portable Player<br>("Bluetooth" compatible) |

**HINT:**

The communication performance of "Bluetooth" may vary depending on obstructions or radio wave conditions between communication devices, electromagnetic radiation, communication device sensitivity or antenna capacity.

c. "Bluetooth" audio function

i. The "Bluetooth" built-in radio receiver assembly and a "Bluetooth" compatible portable audio player*2 can be connected using a "Bluetooth" wireless connection. This enables files stored in the portable audio player to be heard from the vehicle speakers. In addition, operations such as play/stop can be performed directly from the radio receiver assembly.
*2: Some versions of "Bluetooth" compatible audio players may not be able to operate the "Bluetooth" function, or music may play, but functions available using the radio receiver assembly may be limited.

ii. Available "Bluetooth" audio devices

| | |
|---|---|
| "Bluetooth" specifications | Ver. 1.1 or higher (Recommended: Ver. 2.0+EDR or higher) |
| Following profiles | • A2DP (Advanced Audio Distribution Profile) Ver. 1.0 or higher<br>• AVRCP (Audio/Video Remote Control Profile) Ver. 1.0 or higher (Recommended: Ver. 1.3 or higher) |
| Maximum number of audio devices that can be registered | 2 |

**HINT:**

The amount of remaining battery charge displayed on the radio receiver assembly may be different from that of the portable player.

## USB AUDIO SYSTEM FUNCTION OUTLINE

a. The No. 1 stereo jack adapter assembly is equipped with a USB terminal. Connecting a USB device or "iPod" to the No. 1 stereo jack adapter assembly allows music files to be played. Not only is it possible to play music from a USB device with audio functions, is also possible to play MP3 or WMA music files that are stored on a USB device. In addition, "iPod" control software is installed, allowing file selection from playlists and operation using shuffle mode.

**HINT:**

- **Visual contents of an "iPod" cannot be played.**
- **Operation through the controls of a USB device or "iPod" cannot be performed while it is connected.**

b. USB audio system compatible model

i. USB Device
The following device formats can be used:

| | |
|---|---|
| Compatible USB device formats | • USB communication format: USB 2.0 FS (12MBPS)<br>• File format: FAT16/32 (Windows)<br>• Class: Mass storage class |

MP3 and WMA files written in any format other than those listed above may not play correctly, and their names and folder names may not be displayed correctly.
Items related to standards and limitations are as follows:

- Maximum directory hierarchy: 8 levels
- Maximum number of folders in device: 999 (including the root folder)
- Maximum number of files in device: 65025
- Maximum number of files per folder: 255

ii. "iPod"
"iPod" is a trademark of Apple Inc., registered in the U.S. and other countries.

**Supported "iPod" Models and Firmware Versions**

| Supported "iPod" Model | Supported Firmware Version |
|---|---|
| "iPod" 5G | Ver. 1.2 or more |
| "iPod Nano" 1G | Ver. 1.2 or more |
| "iPod Nano" 2G | Ver. 1.1.2 or more |
| "iPod Nano" 3G | Ver. 1.0 or more |
| "iPod touch" | Ver. 1.1 or more |
| "iPod classic" | Ver. 1.0 or more |

**Unsupported "iPod" Models**

| | |
|---|---|
| Unsupported Models | "iPod shuffle" |
| | "iPhone" |
| | "iPod" 1G, 2G, 3G, 4G |
| | "iPod mini" |

**HINT:**

Depending on the generation of "iPod" used, response to commands from the vehicle may be delayed.

Items related to standards and limitations are as follows:

- Maximum number of lists in device: 9999
- Maximum number of songs in device: 65535
- Maximum number of songs per list: 65535

## ASL (Automatic Sound Levelizer) FUNCTION OUTLINE

a. The Automatic Sound Levelizer (ASL) function automatically adjusts the sound data in order to enable to hear the clear sound from the audio system even when vehicle noise increases (as vehicle noise increases, the volume is turned up etc.). Vehicle speed signals are received from the combination meter assembly and used for the ASL.

## SOUND LIBRARY FUNCTION OUTLINE

a. Up to 2000 tracks can be recorded to the HDD from audio discs (based on 5-minute tracks recorded at 128kbps).

b. The recorded tracks will be provided with album, artist, genre and title names using the "Gracenote" Media Database ("CDDB") and stored in the sound library on the HDD.

c. Album, artist, genre and title names for recorded tracks can be input or edited freely.

**HINT:**

- **Recording equipment should be used only for lawful copying. It is necessary to carefully confirm what is lawful copying in the country in which you are making a copy.**
- **Copying of copyright material such as films or music is unlawful unless permitted by a legal exception or consent granted by the owners of the rights to the content.**
- **Music recognition technology and related data are provided by "Gracenote".**
- **"Gracenote" is the industry standard in music recognition technology and related content delivery. For more information, visit www.gracenote.com.**
- **CD and music-related data from "Gracenote", Inc. is copyright 2000 - 2008 "Gracenote".**
- **"Gracenote" software is copyright 2000 - 2008 "Gracenote".**

- **This product and service may covered by one or more U.S. patents.**
- **"Gracenote" and "CDDB" are registered trademarks of "Gracenote".**

**for Preparation** Click here

**HINT:**

- **Use the following procedure to troubleshoot the audio and visual system.**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

NEXT

## 2.INSPECT BATTERY VOLTAGE

**Standard Voltage:**
**11 to 14 V**

If the voltage is below 11 V, recharge or replace the battery before proceeding to the next step.

NEXT

## 3.BASIC INSPECTION

a. Turn the engine switch on (IG).

b. Check whether or not the radio receiver assembly turns on.

**Result**

| Result | Proceed to |
|---|---|
| Radio receiver assembly turns on. | A |
| Radio receiver assembly does not turn on. | B |

B. → Go to step 8

A

## 4.CHECK FOR DTC*

a. Refer to DTC Check/Clear of the navigation system.

- Refer to Navigation System (for HDD) (Click here).
- Refer to Navigation System (for DVD) (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is output. | A |
| DTC is not output. | B |

**HINT:**

After the check using the intelligent tester, check the "System Check Mode" screen as necessary.

B. → Go to step 8

A

## 5.DTC CLEAR*

a. Refer to DTC Check/Clear of the navigation system.

- Refer to Navigation System (for HDD) (Click here).
- Refer to Navigation System (for DVD) (Click here).

**HINT:**

The present DTCs may not indicate actual malfunctions depending on the vehicle operating conditions.

**NEXT**

## 6.RECHECK FOR DTC*

a. Refer to DTC Check/Clear of the navigation system.

- Refer to Navigation System (for HDD) (Click here).
- Refer to Navigation System (for DVD) (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is output. | A |
| DTC is not output. | B |

**HINT:**

- **Even if the malfunction symptom is not confirmed, check for diagnostic trouble codes. This is because the system stores history DTCs.**
- **After the check using the intelligent tester, check the "System Check Mode" screen as necessary.**
- **Check the DTC and inspect the area code indicates.**

**B.** → **Go to step 9**

**A**

## 7.DIAGNOSTIC TROUBLE CODE CHART

a. Find the output code in Diagnostic Trouble Code Chart ( Click here).

**NOTICE:**

- **The navigation system outputs DTCs for the following systems.**
- **When DTCs other than the codes in Diagnostic Trouble Code Chart for the audio and visual system are output, refer to Diagnostic Trouble Code Chart for the following systems.**
- **Refer to Navigation System (for HDD) (Click here).**
- **Refer to Navigation System (for DVD) (Click here).**
- **G-BOOK system (w/ G-BOOK system) (Click here).**
- **Rear Seat Entertainment System (w/ Rear Seat Entertainment System) ( Click here).**
- **Parking Assist Monitor System (w/ Parking Assist Monitor System) ( Click here).**
- **Wide View Front Monitor System (w/ Wide View Front Monitor System) ( Click here).**
- **Side Monitor System (w/ Side Monitor System) ( Click here).**

**Result**

| Result | Proceed to |
|---|---|
| Audio and Visual System (w/ Navigation System) are output. | A |
| Navigation System (for HDD) are output. | B |
| Navigation System (for DVD) are output. | C |
| G-BOOK System are output. | D |
| Rear Seat Entertainment System (w/ Rear Seat Entertainment System). | E |
| Parking Assist Monitor System (w/ Parking Assist Monitor System) | F |
| Wide View Front Monitor System (w/ Wide View Front Monitor System) | G |
| Side Monitor System (w/ Side Monitor System) | H |

| | |
|---|---|
| A. | Go to step 10 |
| B. | GO TO NAVIGATION SYSTEM (for HDD) |
| C. | GO TO NAVIGATION SYSTEM (for DVD) |
| D. | GO TO G-BOOK SYSTEM |
| E. | GO TO REAR SEAT ENTERTAINMENT SYSTEM |
| F. | GO TO PARKING ASSIST MONITOR SYSTEM |
| G. | GO TO WIDE VIEW FRONT MONITOR SYSTEM |
| H. | GO TO SIDE MONITOR SYSTEM |

## 8.PROBLEM SYMPTOMS TABLE

a. Refer to Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in Problem Symptoms Table. | A |
| Fault is listed in Problem Symptoms Table. | B |

**HINT:**

If the symptom does not recur and no DTC is output, perform the symptom reproduction method ( Click here).

| | |
|---|---|
| B. | Go to step 10 |

A

## 9.CHECK ECU TERMINAL ARRANGEMENT BASED ON MALFUNCTION SYMPTOM

a. Refer to Terminals of ECU (Click here).

NEXT

## 10.CHECK CIRCUIT

a. Adjust, repair or replace as necessary.

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK System) (Click here).

NEXT

## 11.RECHECK FOR DIAGNOSTIC TROUBLE CODE

**HINT:**

After clearing DTCs, recheck for DTCs.

NEXT

## 12.PERFORM CONFIRMATION TEST

NEXT

END

**for Preparation** Click here

**HINT:**

- **Use the following procedure to troubleshoot the audio and visual system.**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

NEXT

## 2.INSPECT BATTERY VOLTAGE

**Standard Voltage:**
**11 to 14 V**

If the voltage is below 11 V, recharge or replace the battery before proceeding to the next step.

NEXT

## 3.BASIC INSPECTION

a. Turn the engine switch on (IG).

b. Check whether or not the radio receiver assembly turns on.

**Result**

| Result | Proceed to |
|---|---|
| Radio receiver assembly turns on. | A |
| Radio receiver assembly does not turn on. | B |

B. → Go to step 8

A

## 4.CHECK FOR DTC*

a. Refer to DTC Check/Clear of the navigation system.

- Refer to Navigation System (for HDD) (Click here).
- Refer to Navigation System (for DVD) (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is output. | A |
| DTC is not output. | B |

**HINT:**

After the check using the intelligent tester, check the "System Check Mode" screen as necessary.

B. → Go to step 8

A

## 5.DTC CLEAR*

a. Refer to DTC Check/Clear of the navigation system.

- Refer to Navigation System (for HDD) (Click here).
- Refer to Navigation System (for DVD) (Click here).

**HINT:**

The present DTCs may not indicate actual malfunctions depending on the vehicle operating conditions.

**NEXT**

## 6.RECHECK FOR DTC*

a. Refer to DTC Check/Clear of the navigation system.

- Refer to Navigation System (for HDD) (Click here).
- Refer to Navigation System (for DVD) (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is output. | A |
| DTC is not output. | B |

**HINT:**

- **Even if the malfunction symptom is not confirmed, check for diagnostic trouble codes. This is because the system stores history DTCs.**
- **After the check using the intelligent tester, check the "System Check Mode" screen as necessary.**
- **Check the DTC and inspect the area code indicates.**

**B.** → **Go to step 9**

**A**

## 7.DIAGNOSTIC TROUBLE CODE CHART

a. Find the output code in Diagnostic Trouble Code Chart ( Click here).

**NOTICE:**

- **The navigation system outputs DTCs for the following systems.**
- **When DTCs other than the codes in Diagnostic Trouble Code Chart for the audio and visual system are output, refer to Diagnostic Trouble Code Chart for the following systems.**
- **Refer to Navigation System (for HDD) (Click here).**
- **Refer to Navigation System (for DVD) (Click here).**
- **G-BOOK system (w/ G-BOOK system) (Click here).**
- **Rear Seat Entertainment System (w/ Rear Seat Entertainment System) ( Click here).**
- **Parking Assist Monitor System (w/ Parking Assist Monitor System) ( Click here).**
- **Wide View Front Monitor System (w/ Wide View Front Monitor System) ( Click here).**
- **Side Monitor System (w/ Side Monitor System) ( Click here).**

**Result**

| Result | Proceed to |
|---|---|
| Audio and Visual System (w/ Navigation System) are output. | A |
| Navigation System (for HDD) are output. | B |
| Navigation System (for DVD) are output. | C |
| G-BOOK System are output. | D |
| Rear Seat Entertainment System (w/ Rear Seat Entertainment System). | E |
| Parking Assist Monitor System (w/ Parking Assist Monitor System) | F |
| Wide View Front Monitor System (w/ Wide View Front Monitor System) | G |
| Side Monitor System (w/ Side Monitor System) | H |

| | |
|---|---|
| A. | Go to step 10 |
| B. | GO TO NAVIGATION SYSTEM (for HDD) |
| C. | GO TO NAVIGATION SYSTEM (for DVD) |
| D. | GO TO G-BOOK SYSTEM |
| E. | GO TO REAR SEAT ENTERTAINMENT SYSTEM |
| F. | GO TO PARKING ASSIST MONITOR SYSTEM |
| G. | GO TO WIDE VIEW FRONT MONITOR SYSTEM |
| H. | GO TO SIDE MONITOR SYSTEM |

## 8.PROBLEM SYMPTOMS TABLE

a. Refer to Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in Problem Symptoms Table. | A |
| Fault is listed in Problem Symptoms Table. | B |

**HINT:**

If the symptom does not recur and no DTC is output, perform the symptom reproduction method ( Click here).

| | |
|---|---|
| B. | Go to step 10 |

A

## 9.CHECK ECU TERMINAL ARRANGEMENT BASED ON MALFUNCTION SYMPTOM

a. Refer to Terminals of ECU (Click here).

NEXT

## 10.CHECK CIRCUIT

a. Adjust, repair or replace as necessary.

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK System) (Click here).

NEXT

## 11.RECHECK FOR DIAGNOSTIC TROUBLE CODE

**HINT:**

After clearing DTCs, recheck for DTCs.

NEXT

## 12.PERFORM CONFIRMATION TEST

NEXT

END

**for Preparation** Click here

## RADIO DESCRIPTION

a. Radio frequency band

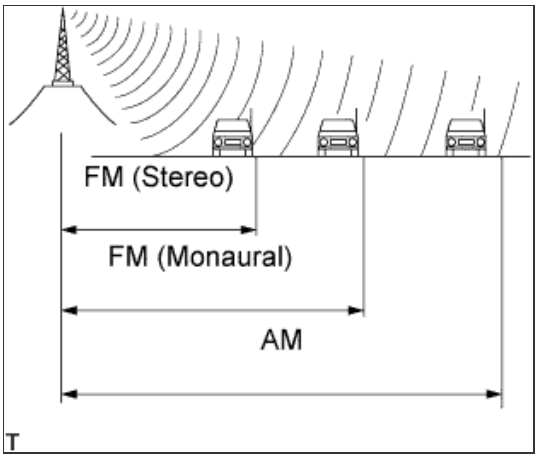
i. Radio broadcasts use the radio frequency bands shown in the table below.

| Frequency | 30 kHz | 300 kHz | 3 MHz | 30 MHz | 300 MHz |
|---|---|---|---|---|---|
| Designation | LF | MF | HF | VHF | |
| Radio Wave | | AM | | FM | |
| Modulation | | Amplitude Modulation | | Frequency Modulation | |

LF: Low Frequency MF: Medium Frequency HF: High Frequency VHF: Very High Frequency

b. Service area

i. The service areas of AM and FM broadcasts are vastly different. Sometimes an AM broadcast can be received very clearly but an FM stereo cannot. FM stereo has the smallest service area, and is prone to pick up static and other types of interference such as noise.

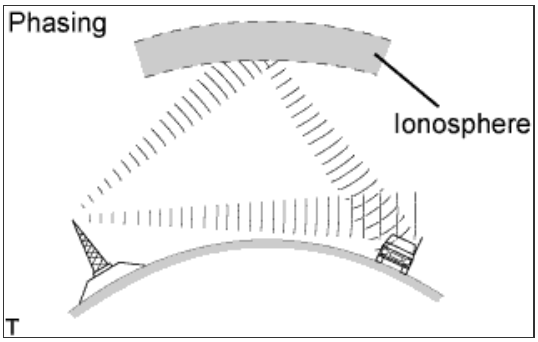



c. Radio reception problems

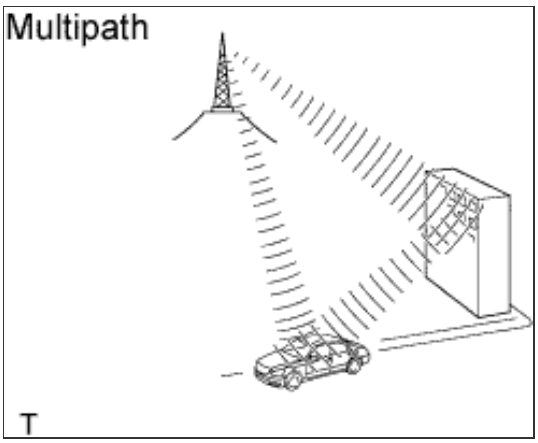
**HINT:**

In addition to static, other problems such as "phasing", "multipath" and "fade out" exist. These problems are not caused by electrical noise, but by the radio signal propagation method itself.

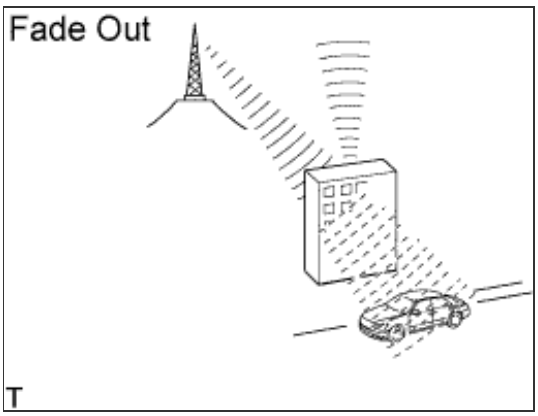
i. Phasing
AM broadcasts are susceptible to electrical interference and another kind of interference called phasing. Occurring only at night, phasing is the interference created when a vehicle receives 2 radio wave signals from the same transmitter. One signal is reflected off the ionosphere and the other signal is received directly from the transmitter.




ii. Multipath
Multipath is a type of interference created when a vehicle receives 2 radio wave signals from the same transmitter. One signal is reflected off buildings or mountains and the other signal is received directly from the transmitter.




iii. Fade out
Fade out is caused by objects (buildings, mountains and other such large obstacles) that deflect away part of a signal, resulting in a weaker signal when the object is between the transmitter and vehicle. High frequency radio waves, such as FM broadcasts, are easily deflected by obstructions. Low frequency radio waves, such as AM broadcasts, are less likely to deflect.




d. Noise problem
Technicians must have a clear understanding about each customer's noise complaint. Use the following table to diagnose noise problems.

| Radio Frequency | Noise Occurrence Condition | Presumable Cause |
|---|---|---|
| AM | Noise occurs in a specified area | Foreign noise |
| AM | Noise occurs when listening to an intermittent broadcast | An identical program transmitted from multiple towers can cause noise where the signals overlap |
| AM | Noise occurs only at night | Signal phasing |
| FM | Noise occurs while driving in a specified area | Multipath resulting from a change in FM frequency |

**for Preparation** Click here

**HINT:**

- **Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**
- **Inspect the fuses and relays related to this system before inspecting the suspected areas below.**

**Audio Function**

| Symptom | Suspected Area | See page |
|---|---|---|
| Pressing power switch does not turn on system. | Proceed to "Pressing Power Switch does not Turn on System" | Click here |
| | Radio receiver power source circuit | Click here |
| | Radio receiver assembly | Click here |
| Panel switch does not function. | Steering pad switch circuit (Navigation system for HDD) | Click here |
| | Steering pad switch circuit (Navigation system for DVD) | Click here |
| | Radio receiver assembly | Click here |
| No sound can be heard from speakers. (Audio is mute.) | Proceed to "No Sound can be Heard from Speakers" | Click here |
| | Stereo component amplifier power source circuit | Click here |
| | Speaker circuit | Click here |
| | Proceed to "Mute Signal Circuit between Stereo Component Amplifier and Telematics Transceiver"*1 | Click here |
| | Telematics transceiver*1 | Click here |
| | Stereo component amplifier assembly | Click here |
| | Radio receiver assembly | Click here |
| Sound quality is bad in all modes. (Volume is too low.) | Proceed to "Poor Sound Quality in All Modes (Low Volume)" | Click here |
| | Speaker circuit | Click here |
| | Telematics transceiver*1 | Click here |
| | Stereo component amplifier assembly | Click here |
| | Radio receiver assembly | Click here |
| ASL does not function. | Proceed to "Vehicle Speed Signal Circuit between Stereo Component Amplifier and Combination Meter" | Click here |
| External device sound cannot be heard or sound quality is bad. (Stereo jack is used.) | Radio receiver power source circuit | Click here |
| | Proceed to "Sound Signal Circuit between Radio Receiver and Stereo Jack Adapter" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Radio receiver assembly | Click here |
| Abnormal noise occurs. | Proceed to "Noise Occurs" | Click here |
| | Stereo component amplifier assembly | Click |

| | | |
|---|---|---|
| | | here |
| | Radio receiver assembly | Click here |
| Radio broadcast cannot be received or poor reception. | Proceed to "Radio Broadcast cannot be Received or Poor Reception" | Click here |
| Disc cannot be inserted/played or disc is ejected right after insertion. | Radio receiver power source circuit | Click here |
| | Proceed to "Disc cannot be Inserted or is Ejected Right After Insertion" | Click here |
| Disc cannot be ejected. | Radio receiver power source circuit | Click here |
| | Proceed to "Disc cannot be Ejected" | Click here |
| Sound quality is bad only when disc is played. (Volume is too low.) | Proceed to "Sound Quality is Bad Only when Disc is Played (Volume is Too Low)" | Click here |
| CD/DVD sound skips. | Proceed to "CD/DVD Sound Skips" | Click here |
| Radio receiver cannot be illuminated at night. | Illumination circuit | Click here |
| | Radio receiver assembly | Click here |
| Sound can be heard continuously from audio system even after changing to emergency call mode.*1 | Proceed to "Mute Signal Circuit between Stereo Component Amplifier and Telematics Transceiver" | Click here |
| | Telematics transceiver | Click here |

### Steering Pad Switch Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Audio system cannot be operated with steering pad switch. | Steering pad switch circuit (Navigation system for HDD) | Click here |
| | Steering pad switch circuit (Navigation system for DVD) | Click here |
| | Radio receiver assembly | Click here |

### "Bluetooth" Audio Function*2

| Symptom | Suspected Area | See page |
|---|---|---|
| Portable player cannot be registered. | Proceed to "Portable Player cannot be Registered" | Click here |
| | Radio receiver assembly | Click here |
| Portable player cannot be connected manually/automatically. | Proceed to "Portable Player cannot be Registered" | Click here |
| | Proceed to "Portable Player cannot be Connected Manually / Automatically" | Click here |
| | Radio receiver assembly | Click here |
| Cellular phone with portable audio function cannot be recognized as "Bluetooth" audio device even when connected using "Bluetooth". | Proceed to "Portable Player cannot be Registered" | Click here |
| | Proceed to "Portable Player cannot be Connected Manually / Automatically" | Click here |
| | Radio receiver assembly | Click here |
| Sound of portable player cannot be heard from speakers, or sound is low. | Proceed to "Sound of Portable Player cannot be Heard from Speakers or Sound is Low" | Click here |
| | Radio receiver assembly | Click here |
| Portable player does not play even after "Bluetooth" audio mode is selected. | Proceed to "Does not Play even after Bluetooth Audio Mode is Selected" | Click here |
| | Radio receiver assembly | Click here |
| Portable player does not play. | Proceed to "Does not Play even after Bluetooth Audio Mode is Selected" | Click here |
| | Radio receiver assembly | Click here |
| | Proceed to "Portable Player cannot be Operated Using In-vehicle | Click |

| | | |
|---|---|---|
| Track information such as track number, track name and elapsed play time is not displayed. | Device or Track Information is not Displayed on In-vehicle Device" | here |
| | Radio receiver assembly | Click here |
| Operation switches for portable player such as play, pause, repeat, random and scan are not displayed. | Proceed to "Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device" | Click here |
| | Radio receiver assembly | Click here |
| Battery condition of portable player is not displayed. | Proceed to "Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device" | Click here |
| | Radio receiver assembly | Click here |
| "Bluetooth" signal condition is not displayed. | Proceed to "Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device" | Click here |
| | Radio receiver assembly | Click here |
| Portable player cannot pause, select file, fast forward, fast rewind, random play or scan. | Proceed to "Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device" | Click here |
| | Radio receiver assembly | Click here |
| Noise occurs or sound skips when portable player plays. | Proceed to "Noise Occurs or Sound Skips when Portable Player Plays" | Click here |
| | Radio receiver assembly | Click here |
| Registered device cannot be deleted. | Proceed to "Registered Device cannot be Deleted" | Click here |
| | Radio receiver assembly | Click here |

### USB Audio System Function

| Symptom | Suspected Area | See page |
|---|---|---|
| USB audio sound cannot be heard or sound quality is bad. (Stereo jack is used.) | Multi-media Interface ECU power source circuit | Click here |
| | Proceed to "Sound Signal Circuit between Navigation ECU and Multi-media Interface ECU" | Click here |
| | Proceed to "Sound Signal Circuit between Multi-media Interface ECU and Stereo Jack Adapter" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media interface ECU) | Click here |
| | Display and navigation module display | Click here |
| USB device or "iPod" is not recognized. | Proceed to "USB Audio cannot Recognition/Play" | Click here |
| | Proceed to "Sound Signal Circuit between Multi-media Interface ECU and Stereo Jack Adapter" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media interface ECU | Click here |
| Track information such as track, artist and album names are not displayed. | Proceed to "USB Audio cannot Recognition/Play" | Click here |
| | Proceed to "Sound Signal Circuit between Multi-media Interface ECU and Stereo Jack Adapter" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media interface ECU | Click here |
| USB device or "iPod" is recognized but cannot play nor play in a sorted order. | Proceed to "USB Audio cannot Recognition/Play" | Click here |
| | Proceed to "Sound Signal Circuit between Multi-media Interface ECU and Stereo Jack Adapter" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |

| | | |
|---|---|---|
| | Multi-media interface ECU | Click here |

### Sound Library Function*3

| Symptom | Suspected Area | See page |
|---|---|---|
| A message is displayed indicating that the music cannot be played. | Proceed to "Audio Recorded to HDD cannot be Played" | Click here |
| | Proceed to Operation Check "Check Hard Disk Drive" | Click here |
| | Radio receiver assembly | Click here |
| | Display and navigation module display | Click here |
| | Hard disk drive | Click here |
| Audio recorded to HDD cannot be played. | Proceed to "Audio Recorded to HDD cannot be Played" | Click here |
| | Proceed to Operation Check "Check Hard Disk Drive" | Click here |
| | Display and navigation module display | Click here |
| | Hard disk drive | Click here |
| A message is displayed indicating that the HDD is unable to copy because of low temperature. | Start engine and increase cabin temperature (near navigation ECU) | - |
| | Proceed to Operation Check "Check Hard Disk Drive" | Click here |
| | Display and navigation module display | Click here |
| | Hard disk drive | Click here |
| Sound cannot be heard for all tracks only when using sound library. | Proceed to "Audio cannot be Recorded to HDD" | Click here |
| | Proceed to Operation Check "Check Hard Disk Drive" | Click here |
| | Display and navigation module display | Click here |
| | Hard disk drive | Click here |
| CD tracks cannot be recorded. ("REC" switch is not displayed.) | Proceed to "Audio cannot be Recorded to HDD" | Click here |
| | Proceed to Operation Check "Check Hard Disk Drive" | Click here |
| | Radio receiver assembly | Click here |
| | Display and navigation module display | Click here |
| | Hard disk drive | Click here |
| CD tracks cannot be recorded. | Proceed to "Audio cannot be Recorded to HDD" | Click here |
| | Proceed to Operation Check "Check Hard Disk Drive" | Click here |
| | Radio receiver assembly | Click here |
| | Display and navigation module display | Click here |
| | Hard disk drive | Click here |
| Sound library items cannot be edited/deleted. | Proceed to "Cannot Edit or Delete Sound Library Items" | Click here |
| | Proceed to Operation Check "Check Hard Disk Drive" | Click here |
| | Display and navigation module display | Click here |

| | | |
|---|---|---|
| | Hard disk drive | Click here |
| Titles are not displayed for recorded songs. | Titles are not displayed when songs are recorded from a CD such as new album and that has not been recorded in the media database. | - |
| Title is displayed when CD is played but not displayed for songs that are recorded on HDD. | Proceed to "Correct Song Information is not Displayed" | Click here |
| Titles displayed when playing CD and titles recorded on HDD do not match. | Proceed to "Correct Song Information is not Displayed" | Click here |
| Song information on CD jacket and recorded song information do not match. | Proceed to "Correct Song Information is not Displayed" | Click here |

*1: w/ G-BOOK System

*2: w/ Bluetooth Audio Function
*3: w/ Sound Library Function

**for Preparation** Click here

**HINT:**

- **Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**
- **Inspect the fuses and relays related to this system before inspecting the suspected areas below.**

### Audio Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Pressing power switch does not turn on system. | Proceed to "Pressing Power Switch does not Turn on System" | Click here |
| | Radio receiver power source circuit | Click here |
| | Radio receiver assembly | Click here |
| Panel switch does not function. | Steering pad switch circuit (Navigation system for HDD) | Click here |
| | Steering pad switch circuit (Navigation system for DVD) | Click here |
| | Radio receiver assembly | Click here |
| No sound can be heard from speakers. (Audio is mute.) | Proceed to "No Sound can be Heard from Speakers" | Click here |
| | Stereo component amplifier power source circuit | Click here |
| | Speaker circuit | Click here |
| | Proceed to "Mute Signal Circuit between Stereo Component Amplifier and Telematics Transceiver"*1 | Click here |
| | Telematics transceiver*1 | Click here |
| | Stereo component amplifier assembly | Click here |
| | Radio receiver assembly | Click here |
| Sound quality is bad in all modes. (Volume is too low.) | Proceed to "Poor Sound Quality in All Modes (Low Volume)" | Click here |
| | Speaker circuit | Click here |
| | Telematics transceiver*1 | Click here |
| | Stereo component amplifier assembly | Click here |
| | Radio receiver assembly | Click here |
| ASL does not function. | Proceed to "Vehicle Speed Signal Circuit between Stereo Component Amplifier and Combination Meter" | Click here |
| External device sound cannot be heard or sound quality is bad. (Stereo jack is used.) | Radio receiver power source circuit | Click here |
| | Proceed to "Sound Signal Circuit between Radio Receiver and Stereo Jack Adapter" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Radio receiver assembly | Click here |
| Abnormal noise occurs. | Proceed to "Noise Occurs" | Click here |
| | Stereo component amplifier assembly | Click |

| | | |
|---|---|---|
| | | here |
| | Radio receiver assembly | Click here |
| Radio broadcast cannot be received or poor reception. | Proceed to "Radio Broadcast cannot be Received or Poor Reception" | Click here |
| Disc cannot be inserted/played or disc is ejected right after insertion. | Radio receiver power source circuit | Click here |
| | Proceed to "Disc cannot be Inserted or is Ejected Right After Insertion" | Click here |
| Disc cannot be ejected. | Radio receiver power source circuit | Click here |
| | Proceed to "Disc cannot be Ejected" | Click here |
| Sound quality is bad only when disc is played. (Volume is too low.) | Proceed to "Sound Quality is Bad Only when Disc is Played (Volume is Too Low)" | Click here |
| CD/DVD sound skips. | Proceed to "CD/DVD Sound Skips" | Click here |
| Radio receiver cannot be illuminated at night. | Illumination circuit | Click here |
| | Radio receiver assembly | Click here |
| Sound can be heard continuously from audio system even after changing to emergency call mode.*1 | Proceed to "Mute Signal Circuit between Stereo Component Amplifier and Telematics Transceiver" | Click here |
| | Telematics transceiver | Click here |

### Steering Pad Switch Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Audio system cannot be operated with steering pad switch. | Steering pad switch circuit (Navigation system for HDD) | Click here |
| | Steering pad switch circuit (Navigation system for DVD) | Click here |
| | Radio receiver assembly | Click here |

### "Bluetooth" Audio Function*2

| Symptom | Suspected Area | See page |
|---|---|---|
| Portable player cannot be registered. | Proceed to "Portable Player cannot be Registered" | Click here |
| | Radio receiver assembly | Click here |
| Portable player cannot be connected manually/automatically. | Proceed to "Portable Player cannot be Registered" | Click here |
| | Proceed to "Portable Player cannot be Connected Manually / Automatically" | Click here |
| | Radio receiver assembly | Click here |
| Cellular phone with portable audio function cannot be recognized as "Bluetooth" audio device even when connected using "Bluetooth". | Proceed to "Portable Player cannot be Registered" | Click here |
| | Proceed to "Portable Player cannot be Connected Manually / Automatically" | Click here |
| | Radio receiver assembly | Click here |
| Sound of portable player cannot be heard from speakers, or sound is low. | Proceed to "Sound of Portable Player cannot be Heard from Speakers or Sound is Low" | Click here |
| | Radio receiver assembly | Click here |
| Portable player does not play even after "Bluetooth" audio mode is selected. | Proceed to "Does not Play even after Bluetooth Audio Mode is Selected" | Click here |
| | Radio receiver assembly | Click here |
| Portable player does not play. | Proceed to "Does not Play even after Bluetooth Audio Mode is Selected" | Click here |
| | Radio receiver assembly | Click here |
| | Proceed to "Portable Player cannot be Operated Using In-vehicle | Click |

| | | |
|---|---|---|
| Track information such as track number, track name and elapsed play time is not displayed. | Device or Track Information is not Displayed on In-vehicle Device" | here |
| | Radio receiver assembly | Click here |
| Operation switches for portable player such as play, pause, repeat, random and scan are not displayed. | Proceed to "Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device" | Click here |
| | Radio receiver assembly | Click here |
| Battery condition of portable player is not displayed. | Proceed to "Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device" | Click here |
| | Radio receiver assembly | Click here |
| "Bluetooth" signal condition is not displayed. | Proceed to "Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device" | Click here |
| | Radio receiver assembly | Click here |
| Portable player cannot pause, select file, fast forward, fast rewind, random play or scan. | Proceed to "Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device" | Click here |
| | Radio receiver assembly | Click here |
| Noise occurs or sound skips when portable player plays. | Proceed to "Noise Occurs or Sound Skips when Portable Player Plays" | Click here |
| | Radio receiver assembly | Click here |
| Registered device cannot be deleted. | Proceed to "Registered Device cannot be Deleted" | Click here |
| | Radio receiver assembly | Click here |

### USB Audio System Function

| Symptom | Suspected Area | See page |
|---|---|---|
| USB audio sound cannot be heard or sound quality is bad. (Stereo jack is used.) | Multi-media Interface ECU power source circuit | Click here |
| | Proceed to "Sound Signal Circuit between Navigation ECU and Multi-media Interface ECU" | Click here |
| | Proceed to "Sound Signal Circuit between Multi-media Interface ECU and Stereo Jack Adapter" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media interface ECU) | Click here |
| | Display and navigation module display | Click here |
| USB device or "iPod" is not recognized. | Proceed to "USB Audio cannot Recognition/Play" | Click here |
| | Proceed to "Sound Signal Circuit between Multi-media Interface ECU and Stereo Jack Adapter" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media interface ECU | Click here |
| Track information such as track, artist and album names are not displayed. | Proceed to "USB Audio cannot Recognition/Play" | Click here |
| | Proceed to "Sound Signal Circuit between Multi-media Interface ECU and Stereo Jack Adapter" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media interface ECU | Click here |
| USB device or "iPod" is recognized but cannot play nor play in a sorted order. | Proceed to "USB Audio cannot Recognition/Play" | Click here |
| | Proceed to "Sound Signal Circuit between Multi-media Interface ECU and Stereo Jack Adapter" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |

| | | |
|---|---|---|
| | Multi-media interface ECU | Click here |

### Sound Library Function*3

| Symptom | Suspected Area | See page |
|---|---|---|
| A message is displayed indicating that the music cannot be played. | Proceed to "Audio Recorded to HDD cannot be Played" | Click here |
| | Proceed to Operation Check "Check Hard Disk Drive" | Click here |
| | Radio receiver assembly | Click here |
| | Display and navigation module display | Click here |
| | Hard disk drive | Click here |
| Audio recorded to HDD cannot be played. | Proceed to "Audio Recorded to HDD cannot be Played" | Click here |
| | Proceed to Operation Check "Check Hard Disk Drive" | Click here |
| | Display and navigation module display | Click here |
| | Hard disk drive | Click here |
| A message is displayed indicating that the HDD is unable to copy because of low temperature. | Start engine and increase cabin temperature (near navigation ECU) | - |
| | Proceed to Operation Check "Check Hard Disk Drive" | Click here |
| | Display and navigation module display | Click here |
| | Hard disk drive | Click here |
| Sound cannot be heard for all tracks only when using sound library. | Proceed to "Audio cannot be Recorded to HDD" | Click here |
| | Proceed to Operation Check "Check Hard Disk Drive" | Click here |
| | Display and navigation module display | Click here |
| | Hard disk drive | Click here |
| CD tracks cannot be recorded. ("REC" switch is not displayed.) | Proceed to "Audio cannot be Recorded to HDD" | Click here |
| | Proceed to Operation Check "Check Hard Disk Drive" | Click here |
| | Radio receiver assembly | Click here |
| | Display and navigation module display | Click here |
| | Hard disk drive | Click here |
| CD tracks cannot be recorded. | Proceed to "Audio cannot be Recorded to HDD" | Click here |
| | Proceed to Operation Check "Check Hard Disk Drive" | Click here |
| | Radio receiver assembly | Click here |
| | Display and navigation module display | Click here |
| | Hard disk drive | Click here |
| Sound library items cannot be edited/deleted. | Proceed to "Cannot Edit or Delete Sound Library Items" | Click here |
| | Proceed to Operation Check "Check Hard Disk Drive" | Click here |
| | Display and navigation module display | Click here |

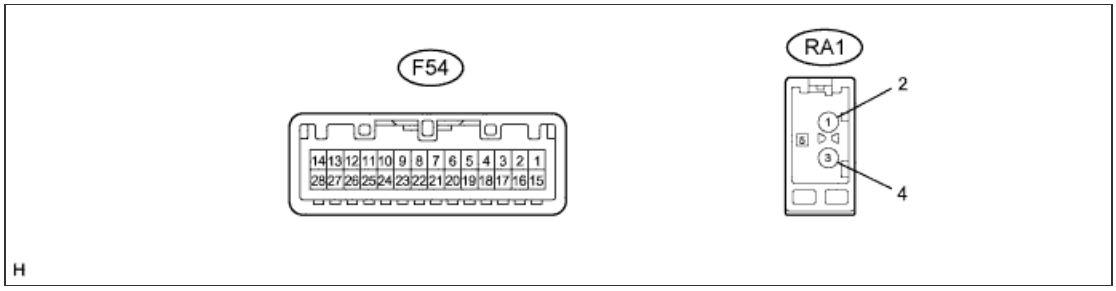
| | | |
|---|---|---|
| | Hard disk drive | Click here |
| Titles are not displayed for recorded songs. | Titles are not displayed when songs are recorded from a CD such as new album and that has not been recorded in the media database. | - |
| Title is displayed when CD is played but not displayed for songs that are recorded on HDD. | Proceed to "Correct Song Information is not Displayed" | Click here |
| Titles displayed when playing CD and titles recorded on HDD do not match. | Proceed to "Correct Song Information is not Displayed" | Click here |
| Song information on CD jacket and recorded song information do not match. | Proceed to "Correct Song Information is not Displayed" | Click here |

*1: w/ G-BOOK System

*2: w/ Bluetooth Audio Function
*3: w/ Sound Library Function

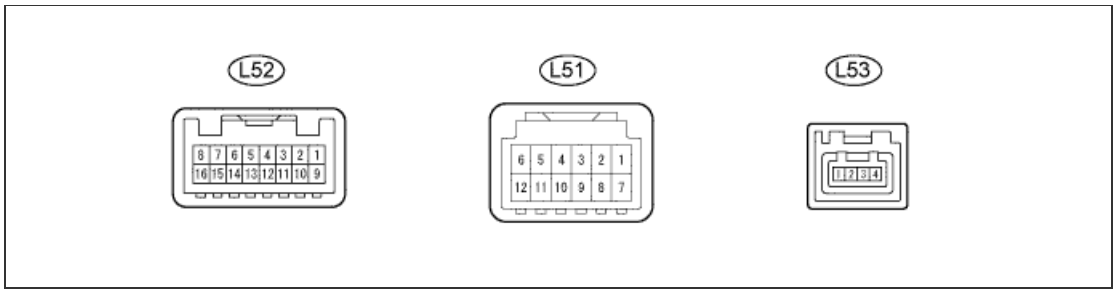
**for Preparation** Click here

## RADIO RECEIVER ASSEMBLY




| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specification |
|---|---|---|---|---|
| F54-3 (ILL+) - F54-15 (GND) | G - BR | Illumination signal | Light control switch off | Below 1 V |
| | | | Light control switch tail | 11 to 14 V |
| F54-5 (AUXI) - F54-15 (GND) | V - BR | External device connection detection signal | External device connected | Below 1 V |
| F54-6 (AGND) - Body ground | Shield - Body ground | Shield ground | Always | Below 1 V |
| F54-7 (SLD) - Body ground | Shield - Body ground | Shield ground | Always | Below 1 V |
| F54-8 (NTSC) - F54-15 (GND) | W - BR | DVD image signal | DVD playing | A waveform synchronized with display signals is output |
| F54-9 (MI+) | B | MOST communication signal | - | - |
| F54-10 (SLDI) - Body ground | BR - Body ground | Shield ground | Always | Below 1 V |
| F54-11 (MO+) | B | MOST communication signal | - | - |
| F54-12 (WUI) - F54-15 (GND) | R - BR | MOST communication wake up signal | Engine switch on (ACC) | 4.5 V or higher |
| F54-14 (B) - F54-15 (GND) | L - BR | Battery | Always | 11 to 14 V |
| F54-15 (GND) - Body ground | BR - Body ground | Ground | Always | Below 1 V |
| F54-17 (ILL-) - F54-15 (GND) | W - BR | Illumination (rheostat) signal | Light control switch off | Below 1 V |
| | | | Light control switch tail | Pulse generation |
| F54-19 (ARI) - F54-15 (GND) | W - BR | Sound signal (Right) | External device playing (When stereo jack used) | A waveform synchronized with sounds is output |
| F54-20 (ALI ) - F54-15 (GND) | B - BR | Sound signal (Left) | External device playing (When stereo jack used) | A waveform synchronized with sounds is output |
| F54-21 (ASGN) - F54-15 (GND) | R - BR | Shield ground | Always | Below 1 V |
| F54-22 (GND) - F54-15 (GND) | B - BR | Shield ground | Always | Below 1 V |
| F54-23 (MI-) | W | MOST communication signal | - | - |
| F54-24 (SLDI) - Body ground | BR - Body ground | Shield ground | Always | Below 1 V |
| F54-25 (MO-) | W | MOST communication signal | - | - |
| F54-26 (WUO) - F54-15 (GND) | R - BR | MOST communication wake up signal | Engine switch on (ACC) | 4.5 V or higher |
| RA1-5 (ANT+) - F54-15 (GND) | BR- BR | Power source of antenna | Engine switch on (ACC) Radio switch on and AM or FM | 11 to 14 V |

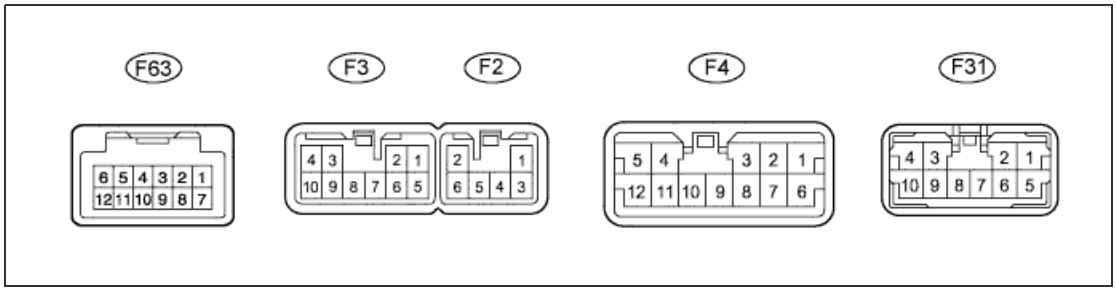
## MULTI-MEDIA INTERFACE ECU




| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specification |
|---|---|---|---|---|
| L51-1 (USD1) - Body ground | Shield - Body ground | Shield ground | Always | Below 1 V |
| L51-2 (URO+) - L51-7 (GND) | W - B | USB audio system sound signal | USB audio system playing | A waveform synchronized with sounds is output |
| L51-3 (ULO+) - L51-7 (GND) | B - B | USB audio system sound signal | USB audio system playing | A waveform synchronized with sounds is output |
| L51-4 (UGD1) - L51-7 (GND) | R - B | USB audio system sound signal | USB audio system playing | A waveform synchronized with sounds is output |
| L51-7 (GND) - Body ground | B - Body ground | Ground | Always | Below 1 V |
| L51-9 (TX1+) | W | AVC-LAN communication signal | - | - |
| L51-10 (TX1-) | L | AVC-LAN communication signal | - | - |
| L51-11 (ACC) - L51-7 (GND) | GR - B | Accessory (ON) | Engine switch off | Below 1 V |
| | | | Engine switch on (ACC) | 11 to 14 V |
| L51-12 (+B) - L51-7 (GND) | R - B | Battery | Always | 11 to 14 V |
| L53-1 (UPO) - L53-4 (UESG) | - | Battery | Always | 5 V |
| L53-2 (UDI-) | - | Data signal | USB device or "iPod" connected | - |
| L53-3 (UDI+) | - | Data signal | USB device or "iPod" connected | - |
| L53-4 (UESG) - Body ground | - | Ground | Always | Below 1 V |
| L52-1 (VRI) - L52-10 (VGN)*1 | W - R | Aux sound signal (right) | External device is playing (When stereo jack is used) | A waveform synchronized with sounds is output |
| L52-2 (SGND) - Body ground*1 | Shield - Body ground | Shield ground | Always | Below 1 V |
| L52-9 (VLI) - L52-10 (VGN)*1 | B - R | Aux sound signal (left) | External device is playing (When stereo jack is used) | A waveform synchronized with sounds is output |
| L52-10 (VGN) - Body ground*1 | R - Body ground | Ground | Always | Below 1 V |

*1: w/ Rear Seat Entertainment System

## CHECK STEREO COMPONENT AMPLIFIER (for 19 Speakers)



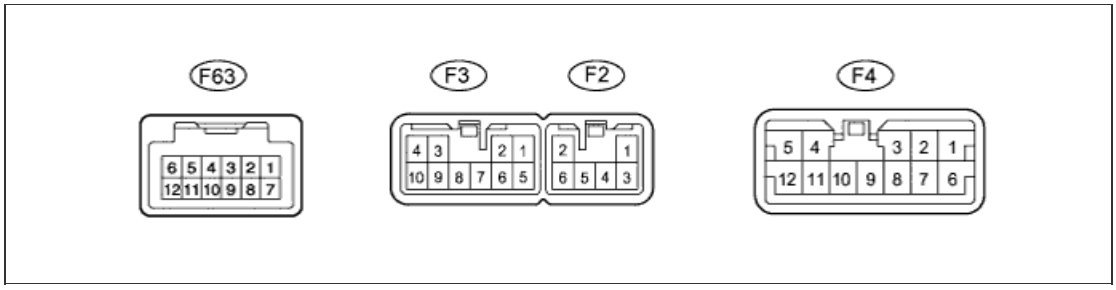

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F2-2 (GND) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F2-6 (GND2) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F2-1 (+B) - F2-2 (GND) | B - W-B | Battery | Always | 11 to 14 V |
| F2-3 (+B2) - F2-2 (GND) | L - W-B | Battery | Always | 11 to 14 V |
| F3-3 (CTR+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-9 (CTR-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |

| | | | | |
|---|---|---|---|---|
| F31-2 (FL+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-6 (FL-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-8 (FR+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-7 (FR-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-4 (RL+) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-10 (RL-) - F2-2 (GND) | Y - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-1 (RR+) - F2-2 (GND) | R - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-5 (RR-) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-1 (WF1+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-6 (WF1-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-3 (R-L+) - F2-2 (GND) | W - W-B | Sound signal (left) | Audio system playing | Waveform synchronized with sound is output |
| F31-9 (R-L-) - F2-2 (GND) | B - W-B | Sound signal (left) | Audio system playing | Waveform synchronized with sound is output |
| F31-4 (R-R+) - F2-2 (GND) | W - W-B | Sound signal (right) | Audio system playing | Waveform synchronized with sound is output |
| F31-10 (R-R-) - F2-2 (GND) | B - W-B | Sound signal (right) | Audio system playing | Waveform synchronized with sound is output |
| F4-2 (SL+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-7 (SL-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-1 (SR+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-6 (SR-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-10 (WFL+) - F2-2 (GND) | P - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-8 (WFL-) - F2-2 (GND) | V - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-5 (WFR+) - F2-2 (GND) | LG - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-11 (WFR-) - F2-2 (GND) | L - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F63-2 (SPD) - F2-2 (GND) | V - W-B | Speed signal from combination meter assembly | Engine switch on (IG)<br>Drive wheels turned slowly | Pulse generation |
| F63-3 (WUI) - F2-2 (GND) | R - W-B | MOST communication wake up signal | Engine switch on (ACC) | 4.5 V or higher |
| F63-4 (MI+) | B | MOST communication signal | - | - |
| F63-5 (SLDI) - Body ground | BR - Body ground | Shield ground | Always | Below 1 V |
| F63-6 (MO+) | W | MOST communication signal | - | - |
| F63-7 (TMUT) - F2-2 (GND)*2 | B - W-B | Mute signal from telematics transceiver | Audio system playing | Below 0.5 V |
| | | | Emergency call mode | Above 2.5 V |
| F63-9 (WUO) - F2-2 (GND)*1 | P - W-B | MOST communication wake up signal | Engine switch on (ACC) | 4.5 V or higher |
| F63-10 (MI-) | W | MOST communication signal | - | - |
| F63-11 (SLDO) - Body ground | BR - Body ground | Shield ground | Always | Below 1 V |
| F63-12 (MO-) | B | MOST communication signal | - | - |

*1: w/ Rear Entertainment System

*2: w/ G-BOOK System

## CHECK STEREO COMPONENT AMPLIFIER (for 9 Speakers)




| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F2-2 (GND) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F2-6 (GND2) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F2-3 (+B2) - F2-2 (GND) | L - W-B | Battery | Always | 11 to 14 V |
| F3-8 (CTR+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-7 (CTR-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-3 (FL+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-8 (FL-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-9 (FR-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-10 (FR+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-4 (RL+) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-11 (RL-) - F2-2 (GND) | Y - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-5 (RR+) - F2-2 (GND) | R - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-12 (RR-) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-1 (WFL+) - F2-2 (GND) | P - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-5 (WFL-) - F2-2 (GND) | V - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-2 (WFR+) - F2-2 (GND) | LG - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-6 (WFR-) - F2-2 (GND) | L - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F63-2 (SPD) - F2-2 (GND) | V - W-B | Speed signal from combination meter assembly | Engine switch on (IG)<br>Drive wheels turned slowly | Pulse generation |
| F63-3 (WUI) - F2-2 (GND) | R - W-B | MOST communication wake up signal | Engine switch on (ACC) | 4.5 V or higher |
| F63-4 (MI+) | B | MOST communication signal | - | - |
| F63-5 (SLDI) - Body ground | BR - Body ground | Shield ground | Always | Below 1 V |
| F63-6 (MO+) | W | MOST communication signal | - | - |
| F63-9 (WUO) - F2-2 (GND)*1 | P - W-B | MOST communication wake up signal | Engine switch on (ACC) | 4.5 V or higher |
| F63-10 (MI-) | W | MOST communication signal | - | - |
| F63-11 (SLDO) - Body ground | BR - Body ground | Shield ground | Always | Below 1 V |
| F63-12 (MO-) | B | MOST communication signal | - | - |

*1: w/ Rear Entertainment System

## TELEMATICS TRANSCEIVER

a. Refer to G-BOOK System (Click here).

**for Preparation** Click here

**HINT:**

- **Refer to Navigation System (for HDD) (Click here).**
- **Refer to Navigation System (for DVD) (Click here).**

**for Preparation** Click here

**HINT:**

- **Refer to Navigation System (for HDD) (Click here).**
- **Refer to Navigation System (for DVD) (Click here).**

**for Preparation** Click here

### Audio and Visual System

| DTC Code | Detection Item | Trouble Area | See page |
|---|---|---|---|
| B1585 | USB Media Malfunction | - Multi-media interface ECU<br>- USB device or "iPod" | Click here |
| B15A1 | Audio HU Malfunction | Radio receiver assembly | Click here |
| B15A3 | Stereo Component Amplifier Malfunction | Stereo component amplifier assembly | Click here |
| B15B3 | Radio Tuner Malfunction | Radio receiver assembly | Click here |
| B15B5 | DVD Changer Malfunction | Radio receiver assembly | Click here |
| B15B7 | Bluetooth Module Malfunction | Radio receiver assembly | Click here |
| B15BB | Multi-media Interface ECU Malfunction | - USB device or "iPod"<br>- No. 1 stereo jack adapter assembly<br>- Wire harness or connector<br>- Multi-media interface ECU | Click here |
| B15C3 | Speaker Output Short | - Wire harness or connector<br>- Speaker<br>- Telematics transceiver*1<br>- Stereo component amplifier assembly | Click here |
| B15DF | USB Communication Malfunction | - Multi-media interface ECU<br>- USB device or "iPod" | Click here |
| B15E1 | Media Malfunction | - CD or DVD<br>- Radio receiver assembly | Click here |

*1: w/ G-BOOK System

**for Preparation** Click here

### Audio and Visual System

| DTC Code | Detection Item | Trouble Area | See page |
|---|---|---|---|
| B1585 | USB Media Malfunction | - Multi-media interface ECU<br>- USB device or "iPod" | Click here |
| B15A1 | Audio HU Malfunction | Radio receiver assembly | Click here |
| B15A3 | Stereo Component Amplifier Malfunction | Stereo component amplifier assembly | Click here |
| B15B3 | Radio Tuner Malfunction | Radio receiver assembly | Click here |
| B15B5 | DVD Changer Malfunction | Radio receiver assembly | Click here |
| B15B7 | Bluetooth Module Malfunction | Radio receiver assembly | Click here |
| B15BB | Multi-media Interface ECU Malfunction | - USB device or "iPod"<br>- No. 1 stereo jack adapter assembly<br>- Wire harness or connector<br>- Multi-media interface ECU | Click here |
| B15C3 | Speaker Output Short | - Wire harness or connector<br>- Speaker<br>- Telematics transceiver*1<br>- Stereo component amplifier assembly | Click here |
| B15DF | USB Communication Malfunction | - Multi-media interface ECU<br>- USB device or "iPod" | Click here |
| B15E1 | Media Malfunction | - CD or DVD<br>- Radio receiver assembly | Click here |

*1: w/ G-BOOK System

# DTC B1585 USB Media Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when a malfunction occurs in a connected device.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1585 | When one of the conditions below is met:<br>• Non mass-storage class or incompatible protocol USB device<br>• USB device with an incompatible file system, corrupted or incompatible File Allocation Table (FAT)<br>• "iPod" malfunction<br>• "iPod" with unsupported firmware<br>• Unsupported "iPod" model | • Multi-media interface ECU<br>• USB device or "iPod" |

## INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs.

### 1.REPLACE USB DEVICE OR "iPod"

a. Disconnect the USB device or "iPod" from the No. 1 stereo jack adapter assembly.

b. Turn the engine switch off.

**HINT:**

When this DTC has been stored, it is necessary to turn off the engine switch to make it possible for the vehicle to recognize a new device when it is connected.

c. Turn the engine switch on (ACC).

d. Connect a known good USB device or "iPod" to the No. 1 stereo jack adapter assembly.

**HINT:**

- **If the malfunction occurred when a USB device was in use, use another USB device for the inspection. If the malfunction occurred when an "iPod" was in use, use another "iPod" for the inspection.**
- **Refer to System Description for compatible formats and versions (Click here).**

**NEXT**

### 2.CLEAR DTC

a. Clear the DTCs (Click here).

**NEXT**

### 3.CHECK DTC

a. Recheck for DTCs.

**HINT:**

If DTCs are detected frequently, replace the multi-media interface ECU.

**OK:**
**No DTC is output.**

**NG** → REPLACE MULTI-MEDIA INTERFACE ECU (Click here)

OK

USB DEVICE FORMAT WAS INCOMPATIBLE, "iPod" VERSION WAS INCOMPATIBLE, OR USB DEVICE OR "iPod" WAS DEFECTIVE

# DTC B15A3 Stereo Component Amplifier Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when a malfunction occurs in the stereo component amplifier assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A3 | When one of the conditions below is met:<br>• Internal power supply malfunction<br>• DSP error<br>• EEPROM error | Stereo component amplifier assembly |

## INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTC and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → **REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

# DTC B1585 USB Media Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when a malfunction occurs in a connected device.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1585 | When one of the conditions below is met:<br>• Non mass-storage class or incompatible protocol USB device<br>• USB device with an incompatible file system, corrupted or incompatible File Allocation Table (FAT)<br>• "iPod" malfunction<br>• "iPod" with unsupported firmware<br>• Unsupported "iPod" model | • Multi-media interface ECU<br>• USB device or "iPod" |

## INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs.

### 1.REPLACE USB DEVICE OR "iPod"

a. Disconnect the USB device or "iPod" from the No. 1 stereo jack adapter assembly.

b. Turn the engine switch off.

**HINT:**

When this DTC has been stored, it is necessary to turn off the engine switch to make it possible for the vehicle to recognize a new device when it is connected.

c. Turn the engine switch on (ACC).

d. Connect a known good USB device or "iPod" to the No. 1 stereo jack adapter assembly.

**HINT:**

- **If the malfunction occurred when a USB device was in use, use another USB device for the inspection. If the malfunction occurred when an "iPod" was in use, use another "iPod" for the inspection.**
- **Refer to System Description for compatible formats and versions (Click here).**

**NEXT**

### 2.CLEAR DTC

a. Clear the DTCs (Click here).

**NEXT**

### 3.CHECK DTC

a. Recheck for DTCs.

**HINT:**

If DTCs are detected frequently, replace the multi-media interface ECU.

**OK:**
**No DTC is output.**

**NG** → REPLACE MULTI-MEDIA INTERFACE ECU (Click here)

OK

USB DEVICE FORMAT WAS INCOMPATIBLE, "iPod" VERSION WAS INCOMPATIBLE, OR USB DEVICE OR "iPod" WAS DEFECTIVE

# DTC B15A3 Stereo Component Amplifier Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when a malfunction occurs in the stereo component amplifier assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A3 | When one of the conditions below is met:<br>• Internal power supply malfunction<br>• DSP error<br>• EEPROM error | Stereo component amplifier assembly |

## INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTC and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → **REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC B15A1 Audio HU Malfunction

## DTC B15B3 Radio Tuner Malfunction

## DTC B15B5 DVD Changer Malfunction

## DTC B15B7 Bluetooth Module Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the radio receiver assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A1 | Bus malfunction, sub-micro processor malfunction | Radio receiver assembly |
| B15B3 | Tuner communication error | |
| B15B5 | When one of the conditions below is met:<br>• Mechanical communication error<br>• Read malfunction<br>• Mechanical malfunction | |
| B15B7 | "Bluetooth" module malfunction | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

**OK**

USE SIMULATION METHOD TO CHECK (Click here)

## DTC B15BB Multi-media Interface ECU Malfunction

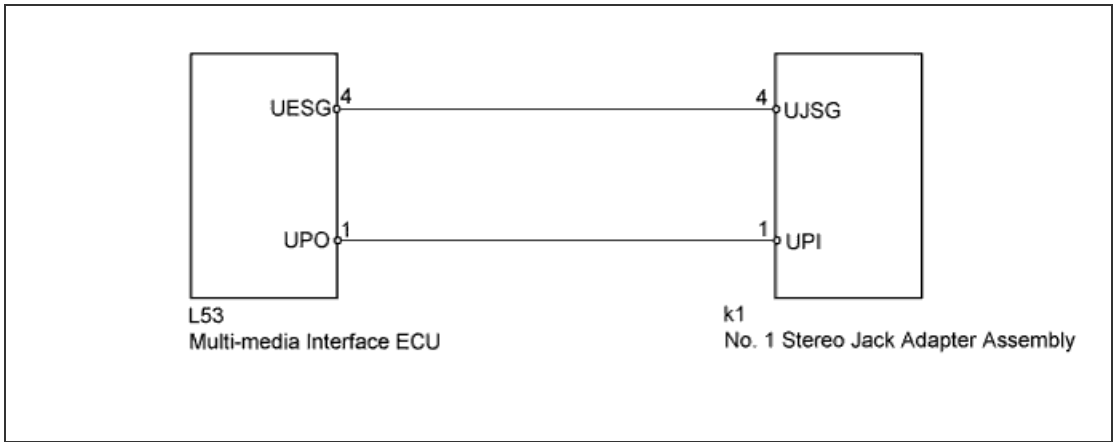
**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a malfunction occurs in the multi-media interface ECU.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15BB | When one of the conditions below is met:<br>• System microprocessor malfunction<br>• Media interface microprocessor malfunction<br>• CD-LSI (Large Scale Integration) malfunction<br>• Internal power supply malfunction | • USB device or "iPod"<br>• Wire harness or connector<br>• No. 1 stereo jack adapter assembly<br>• Multi-media interface ECU |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTC.

#### 1.REPLACE USB DEVICE OR "iPod"

a. Disconnect the USB device or "iPod" from the No. 1 stereo jack adapter assembly.

b. Turn the engine switch off.

**HINT:**

When this DTC has been stored, it is necessary to turn off the engine switch to make it possible for the vehicle to recognize a new device when it is connected.

c. Turn the engine switch on (ACC).

d. Connect a known good USB device or "iPod" to the No. 1 stereo jack adapter assembly.

**HINT:**

- **If the malfunction occurred when a USB device was in use, use another USB device for the inspection. If the malfunction occurred when an "iPod" was in use, use another "iPod" for the inspection.**

**NEXT**

#### 2.CLEAR DTC

a. Clear the DTCs (Click here).

**NEXT**

3.RECHECK FOR DTC

a. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

NG → Go to step 4

OK

USB DEVICE OR "iPod" WAS DEFECTIVE

4.INSPECT MULTI-MEDIA INTERFACE ECU

a. Disconnect the k1 No. 1 stereo jack adapter assembly connector.

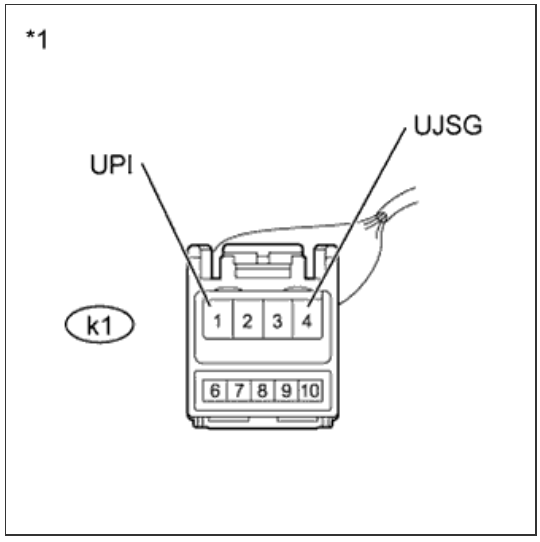
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| k1-1 (UPI) - k1-4 (UJSG) | Always | 5 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to No. 1 Stereo Jack Adapter Assembly) |




NG → Go to step 5

OK

REPLACE NO. 1 STEREO JACK ADAPTER ASSEMBLY (Click here)

5.CHECK HARNESS AND CONNECTOR (INTERFACE ECU - STEREO JACK ADAPTER)

a. Disconnect the L53 multi-media interface ECU connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L53-1 (UPO) - k1-1 (UPI) | Always | Below 1 Ω |
| L53-4 (UESG) - k1-4 (UJSG) | Always | Below 1 Ω |
| k1-1 (UPI) - Body ground | Always | 10 kΩ or higher |
| k1-4 (UJSG) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE MULTI-MEDIA INTERFACE ECU (Click here)

## DTC B15A1 Audio HU Malfunction

## DTC B15B3 Radio Tuner Malfunction

## DTC B15B5 DVD Changer Malfunction

## DTC B15B7 Bluetooth Module Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the radio receiver assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A1 | Bus malfunction, sub-micro processor malfunction | Radio receiver assembly |
| B15B3 | Tuner communication error | |
| B15B5 | When one of the conditions below is met:<br>• Mechanical communication error<br>• Read malfunction<br>• Mechanical malfunction | |
| B15B7 | "Bluetooth" module malfunction | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

**OK**

USE SIMULATION METHOD TO CHECK (Click here)

## DTC B15BB Multi-media Interface ECU Malfunction

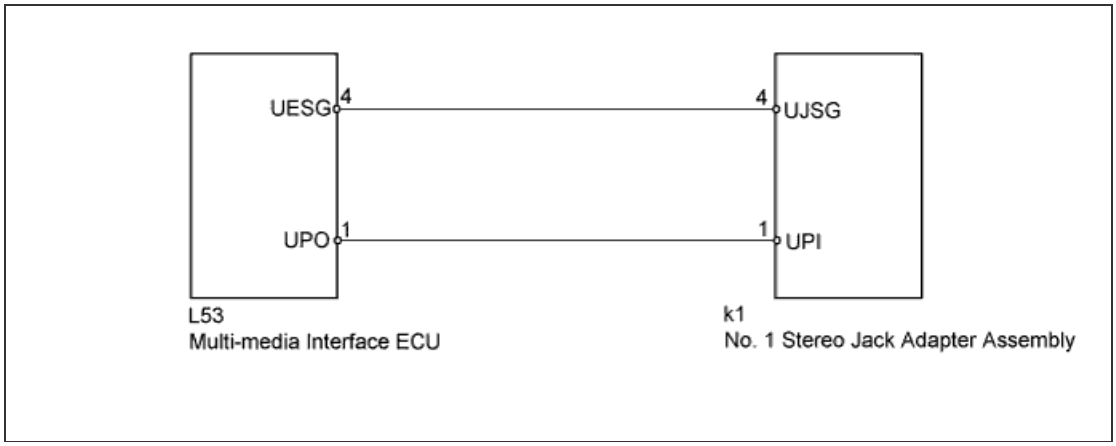
**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a malfunction occurs in the multi-media interface ECU.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15BB | When one of the conditions below is met:<br>• System microprocessor malfunction<br>• Media interface microprocessor malfunction<br>• CD-LSI (Large Scale Integration) malfunction<br>• Internal power supply malfunction | • USB device or "iPod"<br>• Wire harness or connector<br>• No. 1 stereo jack adapter assembly<br>• Multi-media interface ECU |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTC.

#### 1.REPLACE USB DEVICE OR "iPod"

a. Disconnect the USB device or "iPod" from the No. 1 stereo jack adapter assembly.

b. Turn the engine switch off.

**HINT:**

When this DTC has been stored, it is necessary to turn off the engine switch to make it possible for the vehicle to recognize a new device when it is connected.

c. Turn the engine switch on (ACC).

d. Connect a known good USB device or "iPod" to the No. 1 stereo jack adapter assembly.

**HINT:**

- **If the malfunction occurred when a USB device was in use, use another USB device for the inspection. If the malfunction occurred when an "iPod" was in use, use another "iPod" for the inspection.**

**NEXT**

#### 2.CLEAR DTC

a. Clear the DTCs (Click here).

**NEXT**

3.RECHECK FOR DTC

a. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

NG → Go to step 4

OK

USB DEVICE OR "iPod" WAS DEFECTIVE

4.INSPECT MULTI-MEDIA INTERFACE ECU

a. Disconnect the k1 No. 1 stereo jack adapter assembly connector.

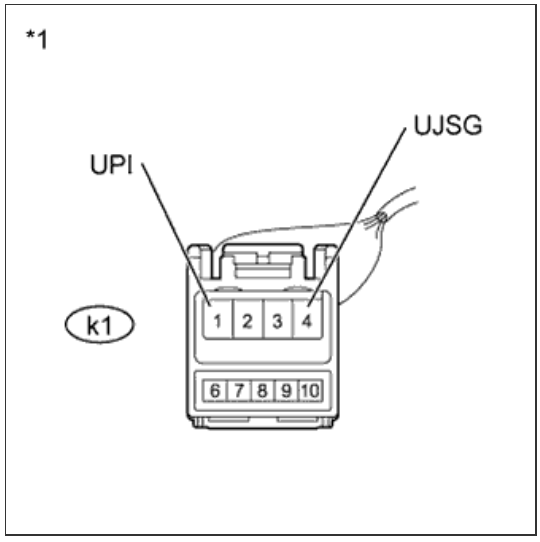
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| k1-1 (UPI) - k1-4 (UJSG) | Always | 5 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to No. 1 Stereo Jack Adapter Assembly) |




NG → Go to step 5

OK

REPLACE NO. 1 STEREO JACK ADAPTER ASSEMBLY (Click here)

5.CHECK HARNESS AND CONNECTOR (INTERFACE ECU - STEREO JACK ADAPTER)

a. Disconnect the L53 multi-media interface ECU connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L53-1 (UPO) - k1-1 (UPI) | Always | Below 1 Ω |
| L53-4 (UESG) - k1-4 (UJSG) | Always | Below 1 Ω |
| k1-1 (UPI) - Body ground | Always | 10 kΩ or higher |
| k1-4 (UJSG) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE MULTI-MEDIA INTERFACE ECU (Click here)

## DTC B15A1 Audio HU Malfunction

## DTC B15B3 Radio Tuner Malfunction

## DTC B15B5 DVD Changer Malfunction

## DTC B15B7 Bluetooth Module Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the radio receiver assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A1 | Bus malfunction, sub-micro processor malfunction | Radio receiver assembly |
| B15B3 | Tuner communication error | |
| B15B5 | When one of the conditions below is met:<br>• Mechanical communication error<br>• Read malfunction<br>• Mechanical malfunction | |
| B15B7 | "Bluetooth" module malfunction | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

**OK**

USE SIMULATION METHOD TO CHECK (Click here)

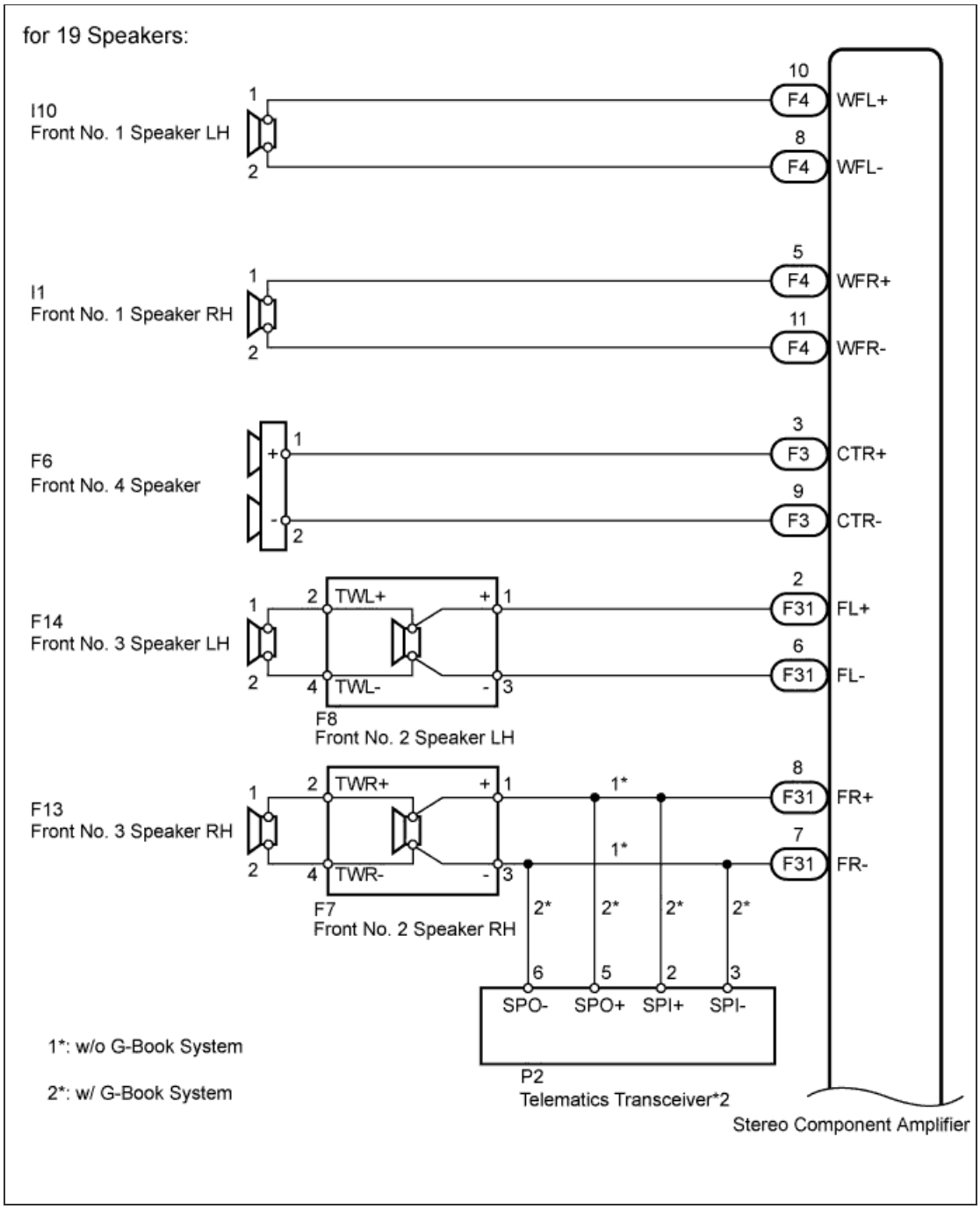
## DTC B15C3 Speaker Output Short

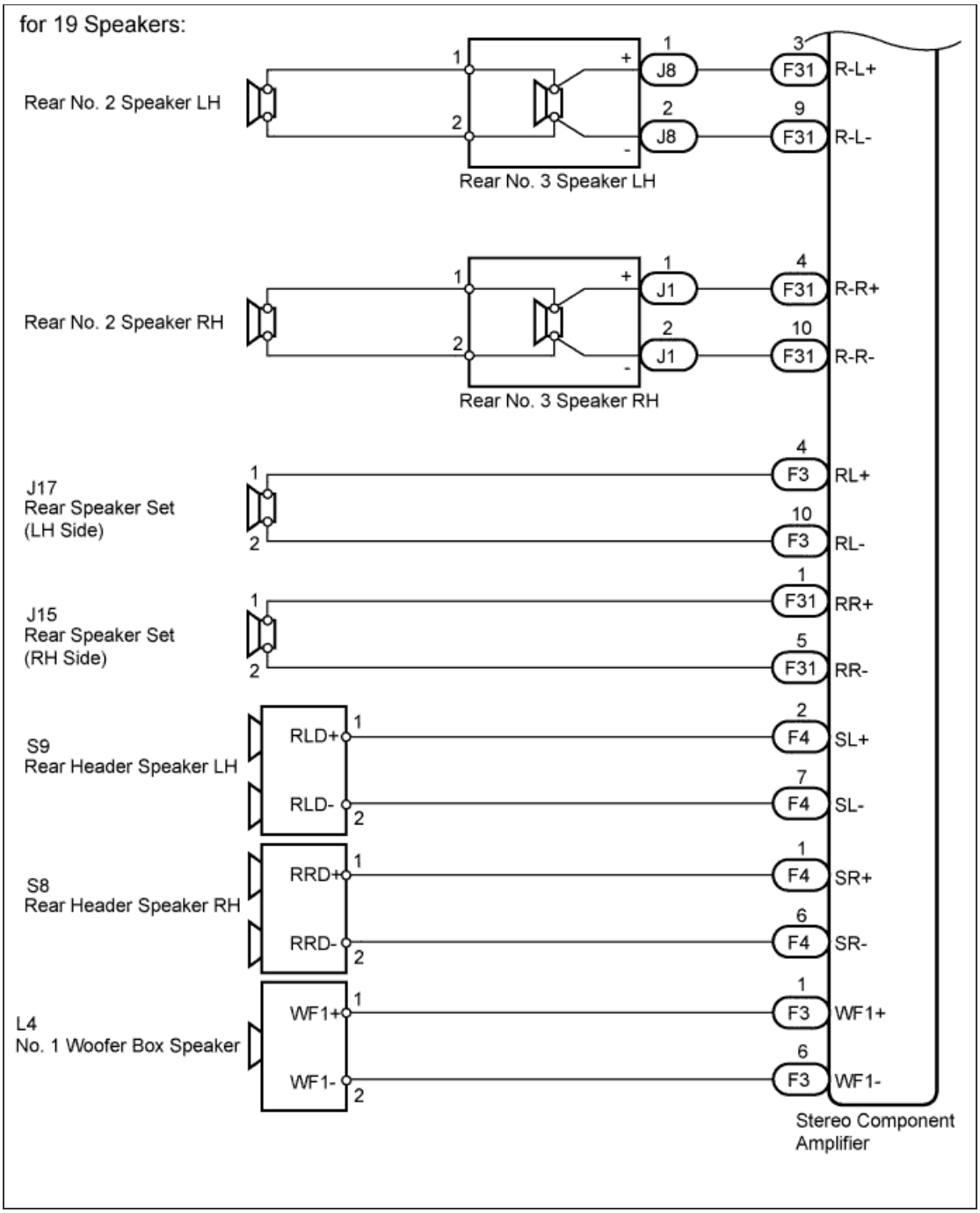
**for Preparation** Click here

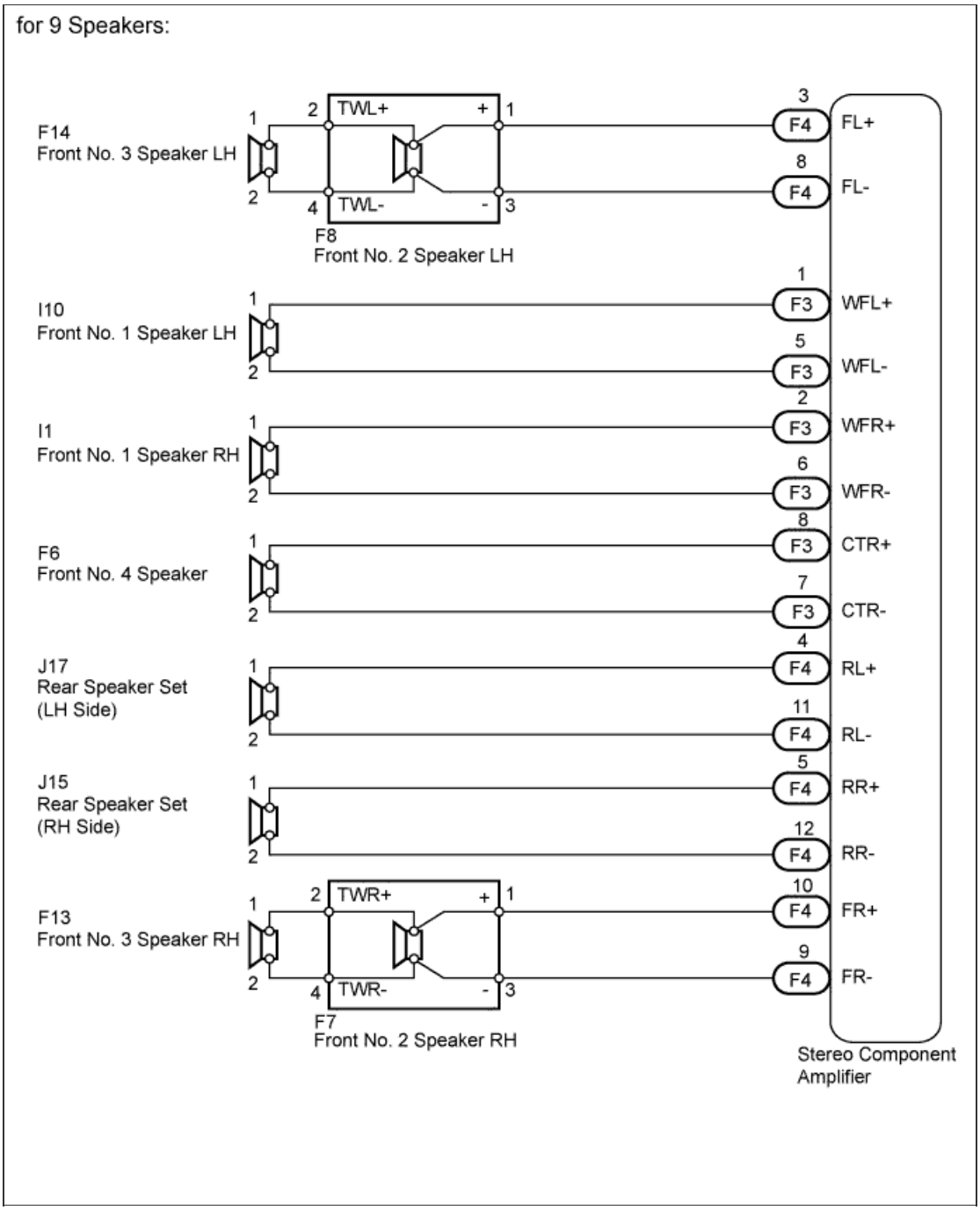
### DESCRIPTION

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15C3 | A short is detected in the speaker output circuit. | • Harness or connector<br>• Speaker<br>• Teiematics transceiver<br>• Stereo component amplifier assembly |

### WIRING DIAGRAM




for 19 Speakers:
Rear No. 2 Speaker LH
1
2
+
-
1
J8
2
J8
Rear No. 3 Speaker LH
3
F31
R-L+
9
F31
R-L-
Rear No. 2 Speaker RH
1
2
+
-
1
J1
2
J1
Rear No. 3 Speaker RH
4
F31
R-R+
10
F31
R-R-
J17
Rear Speaker Set
(LH Side)
1
2
4
F3
RL+
10
F3
RL-
J15
Rear Speaker Set
(RH Side)
1
2
1
F31
RR+
5
F31
RR-
S9
Rear Header Speaker LH
RLD+
RLD-
1
2
2
F4
SL+
7
F4
SL-
S8
Rear Header Speaker RH
RRD+
RRD-
1
2
1
F4
SR+
6
F4
SR-
L4
No. 1 Woofer Box Speaker
WF1+
WF1-
1
2
1
F3
WF1+
6
F3
WF1-
Stereo Component
Amplifier




## INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs.

### 1.CHECK AUDIO MODELS

a. Check the audio model.

**Result**

| Result | Proceed to |
|---|---|
| 19 speakers | A |
| 9 speakers | B |

B → Go to step 22

A

### 2.CHECK FOR DTC

a. Disconnect the F31, F4 and F3 amplifier connectors.

b. Clear the DTCs.

c. Check if DTC B15C3 is output.

**OK:**
**DTC B15C3 is not output.**

NG → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

OK

### 3.CHECK FOR DTC

a. Reconnect the F3 amplifier connector.

b. Check if DTC B15C3 is output.

**OK:**
**DTC B15C3 is not output.**

NG → Go to step 8

OK

### 4.CHECK FOR DTC

a. Reconnect the F31 amplifier connector.

b. Check if DTC B15C3 is output.

**OK:**
**DTC B15C3 is not output.**

NG → Go to step 12

OK

### 5.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - SPEAKER)

a. Disconnect the F4 amplifier connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-1 (SR+) - Body ground | Always | 10 kΩ or higher |
| F4-2 (SL+) - Body ground | | |
| F4-5 (WFR+) - Body ground | | |
| F4-6 (SR-) - Body ground | | |
| F4-7 (SL-) - Body ground | | |
| F4-8 (WFL-) - Body ground | | |
| F4-10 (WFL+) - Body ground | | |
| F4-11 (WFR-) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 6.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY

a. Disconnect the I10 and I1 speaker connectors.

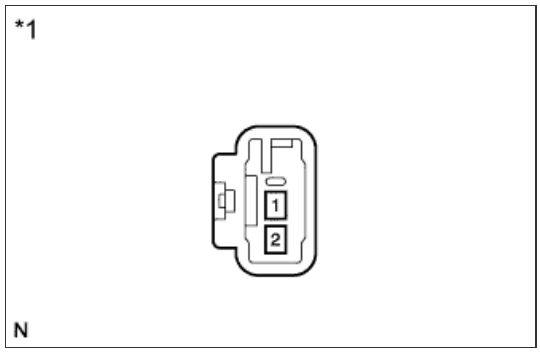
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 11 to 13 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected: (Front No. 1 Speaker Assembly) |




NG → REPLACE FRONT NO. 1 SPEAKER ASSEMBLY (Click here)

OK

## 7.INSPECT REAR HEADER SPEAKER ASSEMBLY

a. Disconnect the S9 and S8 speaker connectors.

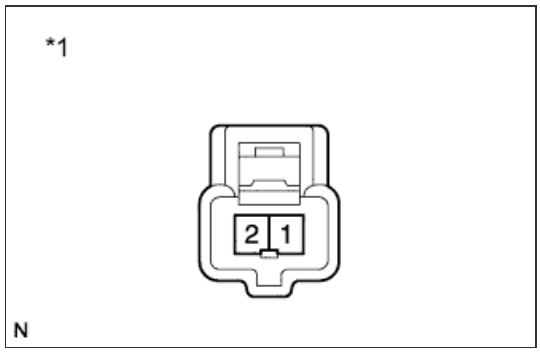
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected: (Rear Header Speaker Assembly) |




NG → REPLACE REAR HEADER SPEAKER ASSEMBLY (Click here)

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 8.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - SPEAKER)

a. Disconnect the F3 amplifier connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-3 (CTR+) - Body ground | | |
| F3-9 (CTR-) - Body ground | | |
| F3-4 (RL+) - Body ground | | |

| | | |
|---|---|---|
| F3-10 (RL-) - Body ground | Always | 10 kΩ or higher |
| F3-1 (WF1+) - Body ground | | |
| F3-6 (WF1-) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 9.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY

a. Disconnect the F6 speaker connector.

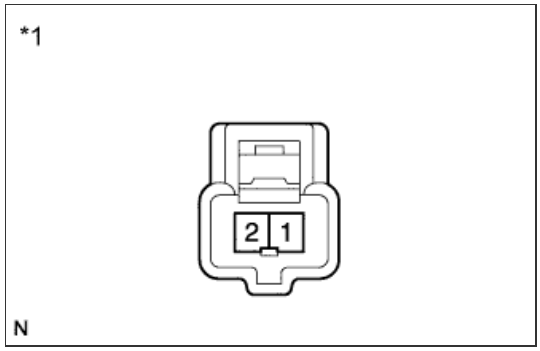
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected: (Front No. 4 Speaker Assembly) |




NG → REPLACE FRONT NO. 4 SPEAKER ASSEMBLY (Click here)

OK

## 10.INSPECT REAR SPEAKER SET LH

a. Disconnect the J17 speaker connector.

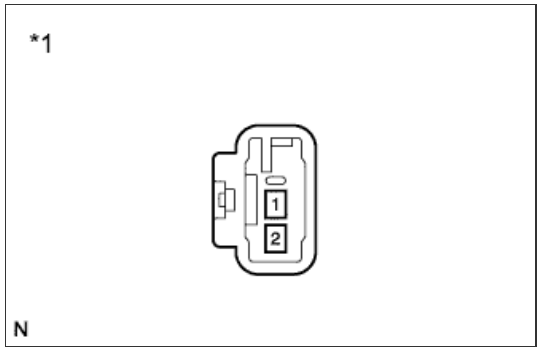
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4.8 to 7.2 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected: (Rear Speaker Set LH) |




NG → REPLACE REAR SPEAKER SET LH (Click here)

OK

## 11.INSPECT NO. 1 WOOFER BOX SPEAKER ASSEMBLY

a. Disconnect the L4 speaker connector.

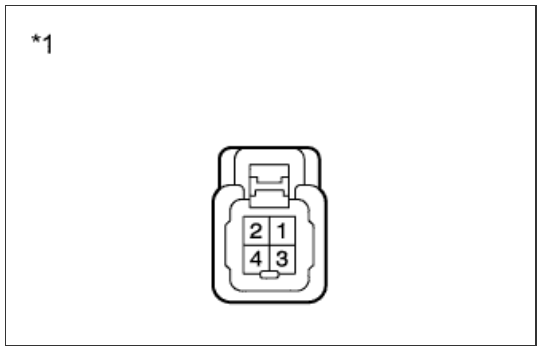
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 8.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected:<br>(No. 1 Woofer Box Speaker Assembly) |




NG → REPLACE NO. 1 WOOFER BOX SPEAKER ASSEMBLY (Click here)

OK → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**12.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - SPEAKER)**

a. Disconnect the F31 amplifier connector.

b. Disconnect the P2 telematics transceiver connector.*

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-1 (RR+) - Body ground | Always | 10 kΩ or higher |
| F31-5 (RR-) - Body ground | | |
| F31-3 (R-L+) - Body ground | | |
| F31-9 (R-L-) - Body ground | | |
| F31-4 (R-R+) - Body ground | | |
| F31-10 (R-R-) - Body ground | | |
| F31-2 (FL+) - Body ground | | |
| F31-6 (FL-) - Body ground | | |
| F31-7 (FR-) - Body ground | | |
| F31-8 (FR+) - Body ground | | |
| P2-5 (SPO+)* - Body ground | | |
| P2-6 (SPO-)* - Body ground | | |

*: w/ G-BOOK System

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**13.INSPECT REAR SPEAKER SET RH**

a. Disconnect the J15 speaker connector.

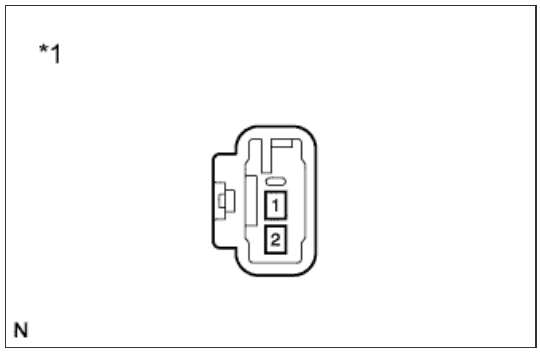
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4.8 to 7.2 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected: (Rear Speaker Set RH) |




NG → REPLACE REAR SPEAKER SET RH (Click here)

OK

## 14.INSPECT REAR NO. 2 SPEAKER ASSEMBLY

a. Disconnect the rear No. 2 speaker connectors.

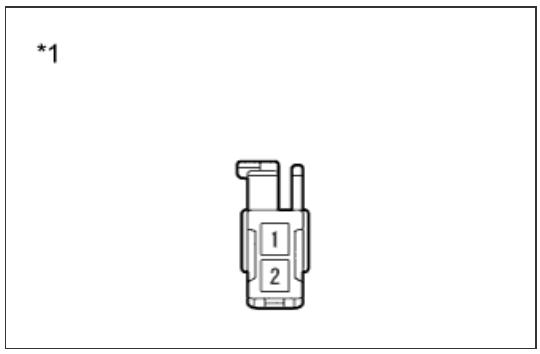
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected: (Rear No. 2 Speaker Assembly) |




NG → REPLACE REAR NO. 2 SPEAKER ASSEMBLY (Click here)

OK

## 15.CHECK REAR NO. 3 SPEAKER ASSEMBLY

a. Disconnect the rear No. 3 speaker connectors.

b. Interchange the rear No. 3 speaker LH with RH.

c. Check that the malfunction disappears.

**OK:**
**Malfunction disappears.**

**HINT:**

- **Connect all the connectors to the rear No. 3 speakers.**
- **When there is a possibility that either the right or left rear speaker is defective, inspect by interchanging the right one with the left one.**
- **Perform the inspection above on both the LH and RH sides.**

NG → Go to step 16

OK

REPLACE REAR NO. 3 SPEAKER ASSEMBLY (Click here)

## 16.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

a. Disconnect the F8 and F7 speaker connectors.

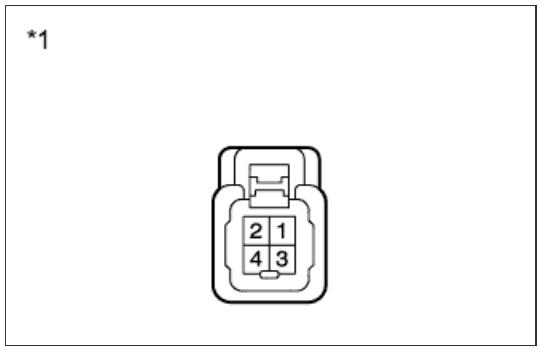
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | Below 1 Ω |
| 3 - 4 | Always | Below 1 Ω |
| 2 - 4 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected:<br>(Front No. 2 Speaker Assembly) |




NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

**17.CHECK FRONT NO. 3 SPEAKER ASSEMBLY**

a. Disconnect the F14 and F13 speaker connectors.

b. Interchange the front No. 3 speaker LH with RH.

c. Check that the malfunction disappears.

**OK:**
**Malfunction disappears.**

**HINT:**

- **Connect all the connectors to the front No. 3 speakers.**
- **When there is a possibility that either the right or left front speaker is defective, inspect by interchanging the right one with the left one.**
- **Perform the inspection above on both the LH and RH sides.**

NG → Go to step 18

OK

REPLACE FRONT NO. 3 SPEAKER ASSEMBLY (Click here)

**18.CHECK HARNESS AND CONNECTOR (FRONT NO. 2 SPEAKER - FRONT NO. 3 SPEAKER)**

a. Disconnect the F8, F7, F14 and F13 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F8-2 (TWL+) - F14-1 | Always | Below 1 Ω |
| F8-4 (TWL-) - F14-2 | | |
| F8-2 (TWL+) - Body ground | Always | 10 kΩ or higher |
| F8-4 (TWL-) - Body ground | | |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F7-2 (TWR+) - F13-1 | Always | Below 1 Ω |
| F7-4 (TWR-) - F13-2 | | |

| | | |
|---|---|---|
| F7-2 (TWR+) - Body ground | Always | 10 kΩ or higher |
| F7-4 (TWR-) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 19.CHECK VEHICLE EQUIPMENT

a. Check if the vehicle is equipped with the G-BOOK System.

**Result**

| Result | Proceed to |
|---|---|
| w/ G-BOOK System | A |
| w/o G-BOOK System | B |

B → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

A

### 20.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - STEREO COMPONENT AMPLIFIER AND FRONT NO. 2 SPEAKER RH)

a. Disconnect the F31 amplifier connector.

b. Disconnect the F7 speaker connector.

c. Disconnect the P2 telematics transceiver connector.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F7-1 (+) - P2-5 (SPO+) | Always | Below 1 Ω |
| F7-3 (-) - P2-6 (SPO-) | | |
| F31-8 (FR+) - P2-2 (SPI+) | | |
| F31-7 (FR-) - P2-3 (SPI-) | | |
| F7-1 (+) - Body ground | Always | 10 kΩ or higher |
| F7-3 (-) - Body ground | | |
| F31-8 (FR+) - Body ground | | |
| F31-7 (FR-) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 21.REPLACE STEREO COMPONENT AMPLIFIER WITH NORMAL ONE AND CHECK

a. Replace the stereo component amplifier with a normal one and check if the same problem occurs again ( Click here).

**OK:**

**Same problem does not occur.**

NG → REPLACE TELEMATICS TRANSCEIVER (Click here)

OK

END (STEREO COMPONENT AMPLIFIER IS DEFECTIVE)

22.CHECK DTC

a. Disconnect the F3 and F4 amplifier connectors.

b. Clear the DTCs.

c. Check if DTC B15C3 is output.

**OK:**
**DTC B15C3 is not output.**

NG → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

OK

23.CHECK DTC

a. Reconnect the F3 amplifier connector.

b. Clear the DTCs.

c. Check if DTC B15C3 is output.

**OK:**
**DTC B15C3 is not output.**

NG → Go to step 27

OK

24.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - SPEAKER)

a. Disconnect the F3 amplifier connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-8 (CTR+) - Body ground | Always | 10 kΩ or higher |
| F3-7 (CTR-) - Body ground | | |
| F3-1 (WFL+) - Body ground | | |
| F3-5 (WFL-) - Body ground | | |
| F3-6 (WFR-) - Body ground | | |
| F3-2 (WFR+) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

25.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY

a. Disconnect the I1 and I10 speaker connector.

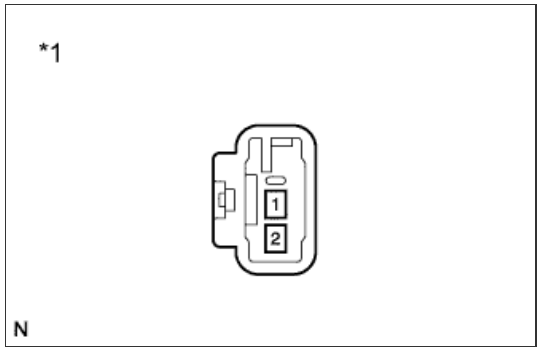
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 3 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected: (Front No. 1 Speaker Assembly) |




NG → REPLACE FRONT NO. 1 SPEAKER ASSEMBLY (Click here)

OK

**26.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY**

a. Disconnect the F6 speaker connector.

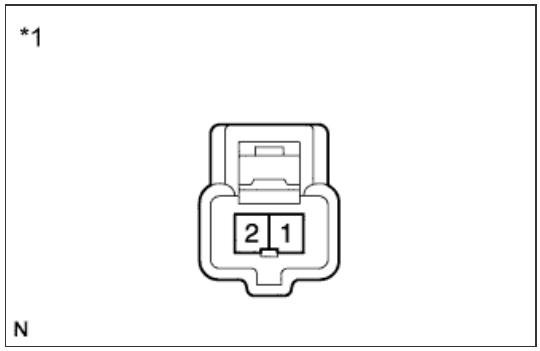
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 6 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected: (Front No. 4 Speaker Assembly) |




NG → REPLACE FRONT NO. 4 SPEAKER ASSEMBLY (Click here)

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**27.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - SPEAKER)**

a. Disconnect the F4 amplifier connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-8 (FL-) - Body ground | Always | 10 kΩ or higher |
| F4-3 (FL+) - Body ground | Always | 10 kΩ or higher |
| F4-9 (FR-) - Body ground | Always | 10 kΩ or higher |
| F4-5 (RR+) - Body ground | Always | 10 kΩ or higher |
| F4-4 (RL+) - Body ground | Always | 10 kΩ or higher |
| F4-10 (FR+) - Body ground | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| F4-12 (RR-) - Body ground | Always | 10 kΩ or higher |
| F4-11 (RL-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**28.INSPECT REAR SPEAKER SET**

a. Disconnect the J17 and J15 speaker connectors.

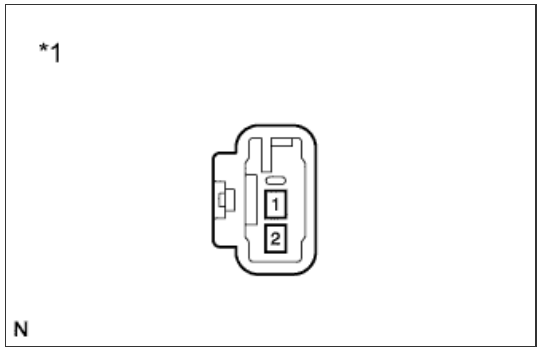
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected: (Rear Speaker Set) |




NG → REPLACE REAR SPEAKER SET (Click here)

OK

**29.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY**

a. Disconnect the F8 and F7 speaker connectors.

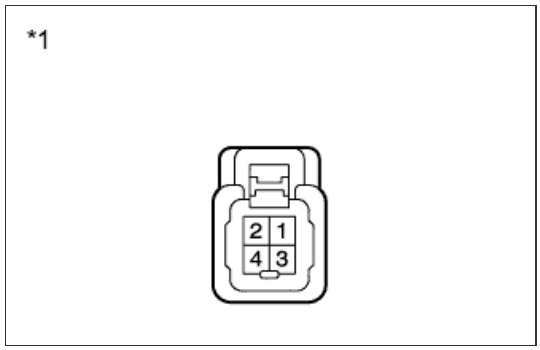
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | Below 1 Ω |
| 3 - 4 | Always | Below 1 Ω |
| 2 - 4 | Always | 4 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected: (Front No. 2 Speaker Assembly) |




NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

**30.INSPECT FRONT NO. 3 SPEAKER ASSEMBLY**

a. Disconnect the F14 and F13 speaker connectors.

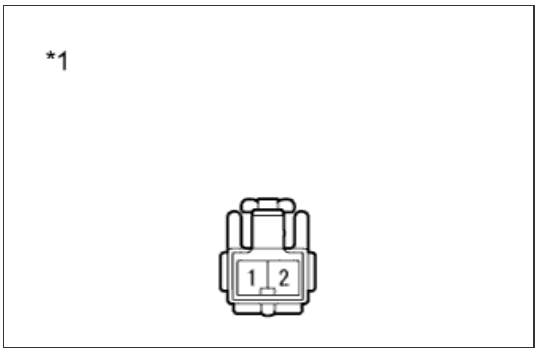
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected:<br>(Front No. 3 Speaker Assembly) |




NG → REPLACE FRONT NO. 3 SPEAKER ASSEMBLY (Click here)

OK

**31.CHECK HARNESS AND CONNECTOR (FRONT NO. 2 SPEAKER - FRONT NO. 3 SPEAKER)**

a. Disconnect the F8, F7, F14 and F13 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F8-2 (TWL+) - F14-1 | Always | Below 1 Ω |
| F8-4 (TWL-) - F14-2 | | |
| F8-2 (TWL+) - Body ground | Always | 10 kΩ or higher |
| F8-4 (TWL-) - Body ground | | |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F7-2 (TWR+) - F13-1 | Always | Below 1 Ω |
| F7-4 (TWR-) - F13-2 | | |
| F7-2 (TWR+) - Body ground | Always | 10 kΩ or higher |
| F7-4 (TWR-) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## DTC B15A1 Audio HU Malfunction

## DTC B15B3 Radio Tuner Malfunction

## DTC B15B5 DVD Changer Malfunction

## DTC B15B7 Bluetooth Module Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the radio receiver assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A1 | Bus malfunction, sub-micro processor malfunction | Radio receiver assembly |
| B15B3 | Tuner communication error | |
| B15B5 | When one of the conditions below is met:<br>• Mechanical communication error<br>• Read malfunction<br>• Mechanical malfunction | |
| B15B7 | "Bluetooth" module malfunction | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

**OK**

USE SIMULATION METHOD TO CHECK (Click here)

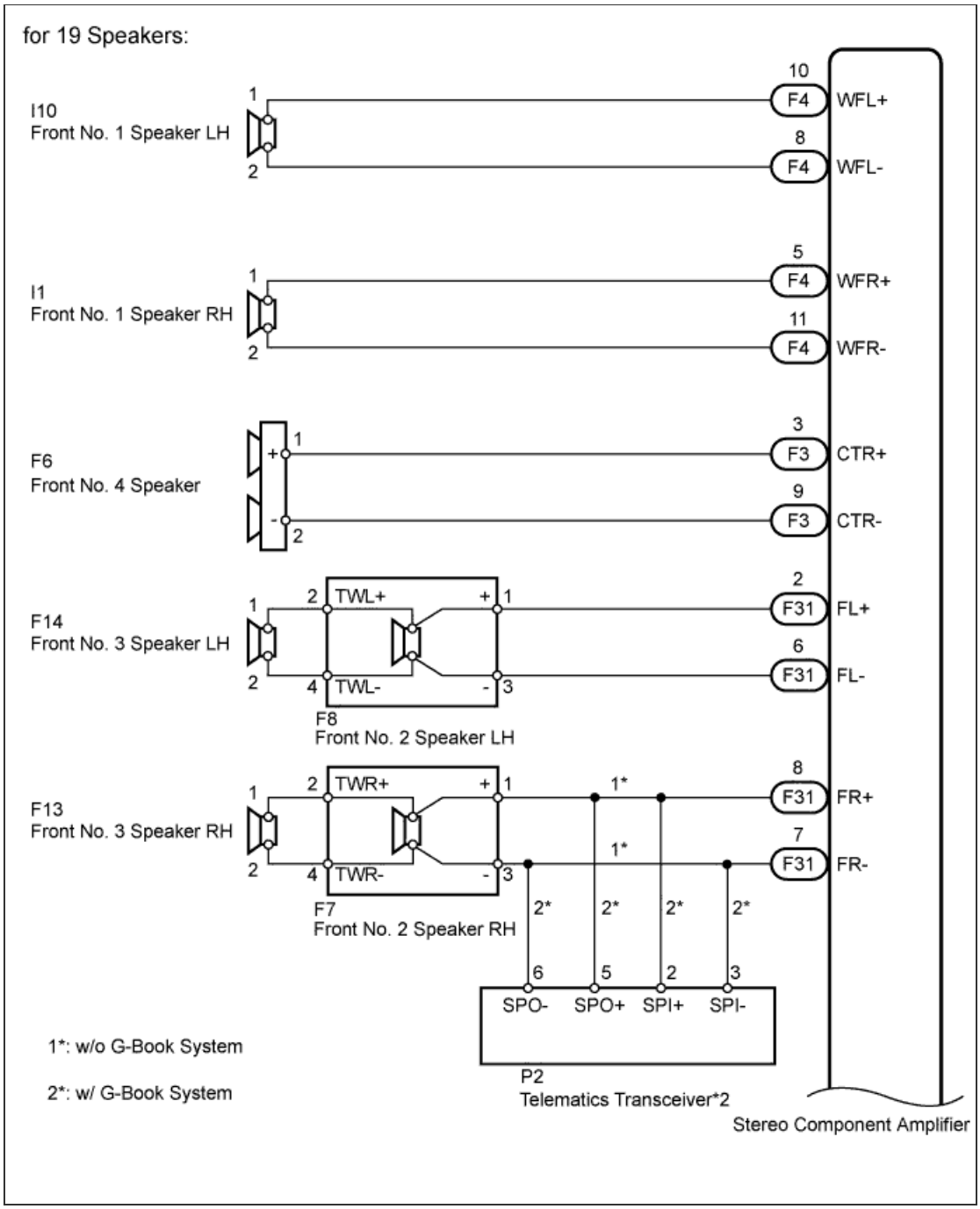
## DTC B15C3 Speaker Output Short

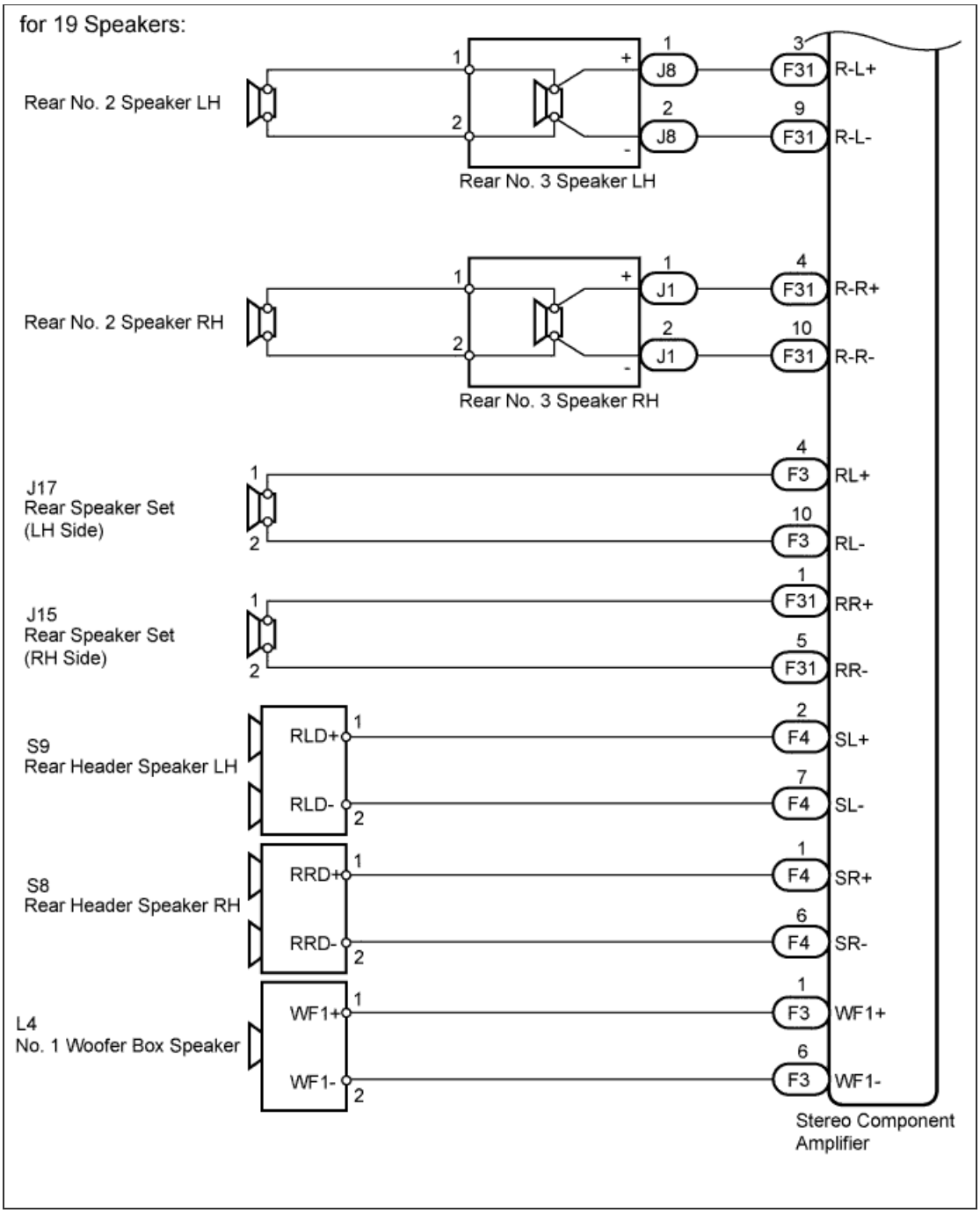
**for Preparation** Click here

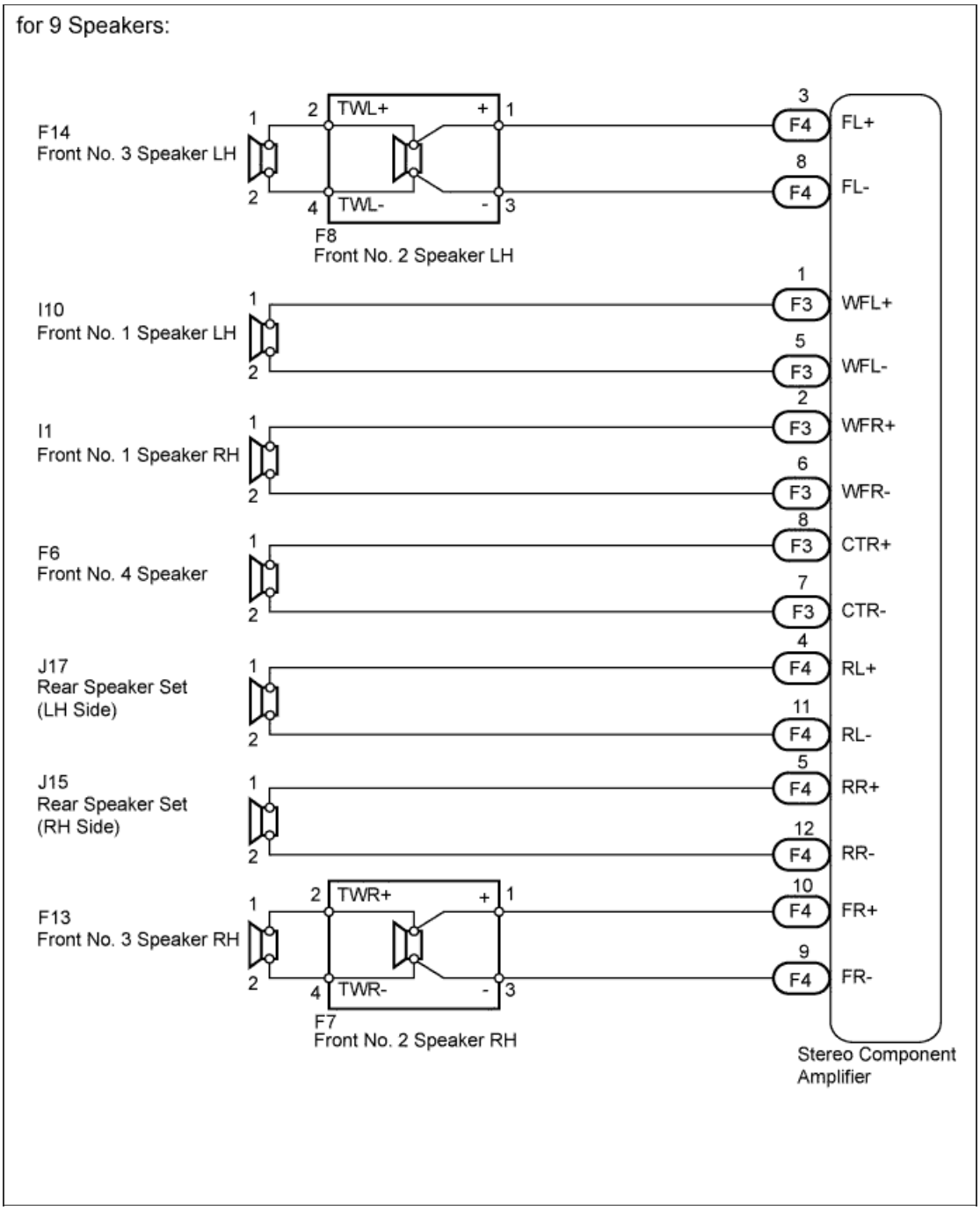
### DESCRIPTION

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15C3 | A short is detected in the speaker output circuit. | • Harness or connector<br>• Speaker<br>• Teiematics transceiver<br>• Stereo component amplifier assembly |

### WIRING DIAGRAM




for 19 Speakers:
Rear No. 2 Speaker LH
1
2
+
-
1
J8
2
J8
Rear No. 3 Speaker LH
3
F31
R-L+
9
F31
R-L-
Rear No. 2 Speaker RH
1
2
+
-
1
J1
2
J1
Rear No. 3 Speaker RH
4
F31
R-R+
10
F31
R-R-
J17
Rear Speaker Set
(LH Side)
1
2
4
F3
RL+
10
F3
RL-
J15
Rear Speaker Set
(RH Side)
1
2
1
F31
RR+
5
F31
RR-
S9
Rear Header Speaker LH
RLD+
RLD-
1
2
2
F4
SL+
7
F4
SL-
S8
Rear Header Speaker RH
RRD+
RRD-
1
2
1
F4
SR+
6
F4
SR-
L4
No. 1 Woofer Box Speaker
WF1+
WF1-
1
2
1
F3
WF1+
6
F3
WF1-
Stereo Component
Amplifier




## INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs.

### 1.CHECK AUDIO MODELS

a. Check the audio model.

**Result**

| Result | Proceed to |
|---|---|
| 19 speakers | A |
| 9 speakers | B |

B → Go to step 22

A

### 2.CHECK FOR DTC

a. Disconnect the F31, F4 and F3 amplifier connectors.

b. Clear the DTCs.

c. Check if DTC B15C3 is output.

**OK:**
**DTC B15C3 is not output.**

NG → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

OK

### 3.CHECK FOR DTC

a. Reconnect the F3 amplifier connector.

b. Check if DTC B15C3 is output.

**OK:**
**DTC B15C3 is not output.**

NG → Go to step 8

OK

### 4.CHECK FOR DTC

a. Reconnect the F31 amplifier connector.

b. Check if DTC B15C3 is output.

**OK:**
**DTC B15C3 is not output.**

NG → Go to step 12

OK

### 5.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - SPEAKER)

a. Disconnect the F4 amplifier connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-1 (SR+) - Body ground | Always | 10 kΩ or higher |
| F4-2 (SL+) - Body ground | | |
| F4-5 (WFR+) - Body ground | | |
| F4-6 (SR-) - Body ground | | |
| F4-7 (SL-) - Body ground | | |
| F4-8 (WFL-) - Body ground | | |
| F4-10 (WFL+) - Body ground | | |
| F4-11 (WFR-) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 6.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY

a. Disconnect the I10 and I1 speaker connectors.

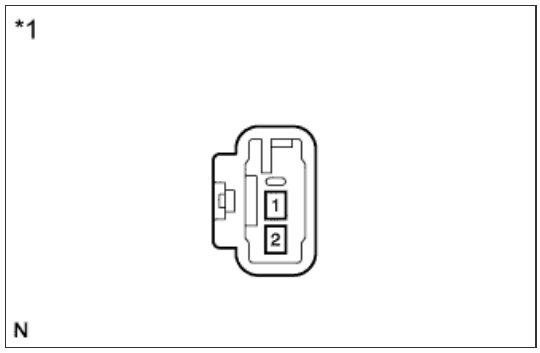
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 11 to 13 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected: (Front No. 1 Speaker Assembly) |




NG → REPLACE FRONT NO. 1 SPEAKER ASSEMBLY (Click here)

OK

## 7.INSPECT REAR HEADER SPEAKER ASSEMBLY

a. Disconnect the S9 and S8 speaker connectors.

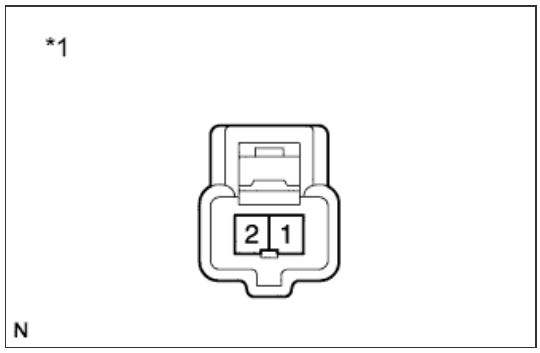
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected: (Rear Header Speaker Assembly) |




NG → REPLACE REAR HEADER SPEAKER ASSEMBLY (Click here)

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 8.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - SPEAKER)

a. Disconnect the F3 amplifier connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-3 (CTR+) - Body ground | | |
| F3-9 (CTR-) - Body ground | | |
| F3-4 (RL+) - Body ground | | |

| | | |
|---|---|---|
| F3-10 (RL-) - Body ground | Always | 10 kΩ or higher |
| F3-1 (WF1+) - Body ground | | |
| F3-6 (WF1-) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 9.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY

a. Disconnect the F6 speaker connector.

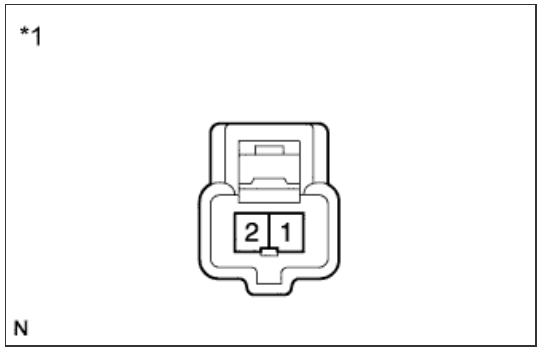
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected: (Front No. 4 Speaker Assembly) |




NG → REPLACE FRONT NO. 4 SPEAKER ASSEMBLY (Click here)

OK

## 10.INSPECT REAR SPEAKER SET LH

a. Disconnect the J17 speaker connector.

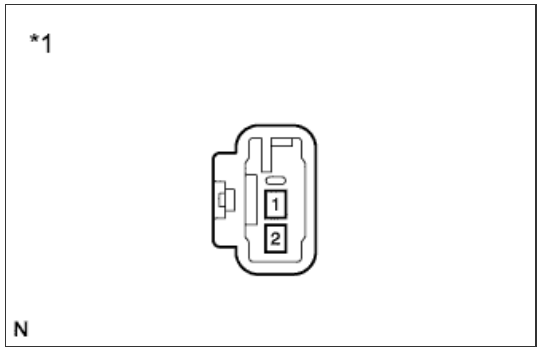
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4.8 to 7.2 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected: (Rear Speaker Set LH) |




NG → REPLACE REAR SPEAKER SET LH (Click here)

OK

## 11.INSPECT NO. 1 WOOFER BOX SPEAKER ASSEMBLY

a. Disconnect the L4 speaker connector.

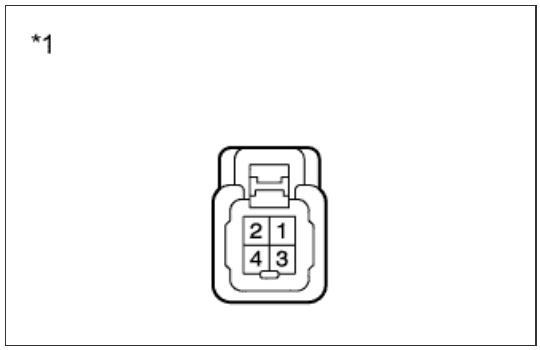
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 8.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected:<br>(No. 1 Woofer Box Speaker Assembly) |




NG → REPLACE NO. 1 WOOFER BOX SPEAKER ASSEMBLY (Click here)

OK → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**12.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - SPEAKER)**

a. Disconnect the F31 amplifier connector.

b. Disconnect the P2 telematics transceiver connector.*

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-1 (RR+) - Body ground | Always | 10 kΩ or higher |
| F31-5 (RR-) - Body ground | | |
| F31-3 (R-L+) - Body ground | | |
| F31-9 (R-L-) - Body ground | | |
| F31-4 (R-R+) - Body ground | | |
| F31-10 (R-R-) - Body ground | | |
| F31-2 (FL+) - Body ground | | |
| F31-6 (FL-) - Body ground | | |
| F31-7 (FR-) - Body ground | | |
| F31-8 (FR+) - Body ground | | |
| P2-5 (SPO+)* - Body ground | | |
| P2-6 (SPO-)* - Body ground | | |

*: w/ G-BOOK System

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**13.INSPECT REAR SPEAKER SET RH**

a. Disconnect the J15 speaker connector.

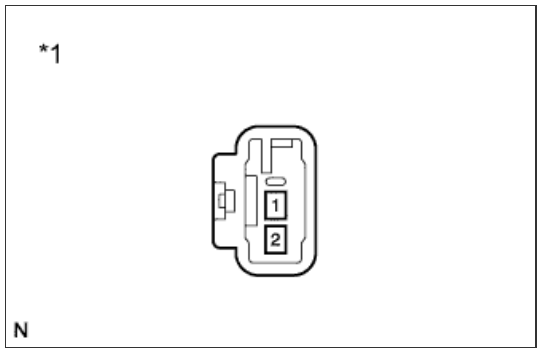
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4.8 to 7.2 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected: (Rear Speaker Set RH) |




NG → REPLACE REAR SPEAKER SET RH (Click here)

OK

## 14.INSPECT REAR NO. 2 SPEAKER ASSEMBLY

a. Disconnect the rear No. 2 speaker connectors.

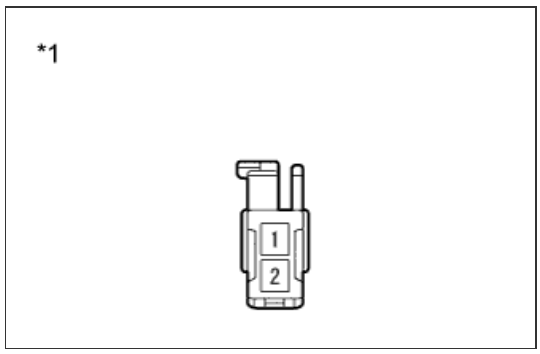
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected: (Rear No. 2 Speaker Assembly) |




NG → REPLACE REAR NO. 2 SPEAKER ASSEMBLY (Click here)

OK

## 15.CHECK REAR NO. 3 SPEAKER ASSEMBLY

a. Disconnect the rear No. 3 speaker connectors.

b. Interchange the rear No. 3 speaker LH with RH.

c. Check that the malfunction disappears.

**OK:**
**Malfunction disappears.**

**HINT:**

- **Connect all the connectors to the rear No. 3 speakers.**
- **When there is a possibility that either the right or left rear speaker is defective, inspect by interchanging the right one with the left one.**
- **Perform the inspection above on both the LH and RH sides.**

NG → Go to step 16

OK

REPLACE REAR NO. 3 SPEAKER ASSEMBLY (Click here)

## 16.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

a. Disconnect the F8 and F7 speaker connectors.

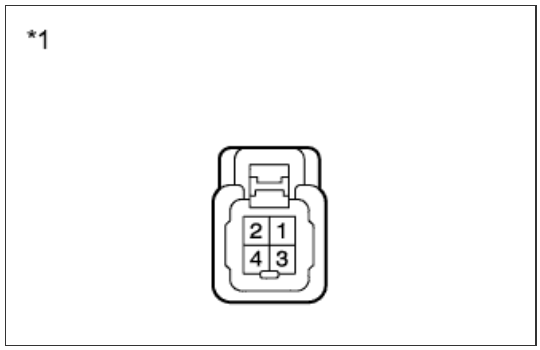
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | Below 1 Ω |
| 3 - 4 | Always | Below 1 Ω |
| 2 - 4 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected:<br>(Front No. 2 Speaker Assembly) |




NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

**17.CHECK FRONT NO. 3 SPEAKER ASSEMBLY**

a. Disconnect the F14 and F13 speaker connectors.

b. Interchange the front No. 3 speaker LH with RH.

c. Check that the malfunction disappears.

**OK:**
**Malfunction disappears.**

**HINT:**

- **Connect all the connectors to the front No. 3 speakers.**
- **When there is a possibility that either the right or left front speaker is defective, inspect by interchanging the right one with the left one.**
- **Perform the inspection above on both the LH and RH sides.**

NG → Go to step 18

OK

REPLACE FRONT NO. 3 SPEAKER ASSEMBLY (Click here)

**18.CHECK HARNESS AND CONNECTOR (FRONT NO. 2 SPEAKER - FRONT NO. 3 SPEAKER)**

a. Disconnect the F8, F7, F14 and F13 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F8-2 (TWL+) - F14-1 | Always | Below 1 Ω |
| F8-4 (TWL-) - F14-2 | | |
| F8-2 (TWL+) - Body ground | Always | 10 kΩ or higher |
| F8-4 (TWL-) - Body ground | | |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F7-2 (TWR+) - F13-1 | Always | Below 1 Ω |
| F7-4 (TWR-) - F13-2 | | |

| | | |
|---|---|---|
| F7-2 (TWR+) - Body ground | Always | 10 kΩ or higher |
| F7-4 (TWR-) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 19.CHECK VEHICLE EQUIPMENT

a. Check if the vehicle is equipped with the G-BOOK System.

**Result**

| Result | Proceed to |
|---|---|
| w/ G-BOOK System | A |
| w/o G-BOOK System | B |

B → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

A

### 20.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - STEREO COMPONENT AMPLIFIER AND FRONT NO. 2 SPEAKER RH)

a. Disconnect the F31 amplifier connector.

b. Disconnect the F7 speaker connector.

c. Disconnect the P2 telematics transceiver connector.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F7-1 (+) - P2-5 (SPO+) | Always | Below 1 Ω |
| F7-3 (-) - P2-6 (SPO-) | | |
| F31-8 (FR+) - P2-2 (SPI+) | | |
| F31-7 (FR-) - P2-3 (SPI-) | | |
| F7-1 (+) - Body ground | Always | 10 kΩ or higher |
| F7-3 (-) - Body ground | | |
| F31-8 (FR+) - Body ground | | |
| F31-7 (FR-) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 21.REPLACE STEREO COMPONENT AMPLIFIER WITH NORMAL ONE AND CHECK

a. Replace the stereo component amplifier with a normal one and check if the same problem occurs again ( Click here).

**OK:**

**Same problem does not occur.**

NG → REPLACE TELEMATICS TRANSCEIVER (Click here)

OK

END (STEREO COMPONENT AMPLIFIER IS DEFECTIVE)

22.CHECK DTC

a. Disconnect the F3 and F4 amplifier connectors.

b. Clear the DTCs.

c. Check if DTC B15C3 is output.

**OK:**
**DTC B15C3 is not output.**

NG → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

OK

23.CHECK DTC

a. Reconnect the F3 amplifier connector.

b. Clear the DTCs.

c. Check if DTC B15C3 is output.

**OK:**
**DTC B15C3 is not output.**

NG → Go to step 27

OK

24.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - SPEAKER)

a. Disconnect the F3 amplifier connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-8 (CTR+) - Body ground | Always | 10 kΩ or higher |
| F3-7 (CTR-) - Body ground | | |
| F3-1 (WFL+) - Body ground | | |
| F3-5 (WFL-) - Body ground | | |
| F3-6 (WFR-) - Body ground | | |
| F3-2 (WFR+) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

25.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY

a. Disconnect the I1 and I10 speaker connector.

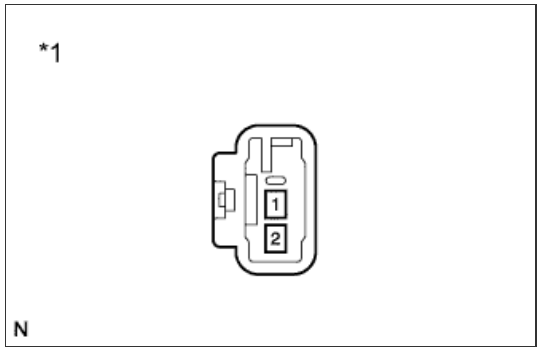
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 3 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected: (Front No. 1 Speaker Assembly) |




NG → REPLACE FRONT NO. 1 SPEAKER ASSEMBLY (Click here)

OK

**26.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY**

a. Disconnect the F6 speaker connector.

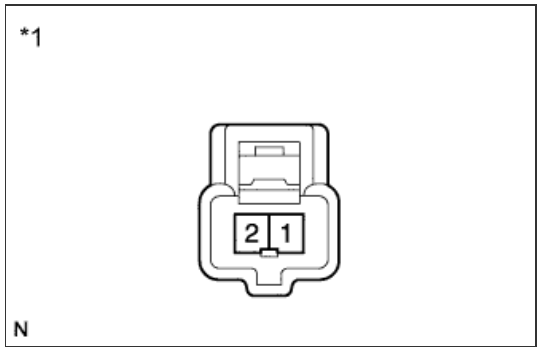
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 6 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected: (Front No. 4 Speaker Assembly) |




NG → REPLACE FRONT NO. 4 SPEAKER ASSEMBLY (Click here)

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**27.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - SPEAKER)**

a. Disconnect the F4 amplifier connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-8 (FL-) - Body ground | Always | 10 kΩ or higher |
| F4-3 (FL+) - Body ground | Always | 10 kΩ or higher |
| F4-9 (FR-) - Body ground | Always | 10 kΩ or higher |
| F4-5 (RR+) - Body ground | Always | 10 kΩ or higher |
| F4-4 (RL+) - Body ground | Always | 10 kΩ or higher |
| F4-10 (FR+) - Body ground | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| F4-12 (RR-) - Body ground | Always | 10 kΩ or higher |
| F4-11 (RL-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**28.INSPECT REAR SPEAKER SET**

a. Disconnect the J17 and J15 speaker connectors.

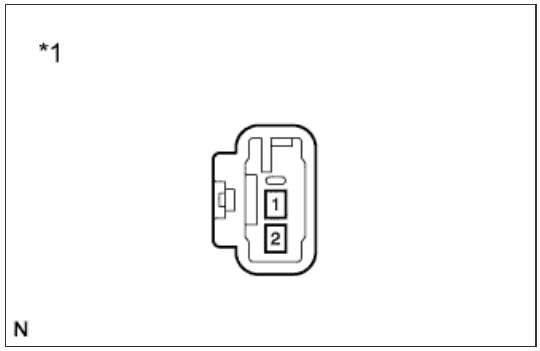
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected: (Rear Speaker Set) |




NG → REPLACE REAR SPEAKER SET (Click here)

OK

**29.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY**

a. Disconnect the F8 and F7 speaker connectors.

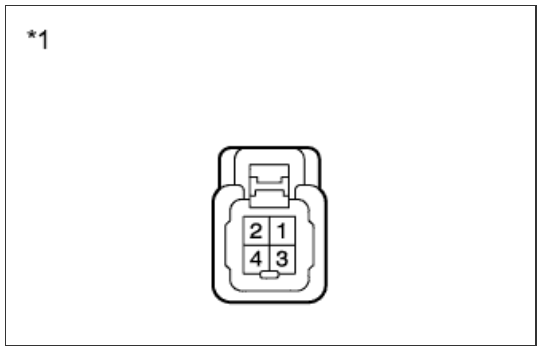
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | Below 1 Ω |
| 3 - 4 | Always | Below 1 Ω |
| 2 - 4 | Always | 4 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected: (Front No. 2 Speaker Assembly) |




NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

**30.INSPECT FRONT NO. 3 SPEAKER ASSEMBLY**

a. Disconnect the F14 and F13 speaker connectors.

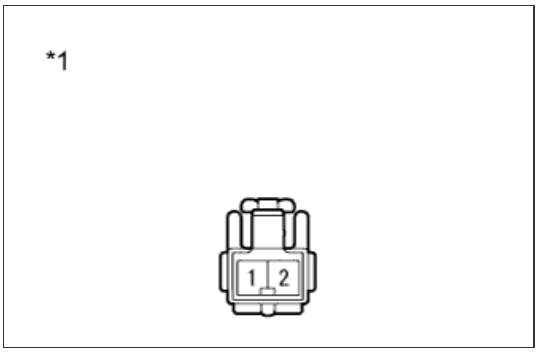
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected:<br>(Front No. 3 Speaker Assembly) |




NG → REPLACE FRONT NO. 3 SPEAKER ASSEMBLY (Click here)

OK

**31.CHECK HARNESS AND CONNECTOR (FRONT NO. 2 SPEAKER - FRONT NO. 3 SPEAKER)**

a. Disconnect the F8, F7, F14 and F13 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F8-2 (TWL+) - F14-1 | Always | Below 1 Ω |
| F8-4 (TWL-) - F14-2 | | |
| F8-2 (TWL+) - Body ground | Always | 10 kΩ or higher |
| F8-4 (TWL-) - Body ground | | |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F7-2 (TWR+) - F13-1 | Always | Below 1 Ω |
| F7-4 (TWR-) - F13-2 | | |
| F7-2 (TWR+) - Body ground | Always | 10 kΩ or higher |
| F7-4 (TWR-) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## DTC B15A1 Audio HU Malfunction

## DTC B15B3 Radio Tuner Malfunction

## DTC B15B5 DVD Changer Malfunction

## DTC B15B7 Bluetooth Module Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the radio receiver assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A1 | Bus malfunction, sub-micro processor malfunction | Radio receiver assembly |
| B15B3 | Tuner communication error | |
| B15B5 | When one of the conditions below is met:<br>• Mechanical communication error<br>• Read malfunction<br>• Mechanical malfunction | |
| B15B7 | "Bluetooth" module malfunction | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

**OK**

USE SIMULATION METHOD TO CHECK (Click here)

# DTC B15DF USB Communication Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when a malfunction occurs in communication error with a USB device or "iPod".

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15DF | When one of the conditions below is met:<br>• Communication error with USB device<br>• "iPod" control software of system microprocessor malfunction<br>• Communication error with "iPod" | • Multi-media interface ECU<br>• USB device or "iPod" |

## INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs.

### 1.REPLACE USB DEVICE OR "iPod"

a. Disconnect the USB device or "iPod" from the No. 1 stereo jack adapter assembly.

b. Turn the engine switch off.

**HINT:**

When this DTC has been stored, it is necessary to turn off the engine switch to make it possible for the vehicle to recognize a new device when it is connected.

c. Turn the engine switch on (ACC).

d. Connect a known good USB device or "iPod" to the No. 1 stereo jack adapter assembly.

**HINT:**

- **If the malfunction occurred when a USB device was in use, use another USB device for the inspection. If the malfunction occurred when an "iPod" was in use, use another "iPod" for the inspection.**

**NEXT**

### 2.CLEAR DTC

a. Clear the DTCs (Click here).

**NEXT**

### 3.RECHECK FOR DTC

a. Recheck for DTCs.

**HINT:**

If DTCs are detected frequently, replace the multi-media interface ECU.

**OK:**
**No DTC is output.**

**NG** → REPLACE MULTI-MEDIA INTERFACE ECU (Click here)

**OK**

### USB DEVICE OR "iPod" WAS DEFECTIVE

## DTC B15A1 Audio HU Malfunction

## DTC B15B3 Radio Tuner Malfunction

## DTC B15B5 DVD Changer Malfunction

## DTC B15B7 Bluetooth Module Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the radio receiver assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A1 | Bus malfunction, sub-micro processor malfunction | Radio receiver assembly |
| B15B3 | Tuner communication error | |
| B15B5 | When one of the conditions below is met:<br>• Mechanical communication error<br>• Read malfunction<br>• Mechanical malfunction | |
| B15B7 | "Bluetooth" module malfunction | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

**OK**

USE SIMULATION METHOD TO CHECK (Click here)

# DTC B15DF USB Communication Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when a malfunction occurs in communication error with a USB device or "iPod".

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15DF | When one of the conditions below is met:<br>• Communication error with USB device<br>• "iPod" control software of system microprocessor malfunction<br>• Communication error with "iPod" | • Multi-media interface ECU<br>• USB device or "iPod" |

## INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs.

### 1.REPLACE USB DEVICE OR "iPod"

a. Disconnect the USB device or "iPod" from the No. 1 stereo jack adapter assembly.

b. Turn the engine switch off.

**HINT:**

When this DTC has been stored, it is necessary to turn off the engine switch to make it possible for the vehicle to recognize a new device when it is connected.

c. Turn the engine switch on (ACC).

d. Connect a known good USB device or "iPod" to the No. 1 stereo jack adapter assembly.

**HINT:**

- **If the malfunction occurred when a USB device was in use, use another USB device for the inspection. If the malfunction occurred when an "iPod" was in use, use another "iPod" for the inspection.**

**NEXT**

### 2.CLEAR DTC

a. Clear the DTCs (Click here).

**NEXT**

### 3.RECHECK FOR DTC

a. Recheck for DTCs.

**HINT:**

If DTCs are detected frequently, replace the multi-media interface ECU.

**OK:**
**No DTC is output.**

**NG** → REPLACE MULTI-MEDIA INTERFACE ECU (Click here)

**OK**

### USB DEVICE OR "iPod" WAS DEFECTIVE

## DTC B15A1 Audio HU Malfunction

## DTC B15B3 Radio Tuner Malfunction

## DTC B15B5 DVD Changer Malfunction

## DTC B15B7 Bluetooth Module Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the radio receiver assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A1 | Bus malfunction, sub-micro processor malfunction | Radio receiver assembly |
| B15B3 | Tuner communication error | |
| B15B5 | When one of the conditions below is met:<br>• Mechanical communication error<br>• Read malfunction<br>• Mechanical malfunction | |
| B15B7 | "Bluetooth" module malfunction | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

**OK**

USE SIMULATION METHOD TO CHECK (Click here)

# DTC B15E1 Media Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when signals from disc in the radio receiver assembly cannot be read.

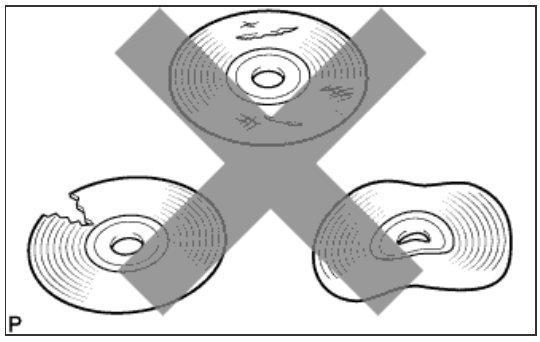
| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15E1 | When one of the conditions below is met:<br>• An unsuitable disc is inserted.<br>• The disc cannot be read.<br>• The disc cannot be read because of dirt or scratches.<br>• The disc cannot be read because it is inserted upside down. | • CD or DVD<br>• Radio receiver assembly |

## INSPECTION PROCEDURE

### 1.CHECK DISC

a. Check that the disc is not deformed or cracked.

**OK:**
**No deformation or cracks on the disc**




NG → CHANGE DISC

OK

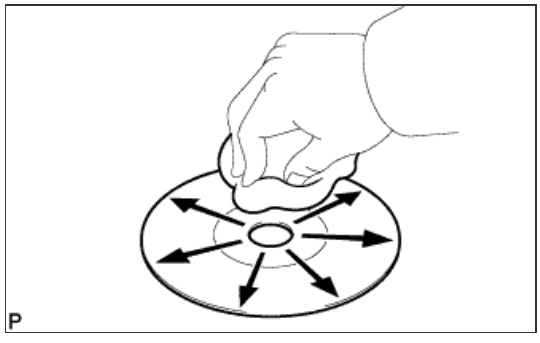
### 2.DISC CLEANING

a. Disc cleaning

i. If dirt is on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

**NOTICE:**

Do not use a conventional record cleaner or anti-static preservative.




NEXT

### 3.REPLACE DISC WITH ANOTHER AND RECHECK

a. Replace the disc with another and recheck.

b. Clear the DTC (Click here).

c. Recheck for DTC and check if the same trouble occurs again.

**OK:**

No DTC is output.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

END

## DTC B15A1 Audio HU Malfunction

## DTC B15B3 Radio Tuner Malfunction

## DTC B15B5 DVD Changer Malfunction

## DTC B15B7 Bluetooth Module Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the radio receiver assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A1 | Bus malfunction, sub-micro processor malfunction | Radio receiver assembly |
| B15B3 | Tuner communication error | |
| B15B5 | When one of the conditions below is met:<br>• Mechanical communication error<br>• Read malfunction<br>• Mechanical malfunction | |
| B15B7 | "Bluetooth" module malfunction | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

**OK**

USE SIMULATION METHOD TO CHECK (Click here)

# DTC B15E1 Media Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when signals from disc in the radio receiver assembly cannot be read.

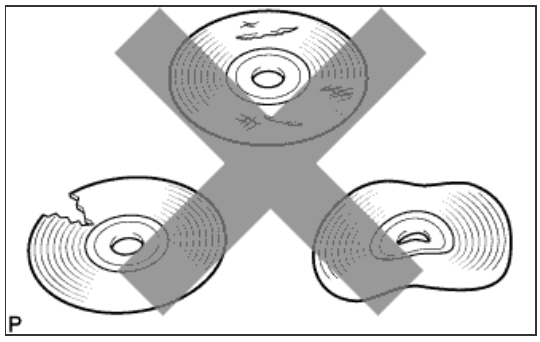
| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15E1 | When one of the conditions below is met:<br>• An unsuitable disc is inserted.<br>• The disc cannot be read.<br>• The disc cannot be read because of dirt or scratches.<br>• The disc cannot be read because it is inserted upside down. | • CD or DVD<br>• Radio receiver assembly |

## INSPECTION PROCEDURE

### 1.CHECK DISC

a. Check that the disc is not deformed or cracked.

**OK:**
**No deformation or cracks on the disc**




NG → CHANGE DISC

OK

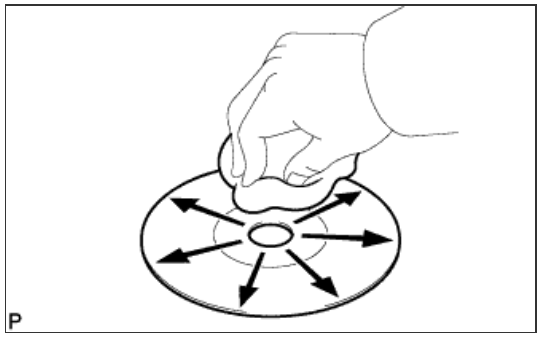
### 2.DISC CLEANING

a. Disc cleaning

i. If dirt is on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

**NOTICE:**

Do not use a conventional record cleaner or anti-static preservative.




NEXT

### 3.REPLACE DISC WITH ANOTHER AND RECHECK

a. Replace the disc with another and recheck.

b. Clear the DTC (Click here).

c. Recheck for DTC and check if the same trouble occurs again.

**OK:**

No DTC is output.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

END

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.NOISE CONDITION

a. Check from which direction the noise comes (front left or right, rear left or right).

i. Check from which direction the noise comes.

**OK:**
**The location of the noise source can be determined.**

NG → Go to step 3

OK

### 2.CHECK SPEAKERS

a. Check the installation conditions of the speaker units that are located near the noise source and that there are no cracks, scratches, deformation or other malfunctions.

**Result**

| Result | Proceed to |
|---|---|
| A speaker is installed incorrectly | A |
| Foreign objects are in the speaker | B |
| A speaker cone paper is broken | C |
| No malfunction is found | D |

A → REINSTALL SPEAKER

B → REMOVE FOREIGN OBJECT

C → REPLACE SPEAKER

D

### 3.CHECK NOISE CONDITION

a. Check the noise condition.

**HINT:**

The radio has a noise prevention function to reduce noise when listening to the radio. If a loud noise occurs, check whether the ground at the antenna mounting base and the noise prevention unit are installed and wired correctly.

| Condition under which Noise Occurs | Noise Source |
|---|---|
| Noise increases when the accelerator pedal is depressed, but stops when the engine is stopped. | Generator |
| Noise occurs during A/C or heater operation. | Blower motor |
| Noise occurs when the horn switch is pressed and released or when pressed and held. | Horn |
| Noise occurs synchronously with the blink of the turn signal. | Flasher |
| Noise occurs during window washer operation. | Washer |
| Noise occurs during wiper operation. | Wiper |
| Noise occurs when the brake pedal is depressed. | Stop light switch |
| Noise occurs when the sliding roof moves. | Sliding roof motor |
| Others | Static electricity |

**HINT:**

- **In the chart left column, find the situation that matches the customer's complaint. Then, in the right column, find the part**

that is causing the noise. Check the respective noise filter.

- To save time and avoid a misdiagnosis, first make sure that the noise is not coming from outside the vehicle.
- Troubleshoot noises in descending order of loudness.
- Setting the radio to a frequency where no signal is received may make recognition of the noise problem easier.

**OK:**

The noise source cannot be determined.

| | | |
|---|---|---|
| | NG | REPAIR OR REPLACE NOISE SOURCE |
| OK | | |
| PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here) | | |

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.NOISE CONDITION

a. Check from which direction the noise comes (front left or right, rear left or right).

i. Check from which direction the noise comes.

**OK:**
**The location of the noise source can be determined.**

NG → Go to step 3

OK

### 2.CHECK SPEAKERS

a. Check the installation conditions of the speaker units that are located near the noise source and that there are no cracks, scratches, deformation or other malfunctions.

**Result**

| Result | Proceed to |
|---|---|
| A speaker is installed incorrectly | A |
| Foreign objects are in the speaker | B |
| A speaker cone paper is broken | C |
| No malfunction is found | D |

A → REINSTALL SPEAKER

B → REMOVE FOREIGN OBJECT

C → REPLACE SPEAKER

D

### 3.CHECK NOISE CONDITION

a. Check the noise condition.

**HINT:**

The radio has a noise prevention function to reduce noise when listening to the radio. If a loud noise occurs, check whether the ground at the antenna mounting base and the noise prevention unit are installed and wired correctly.

| Condition under which Noise Occurs | Noise Source |
|---|---|
| Noise increases when the accelerator pedal is depressed, but stops when the engine is stopped. | Generator |
| Noise occurs during A/C or heater operation. | Blower motor |
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| Noise occurs synchronously with the blink of the turn signal. | Flasher |
| Noise occurs during window washer operation. | Washer |
| Noise occurs during wiper operation. | Wiper |
| Noise occurs when the brake pedal is depressed. | Stop light switch |
| Noise occurs when the sliding roof moves. | Sliding roof motor |
| Others | Static electricity |

**HINT:**

- **In the chart left column, find the situation that matches the customer's complaint. Then, in the right column, find the part**

that is causing the noise. Check the respective noise filter.

- To save time and avoid a misdiagnosis, first make sure that the noise is not coming from outside the vehicle.
- Troubleshoot noises in descending order of loudness.
- Setting the radio to a frequency where no signal is received may make recognition of the noise problem easier.

**OK:**

The noise source cannot be determined.

| | | |
|---|---|---|
| | NG | REPAIR OR REPLACE NOISE SOURCE |
| OK | | |
| PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here) | | |

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.CHECK VEHICLE CONDITION**

a. Check that conditions in the cabin are not likely to cause condensation.

**HINT:**

This problem occurs if the cabin is humid and the temperature changes rapidly. This may produce condensation, resulting in a short circuit.

**OK:**

**Condensation is not likely being produced.**

NG → DRY OUT CABIN AND RECHECK CONDITION

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.CHECK VEHICLE CONDITION**

a. Check that conditions in the cabin are not likely to cause condensation.

**HINT:**

This problem occurs if the cabin is humid and the temperature changes rapidly. This may produce condensation, resulting in a short circuit.

**OK:**

**Condensation is not likely being produced.**

NG → DRY OUT CABIN AND RECHECK CONDITION

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.CHECK RADIO RECEIVER ASSEMBLY**

a. Check the radio receiver assembly settings.

i. Check that the volume is not set to "0".

ii. Check that mute is off.

**OK:**
**The volume is not set to "0" and mute is off.**

NG → **SET VOLUME TO HIGH AND TURN MUTE OFF**

OK

**PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)**

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.CHECK RADIO RECEIVER ASSEMBLY**

a. Check the radio receiver assembly settings.

i. Check that the volume is not set to "0".

ii. Check that mute is off.

**OK:**
**The volume is not set to "0" and mute is off.**

NG → **SET VOLUME TO HIGH AND TURN MUTE OFF**

OK

**PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)**

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.REPLACE DISC AND RECHECK**

a. Replace the disc with a known good one and recheck.

i. Check if the same trouble occurs again.

**OK:**
**Malfunction disappears.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**END**

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK IF A PROPER DISC IS INSERTED

a. Make sure that the disc is an audio disc or a disc with MP3 or WMA files, and that it is not deformed, flawed, stained, deteriorated or otherwise defective.

**OK:**
**Normal disc**

**HINT:**

- **Translucent or uniquely-shaped discs cannot be played.**
- **CDs and DVDs with adhesive paper labels should not be played.**
- **Commercial audio CDs and DVDs can be played.**
- **CD-DA files on CD-ROMs, CD-Rs and CD-RWs can be played.**
- **MP3 and WMA files on CD-ROMs, CD-Rs and CD-RWs can be played.**
- **For details on playable CDs and DVDs, refer to the Owner's Manual.**

NG → CHANGE DISC

OK

### 2.CHECK THAT DISC IS INSERTED PROPERLY

a. Check whether or not the disc is inserted upside down.

**OK:**
**Disc is properly inserted.**

NG → INSERT DISC PROPERLY

OK

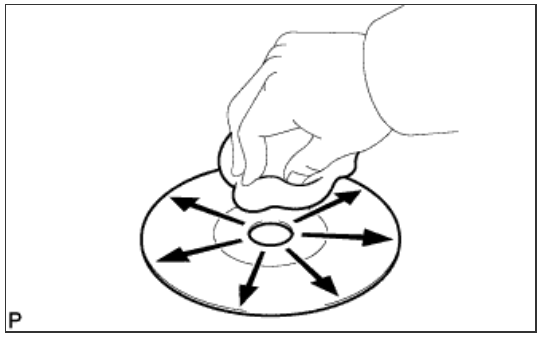
### 3.CLEAN DISC AND RECHECK

a. Clean the disc by wiping it clean with a soft cloth from the inside to the outside in a radial direction.

**OK:**
**Malfunction disappears.**

**NOTICE:**

Do not use a conventional record cleaner or anti-static preservative.




NG → Go to step 4

OK

END

### 4.REPLACE DISC AND RECHECK

a. Replace the disc with a known good one and check if the same trouble occurs again.

**OK:**

Malfunction disappears.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

END

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.PRESS EJECT AND CHECK OPERATION**

a. Press the disc eject switch of the radio receiver assembly for 2 seconds or more and check that the disc is ejected.

**OK:**
**Disc is ejected.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

**2.REPLACE DISC AND RECHECK**

a. Replace the disc with a known good one and recheck.

**OK:**
**Disc is ejected.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

**END**

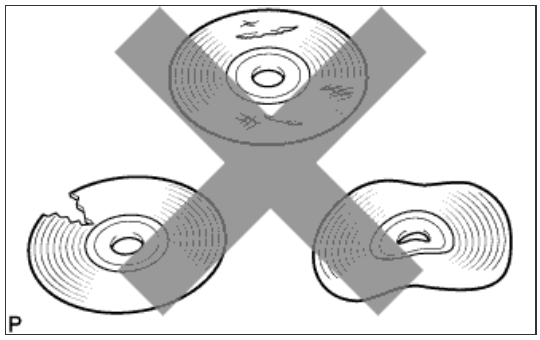
**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK DISC

a. Check that the disc is not deformed or cracked.

**OK:**
**No deformation or cracks on the disc**




NG → CHANGE DISC

OK

### 2.CHECK DISC

a. Check the disc.

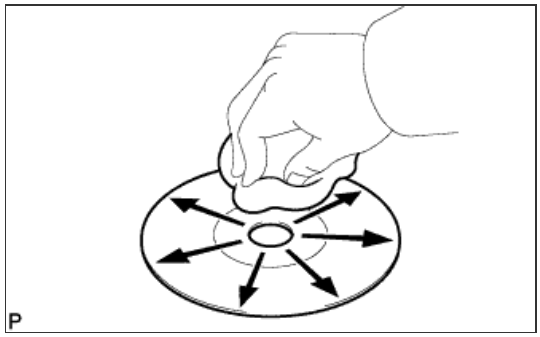
**OK:**
**The disc is clean.**

**HINT:**

If dirt is on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

**NOTICE:**

Do not use a conventional record cleaner or anti-static preservative.




NG → CLEAN DISC

OK

### 3.CHECK OPERATION

a. Check if the same problem occurs again using a known good disc.

**OK:**
**Malfunction disappears.**

NG → Go to step 4

OK

### END

### 4.CHECK RADIO RECEIVER ASSEMBLY

a. Check that the radio receiver assembly is properly installed.

**OK:**

**Radio receiver assembly is properly installed.**

**NG** → REINSTALL RADIO RECEIVER ASSEMBLY PROPERLY

**OK**

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK RADIO RECEIVER ASSEMBLY

a. Check the radio automatic station search function.

i. Check the radio automatic station search function by activating it.

**Result**

| Result | Proceed to |
|---|---|
| Automatic station function stops on a station | A |
| Automatic station search function does not stop | B |

B → Go to step 2

A →

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

### 2.CHECK OPTIONAL COMPONENTS

a. Check for optional components (sunshade film, telephone antenna, etc.).

i. Check if any optional components that may decrease reception capacity, such as sunshade film or a telephone antenna, are installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components are installed | A |
| Optional components are not installed | B |

**NOTICE:**

Do not remove any optional components installed by the customer without his or her consent.

B → Go to step 3

A →

REMOVE OPTIONAL COMPONENTS AND CHECK AGAIN (SEE NOTICE ABOVE)

### 3.CHECK RADIO ANTENNA

a. Preparation for check

i. Remove the roof antenna pole sub-assembly from the amplifier antenna assembly.

b. Check for noise

i. Turn the engine switch on (ACC) with the radio receiver assembly connector connected.

ii. Turn the radio on and tune into AM mode.

iii. Place a screwdriver, thin wire, or other metal object on the amplifier antenna threaded installation portion for the roof antenna pole sub-assembly and check that noise can be heard from the speakers.

**Result**

| Result | Proceed to |
|---|---|
| Noise does not occur | A |
| Noise occurs | B |

B → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

A

## 4.CHECK RADIO RECEIVER ASSEMBLY

a. Preparation for check

i. Remove the antenna connector from the radio receiver assembly.

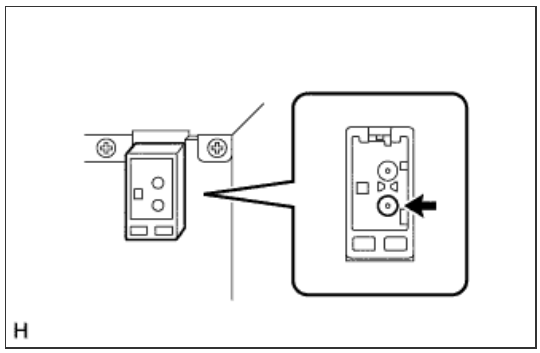
b. Check for noise

i. Turn the engine switch on (ACC) with the radio receiver assembly connector connected.

ii. Turn the radio on and tune into AM mode.

iii. Place a screwdriver, thin wire or other metal object on the radio receiver assembly antenna jack and check that noise can be heard from the speakers.

**OK:**
**Noise can be heard from the speakers.**




NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

## 5.CHECK GLASS ANTENNA

a. Check for continuity of the antenna.

**HINT:**

Check for continuity at the center of each antenna wire as shown in the illustration.

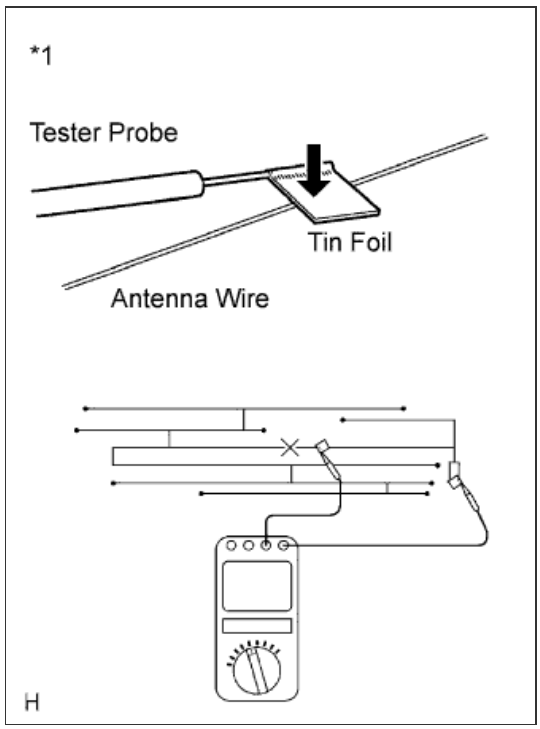
**NOTICE:**

When cleaning the glass, wipe it in the direction of the wire with a soft dry cloth. Take care not to damage the wire. Do not use detergents or glass cleaners with abrasive ingredients. When measuring resistance, wrap a piece of tin foil around the tip of each probe and press the foil against the wire with your finger, as shown in the illustration.

**OK:**
**There is continuity in the antenna.**

**Text in Illustration**

| | |
|---|---|
| *1 | Example |




NG → REPAIR GLASS ANTENNA

OK

## 6.INSPECT RADIO RECEIVER ASSEMBLY

a. Disconnect the radio receiver assembly connector.

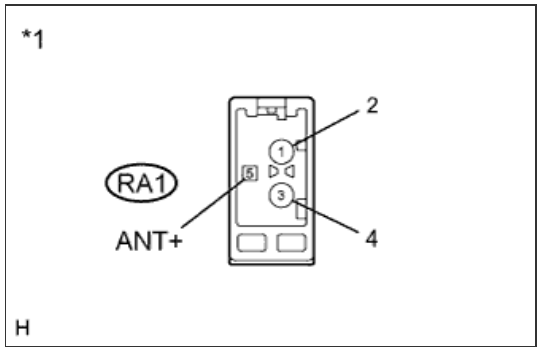
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| RA1-5 (ANT+) - Body ground | Engine switch on (ACC)<br>Radio switch on | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Radio Receiver Assembly) |




NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

## 7.CHECK ANTENNA CORD

a. Remove the antenna connector of the radio receiver assembly and antenna.

b. Measure the resistance between the antenna and radio receiver assembly to check for an open circuit in the antenna cord.

**Standard Resistance:**
**Below 1 Ω**

c. Measure the resistance between the antenna cord and body ground to check for a short circuit in the antenna cord.

**Standard Resistance:**
**10 kΩ or higher**

NG → REPLACE ANTENNA CORD (Click here)

OK

## 8.REPLACE AMPLIFIER ANTENNA ASSEMBLY

a. Replace the amplifier antenna assembly and check if radio broadcasts can be received normally ( Click here).

**OK:**
**Radio broadcasts can be received.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

## NORMAL OPERATION

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.CHECK AUDIO SETTINGS**

a. Set "BASS", "MID" and "TREB" to the initial values and check that sound is normal.

**OK:**
**Malfunction disappears.**

NG → Go to step 2

OK → END

**2.COMPARE WITH ANOTHER VEHICLE OF SAME MODEL**

a. Compare with another vehicle of the same model.

i. Compare with another vehicle of the same model which does not have trouble to see if there is any difference in the sound quality.

**OK:**
**No difference is found.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK → END

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.CHECK AUDIO SETTINGS**

a. Set "BASS", "MID" and "TREB" to the initial values and check that sound is normal.

**OK:**
**Malfunction disappears.**

NG → Go to step 2

OK → END

**2.COMPARE WITH ANOTHER VEHICLE OF SAME MODEL**

a. Compare with another vehicle of the same model.

i. Compare with another vehicle of the same model which does not have trouble to see if there is any difference in the sound quality.

**OK:**
**No difference is found.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK → END

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK PORTABLE PLAYER SETTINGS

a. Check the portable player settings.

i. Check that the volume is not set to "0".

ii. Check that the mute is off.

b. Check that the sound of the portable player can be heard from the speakers.

**OK:**
**Sound of the portable player can be heard from the speakers.**

NG → Go to step 2

OK

END

### 2.CHECK AUDIO SETTINGS

a. Check the audio settings.

i. Check that the volume is not set to "0".

b. Check that the sound of the portable player can be heard from the speakers.

**OK:**
**Sound of the portable player can be heard from the speakers.**

NG → Go to step 3

OK

END

### 3.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL

a. Check that the sound of the portable player can be heard from the speakers on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**Sound of the portable player can be heard from the speakers.**

NG → MALFUNCTION IN PORTABLE PLAYER

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK PORTABLE PLAYER SETTINGS

a. Check the portable player settings.

i. Check that the volume is not set to "0".

ii. Check that the mute is off.

b. Check that the sound of the portable player can be heard from the speakers.

**OK:**
**Sound of the portable player can be heard from the speakers.**

NG → Go to step 2

OK

END

### 2.CHECK AUDIO SETTINGS

a. Check the audio settings.

i. Check that the volume is not set to "0".

b. Check that the sound of the portable player can be heard from the speakers.

**OK:**
**Sound of the portable player can be heard from the speakers.**

NG → Go to step 3

OK

END

### 3.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL

a. Check that the sound of the portable player can be heard from the speakers on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**Sound of the portable player can be heard from the speakers.**

NG → MALFUNCTION IN PORTABLE PLAYER

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

Even if the portable player can play audio content, it may not be able to play via the in-vehicle device. This does not necessarily indicate a malfunction of the in-vehicle device.

### 1.CHECK OPERATION

a. Check if the portable player operates normally.

**OK:**
**The portable player operates normally.**

NG → MALFUNCTION IN PORTABLE PLAYER

OK ↓

### 2.CHECK AUDIO SETTINGS

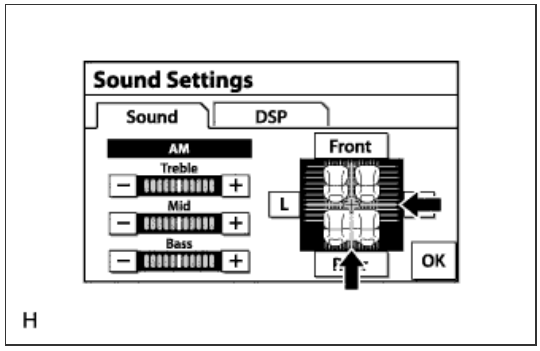
a. Enter the "Sound Settings" screen by pressing the "Sound" switch on the audio display.

b. Set volume, fader and balance to the initial values and check that sound is normal.

**OK:**
**Audio system returns to normal.**

**HINT:**

Sound quality adjustment measures vary according to the type of the amplifier.



H

NG → SET VOLUME TO HIGH AND TURN MUTE OFF

OK ↓

### 3.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL

a. Check if the "Bluetooth" audio player plays normally on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**"Bluetooth" audio plays normally.**

NG → MALFUNCTION IN PORTABLE PLAYER

OK ↓

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

Even if the portable player can play audio content, it may not be able to play via the in-vehicle device. This does not necessarily indicate a malfunction of the in-vehicle device.

### 1.CHECK OPERATION

a. Check if the portable player operates normally.

**OK:**
**The portable player operates normally.**

NG → MALFUNCTION IN PORTABLE PLAYER

OK ↓

### 2.CHECK AUDIO SETTINGS

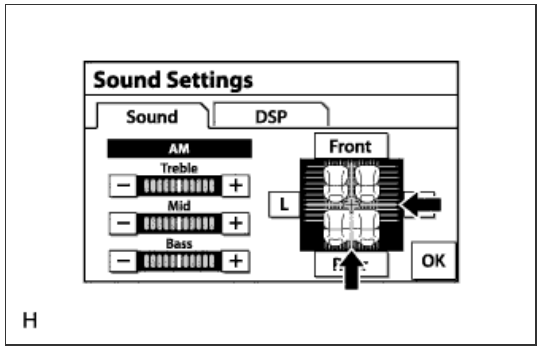
a. Enter the "Sound Settings" screen by pressing the "Sound" switch on the audio display.

b. Set volume, fader and balance to the initial values and check that sound is normal.

**OK:**
**Audio system returns to normal.**

**HINT:**

Sound quality adjustment measures vary according to the type of the amplifier.



H

NG → SET VOLUME TO HIGH AND TURN MUTE OFF

OK ↓

### 3.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL

a. Check if the "Bluetooth" audio player plays normally on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**"Bluetooth" audio plays normally.**

NG → MALFUNCTION IN PORTABLE PLAYER

OK ↓

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

# AUDIO AND VISUAL SYSTEM (w/ Navigation System) > Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL**

a. Check if track information is displayed normally on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**Track information is displayed normally.**

NG → **PORTABLE PLAYER IS NOT COMPATIBLE**

OK ↓

**PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)**

# AUDIO AND VISUAL SYSTEM (w/ Navigation System) > Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL**

a. Check if track information is displayed normally on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**Track information is displayed normally.**

NG → **PORTABLE PLAYER IS NOT COMPATIBLE**

OK ↓

**PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)**

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

- **Perform this check with the portable player volume set at an appropriate level.**
- **Make sure there are no obstructions between the portable player and radio receiver assembly that may block signals, and that the portable player and radio receiver assembly are not excessively far apart.**
- **Make sure devices other than the radio receiver assembly are not connected to the portable player.**
- **Make sure there is no interference from a wireless LAN, etc.**

### 1.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL

a. Check that the same problem does not occur in the sound heard from the speakers on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**The same problem does not occur in the sound heard from the speakers.**

NG → MALFUNCTION IN PORTABLE PLAYER

OK

### 2.REMOVE ADDITIONAL DEVICES WHICH USE RADIO WAVES

a. Remove additional devices which use radio waves.

b. Play the portable player and check that the same problem does not occur in the sound heard from the speakers.

**OK:**
**The same problem does not occur in the sound heard from the speakers.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

### END

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

- **Perform this check with the portable player volume set at an appropriate level.**
- **Make sure there are no obstructions between the portable player and radio receiver assembly that may block signals, and that the portable player and radio receiver assembly are not excessively far apart.**
- **Make sure devices other than the radio receiver assembly are not connected to the portable player.**
- **Make sure there is no interference from a wireless LAN, etc.**

### 1.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL

a. Check that the same problem does not occur in the sound heard from the speakers on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**The same problem does not occur in the sound heard from the speakers.**

NG → MALFUNCTION IN PORTABLE PLAYER

OK

### 2.REMOVE ADDITIONAL DEVICES WHICH USE RADIO WAVES

a. Remove additional devices which use radio waves.

b. Play the portable player and check that the same problem does not occur in the sound heard from the speakers.

**OK:**
**The same problem does not occur in the sound heard from the speakers.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

### END

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

Some versions of "Bluetooth" compatible audio players may not function, or the function may be limited using the radio receiver assembly, even if the portable audio player itself can play files (Click here).

### 1.CHECK CONNECTED DEVICE SETTINGS

a. Display the "Select Portable Player" screen and check if the portable player is registered as a connected device.




**NOTICE:**

If a cellular phone is used as a portable player, it must be registered independently from the registration that is performed for the hands-free system.

**HINT:**

Only 2 portable players can be registered.

**Result**

| Result | Proceed to |
|---|---|
| The portable player is registered as a connected device. | A |
| The portable player is not registered as a connected device. | B |

B → REGISTER PORTABLE PLAYER AS CONNECTED DEVICE

A

### 2.CHECK SYMPTOMS

a. Check the connection condition between the portable player and radio receiver assembly.

**HINT:**
**The portable player cannot be connected under any of the following conditions:**

- **The portable player is connected to another device.**
- **The portable player is connected to the radio receiver assembly using the hands-free function.**
- **The radio receiver assembly has cleared the portable player registration.**
- **The portable player is off.**

**Result**

| Result | Proceed to |
|---|---|
| The portable player cannot be connected manually. | A |
| The portable player cannot be connected automatically. | B |

B → Go to step 4

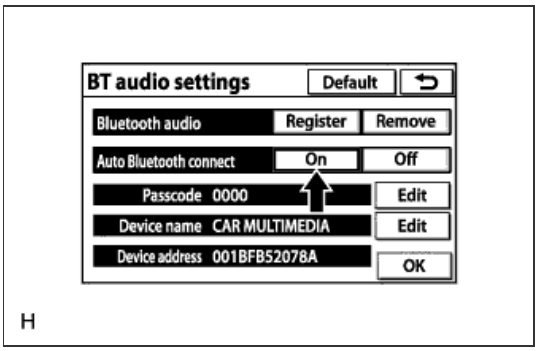
A

### 3.CHECK AUTOMATIC CONNECTION SETTINGS

a. Display the "BT audio settings" screen and check automatic connection settings of the "Bluetooth" audio.

i. Check if On is displayed for "Auto Bluetooth connect" on the "BT audio settings" screen.

**OK:**
**On is displayed for "Auto Bluetooth connect".**




NG → CHANGE "AUTO BLUETOOTH CONNECT" TO ON

OK ↓

**4.CHECK PORTABLE PLAYER STATUS**

a. Check the status of the portable player.

i. Check that the portable player is not in standby mode.

ii. Check that the portable player is not connected to another device (headphones etc.).

**OK:**
**The portable player is in standby mode and not connected to another device (headphones etc.).**

NG → CHANGE PORTABLE PLAYER TO STANDBY MODE AND DISCONNECT OTHER DEVICES (HEADPHONES etc.)

OK ↓

**5.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL**

a. Check if the portable player can be connected manually/automatically on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**The portable player can be connected manually/automatically.**

NG → PORTABLE PLAYER IS NOT COMPATIBLE

OK ↓

**6.REMOVE ADDITIONAL DEVICES WHICH USE RADIO WAVES**

a. Remove additional devices which use radio waves.

b. Check if the portable player can be connected manually/automatically.

**OK:**
**The portable player can be connected manually/automatically.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK ↓

**END**

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

Some versions of "Bluetooth" compatible audio players may not function, or the function may be limited using the radio receiver assembly, even if the portable audio player itself can play files (Click here).

### 1.CHECK CONNECTED DEVICE SETTINGS

a. Display the "Select Portable Player" screen and check if the portable player is registered as a connected device.




**NOTICE:**

If a cellular phone is used as a portable player, it must be registered independently from the registration that is performed for the hands-free system.

**HINT:**

Only 2 portable players can be registered.

**Result**

| Result | Proceed to |
|---|---|
| The portable player is registered as a connected device. | A |
| The portable player is not registered as a connected device. | B |

B → REGISTER PORTABLE PLAYER AS CONNECTED DEVICE

A

### 2.CHECK SYMPTOMS

a. Check the connection condition between the portable player and radio receiver assembly.

**HINT:**
**The portable player cannot be connected under any of the following conditions:**

- **The portable player is connected to another device.**
- **The portable player is connected to the radio receiver assembly using the hands-free function.**
- **The radio receiver assembly has cleared the portable player registration.**
- **The portable player is off.**

**Result**

| Result | Proceed to |
|---|---|
| The portable player cannot be connected manually. | A |
| The portable player cannot be connected automatically. | B |

B → Go to step 4

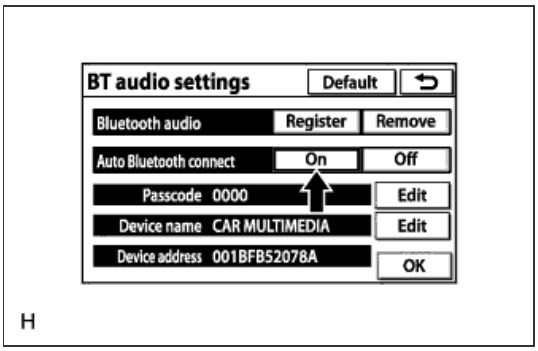
A

### 3.CHECK AUTOMATIC CONNECTION SETTINGS

a. Display the "BT audio settings" screen and check automatic connection settings of the "Bluetooth" audio.

i. Check if On is displayed for "Auto Bluetooth connect" on the "BT audio settings" screen.

**OK:**
**On is displayed for "Auto Bluetooth connect".**




NG → CHANGE "AUTO BLUETOOTH CONNECT" TO ON

OK ↓

**4.CHECK PORTABLE PLAYER STATUS**

a. Check the status of the portable player.

i. Check that the portable player is not in standby mode.

ii. Check that the portable player is not connected to another device (headphones etc.).

**OK:**
**The portable player is in standby mode and not connected to another device (headphones etc.).**

NG → CHANGE PORTABLE PLAYER TO STANDBY MODE AND DISCONNECT OTHER DEVICES (HEADPHONES etc.)

OK ↓

**5.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL**

a. Check if the portable player can be connected manually/automatically on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**The portable player can be connected manually/automatically.**

NG → PORTABLE PLAYER IS NOT COMPATIBLE

OK ↓

**6.REMOVE ADDITIONAL DEVICES WHICH USE RADIO WAVES**

a. Remove additional devices which use radio waves.

b. Check if the portable player can be connected manually/automatically.

**OK:**
**The portable player can be connected manually/automatically.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK ↓

**END**

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.DELETE OPERATION**

a. Check if a registered portable player can be deleted normally.

**OK:**
**Registered portable player can be deleted normally.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

**END**

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.DELETE OPERATION**

a. Check if a registered portable player can be deleted normally.

**OK:**
**Registered portable player can be deleted normally.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

**END**

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

Some versions of "Bluetooth" compatible audio players may not function, or the function may be limited using the radio receiver assembly, even if the portable audio player itself can play files (Click here).

### 1.CHECK THAT PORTABLE PLAYER IS "BLUETOOTH" AUDIO COMPATIBLE

a. Check if the portable player is "Bluetooth" audio compatible.

**Result**

| Result | Proceed to |
|---|---|
| The portable player is "Bluetooth" audio compatible. | A |
| The portable player is not "Bluetooth" audio compatible. | B |

B → USE A "BLUETOOTH" AUDIO COMPATIBLE PORTABLE PLAYER

A

### 2.CHECK CONNECTION PROCEDURE OF CONNECTED DEVICE

a. Referring to the owner's manual, correctly register the portable player.

b. Check that the portable player can be registered as a connected device.

**HINT:**
**The portable player cannot be registered under any of the following conditions:**

- **The A2DP (Advanced Audio Distribution Profile) is not used when registering a cellular phone.**
- **A different portable player registration remains in the radio receiver assembly.**
- **A different radio receiver assembly registration remains in the portable player.**
- **The portable player is off.**

**OK:**
**The portable player has been registered as a connected device.**

NG → Go to step 3

OK

END

### 3.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL

a. Check if the portable player can be registered normally on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**The portable player can be registered.**

NG → MALFUNCTION IN PORTABLE PLAYER

OK

### 4.REMOVE ADDITIONAL DEVICES WHICH USE RADIO WAVES

a. Remove additional devices which use radio waves.

b. Check that the portable player can be registered as a connected device.

**OK:**
**The portable player can be registered.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK → END

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

Some versions of "Bluetooth" compatible audio players may not function, or the function may be limited using the radio receiver assembly, even if the portable audio player itself can play files (Click here).

### 1.CHECK THAT PORTABLE PLAYER IS "BLUETOOTH" AUDIO COMPATIBLE

a. Check if the portable player is "Bluetooth" audio compatible.

**Result**

| Result | Proceed to |
|---|---|
| The portable player is "Bluetooth" audio compatible. | A |
| The portable player is not "Bluetooth" audio compatible. | B |

B → USE A "BLUETOOTH" AUDIO COMPATIBLE PORTABLE PLAYER

A

### 2.CHECK CONNECTION PROCEDURE OF CONNECTED DEVICE

a. Referring to the owner's manual, correctly register the portable player.

b. Check that the portable player can be registered as a connected device.

**HINT:**
**The portable player cannot be registered under any of the following conditions:**

- **The A2DP (Advanced Audio Distribution Profile) is not used when registering a cellular phone.**
- **A different portable player registration remains in the radio receiver assembly.**
- **A different radio receiver assembly registration remains in the portable player.**
- **The portable player is off.**

**OK:**
**The portable player has been registered as a connected device.**

NG → Go to step 3

OK

END

### 3.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL

a. Check if the portable player can be registered normally on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**The portable player can be registered.**

NG → MALFUNCTION IN PORTABLE PLAYER

OK

### 4.REMOVE ADDITIONAL DEVICES WHICH USE RADIO WAVES

a. Remove additional devices which use radio waves.

b. Check that the portable player can be registered as a connected device.

**OK:**
**The portable player can be registered.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK → END

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

- **When a large amount of data is in a USB device, it may take a while before play begins.**
- **When using a USB device, files that are copy protected or encrypted cannot be played.**
- **When files are not played in the sorted order, perform the following procedure before inspection.**
  1. **Add numbers in front of the file names.**
  2. **Put the files in a folder and copy the folder data to the USB device.**

### 1.CHECK USB DEVICE OR "iPod"

a. Disconnect the USB device or "iPod" from the No. 1 stereo jack adapter assembly.

b. Check if playable files are present on the USB device or "iPod".

**HINT:**

Refer to System Description for playable files ( Click here).

c. Check if the USB device is a compatible format or "iPod" is a compatible version.

**HINT:**

Refer to System Description for compatible formats and versions ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| No playable files exist, or incompatible device format or version | A |
| Playable files exist, and compatible device format or version | B |

**B** → Go to step 2

**A**

### USB DEVICE FORMAT WAS INCOMPATIBLE, "iPod" VERSION WAS INCOMPATIBLE, OR NO PLAYABLE FILES PRESENT

### 2.FORMAT USB DEVICE OR RESTORE "iPod" AND RECHECK

a. Delete all files in the USB device or "iPod" and format/restore it.

b. Save the data again and check if it can be played on the in-vehicle device.

**NOTICE:**

Formatting a USB device or restoring an "iPod" erases all music on the device. Ensure that backup music data is available before performing this operation.

**OK:**
**Malfunction disappears.**

**NG** → Go to step 3

**OK**

### END

### 3.REPLACE USB DEVICE OR "iPod"

a. Turn the engine switch off.

**HINT:**

When this malfunction occurs, it is necessary to turn off the engine switch to make it possible for the vehicle to recognize a new device when it is connected.

b. Turn the engine switch on (ACC).

c. Connect a known good USB device or "iPod" to the No. 1 stereo jack adapter assembly.

**HINT:**

- **If the malfunction occurred when a USB device was in use, use another USB device for the inspection. If the malfunction occurred when an "iPod" was in use, use another "iPod" for the inspection.**
- **Refer to System Description for compatible formats and versions (Click here).**

**NEXT**

**4.CHECK USB Device or "iPod"**

a. Check if USB device or "iPod" is recognized by the display and navigation module display, if information such as track, artist and album names are displayed on screen or if can play.

**OK:**
**Malfunction disappears.**

**NG** → **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)**

**OK**

**USB DEVICE OR "iPod" WAS INCOMPATIBLE OR DEFECTIVE**

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

- **When a large amount of data is in a USB device, it may take a while before play begins.**
- **When using a USB device, files that are copy protected or encrypted cannot be played.**
- **When files are not played in the sorted order, perform the following procedure before inspection.**
  1. **Add numbers in front of the file names.**
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### 1.CHECK USB DEVICE OR "iPod"

a. Disconnect the USB device or "iPod" from the No. 1 stereo jack adapter assembly.

b. Check if playable files are present on the USB device or "iPod".

**HINT:**

Refer to System Description for playable files ( Click here).

c. Check if the USB device is a compatible format or "iPod" is a compatible version.

**HINT:**

Refer to System Description for compatible formats and versions ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| No playable files exist, or incompatible device format or version | A |
| Playable files exist, and compatible device format or version | B |

**B** → Go to step 2

**A**

### USB DEVICE FORMAT WAS INCOMPATIBLE, "iPod" VERSION WAS INCOMPATIBLE, OR NO PLAYABLE FILES PRESENT

### 2.FORMAT USB DEVICE OR RESTORE "iPod" AND RECHECK

a. Delete all files in the USB device or "iPod" and format/restore it.

b. Save the data again and check if it can be played on the in-vehicle device.

**NOTICE:**

Formatting a USB device or restoring an "iPod" erases all music on the device. Ensure that backup music data is available before performing this operation.

**OK:**
**Malfunction disappears.**

**NG** → Go to step 3

**OK**

### END

### 3.REPLACE USB DEVICE OR "iPod"

a. Turn the engine switch off.

**HINT:**

When this malfunction occurs, it is necessary to turn off the engine switch to make it possible for the vehicle to recognize a new device when it is connected.

b. Turn the engine switch on (ACC).

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**HINT:**

- **If the malfunction occurred when a USB device was in use, use another USB device for the inspection. If the malfunction occurred when an "iPod" was in use, use another "iPod" for the inspection.**
- **Refer to System Description for compatible formats and versions (Click here).**

**NEXT**

**4.CHECK USB Device or "iPod"**

a. Check if USB device or "iPod" is recognized by the display and navigation module display, if information such as track, artist and album names are displayed on screen or if can play.

**OK:**
**Malfunction disappears.**

**NG** → **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)**

**OK**

**USB DEVICE OR "iPod" WAS INCOMPATIBLE OR DEFECTIVE**

**for Preparation** Click here

## DESCRIPTION

**HINT:**

The HDD is compliant with the Serial Copy Management System (SCMS). Therefore, recording from a CD-R that is a copy of a commercially published music CD is not possible.

## INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display, perform vehicle contract setting (w/ G-BOOK System) ( Click here).

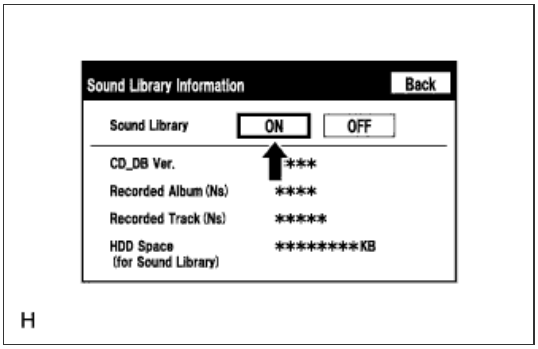
### 1.CHECK SOUND LIBRARY SETTING OF HDD ON SOUND LIBRARY INFORMATION SCREEN

a. Enter the "Sound Library Information" (Check Sound Library Setting) ( Click here).

b. Select "ON" for the "Sound Library" setting.

c. Check if recording is possible.

**OK:**
**Malfunction disappears.**




NG → Go to step 2

OK

### END

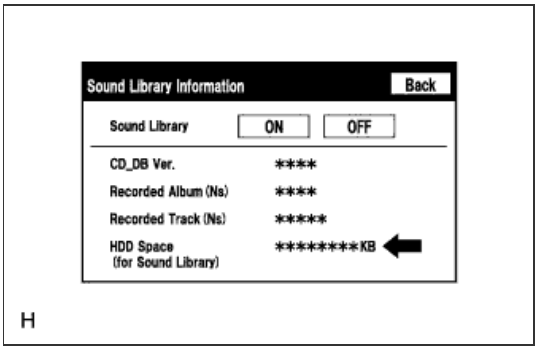
### 2.CHECK FREE SPACE IN HDD

a. Enter the "Sound Library Information" (Check Sound Library Setting) ( Click here).

b. Check free space in HDD from the sound library setting screen.

**Result**

| Result | Proceed to |
|---|---|
| Insufficient space in HDD | A |
| Sufficient space in HDD | B |




B → Go to step 3

A

### DELETE UNNECESSARY DATA FROM HDD

### 3.CHECK IF AUDIO POWER IS ON

a. Check if the audio power is on.

**HINT:**

When the audio is off, audio recording is not possible.

**OK:**
**Audio power is on.**

NG → TURN AUDIO ON

OK ↓

## 4.CHECK IF RECORDING SETTING IS SET TO AUTO

a. Check if the recording setting is set to AUTO.

**HINT:**

When the recording setting is set to manual, recording does not start automatically after a CD is inserted.

**OK:**
**Recording setting is set to AUTO.**

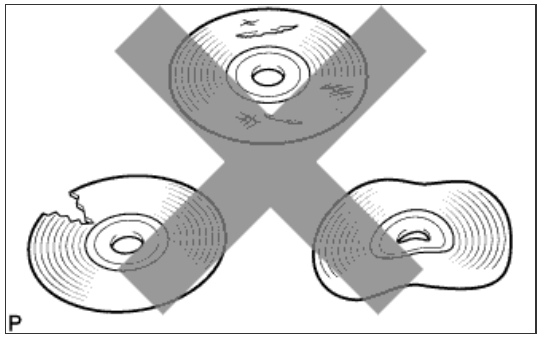
NG → CHANGE RECORDING SETTING TO AUTO

OK ↓

## 5.CHECK CD

a. Check that the disc is not deformed or cracked.

**OK:**
**No deformation or cracks on the CD**




NG → CHANGE CD

OK ↓

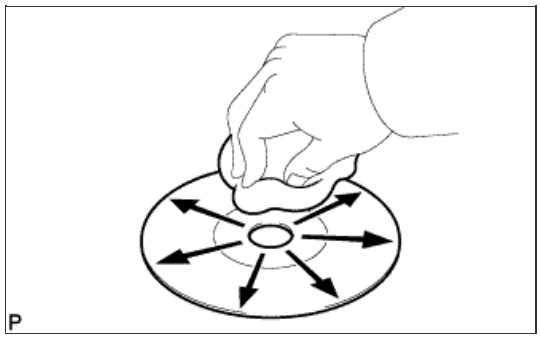
## 6.CLEAN CD AND RECHECK CD

a. Check the disc by wiping it clean with a soft cloth from the inside to the outside in a radial direction.

**OK:**
**Malfunction disappears.**

**NOTICE:**

Do not use a conventional record cleaner or anti-static preservative.




NG → Go to step 7

OK

END

7.CHECK USING ANOTHER VEHICLE WITH HDD NAVIGATION SYSTEM

a. Check if the CD plays normally using another vehicle with the HDD navigation system.

**OK:**
**Malfunction disappears.**

NG → CD WAS FAULTY

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

**HINT:**

The HDD is compliant with the Serial Copy Management System (SCMS). Therefore, recording from a CD-R that is a copy of a commercially published music CD is not possible.

## INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display, perform vehicle contract setting (w/ G-BOOK System) ( Click here).

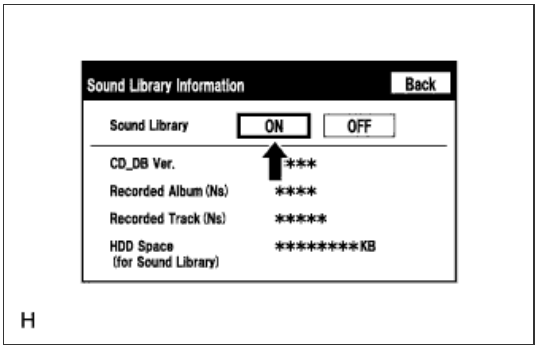
### 1.CHECK SOUND LIBRARY SETTING OF HDD ON SOUND LIBRARY INFORMATION SCREEN

a. Enter the "Sound Library Information" (Check Sound Library Setting) ( Click here).

b. Select "ON" for the "Sound Library" setting.

c. Check if recording is possible.

**OK:**
**Malfunction disappears.**




NG → Go to step 2

OK

### END

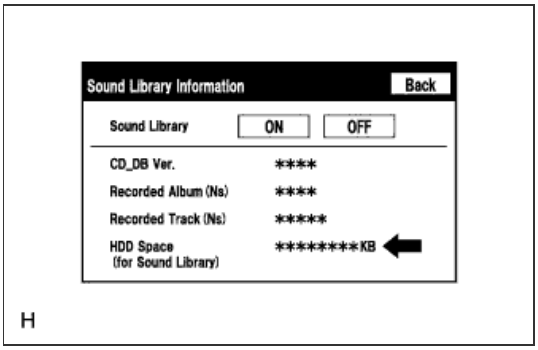
### 2.CHECK FREE SPACE IN HDD

a. Enter the "Sound Library Information" (Check Sound Library Setting) ( Click here).

b. Check free space in HDD from the sound library setting screen.

**Result**

| Result | Proceed to |
|---|---|
| Insufficient space in HDD | A |
| Sufficient space in HDD | B |




B → Go to step 3

A

### DELETE UNNECESSARY DATA FROM HDD

### 3.CHECK IF AUDIO POWER IS ON

a. Check if the audio power is on.

**HINT:**

When the audio is off, audio recording is not possible.

**OK:**
**Audio power is on.**

NG → TURN AUDIO ON

OK ↓

## 4.CHECK IF RECORDING SETTING IS SET TO AUTO

a. Check if the recording setting is set to AUTO.

**HINT:**

When the recording setting is set to manual, recording does not start automatically after a CD is inserted.

**OK:**
**Recording setting is set to AUTO.**

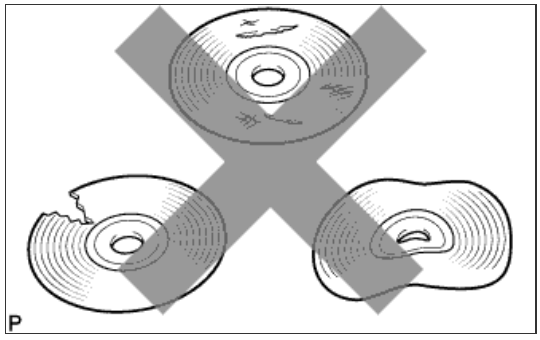
NG → CHANGE RECORDING SETTING TO AUTO

OK ↓

## 5.CHECK CD

a. Check that the disc is not deformed or cracked.

**OK:**
**No deformation or cracks on the CD**




NG → CHANGE CD

OK ↓

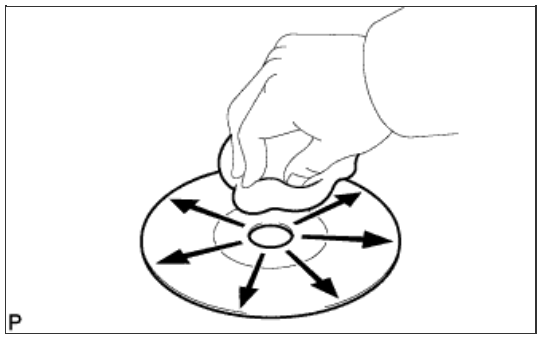
## 6.CLEAN CD AND RECHECK CD

a. Check the disc by wiping it clean with a soft cloth from the inside to the outside in a radial direction.

**OK:**
**Malfunction disappears.**

**NOTICE:**

Do not use a conventional record cleaner or anti-static preservative.




NG → Go to step 7

OK

END

7.CHECK USING ANOTHER VEHICLE WITH HDD NAVIGATION SYSTEM

a. Check if the CD plays normally using another vehicle with the HDD navigation system.

**OK:**
**Malfunction disappears.**

NG → CD WAS FAULTY

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

The HDD cannot read when driving on a rough road because of vibration.

**1.CHECK IF THERE IS ANY PROBLEM ON CD**

a. Check if a message indicating a skipping track is displayed in the CD track information list on the audio screen.

Result

| Result | Proceed to |
|---|---|
| CD skip indication is not displayed. | A |
| CD skip indication is displayed. | B |

B → **CD WAS FAULTY**

A

**2.DELETE AND RE-RECORD TRACK WITH ERROR**

a. Delete the track that is indicated as skipping.

b. Insert the CD and re-record the same track.

NEXT

**3.CHECK IF RE-RECORDED TRACK CAN BE PLAYED**

a. Check if the re-recorded track can be played.

Result

| Result | Proceed to |
|---|---|
| Track can be played. | A |
| Track cannot be played. | B |

B → **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)**

A

**END**

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

The HDD cannot read when driving on a rough road because of vibration.

**1.CHECK IF THERE IS ANY PROBLEM ON CD**

a. Check if a message indicating a skipping track is displayed in the CD track information list on the audio screen.

Result

| Result | Proceed to |
|---|---|
| CD skip indication is not displayed. | A |
| CD skip indication is displayed. | B |

B → **CD WAS FAULTY**

A

**2.DELETE AND RE-RECORD TRACK WITH ERROR**

a. Delete the track that is indicated as skipping.

b. Insert the CD and re-record the same track.

NEXT

**3.CHECK IF RE-RECORDED TRACK CAN BE PLAYED**

a. Check if the re-recorded track can be played.

Result

| Result | Proceed to |
|---|---|
| Track can be played. | A |
| Track cannot be played. | B |

B → **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)**

A

**END**

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK IF CD IS BEING RECORDED

a. Check if a CD is being recorded.

**Result**

| Result | Proceed to |
|---|---|
| CD is being recorded. | A |
| CD is not being recorded. | B |

B → Go to step 2

A → END

### 2.CHECK IF SOUND LIBRARY ITEMS ARE BEING DELETED

a. Check if sound library items are being deleted.

**Result**

| Result | Proceed to |
|---|---|
| Items are being deleted. | A |
| Items are not being deleted. | B |

B → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

A → END

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK IF CD IS BEING RECORDED

a. Check if a CD is being recorded.

**Result**

| Result | Proceed to |
|---|---|
| CD is being recorded. | A |
| CD is not being recorded. | B |

B → Go to step 2

A → END

### 2.CHECK IF SOUND LIBRARY ITEMS ARE BEING DELETED

a. Check if sound library items are being deleted.

**Result**

| Result | Proceed to |
|---|---|
| Items are being deleted. | A |
| Items are not being deleted. | B |

B → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

A → END

**for Preparation** Click here

## INSPECTION PROCEDURE

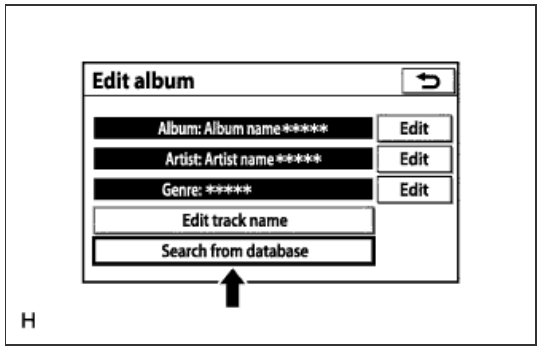
**HINT:**

- **When a CD-TEXT compatible CD is inserted and played, CD track names will be displayed. When the song is played using the sound library, information acquired from the media database will be used. Therefore, title displayed for the same song may differ from the one displayed for the CD and the one for the sound library.**
- **CD-TEXT song information and media database information may be different.**

### 1.SEARCH THE MEDIA DATABASE AGAIN

a. Select "Search from database" on the "Edit album" screen.

b. Search the media database again.




NG → ENTER SONG INFORMATION MANUALLY

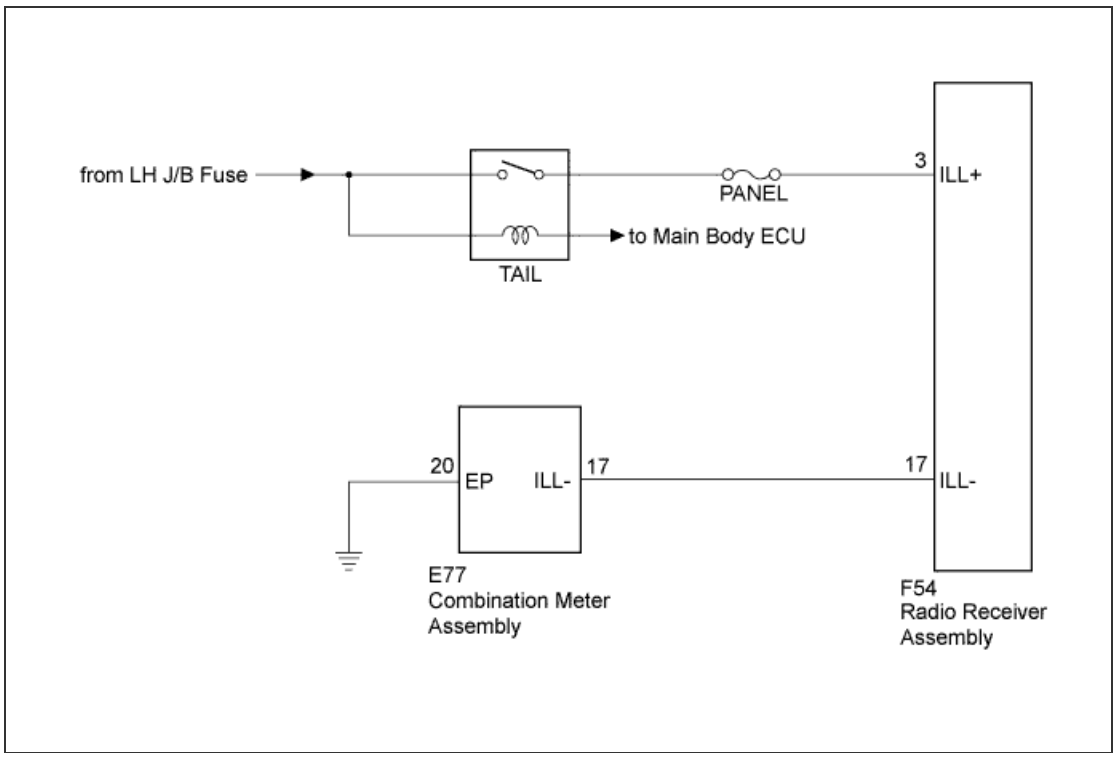
OK → END

**for Preparation** Click here

## DESCRIPTION

Power is supplied to the radio receiver assembly illumination when the light control switch is in the tail or head position.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuse for circuits related to this system before performing the following inspection procedure.

### 1.CHECK ILLUMINATION

a. Check if the illumination for the radio receiver assembly, heater control switch or others (hazard switch, transmission control switch, etc.) comes on when the light control switch is turned to the head or tail position.

**Result**

| Result | Proceed to |
|---|---|
| Illumination comes on for all components except radio receiver assembly. | A |
| No illumination comes on (radio receiver assembly, hazard switch, heater control switch, etc.). | B |

B → GO TO LIGHTING SYSTEM (Click here)

A

### 2.CHECK HARNESS AND CONNECTOR (BATTERY - RADIO RECEIVER ASSEMBLY)

a. Disconnect the F54 radio receiver assembly connector.

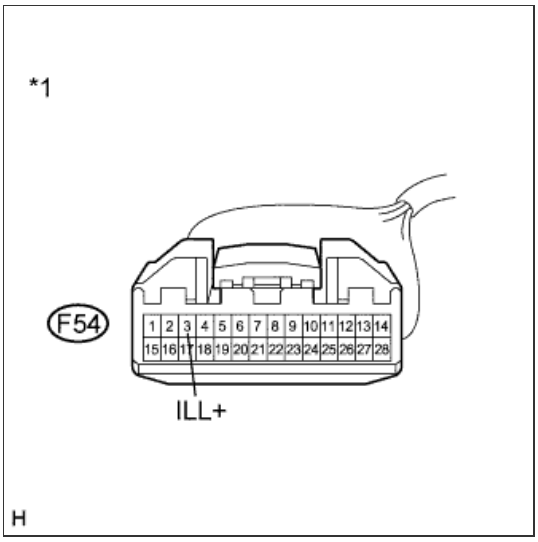
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F54-3 (ILL+) - Body ground | Light control switch tail or head | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Radio Receiver Assembly) |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**3.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY - COMBINATION METER ASSEMBLY)**

a. Disconnect the F54 radio receiver assembly connector and E77 combination meter assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-17 (ILL-) - E77-17 (ILL-) | Always | Below 1 Ω |
| E77-17 (ILL-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

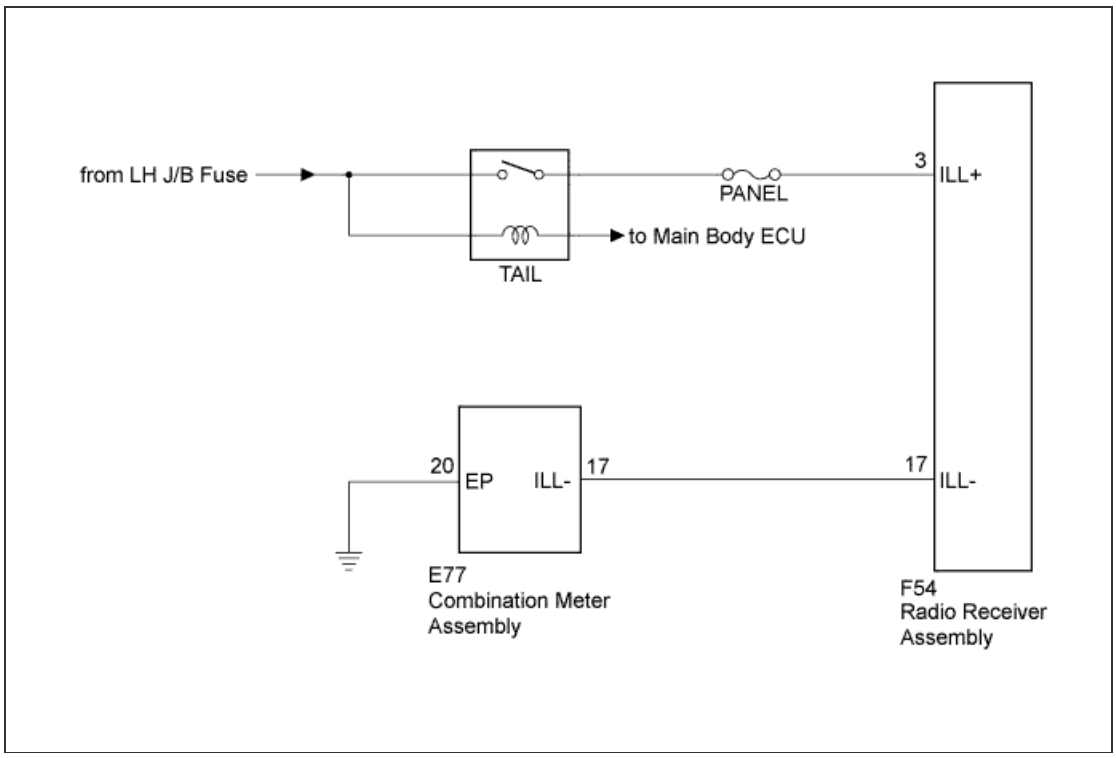
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

Power is supplied to the radio receiver assembly illumination when the light control switch is in the tail or head position.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuse for circuits related to this system before performing the following inspection procedure.

### 1.CHECK ILLUMINATION

a. Check if the illumination for the radio receiver assembly, heater control switch or others (hazard switch, transmission control switch, etc.) comes on when the light control switch is turned to the head or tail position.

**Result**

| Result | Proceed to |
|---|---|
| Illumination comes on for all components except radio receiver assembly. | A |
| No illumination comes on (radio receiver assembly, hazard switch, heater control switch, etc.). | B |

B → GO TO LIGHTING SYSTEM (Click here)

A

### 2.CHECK HARNESS AND CONNECTOR (BATTERY - RADIO RECEIVER ASSEMBLY)

a. Disconnect the F54 radio receiver assembly connector.

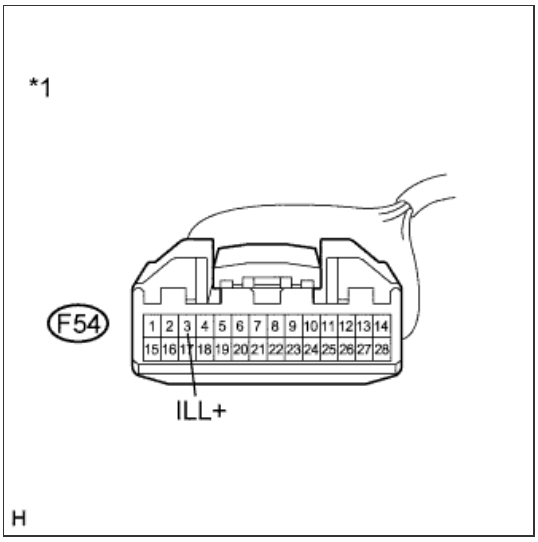
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F54-3 (ILL+) - Body ground | Light control switch tail or head | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Radio Receiver Assembly) |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**3.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY - COMBINATION METER ASSEMBLY)**

a. Disconnect the F54 radio receiver assembly connector and E77 combination meter assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-17 (ILL-) - E77-17 (ILL-) | Always | Below 1 Ω |
| E77-17 (ILL-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

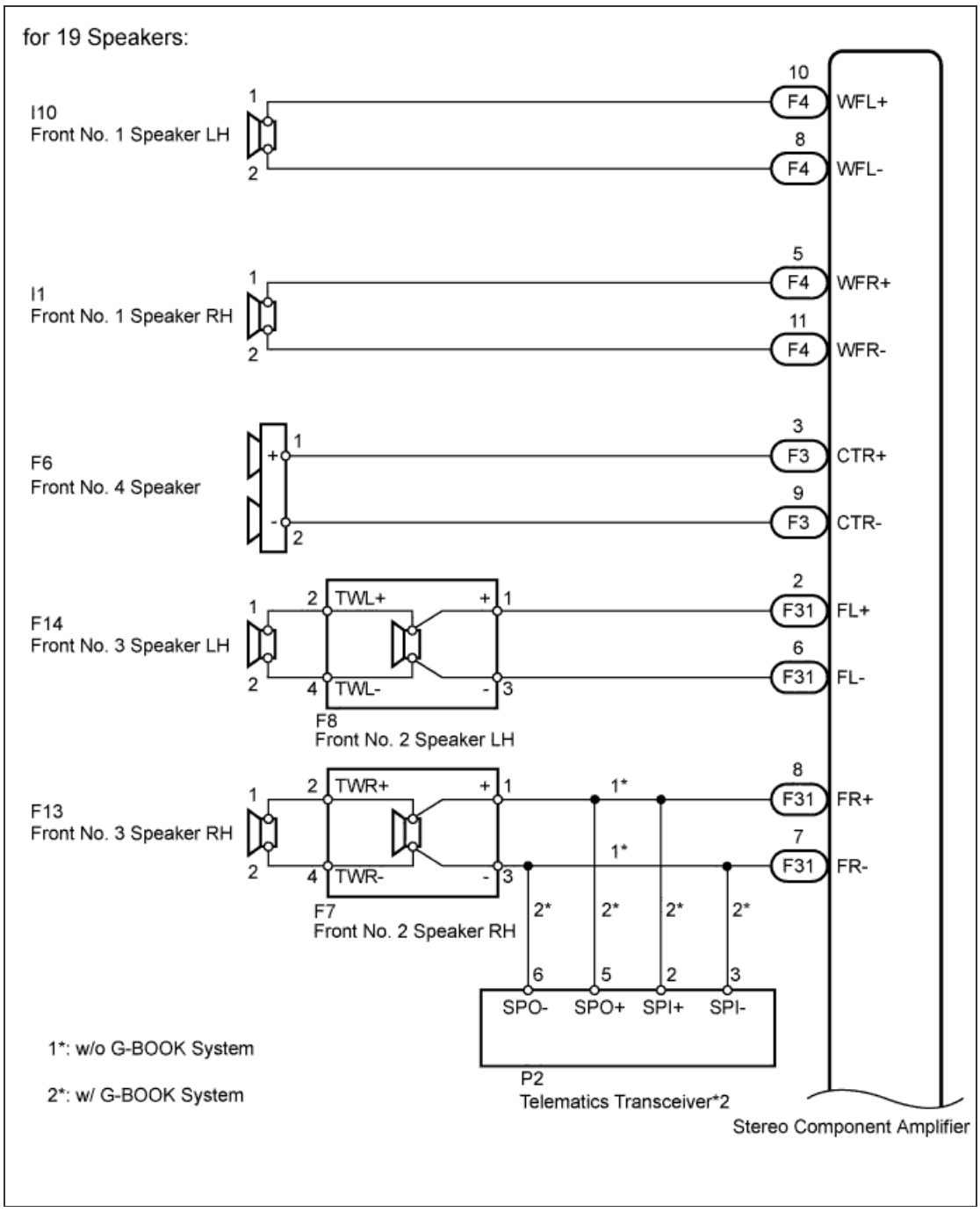
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

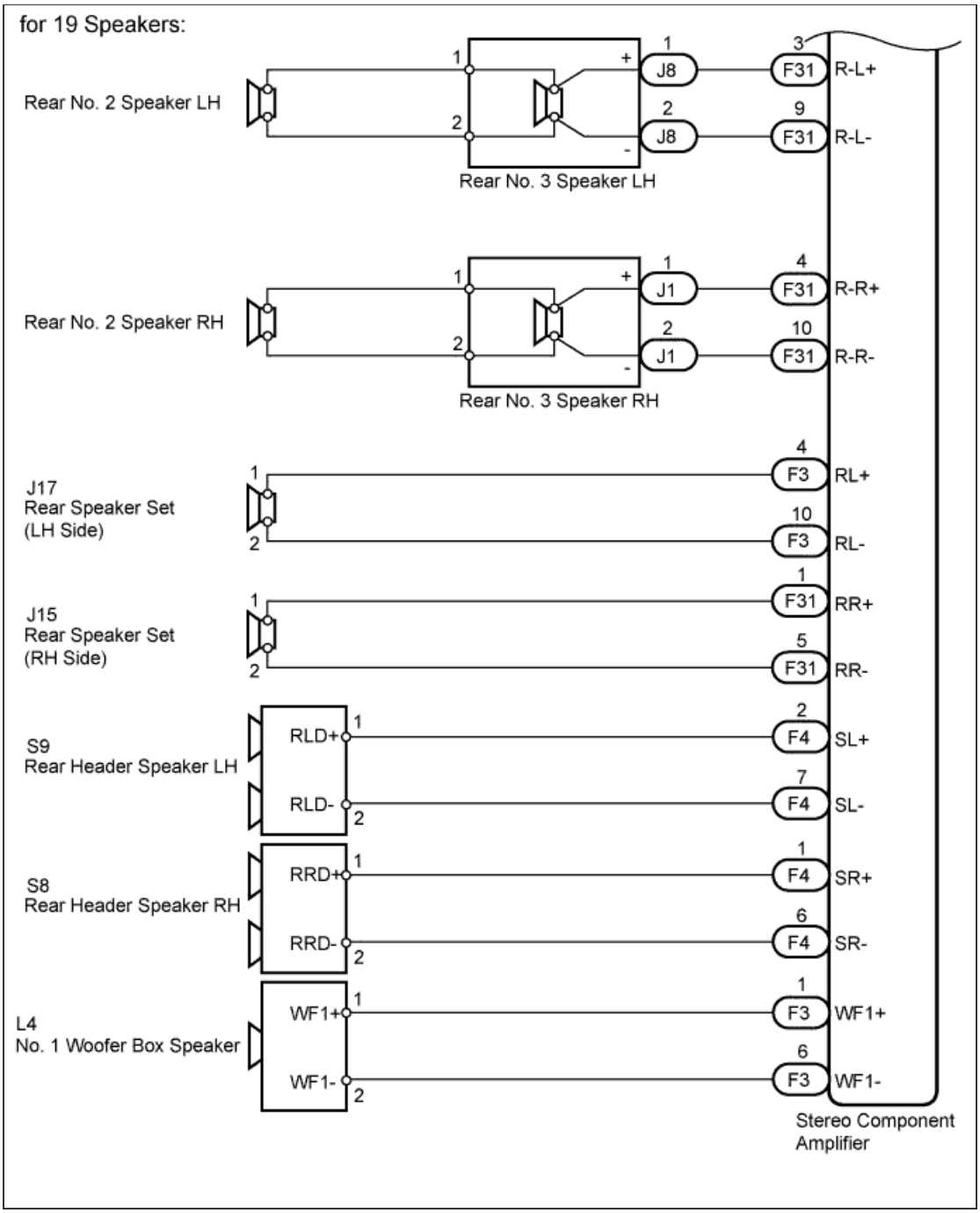
**for Preparation** Click here

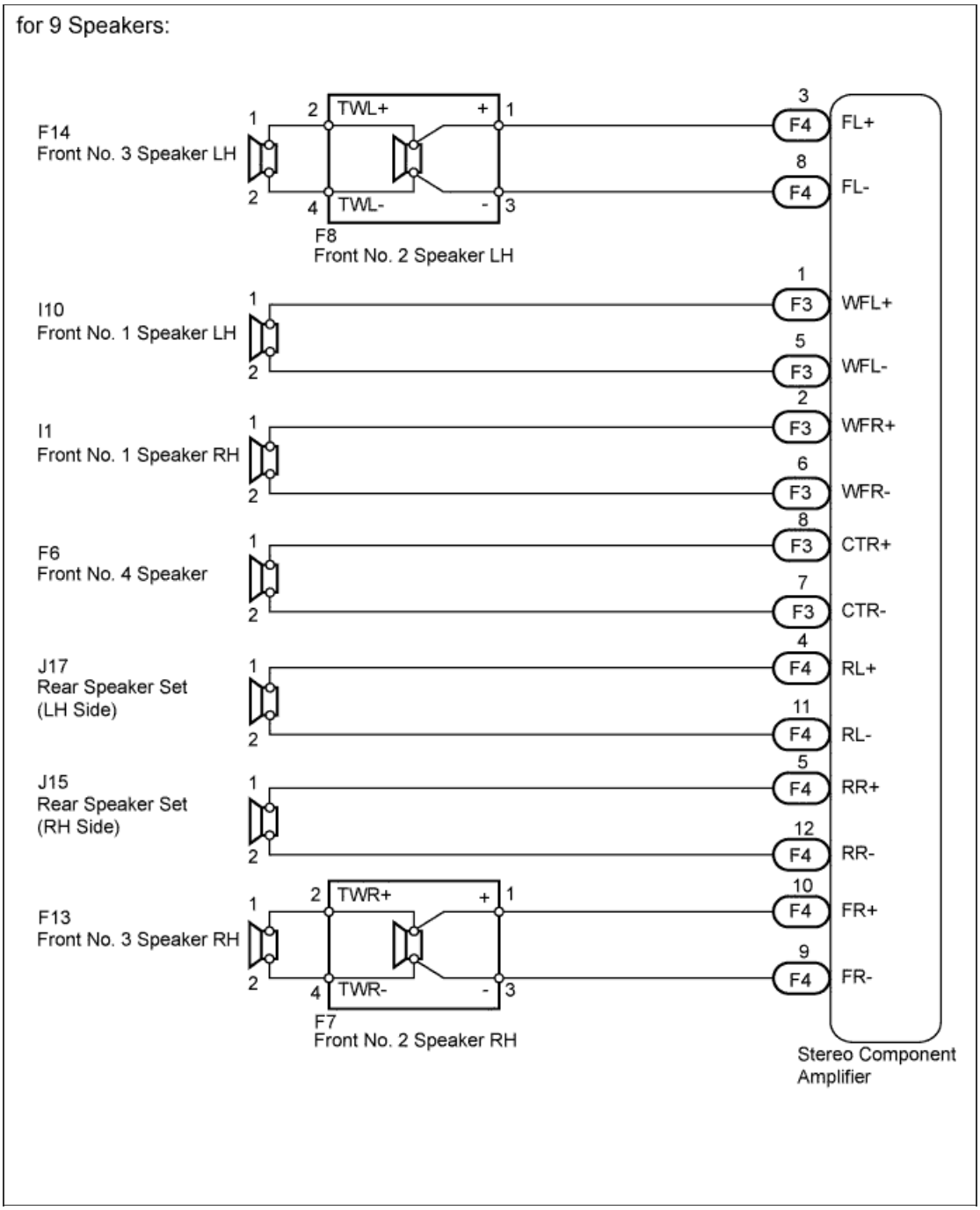
## DESCRIPTION

The stereo component amplifier sends sound signals to the speakers.

## WIRING DIAGRAM




for 19 Speakers:
Rear No. 2 Speaker LH
1
2
+
-
1
J8
2
J8
Rear No. 3 Speaker LH
3
F31
R-L+
9
F31
R-L-
Rear No. 2 Speaker RH
1
2
+
-
1
J1
2
J1
Rear No. 3 Speaker RH
4
F31
R-R+
10
F31
R-R-
J17
Rear Speaker Set
(LH Side)
1
2
4
F3
RL+
10
F3
RL-
J15
Rear Speaker Set
(RH Side)
1
2
1
F31
RR+
5
F31
RR-
S9
Rear Header Speaker LH
RLD+
RLD-
1
2
2
F4
SL+
7
F4
SL-
S8
Rear Header Speaker RH
RRD+
RRD-
1
2
1
F4
SR+
6
F4
SR-
L4
No. 1 Woofer Box Speaker
WF1+
WF1-
1
2
1
F3
WF1+
6
F3
WF1-
Stereo Component
Amplifier




## INSPECTION PROCEDURE

### 1.CHECK AUDIO MODELS

a. Check the audio model.

**Result**

| Result | Proceed to |
|---|---|
| 19 speakers | A |
| 9 speakers | B |

B → Go to step 25

A

### 2.CHECK SPEAKER

a. Check the malfunctioning speakers.

**Result**

| Result | Proceed to |
|---|---|
| Malfunction in front speaker area | A |

| | |
|---|---|
| Malfunction in rear speaker area | B |

B → Go to step 15

A

## 3.CHECK SPEAKER

a. Check the malfunctioning speakers.

**Result**

| Result | Proceed to |
|---|---|
| Front No. 4 speaker | A |
| Front No. 2 speaker | B |
| Front No. 1 speaker | C |
| Front No. 3 speaker | D |

B → Go to step 6

C → Go to step 11

D → Go to step 13

A

## 4.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY

a. Disconnect the F6 speaker connector.

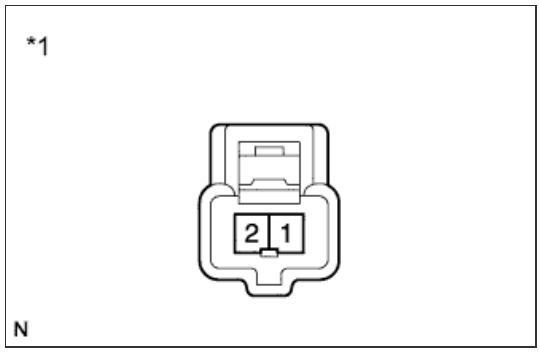
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness or connected: (Front No. 4 Speaker Assembly) |




NG → REPLACE FRONT NO. 4 SPEAKER ASSEMBLY (Click here)

OK

## 5.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 4 SPEAKER)

a. Disconnect the F6 speaker connector.

b. Disconnect the F3 amplifier connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-3 (CTR+) - F6-1 | Always | Below 1 Ω |
| F3-9 (CTR-) - F6-2 | Always | Below 1 Ω |
| F3-3 (CTR+) - Body ground | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| F3-9 (CTR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

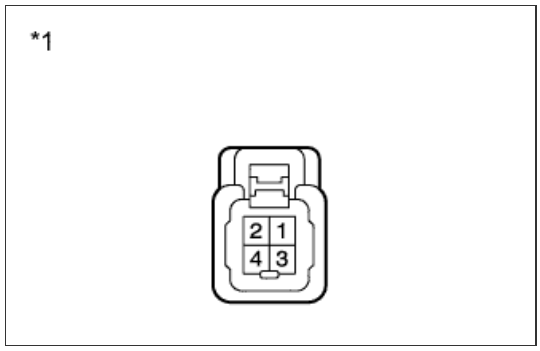
OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 6.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

a. Disconnect the F8 and F7 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.




**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | Below 1 Ω |
| 3 - 4 | Always | Below 1 Ω |
| 2 - 4 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness or connected: (Front No. 2 Speaker Assembly) |

NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

## 7.CHECK DEFECTIVE SPEAKER AND VEHICLE EQUIPMENT

a. Check which side of the vehicle the defective speaker is on. Also, check if the vehicle is equipped with the G-BOOK System.

**Result**

| Result | Proceed to |
|---|---|
| Defective speaker is on right side (w/ G-BOOK System) | A |
| Defective speaker is on right side (w/o G-BOOK System) | B |
| Defective speaker is on left side | B |

B → Go to step 10

A

## 8.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - STEREO COMPONENT AMPLIFIER AND FRONT NO. 2 SPEAKER)

a. Disconnect the F31 amplifier connector.

b. Disconnect the F7 speaker connector.

c. Disconnect the P2 telematics transceiver connector.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F7-1 (+) - P2-5 (SPO+) | | |

| | | |
|---|---|---|
| F7-3 (-) - P2-6 (SPO-) | Always | Below 1 Ω |
| F31-8 (FR+) - P2-2 (SPI+) | | |
| F31-7 (FR-) - P2-3 (SPI-) | | |
| F7-1 (+) - Body ground | Always | 10 kΩ or higher |
| F7-3 (-) - Body ground | | |
| F31-8 (FR+) - Body ground | | |
| F31-7 (FR-) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**9.CHECK STEREO COMPONENT AMPLIFIER ASSEMBLY (OPERATION)**

a. Replace the stereo component amplifier with a normal one and check that audio can be heard from the front RH side speaker ( Click here).

**OK:**
**Audio can be heard.**

NG → REPLACE TELEMATICS TRANSCEIVER (**Click here**)

OK

**END (STEREO COMPONENT AMPLIFIER IS DEFECTIVE)**

**10.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 2 SPEAKER)**

a. Disconnect the F31 amplifier connector.

b. Disconnect the F8 and F7 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**
**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-2 (FL+) - F8-1 (+) | Always | Below 1 Ω |
| F31-6 (FL-) - F8-3 (-) | Always | Below 1 Ω |
| F31-2 (FL+) - Body ground | Always | 10 kΩ or higher |
| F31-6 (FL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-8 (FR+) - F7-1 (+) | Always | Below 1 Ω |
| F31-7 (FR-) - F7-3 (-) | Always | Below 1 Ω |
| F31-8 (FR+) - Body ground | Always | 10 kΩ or higher |
| F31-7 (FR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

11.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY

a. Disconnect the I10 and I1 speaker connectors.

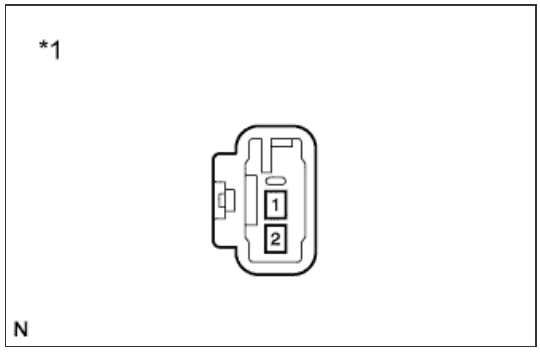
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 11 to 13 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness or connected: (Front No. 1 Speaker Assembly) |




NG → REPLACE FRONT NO. 1 SPEAKER ASSEMBLY (Click here)

OK

12.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 1 SPEAKER)

a. Disconnect the I10 and I1 speaker connectors.

b. Disconnect the F4 amplifier connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-10 (WFL+) - I10-1 | Always | Below 1 Ω |
| F4-8 (WFL-) - I10-2 | Always | Below 1 Ω |
| F4-10 (WFL+) - Body ground | Always | 10 kΩ or higher |
| F4-8 (WFL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-5 (WFR+) - I1-1 | Always | Below 1 Ω |
| F4-11 (WFR-) - I1-2 | Always | Below 1 Ω |
| F4-5 (WFR+) - Body ground | Always | 10 kΩ or higher |
| F4-11 (WFR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 13.CHECK FRONT NO. 3 SPEAKER ASSEMBLY

a. Disconnect the F14 and F13 speaker connectors.

b. Interchange the front No. 3 speaker LH with RH.

c. Check that the malfunction disappears.

**OK:**
**Malfunction disappears.**

**HINT:**

- **Connect all the connectors to the front No. 3 speakers.**
- **When there is a possibility that either the right or left front speaker is defective, inspect by interchanging the right one with the left one.**
- **Perform the inspection above on both the LH and RH sides.**

**NG** → Go to step 14

**OK**

REPLACE FRONT NO. 3 SPEAKER ASSEMBLY (Click here)

## 14.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

a. Disconnect the F8 and F7 speaker connectors.

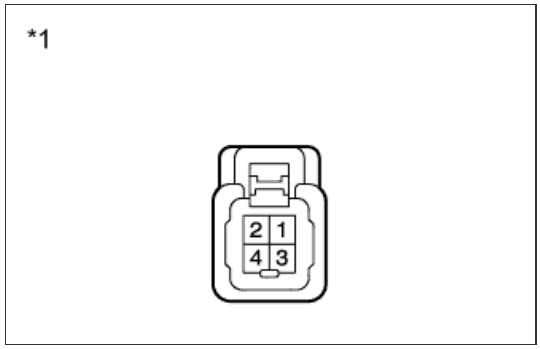
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 2 - 4 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness or connected: (Front No. 2 Speaker Assembly) |




**NG** → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

**OK**

REPAIR OR REPLACE HARNESS OR CONNECTOR (FRONT NO. 2 SPEAKER - FRONT NO. 3 SPEAKER)

## 15.CHECK SPEAKER

a. Check the malfunctioning speakers.

**Result**

| Result | Proceed to |
|---|---|
| Rear No. 2 speaker | A |
| Rear No. 3 speaker | B |
| Rear speaker set | C |
| No. 1 woofer box speaker | D |
| Rear header speaker | E |

**B** → Go to step 17

**C** → Go to step 19

**D** → Go to step 21

E → Go to step 23

A

## 16.INSPECT REAR NO. 2 SPEAKER ASSEMBLY

a. Disconnect the rear No. 2 speaker connectors.

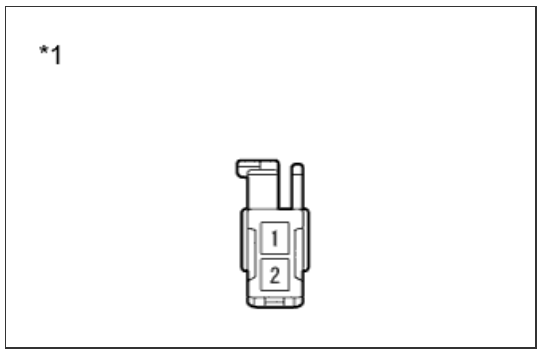
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness or connected: (Rear No. 2 Speaker Assembly) |




NG → REPLACE REAR NO. 2 SPEAKER ASSEMBLY (Click here)

OK

REPLACE REAR NO. 3 SPEAKER ASSEMBLY (Click here)

## 17.CHECK REAR NO. 3 SPEAKER ASSEMBLY

a. Disconnect the rear No. 3 speaker connectors.

b. Interchange the rear No. 3 speaker LH with RH.

c. Check that the malfunction disappears.

**OK:**
**Malfunction disappears.**

**HINT:**

- **Connect all the connectors to the rear No. 3 speakers.**
- **When there is a possibility that either the right or left rear speaker is defective, inspect by interchanging the right one with the left one.**
- **Perform the inspection above on both the LH and RH sides.**

NG → Go to step 18

OK

REPLACE REAR NO. 3 SPEAKER ASSEMBLY (Click here)

## 18.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - REAR NO. 3 SPEAKER)

a. Disconnect the F31 amplifier connector.

b. Disconnect the J8 and J1 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**
**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-3 (R-L+) - J8-1 (+) | Always | Below 1 Ω |
| F31-9 (R-L-) - J8-2 (-) | Always | Below 1 Ω |

| | | |
|---|---|---|
| F31-3 (R-L+) - Body ground | Always | 10 kΩ or higher |
| F31-9 (R-L-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-4 (R-R+) - J1-1 (+) | Always | Below 1 Ω |
| F31-10 (R-R-) - J1-2 (-) | Always | Below 1 Ω |
| F31-4 (R-R+) - Body ground | Always | 10 kΩ or higher |
| F31-10 (R-R-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 19.INSPECT REAR SPEAKER SET

a. Disconnect the J17 and J15 speaker connectors.

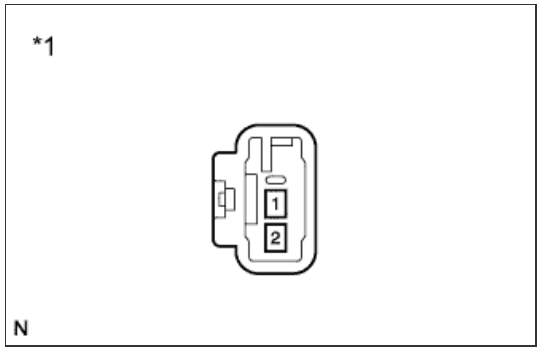
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4.8 to 7.2 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness or connected: (Rear Speaker Set) |




NG → REPLACE REAR SPEAKER SET (Click here)

OK

## 20.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - REAR SPEAKER SET)

a. Disconnect the F3 and F31 amplifier connectors.

b. Disconnect the J17 and J15 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-4 (RL+) - J17-1 | Always | Below 1 Ω |
| F3-10 (RL-) - J17-2 | | |
| F3-4 (RL+) - Body ground | Always | 10 kΩ or higher |
| F3-10 (RL-) - Body ground | | |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| F31-1 (RR+) - J15-1 | Always | Below 1 Ω |
| F31-5 (RR-) - J15-2 | | |
| F31-1 (RR+) - Body ground | Always | 10 kΩ or higher |
| F31-5 (RR-) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK →

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

21.INSPECT NO. 1 WOOFER BOX SPEAKER ASSEMBLY

a. Disconnect the L4 speaker connector.

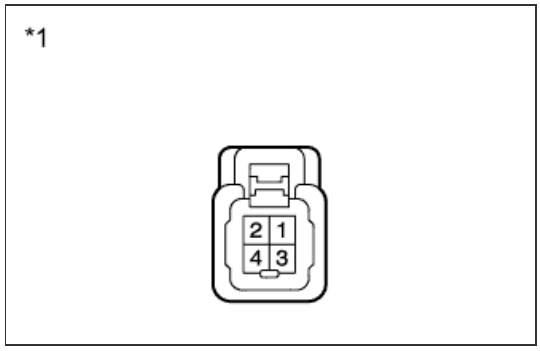
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 8.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness or connected: (No. 1 Woofer Box Speaker Assembly) |




NG → REPLACE NO. 1 WOOFER BOX SPEAKER ASSEMBLY (Click here)

OK →

22.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - NO. 1 WOOFER BOX SPEAKER)

a. Disconnect the F3 amplifier connector.

b. Disconnect the L4 speaker connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-1 (WF1+) - L4-1 (WF1+) | Always | Below 1 Ω |
| F3-6 (WF1-) - L4-2 (WF1-) | Always | Below 1 Ω |
| F3-1 (WF1+) - Body ground | Always | 10 kΩ or higher |
| F3-6 (WF1-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK →

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

23.INSPECT REAR HEADER SPEAKER ASSEMBLY

a. Disconnect the S9 and S8 speaker connectors.

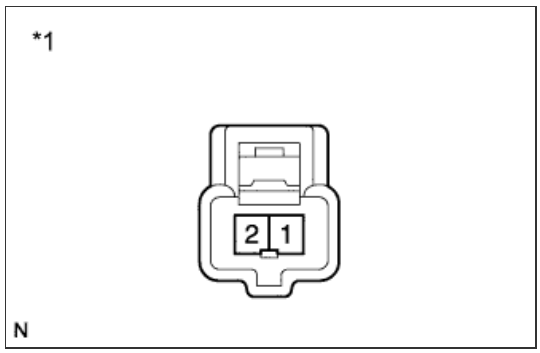
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness or connected:<br>(Rear Header Speaker Assembly) |




NG → REPLACE REAR HEADER SPEAKER ASSEMBLY (Click here)

OK

## 24.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - REAR HEADER SPEAKER)

a. Disconnect the F4 amplifier connector.

b. Disconnect the S9 and S8 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-2 (SL+) - S9-1 (RLD+) | Always | Below 1 Ω |
| F4-7 (SL-) - S9-2 (RLD-) | Always | Below 1 Ω |
| F4-2 (SL+) - Body ground | Always | 10 kΩ or higher |
| F4-7 (SL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-1 (SR+) - S8-1 (RRD+) | Always | Below 1 Ω |
| F4-6 (SR-) - S8-2 (RRD-) | Always | Below 1 Ω |
| F4-1 (SR+) - Body ground | Always | 10 kΩ or higher |
| F4-6 (SR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 25.CHECK SPEAKER

a. Check the malfunctioning speakers.

**Result**

| Result | Proceed to |
|---|---|
| Front No. 4 speaker | A |

| | |
|---|---|
| Front No. 2 speaker | B |
| Front No. 1 speaker | C |
| Front No. 3 speaker | D |
| Rear speaker set | E |

B → Go to step 28

C → Go to step 30

D → Go to step 32

E → Go to step 34

A

**26.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY**

a. Disconnect the F6 speaker connector.

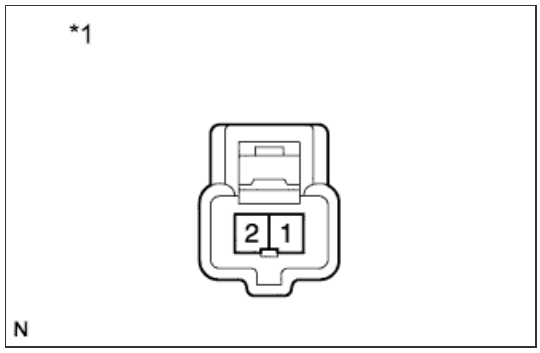
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 6 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness or connected: (Front No. 4 Speaker Assembly) |




NG → REPLACE FRONT NO. 4 SPEAKER ASSEMBLY (Click here)

OK

**27.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 4 SPEAKER)**

a. Disconnect the F6 speaker connector.

b. Disconnect the F3 amplifier connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-8 (CTR+) - F6-1 | Always | Below 1 Ω |
| F3-7 (CTR-) - F6-2 | Always | Below 1 Ω |
| F3-8 (CTR+) - Body ground | Always | 10 kΩ or higher |
| F3-7 (CTR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

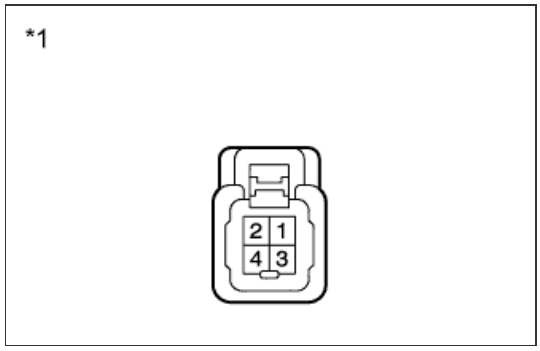
**28.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY**

a. Disconnect the F8 and F7 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | Below 1 Ω |
| 3 - 4 | Always | Below 1 Ω |
| 2 - 4 | Always | 4 Ω |




**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness or connected:<br>(Front No. 2 Speaker Assembly) |

NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

Go to step 26

**29.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 2 SPEAKER)**

a. Disconnect the F4 amplifier connector.

b. Disconnect the F8 and F7 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-3 (FL+) - F8-1 (+) | Always | Below 1 Ω |
| F4-8 (FL-) - F8-3 (-) | Always | Below 1 Ω |
| F4-3 (FL+) - Body ground | Always | 10 kΩ or higher |
| F4-8 (FL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-10 (FR+) - F7-1 (+) | Always | Below 1 Ω |
| F4-9 (FR-) - F7-3 (-) | Always | Below 1 Ω |
| F4-10 (FR+) - Body ground | Always | 10 kΩ or higher |
| F4-9 (FR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**30.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY**

a. Disconnect the I10 and I1 speaker connectors.

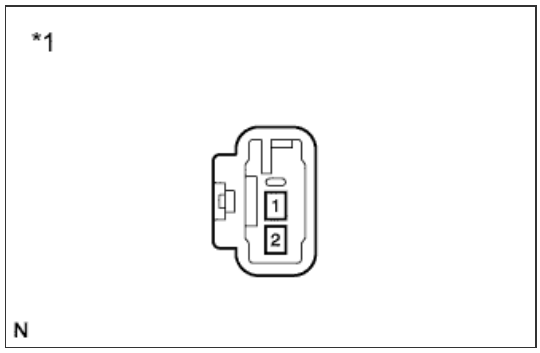
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 3 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness or connected:<br>(Front No. 1 Speaker Assembly) |




NG → REPLACE FRONT NO. 1 SPEAKER ASSEMBLY (Click here)

OK

**31.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 1 SPEAKER)**

a. Disconnect the I10 and I1 speaker connectors.

b. Disconnect the F3 amplifier connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-1 (WFL+) - I10-1 | Always | Below 1 Ω |
| F3-5 (WFL-) - I10-2 | Always | Below 1 Ω |
| F3-1 (WFL+) - Body ground | Always | 10 kΩ or higher |
| F3-5 (WFL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-2 (WFR+) - I1-1 | Always | Below 1 Ω |
| F3-6 (WFR-) - I1-2 | Always | Below 1 Ω |
| F3-2 (WFR+) - Body ground | Always | 10 kΩ or higher |
| F3-6 (WFR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**32.INSPECT FRONT NO. 3 SPEAKER ASSEMBLY**

a. Disconnect the F14 and F13 speaker connectors.

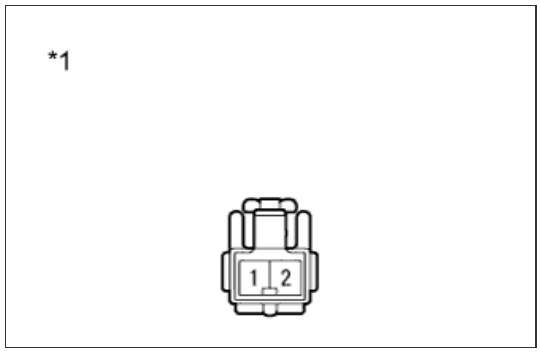
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness or connected: (Front No. 3 Speaker Assembly) |




NG → REPLACE FRONT NO. 3 SPEAKER ASSEMBLY (Click here)

OK

**33.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY**

a. Disconnect the F8 and F7 speaker connectors.

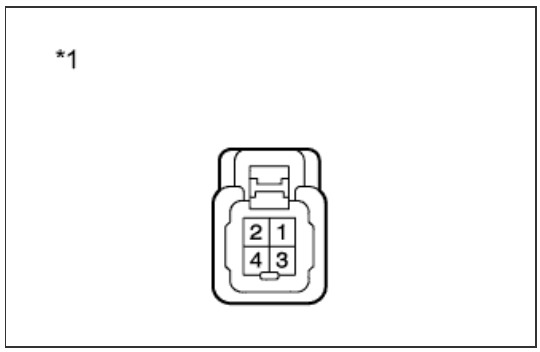
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | Below 1 Ω |
| 3 - 4 | Always | Below 1 Ω |
| 2 - 4 | Always | 4 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness or connected: (Front No. 2 Speaker Assembly) |




NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

REPAIR OR REPLACE HARNESS OR CONNECTOR (FRONT NO. 2 SPEAKER - FRONT NO. 3 SPEAKER)

**34.INSPECT REAR SPEAKER SET**

a. Disconnect the J17 and J15 speaker connectors.

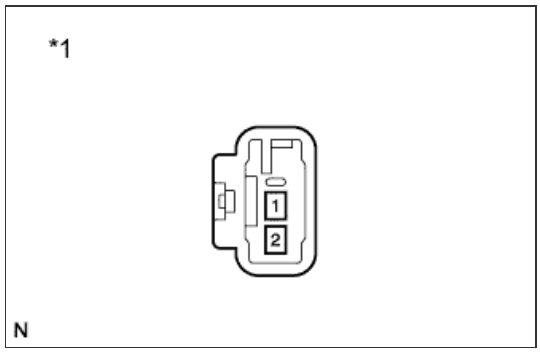
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness or connected: (Rear Speaker Set) |




NG → REPLACE REAR SPEAKER SET (Click here)

OK

**35.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - REAR SPEAKER SET)**

a. Disconnect the F4 amplifier connector.

b. Disconnect the J17 and J15 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-4 (RL+) - J17-1 | Always | Below 1 Ω |
| F4-11 (RL-) - J17-2 | Always | Below 1 Ω |
| F4-4 (RL+) - Body ground | Always | 10 kΩ or higher |
| F4-11 (RL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-5 (RR+) - J15-1 | Always | Below 1 Ω |
| F4-12 (RR-) - J15-2 | Always | Below 1 Ω |
| F4-5 (RR+) - Body ground | Always | 10 kΩ or higher |
| F4-12 (RR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

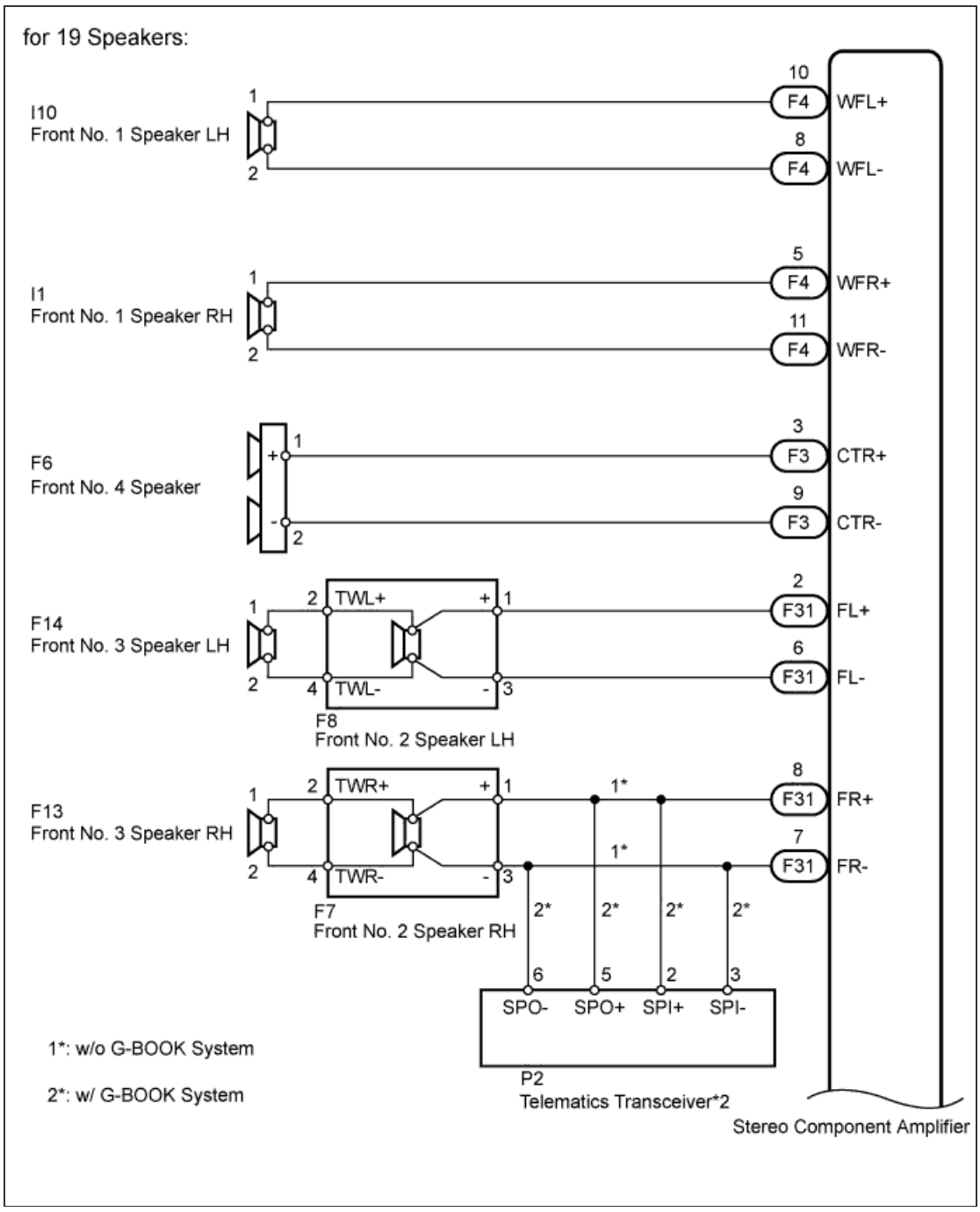
OK → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

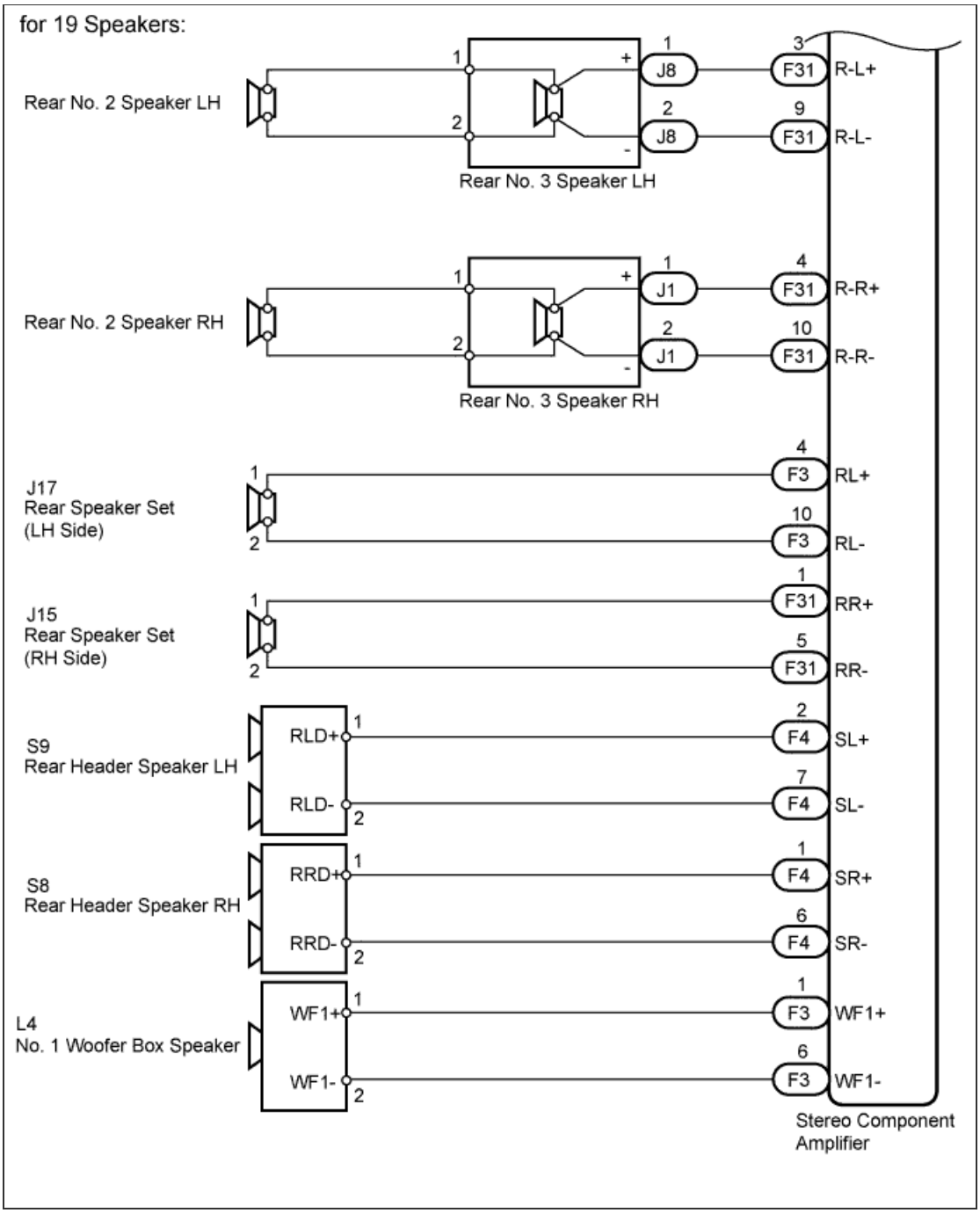
**for Preparation** Click here

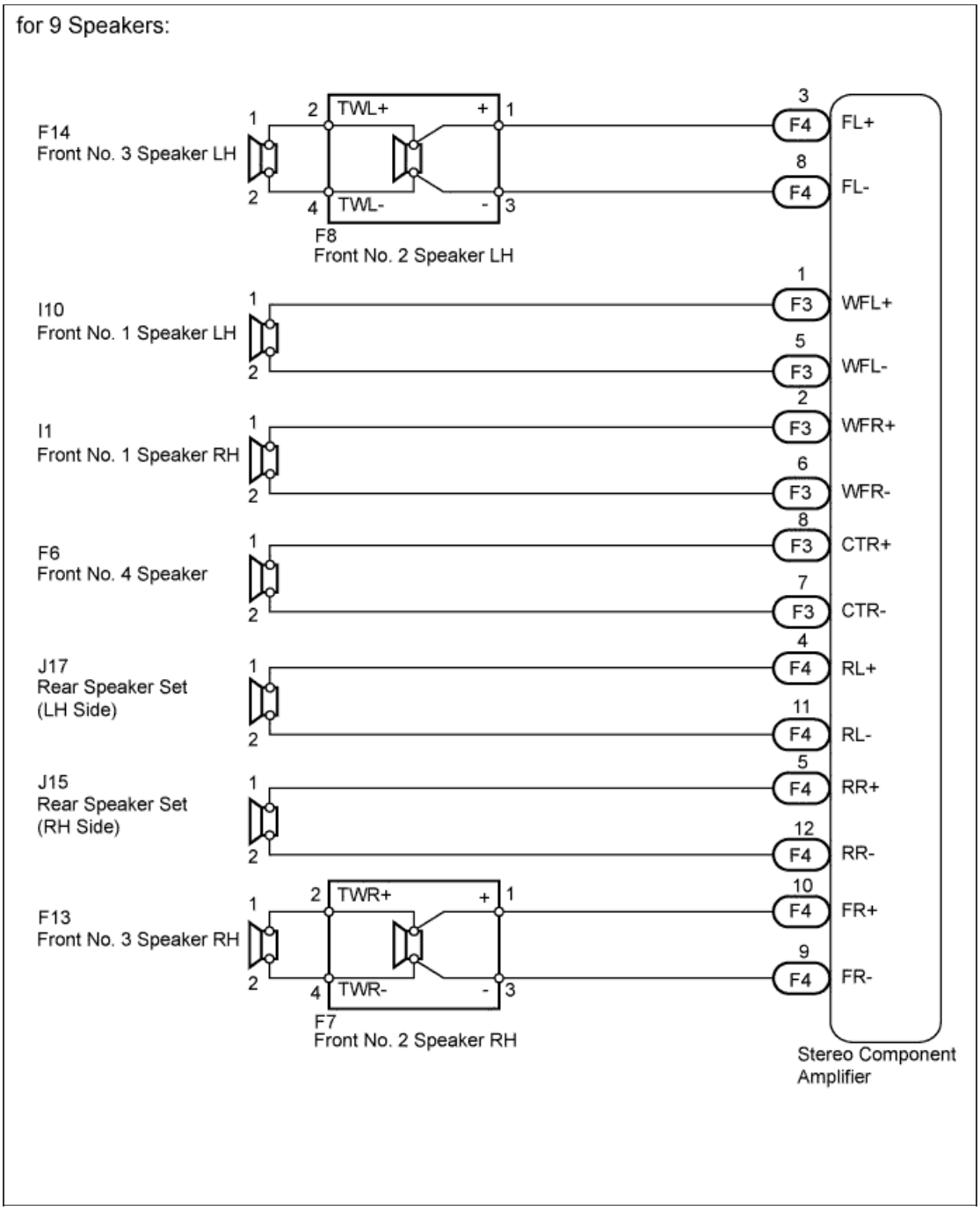
## DESCRIPTION

The stereo component amplifier sends sound signals to the speakers.

## WIRING DIAGRAM




for 19 Speakers:
Rear No. 2 Speaker LH
1
2
+
-
1
J8
2
J8
Rear No. 3 Speaker LH
3
F31
R-L+
9
F31
R-L-
Rear No. 2 Speaker RH
1
2
+
-
1
J1
2
J1
Rear No. 3 Speaker RH
4
F31
R-R+
10
F31
R-R-
J17
Rear Speaker Set
(LH Side)
1
2
4
F3
RL+
10
F3
RL-
J15
Rear Speaker Set
(RH Side)
1
2
1
F31
RR+
5
F31
RR-
S9
Rear Header Speaker LH
RLD+
RLD-
1
2
2
F4
SL+
7
F4
SL-
S8
Rear Header Speaker RH
RRD+
RRD-
1
2
1
F4
SR+
6
F4
SR-
L4
No. 1 Woofer Box Speaker
WF1+
WF1-
1
2
1
F3
WF1+
6
F3
WF1-
Stereo Component
Amplifier




## INSPECTION PROCEDURE

### 1.CHECK AUDIO MODELS

a. Check the audio model.

**Result**

| Result | Proceed to |
|---|---|
| 19 speakers | A |
| 9 speakers | B |

B → Go to step 25

A

### 2.CHECK SPEAKER

a. Check the malfunctioning speakers.

**Result**

| Result | Proceed to |
|---|---|
| Malfunction in front speaker area | A |

| | |
|---|---|
| Malfunction in rear speaker area | B |

B → Go to step 15

A

## 3.CHECK SPEAKER

a. Check the malfunctioning speakers.

**Result**

| Result | Proceed to |
|---|---|
| Front No. 4 speaker | A |
| Front No. 2 speaker | B |
| Front No. 1 speaker | C |
| Front No. 3 speaker | D |

B → Go to step 6

C → Go to step 11

D → Go to step 13

A

## 4.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY

a. Disconnect the F6 speaker connector.

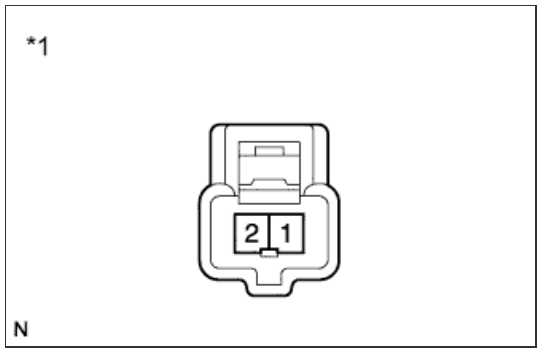
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness or connected: (Front No. 4 Speaker Assembly) |




NG → REPLACE FRONT NO. 4 SPEAKER ASSEMBLY (Click here)

OK

## 5.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 4 SPEAKER)

a. Disconnect the F6 speaker connector.

b. Disconnect the F3 amplifier connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-3 (CTR+) - F6-1 | Always | Below 1 Ω |
| F3-9 (CTR-) - F6-2 | Always | Below 1 Ω |
| F3-3 (CTR+) - Body ground | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| F3-9 (CTR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

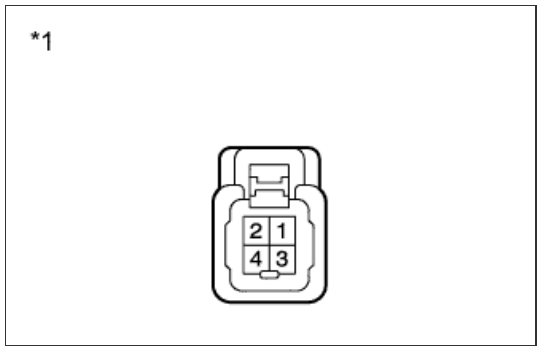
OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 6.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

a. Disconnect the F8 and F7 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.




**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | Below 1 Ω |
| 3 - 4 | Always | Below 1 Ω |
| 2 - 4 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness or connected: (Front No. 2 Speaker Assembly) |

NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

## 7.CHECK DEFECTIVE SPEAKER AND VEHICLE EQUIPMENT

a. Check which side of the vehicle the defective speaker is on. Also, check if the vehicle is equipped with the G-BOOK System.

**Result**

| Result | Proceed to |
|---|---|
| Defective speaker is on right side (w/ G-BOOK System) | A |
| Defective speaker is on right side (w/o G-BOOK System) | B |
| Defective speaker is on left side | B |

B → Go to step 10

A

## 8.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - STEREO COMPONENT AMPLIFIER AND FRONT NO. 2 SPEAKER)

a. Disconnect the F31 amplifier connector.

b. Disconnect the F7 speaker connector.

c. Disconnect the P2 telematics transceiver connector.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F7-1 (+) - P2-5 (SPO+) | | |

| | | |
|---|---|---|
| F7-3 (-) - P2-6 (SPO-) | Always | Below 1 Ω |
| F31-8 (FR+) - P2-2 (SPI+) | | |
| F31-7 (FR-) - P2-3 (SPI-) | | |
| F7-1 (+) - Body ground | Always | 10 kΩ or higher |
| F7-3 (-) - Body ground | | |
| F31-8 (FR+) - Body ground | | |
| F31-7 (FR-) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**9.CHECK STEREO COMPONENT AMPLIFIER ASSEMBLY (OPERATION)**

a. Replace the stereo component amplifier with a normal one and check that audio can be heard from the front RH side speaker ( Click here).

**OK:**
**Audio can be heard.**

NG → REPLACE TELEMATICS TRANSCEIVER (**Click here**)

OK

**END (STEREO COMPONENT AMPLIFIER IS DEFECTIVE)**

**10.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 2 SPEAKER)**

a. Disconnect the F31 amplifier connector.

b. Disconnect the F8 and F7 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**
**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-2 (FL+) - F8-1 (+) | Always | Below 1 Ω |
| F31-6 (FL-) - F8-3 (-) | Always | Below 1 Ω |
| F31-2 (FL+) - Body ground | Always | 10 kΩ or higher |
| F31-6 (FL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-8 (FR+) - F7-1 (+) | Always | Below 1 Ω |
| F31-7 (FR-) - F7-3 (-) | Always | Below 1 Ω |
| F31-8 (FR+) - Body ground | Always | 10 kΩ or higher |
| F31-7 (FR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

11.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY

a. Disconnect the I10 and I1 speaker connectors.

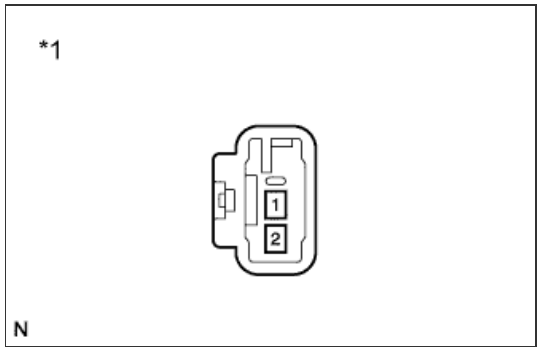
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 11 to 13 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness or connected: (Front No. 1 Speaker Assembly) |




NG → REPLACE FRONT NO. 1 SPEAKER ASSEMBLY (Click here)

OK

12.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 1 SPEAKER)

a. Disconnect the I10 and I1 speaker connectors.

b. Disconnect the F4 amplifier connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-10 (WFL+) - I10-1 | Always | Below 1 Ω |
| F4-8 (WFL-) - I10-2 | Always | Below 1 Ω |
| F4-10 (WFL+) - Body ground | Always | 10 kΩ or higher |
| F4-8 (WFL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-5 (WFR+) - I1-1 | Always | Below 1 Ω |
| F4-11 (WFR-) - I1-2 | Always | Below 1 Ω |
| F4-5 (WFR+) - Body ground | Always | 10 kΩ or higher |
| F4-11 (WFR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 13.CHECK FRONT NO. 3 SPEAKER ASSEMBLY

a. Disconnect the F14 and F13 speaker connectors.

b. Interchange the front No. 3 speaker LH with RH.

c. Check that the malfunction disappears.

**OK:**
**Malfunction disappears.**

**HINT:**

- **Connect all the connectors to the front No. 3 speakers.**
- **When there is a possibility that either the right or left front speaker is defective, inspect by interchanging the right one with the left one.**
- **Perform the inspection above on both the LH and RH sides.**

**NG** → Go to step 14

**OK**

REPLACE FRONT NO. 3 SPEAKER ASSEMBLY (Click here)

## 14.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

a. Disconnect the F8 and F7 speaker connectors.

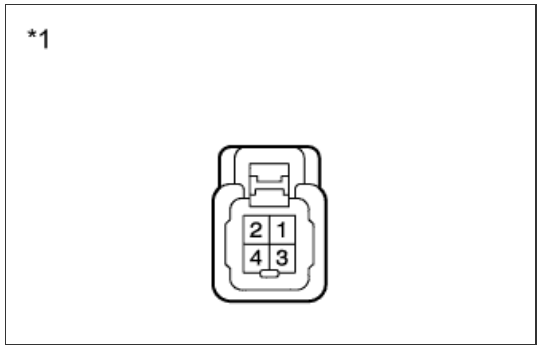
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 2 - 4 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness or connected: (Front No. 2 Speaker Assembly) |




**NG** → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

**OK**

REPAIR OR REPLACE HARNESS OR CONNECTOR (FRONT NO. 2 SPEAKER - FRONT NO. 3 SPEAKER)

## 15.CHECK SPEAKER

a. Check the malfunctioning speakers.

**Result**

| Result | Proceed to |
|---|---|
| Rear No. 2 speaker | A |
| Rear No. 3 speaker | B |
| Rear speaker set | C |
| No. 1 woofer box speaker | D |
| Rear header speaker | E |

**B** → Go to step 17

**C** → Go to step 19

**D** → Go to step 21

E → Go to step 23

A

## 16.INSPECT REAR NO. 2 SPEAKER ASSEMBLY

a. Disconnect the rear No. 2 speaker connectors.

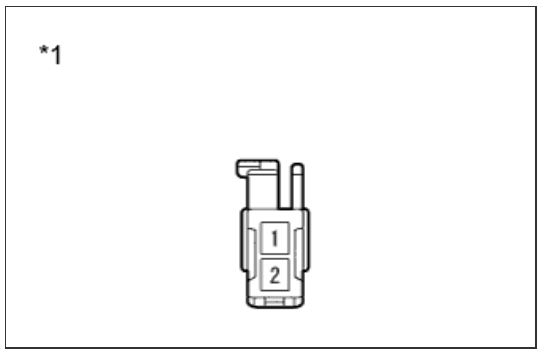
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness or connected: (Rear No. 2 Speaker Assembly) |




NG → REPLACE REAR NO. 2 SPEAKER ASSEMBLY (Click here)

OK

REPLACE REAR NO. 3 SPEAKER ASSEMBLY (Click here)

## 17.CHECK REAR NO. 3 SPEAKER ASSEMBLY

a. Disconnect the rear No. 3 speaker connectors.

b. Interchange the rear No. 3 speaker LH with RH.

c. Check that the malfunction disappears.

**OK:**
**Malfunction disappears.**

**HINT:**

- **Connect all the connectors to the rear No. 3 speakers.**
- **When there is a possibility that either the right or left rear speaker is defective, inspect by interchanging the right one with the left one.**
- **Perform the inspection above on both the LH and RH sides.**

NG → Go to step 18

OK

REPLACE REAR NO. 3 SPEAKER ASSEMBLY (Click here)

## 18.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - REAR NO. 3 SPEAKER)

a. Disconnect the F31 amplifier connector.

b. Disconnect the J8 and J1 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**
**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-3 (R-L+) - J8-1 (+) | Always | Below 1 Ω |
| F31-9 (R-L-) - J8-2 (-) | Always | Below 1 Ω |

| | | |
|---|---|---|
| F31-3 (R-L+) - Body ground | Always | 10 kΩ or higher |
| F31-9 (R-L-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-4 (R-R+) - J1-1 (+) | Always | Below 1 Ω |
| F31-10 (R-R-) - J1-2 (-) | Always | Below 1 Ω |
| F31-4 (R-R+) - Body ground | Always | 10 kΩ or higher |
| F31-10 (R-R-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 19.INSPECT REAR SPEAKER SET

a. Disconnect the J17 and J15 speaker connectors.

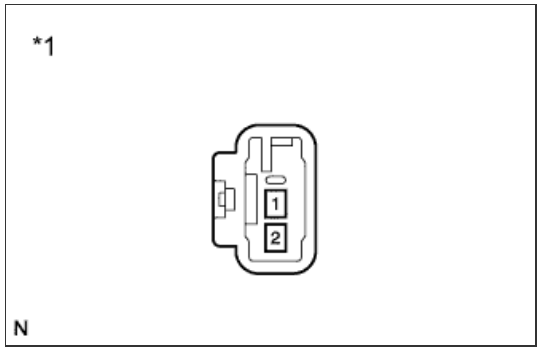
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4.8 to 7.2 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness or connected: (Rear Speaker Set) |




NG → REPLACE REAR SPEAKER SET (Click here)

OK

## 20.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - REAR SPEAKER SET)

a. Disconnect the F3 and F31 amplifier connectors.

b. Disconnect the J17 and J15 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-4 (RL+) - J17-1 | Always | Below 1 Ω |
| F3-10 (RL-) - J17-2 | | |
| F3-4 (RL+) - Body ground | Always | 10 kΩ or higher |
| F3-10 (RL-) - Body ground | | |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| F31-1 (RR+) - J15-1 | Always | Below 1 Ω |
| F31-5 (RR-) - J15-2 | | |
| F31-1 (RR+) - Body ground | Always | 10 kΩ or higher |
| F31-5 (RR-) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK →

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

21.INSPECT NO. 1 WOOFER BOX SPEAKER ASSEMBLY

a. Disconnect the L4 speaker connector.

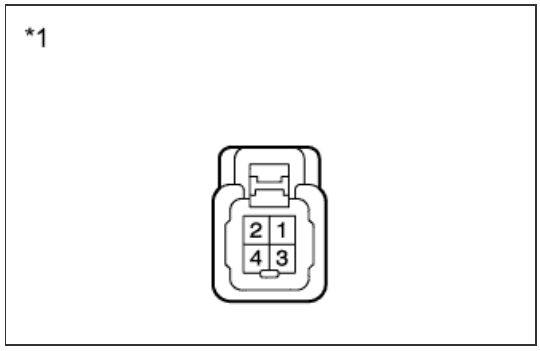
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 8.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness or connected: (No. 1 Woofer Box Speaker Assembly) |




NG → REPLACE NO. 1 WOOFER BOX SPEAKER ASSEMBLY (Click here)

OK →

22.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - NO. 1 WOOFER BOX SPEAKER)

a. Disconnect the F3 amplifier connector.

b. Disconnect the L4 speaker connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-1 (WF1+) - L4-1 (WF1+) | Always | Below 1 Ω |
| F3-6 (WF1-) - L4-2 (WF1-) | Always | Below 1 Ω |
| F3-1 (WF1+) - Body ground | Always | 10 kΩ or higher |
| F3-6 (WF1-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK →

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

23.INSPECT REAR HEADER SPEAKER ASSEMBLY

a. Disconnect the S9 and S8 speaker connectors.

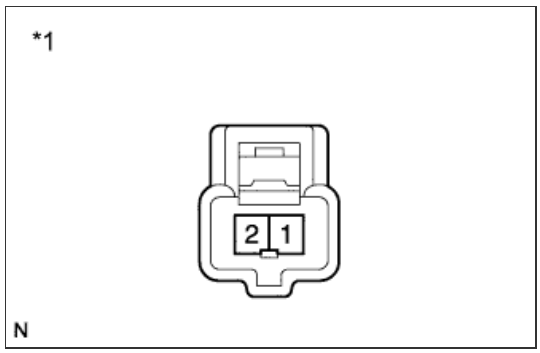
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness or connected:<br>(Rear Header Speaker Assembly) |




NG → REPLACE REAR HEADER SPEAKER ASSEMBLY (Click here)

OK

## 24.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - REAR HEADER SPEAKER)

a. Disconnect the F4 amplifier connector.

b. Disconnect the S9 and S8 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-2 (SL+) - S9-1 (RLD+) | Always | Below 1 Ω |
| F4-7 (SL-) - S9-2 (RLD-) | Always | Below 1 Ω |
| F4-2 (SL+) - Body ground | Always | 10 kΩ or higher |
| F4-7 (SL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-1 (SR+) - S8-1 (RRD+) | Always | Below 1 Ω |
| F4-6 (SR-) - S8-2 (RRD-) | Always | Below 1 Ω |
| F4-1 (SR+) - Body ground | Always | 10 kΩ or higher |
| F4-6 (SR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 25.CHECK SPEAKER

a. Check the malfunctioning speakers.

**Result**

| Result | Proceed to |
|---|---|
| Front No. 4 speaker | A |

| | |
|---|---|
| Front No. 2 speaker | B |
| Front No. 1 speaker | C |
| Front No. 3 speaker | D |
| Rear speaker set | E |

B → Go to step 28

C → Go to step 30

D → Go to step 32

E → Go to step 34

A

**26.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY**

a. Disconnect the F6 speaker connector.

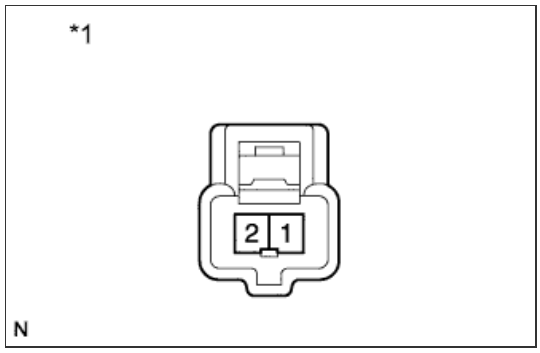
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 6 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness or connected: (Front No. 4 Speaker Assembly) |




NG → REPLACE FRONT NO. 4 SPEAKER ASSEMBLY (Click here)

OK

**27.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 4 SPEAKER)**

a. Disconnect the F6 speaker connector.

b. Disconnect the F3 amplifier connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-8 (CTR+) - F6-1 | Always | Below 1 Ω |
| F3-7 (CTR-) - F6-2 | Always | Below 1 Ω |
| F3-8 (CTR+) - Body ground | Always | 10 kΩ or higher |
| F3-7 (CTR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

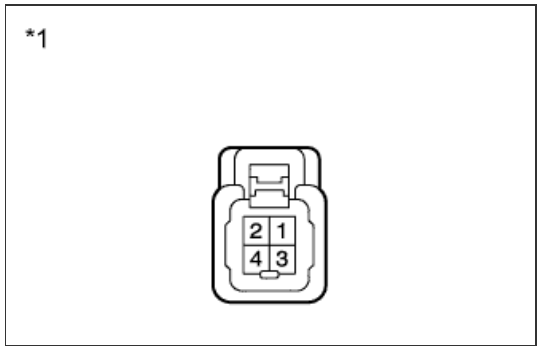
**28.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY**

a. Disconnect the F8 and F7 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | Below 1 Ω |
| 3 - 4 | Always | Below 1 Ω |
| 2 - 4 | Always | 4 Ω |




**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness or connected:<br>(Front No. 2 Speaker Assembly) |

NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

Go to step 26

**29.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 2 SPEAKER)**

a. Disconnect the F4 amplifier connector.

b. Disconnect the F8 and F7 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-3 (FL+) - F8-1 (+) | Always | Below 1 Ω |
| F4-8 (FL-) - F8-3 (-) | Always | Below 1 Ω |
| F4-3 (FL+) - Body ground | Always | 10 kΩ or higher |
| F4-8 (FL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-10 (FR+) - F7-1 (+) | Always | Below 1 Ω |
| F4-9 (FR-) - F7-3 (-) | Always | Below 1 Ω |
| F4-10 (FR+) - Body ground | Always | 10 kΩ or higher |
| F4-9 (FR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**30.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY**

a. Disconnect the I10 and I1 speaker connectors.

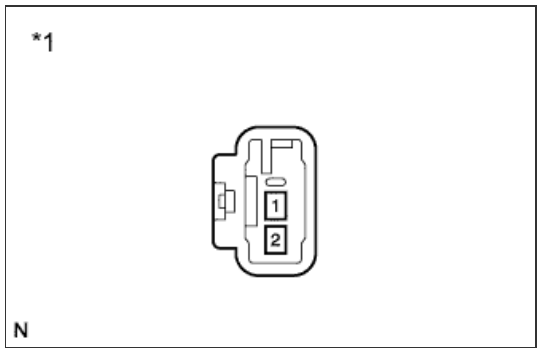
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 3 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness or connected:<br>(Front No. 1 Speaker Assembly) |




NG → REPLACE FRONT NO. 1 SPEAKER ASSEMBLY (Click here)

OK

**31.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 1 SPEAKER)**

a. Disconnect the I10 and I1 speaker connectors.

b. Disconnect the F3 amplifier connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-1 (WFL+) - I10-1 | Always | Below 1 Ω |
| F3-5 (WFL-) - I10-2 | Always | Below 1 Ω |
| F3-1 (WFL+) - Body ground | Always | 10 kΩ or higher |
| F3-5 (WFL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-2 (WFR+) - I1-1 | Always | Below 1 Ω |
| F3-6 (WFR-) - I1-2 | Always | Below 1 Ω |
| F3-2 (WFR+) - Body ground | Always | 10 kΩ or higher |
| F3-6 (WFR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**32.INSPECT FRONT NO. 3 SPEAKER ASSEMBLY**

a. Disconnect the F14 and F13 speaker connectors.

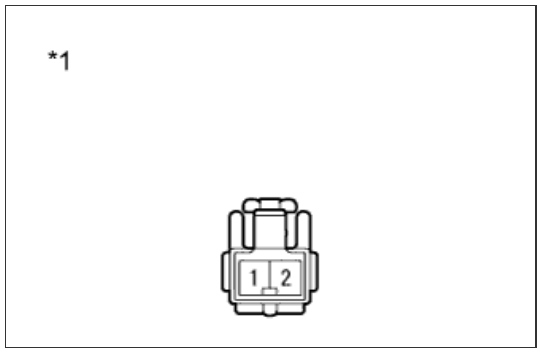
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness or connected: (Front No. 3 Speaker Assembly) |




NG → REPLACE FRONT NO. 3 SPEAKER ASSEMBLY (Click here)

OK

**33.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY**

a. Disconnect the F8 and F7 speaker connectors.

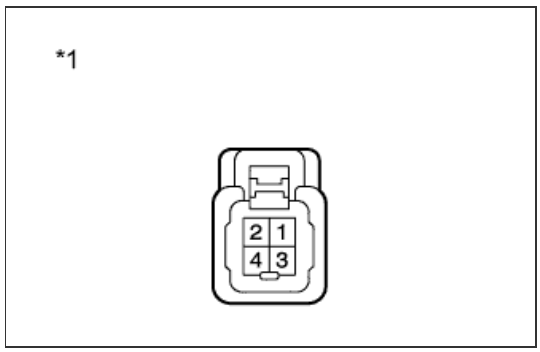
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | Below 1 Ω |
| 3 - 4 | Always | Below 1 Ω |
| 2 - 4 | Always | 4 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness or connected: (Front No. 2 Speaker Assembly) |




NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

REPAIR OR REPLACE HARNESS OR CONNECTOR (FRONT NO. 2 SPEAKER - FRONT NO. 3 SPEAKER)

**34.INSPECT REAR SPEAKER SET**

a. Disconnect the J17 and J15 speaker connectors.

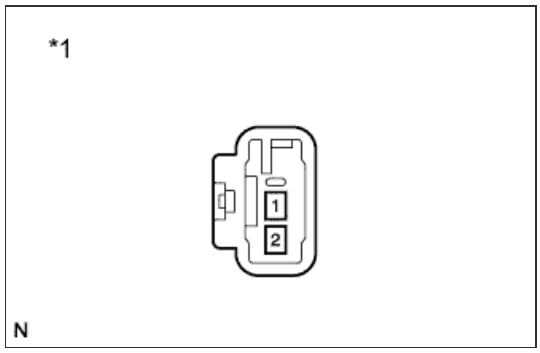
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness or connected: (Rear Speaker Set) |




NG → REPLACE REAR SPEAKER SET (Click here)

OK

**35.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - REAR SPEAKER SET)**

a. Disconnect the F4 amplifier connector.

b. Disconnect the J17 and J15 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-4 (RL+) - J17-1 | Always | Below 1 Ω |
| F4-11 (RL-) - J17-2 | Always | Below 1 Ω |
| F4-4 (RL+) - Body ground | Always | 10 kΩ or higher |
| F4-11 (RL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-5 (RR+) - J15-1 | Always | Below 1 Ω |
| F4-12 (RR-) - J15-2 | Always | Below 1 Ω |
| F4-5 (RR+) - Body ground | Always | 10 kΩ or higher |
| F4-12 (RR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

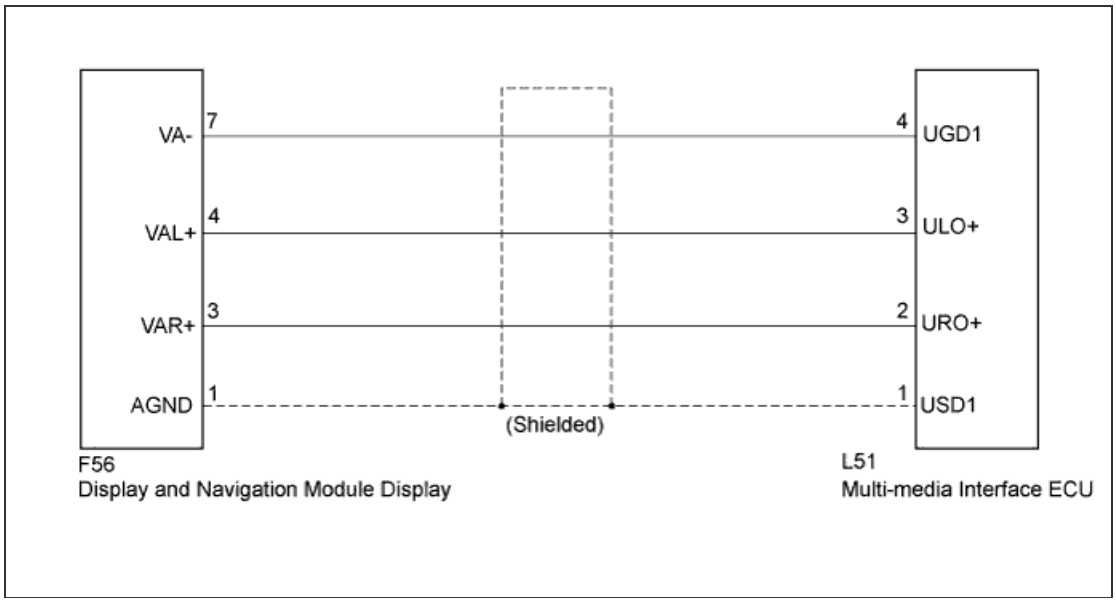
OK → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**for Preparation** Click here

## DESCRIPTION

The multi-media interface ECU sends a sound signal to the display and navigation module display through this circuit.
w/ G-BOOK System
If there is an open or short in the circuit, sound cannot be heard from the speakers even if there is no malfunction in the stereo component amplifier assembly, radio receiver assembly, display and navigation module display, telematics transceiver or speakers.
w/o G-BOOK System
If there is an open or short in the circuit, sound cannot be heard from the speakers even if there is no malfunction in the stereo component amplifier assembly, radio receiver assembly, display and navigation module display or speakers.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display, perform vehicle contract setting (w/ G-BOOK System) ( Click here).

### 1.CHECK HARNESS AND CONNECTOR (INTERFACE ECU - NAVIGATION MODULE)

a. Disconnect the display and navigation module display connector and multi-media interface ECU connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F56-1 (AGND) - L51-1 (USD1) | Always | Below 1 Ω |
| F56-3 (VAR+) - L51-2 (URO+) | Always | Below 1 Ω |
| F56-4 (VAL+) - L51-3 (ULO+) | Always | Below 1 Ω |
| F56-7 (VA-) - L51-4 (UGD1) | Always | Below 1 Ω |
| F56-1 (AGND) - Body ground | Always | 10 kΩ or higher |
| F56-3 (VAR+) - Body ground | Always | 10 kΩ or higher |
| F56-4 (VAL+) - Body ground | Always | 10 kΩ or higher |
| F56-7 (VA-) - Body | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

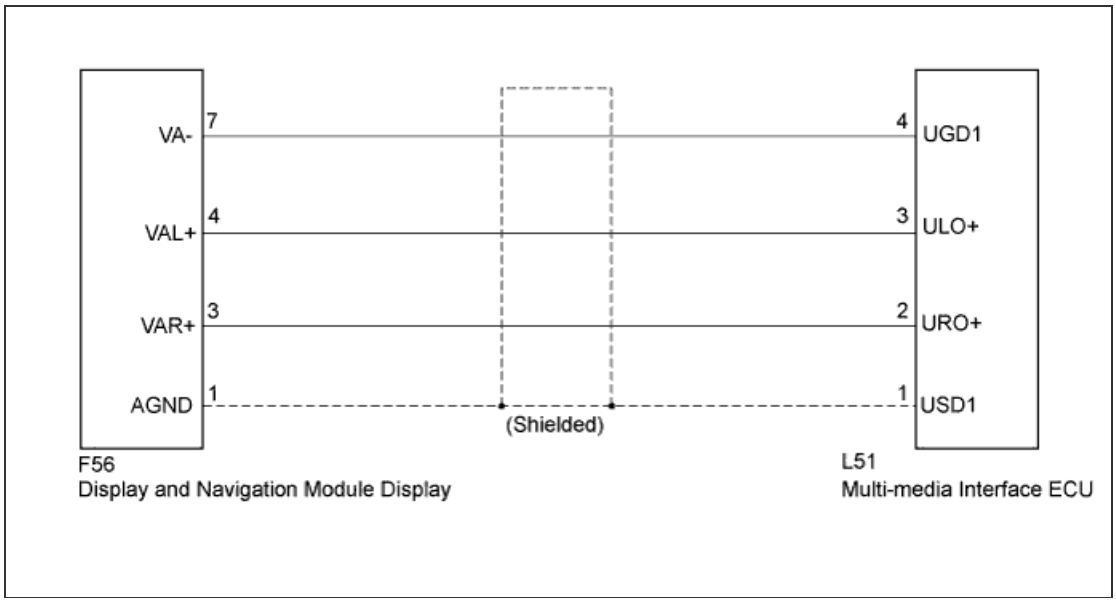
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

The multi-media interface ECU sends a sound signal to the display and navigation module display through this circuit.
w/ G-BOOK System
If there is an open or short in the circuit, sound cannot be heard from the speakers even if there is no malfunction in the stereo component amplifier assembly, radio receiver assembly, display and navigation module display, telematics transceiver or speakers.
w/o G-BOOK System
If there is an open or short in the circuit, sound cannot be heard from the speakers even if there is no malfunction in the stereo component amplifier assembly, radio receiver assembly, display and navigation module display or speakers.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display, perform vehicle contract setting (w/ G-BOOK System) ( Click here).

### 1.CHECK HARNESS AND CONNECTOR (INTERFACE ECU - NAVIGATION MODULE)

a. Disconnect the display and navigation module display connector and multi-media interface ECU connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F56-1 (AGND) - L51-1 (USD1) | Always | Below 1 Ω |
| F56-3 (VAR+) - L51-2 (URO+) | Always | Below 1 Ω |
| F56-4 (VAL+) - L51-3 (ULO+) | Always | Below 1 Ω |
| F56-7 (VA-) - L51-4 (UGD1) | Always | Below 1 Ω |
| F56-1 (AGND) - Body ground | Always | 10 kΩ or higher |
| F56-3 (VAR+) - Body ground | Always | 10 kΩ or higher |
| F56-4 (VAL+) - Body ground | Always | 10 kΩ or higher |
| F56-7 (VA-) - Body | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

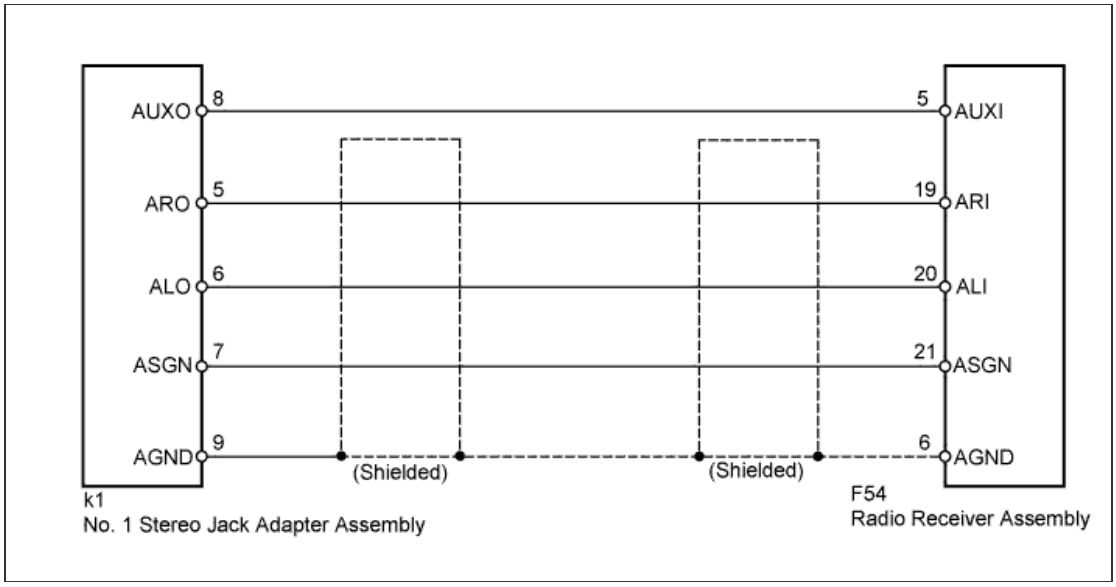
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

The No. 1 stereo jack adapter assembly sends an external device sound signal to the radio receiver assembly through this circuit.
w/ G-BOOK System
The sound signal that has been sent is amplified by the stereo component amplifier assembly, and then is sent to the speakers.
If there is an open or short in the circuit, sound cannot be heard from the speakers even if there is no malfunction in the stereo component amplifier assembly, radio receiver assembly, telematics transceiver or speakers.
w/o G-BOOK System
The sound signal that has been sent is amplified by the stereo component amplifier assembly, and then is sent to the speakers.
If there is an open or short in the circuit, sound cannot be heard from the speakers even if there is no malfunction in the stereo component amplifier assembly, radio receiver assembly or speakers.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY - NO. 1 STEREO JACK ADAPTER ASSEMBLY)

a. Disconnect the k1 No. 1 stereo jack adapter assembly connector and F54 radio receiver assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| k1-8 (AUXO) - F54-5 (AUXI) | Always | Below 1 Ω |
| k1-7 (ASGN) - F54-21 (ASGN) | Always | Below 1 Ω |
| k1-5 (ARO) - F54-19 (ARI) | Always | Below 1 Ω |
| k1-6 (ALO) - F54-20 (ALI) | Always | Below 1 Ω |
| k1-9 (AGND) - F54-6 (AGND) | Always | Below 1 Ω |
| k1-8 (AUXO) - Body ground | Always | 10 kΩ or higher |
| k1-7 (ASGN) - Body ground | Always | 10 kΩ or higher |
| k1-5 (ARO) - Body ground | Always | 10 kΩ or higher |
| k1-6 (ALO) - Body ground | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| k1-9 (AGND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

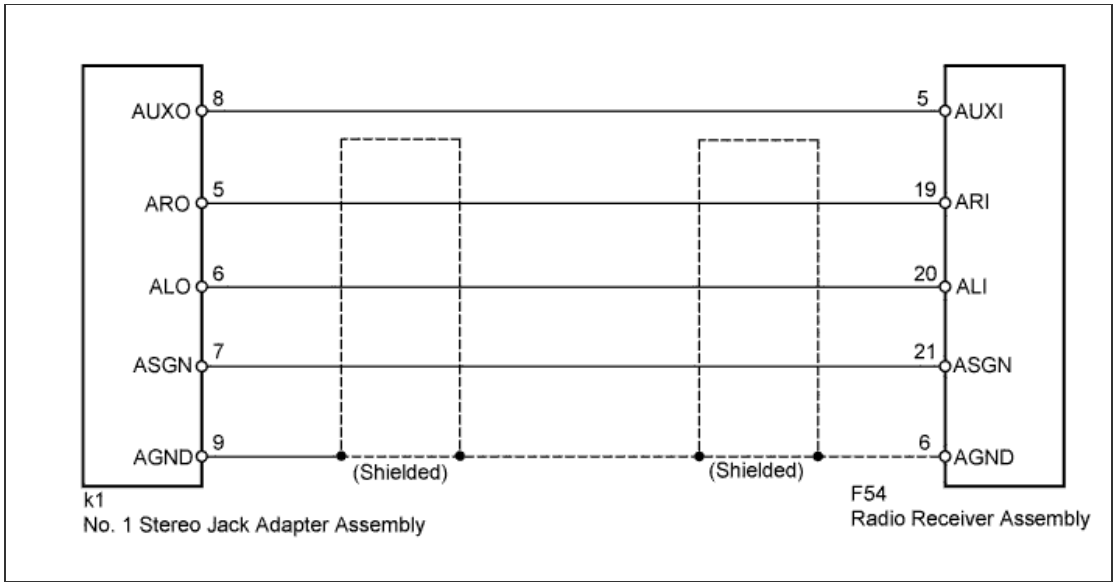
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

The No. 1 stereo jack adapter assembly sends an external device sound signal to the radio receiver assembly through this circuit.
w/ G-BOOK System
The sound signal that has been sent is amplified by the stereo component amplifier assembly, and then is sent to the speakers.
If there is an open or short in the circuit, sound cannot be heard from the speakers even if there is no malfunction in the stereo component amplifier assembly, radio receiver assembly, telematics transceiver or speakers.
w/o G-BOOK System
The sound signal that has been sent is amplified by the stereo component amplifier assembly, and then is sent to the speakers.
If there is an open or short in the circuit, sound cannot be heard from the speakers even if there is no malfunction in the stereo component amplifier assembly, radio receiver assembly or speakers.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY - NO. 1 STEREO JACK ADAPTER ASSEMBLY)

a. Disconnect the k1 No. 1 stereo jack adapter assembly connector and F54 radio receiver assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| k1-8 (AUXO) - F54-5 (AUXI) | Always | Below 1 Ω |
| k1-7 (ASGN) - F54-21 (ASGN) | Always | Below 1 Ω |
| k1-5 (ARO) - F54-19 (ARI) | Always | Below 1 Ω |
| k1-6 (ALO) - F54-20 (ALI) | Always | Below 1 Ω |
| k1-9 (AGND) - F54-6 (AGND) | Always | Below 1 Ω |
| k1-8 (AUXO) - Body ground | Always | 10 kΩ or higher |
| k1-7 (ASGN) - Body ground | Always | 10 kΩ or higher |
| k1-5 (ARO) - Body ground | Always | 10 kΩ or higher |
| k1-6 (ALO) - Body ground | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| k1-9 (AGND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

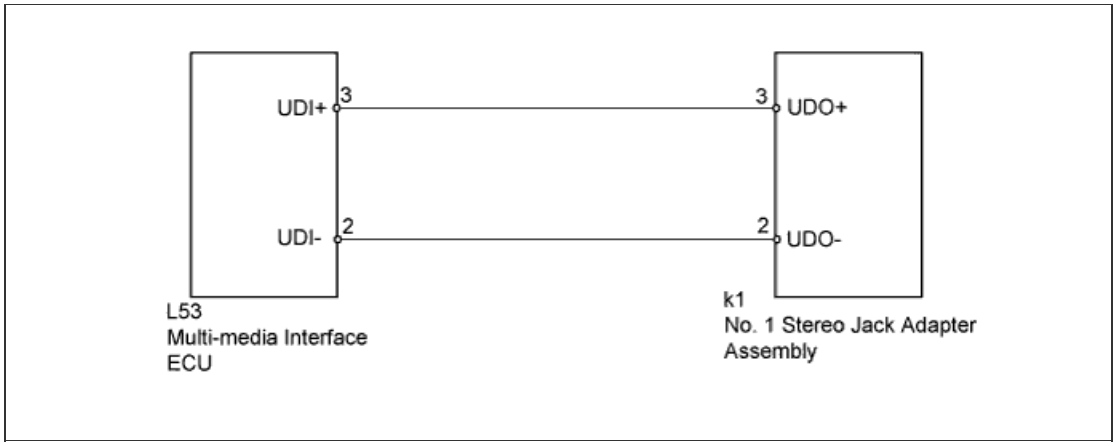
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

The No. 1 stereo jack adapter assembly sends the sound data signal of an external device to the multi-media interface ECU through this circuit.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**1.CHECK HARNESS AND CONNECTOR (INTERFACE ECU - STEREO JACK ADAPTER)**

a. Disconnect the L53 multi-media interface ECU connector.

b. Disconnect the k1 No. 1 stereo jack adapter assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| k1-3 (UDO+) - L53-3 (UDI+) | Always | Below 1 Ω |
| k1-2 (UDO-) - L53-2 (UDI-) | Always | Below 1 Ω |
| k1-3 (UDO+) - Body ground | Always | 10 kΩ or higher |
| k1-2 (UDO-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

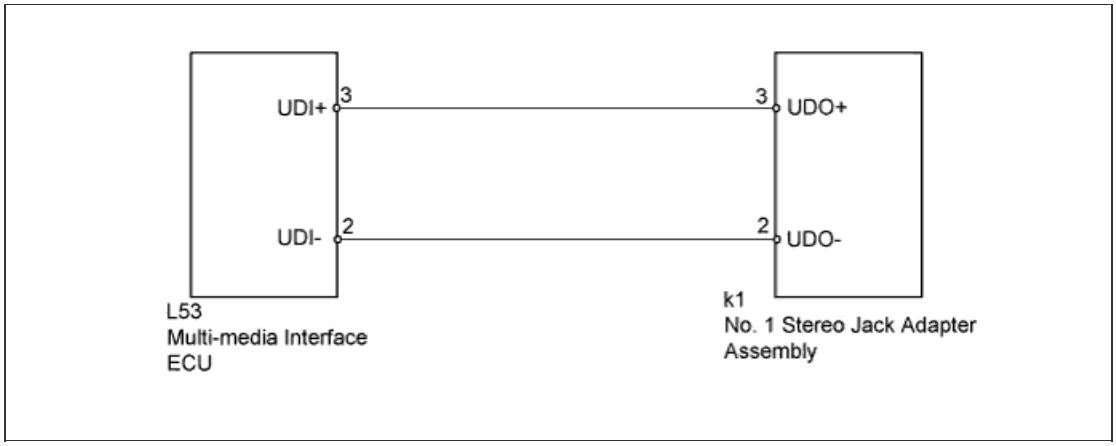
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

The No. 1 stereo jack adapter assembly sends the sound data signal of an external device to the multi-media interface ECU through this circuit.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**1.CHECK HARNESS AND CONNECTOR (INTERFACE ECU - STEREO JACK ADAPTER)**

a. Disconnect the L53 multi-media interface ECU connector.

b. Disconnect the k1 No. 1 stereo jack adapter assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| k1-3 (UDO+) - L53-3 (UDI+) | Always | Below 1 Ω |
| k1-2 (UDO-) - L53-2 (UDI-) | Always | Below 1 Ω |
| k1-3 (UDO+) - Body ground | Always | 10 kΩ or higher |
| k1-2 (UDO-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

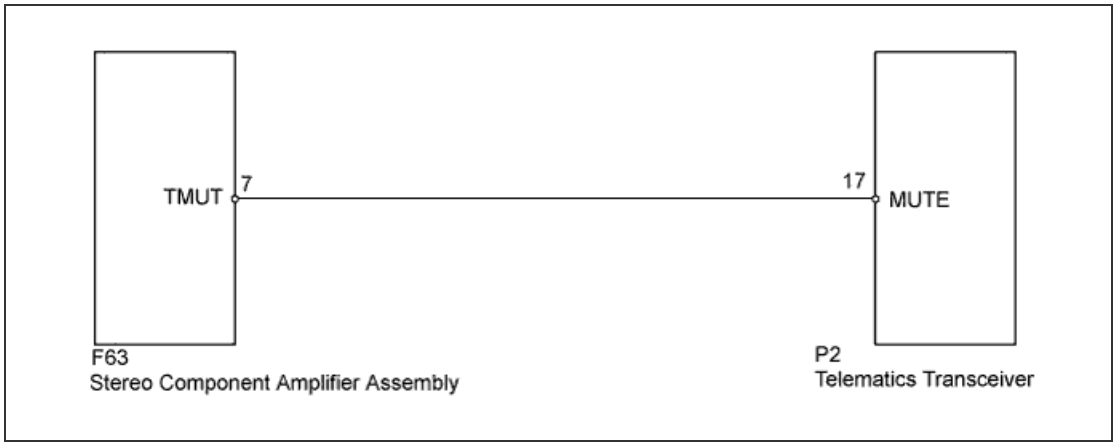
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

The telematics transceiver sends a mute signal to the stereo component amplifier assembly.
The stereo component amplifier assembly controls the volume according to the mute signal from the telematics transceiver.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

When replacing the telematics transceiver, perform vehicle contract setting (w/ G-BOOK System) ( Click here).

### 1.INSPECT STEREO COMPONENT AMPLIFIER ASSEMBLY

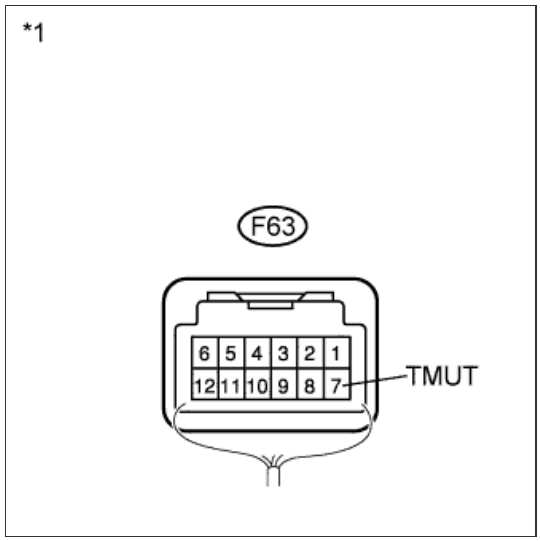
a. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F63-7 (TMUT) - Body ground | Engine switch on (ACC), audio system is playing → Emergency call mode | Above 2.5 V → Below 0.5 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Stereo Component Amplifier Assembly) |




NG → Go to step 2

OK → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

### 2.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - TELEMATICS TRANSCEIVER)

a. Disconnect the F63 stereo component amplifier assembly connector and P2 telematics transceiver connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-7 (TMUT) - P2-17 (MUTE) | Always | Below 1 Ω |
| F63-7 (TMUT) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**3.INSPECT TELEMATICS TRANSCEIVER**

a. Reconnect the P2 telematics transceiver connector.

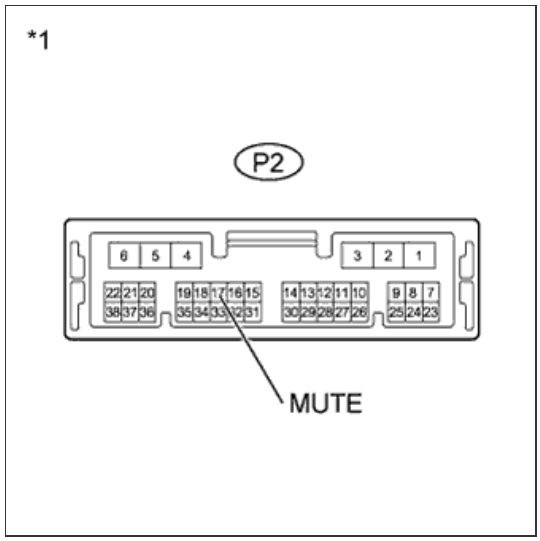
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| P2-17 (MUTE) - Body ground | Engine switch on (ACC) | Above 2.5 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Telematics Transceiver) |




NG → REPLACE TELEMATICS TRANSCEIVER (Click here)

OK

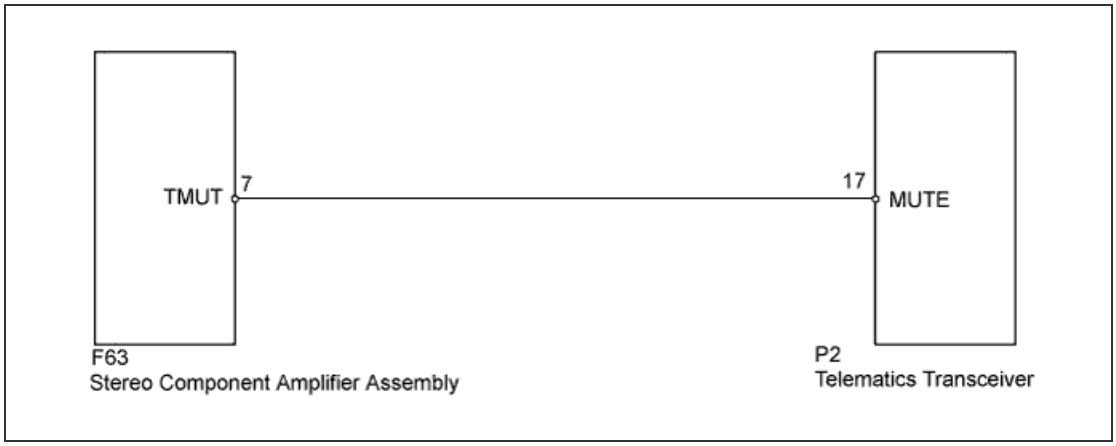
REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**for Preparation** Click here

## DESCRIPTION

The telematics transceiver sends a mute signal to the stereo component amplifier assembly.
The stereo component amplifier assembly controls the volume according to the mute signal from the telematics transceiver.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

When replacing the telematics transceiver, perform vehicle contract setting (w/ G-BOOK System) ( Click here).

### 1.INSPECT STEREO COMPONENT AMPLIFIER ASSEMBLY

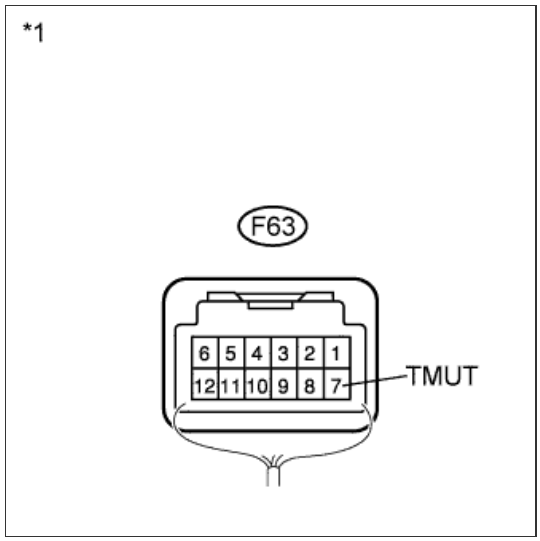
a. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F63-7 (TMUT) - Body ground | Engine switch on (ACC), audio system is playing → Emergency call mode | Above 2.5 V → Below 0.5 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Stereo Component Amplifier Assembly) |




NG → Go to step 2

OK → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

### 2.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - TELEMATICS TRANSCEIVER)

a. Disconnect the F63 stereo component amplifier assembly connector and P2 telematics transceiver connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-7 (TMUT) - P2-17 (MUTE) | Always | Below 1 Ω |
| F63-7 (TMUT) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**3.INSPECT TELEMATICS TRANSCEIVER**

a. Reconnect the P2 telematics transceiver connector.

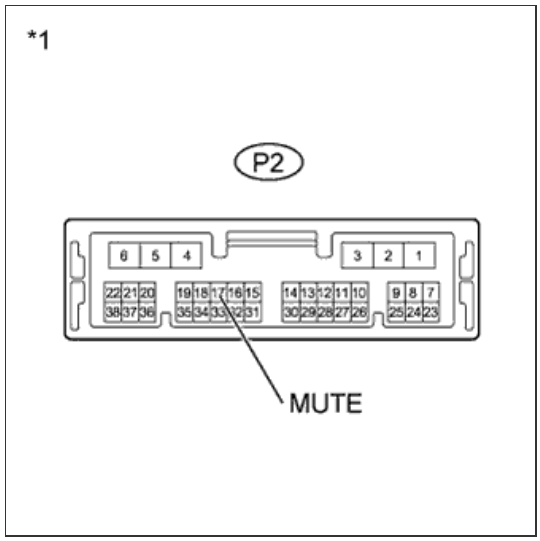
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| P2-17 (MUTE) - Body ground | Engine switch on (ACC) | Above 2.5 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Telematics Transceiver) |




NG → REPLACE TELEMATICS TRANSCEIVER (Click here)

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

# AUDIO AND VISUAL SYSTEM (w/ Navigation System) > Vehicle Speed Signal Circuit between Stereo Component Amplifier and Combination Meter

**for Preparation** Click here

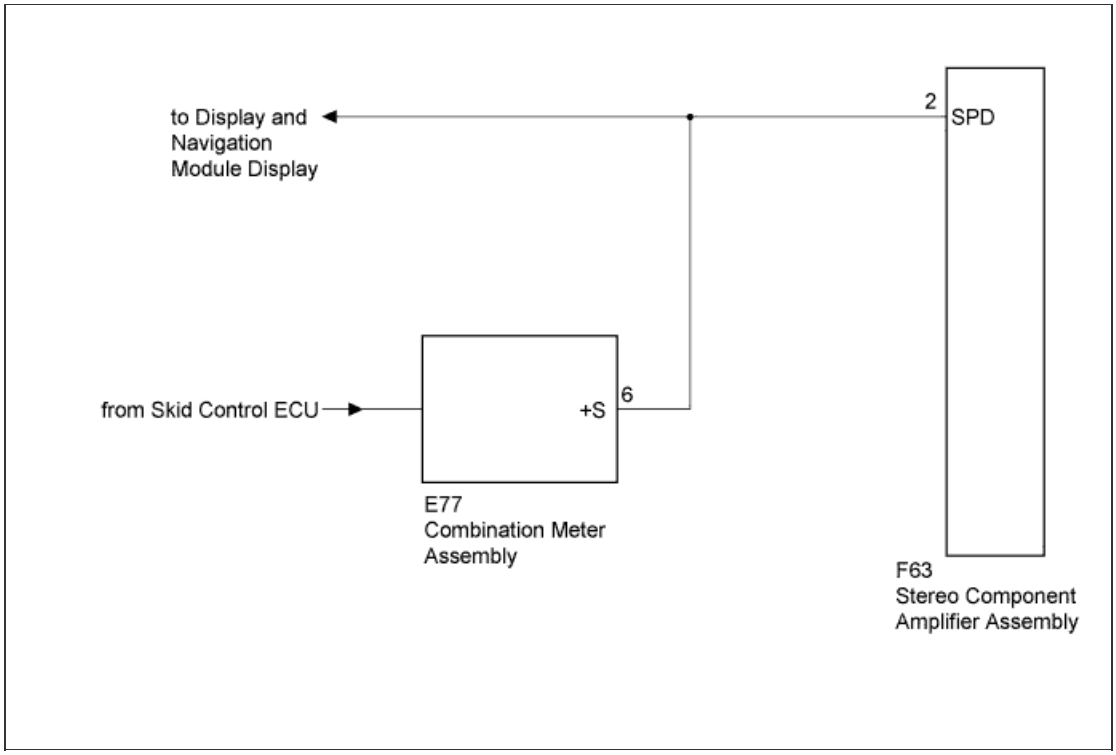
## DESCRIPTION

The circuit is necessary for the Automatic Sound Levelizer (ASL) built into the stereo component amplifier assembly.
Speed signals are received from the combination meter assembly and used for the ASL.
The ASL function automatically adjusts the sound volume in order to clear audio quality even when vehicle noise increases (as vehicle noise increases, the volume is turned up etc.).

**HINT:**

- **A voltage of 12 V or 5 V is output from each ECU and then input to the combination meter assembly. The signal is changed to a pulse signal at the transistor in the combination meter assembly. Each ECU controls the respective system based on the pulse signal.**
- **If a short occurs in any of the ECUs or in the wire harness connected to an ECU, all systems in the diagram below will not operate normally.**

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - COMBINATION METER)

a. Disconnect the F63 stereo component amplifier assembly connector and E77 combination meter assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-2 (SPD) - E77-6 (+S) | Always | Below 1 Ω |
| F63-2 (SPD) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 2.INSPECT COMBINATION METER ASSEMBLY (OUTPUT WAVEFORM)

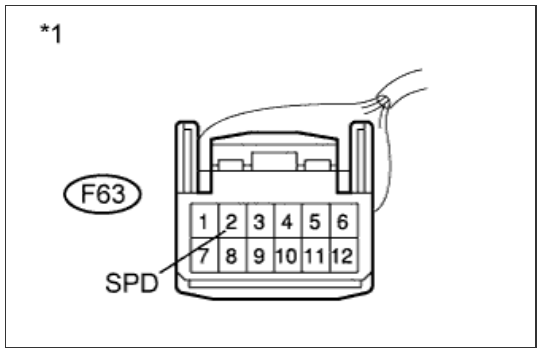
a. Reconnect the E77 combination meter assembly connector.

b. Check the input waveform.

i. Connect an oscilloscope to terminal F63-2 (SPD) and body ground.

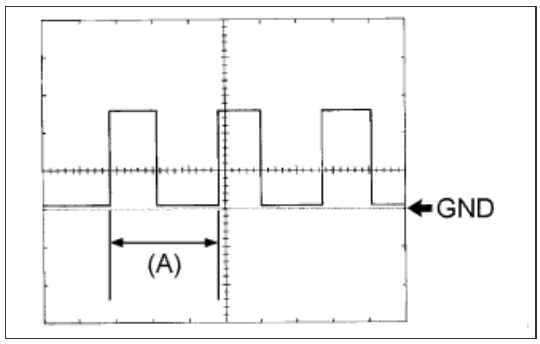
ii. Turn the engine switch on (IG).

iii. Turn a wheel slowly.




iv. Check the signal waveform according to the condition(s) in the table below.

| Item | Condition |
|---|---|
| Measurement terminal | F63-2 (SPD) - Body ground |
| Tool setting | 5 V/DIV., 20 ms./DIV. |
| Vehicle condition | Driving at approx. 20 km/h (12 mph) |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |

**OK:**

**The waveform is displayed as shown in the illustration.**

**HINT:**

When the system is functioning normally, one wheel revolution generates 4 pulses. As the vehicle speed increases, the width indicated by (A) in the illustration narrows.

**NG** → REPLACE COMBINATION METER ASSEMBLY (Click here)

**OK** →

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

# AUDIO AND VISUAL SYSTEM (w/ Navigation System) > Vehicle Speed Signal Circuit between Stereo Component Amplifier and Combination Meter

**for Preparation** Click here

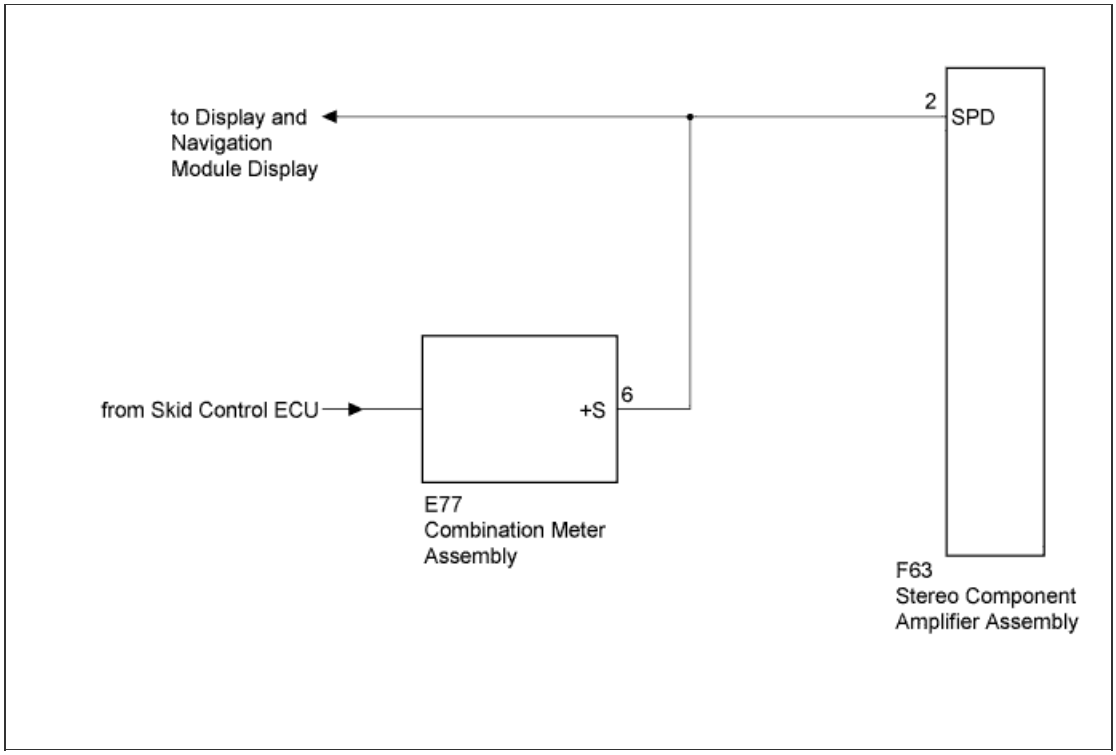
## DESCRIPTION

The circuit is necessary for the Automatic Sound Levelizer (ASL) built into the stereo component amplifier assembly.
Speed signals are received from the combination meter assembly and used for the ASL.
The ASL function automatically adjusts the sound volume in order to clear audio quality even when vehicle noise increases (as vehicle noise increases, the volume is turned up etc.).

**HINT:**

- **A voltage of 12 V or 5 V is output from each ECU and then input to the combination meter assembly. The signal is changed to a pulse signal at the transistor in the combination meter assembly. Each ECU controls the respective system based on the pulse signal.**
- **If a short occurs in any of the ECUs or in the wire harness connected to an ECU, all systems in the diagram below will not operate normally.**

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - COMBINATION METER)

a. Disconnect the F63 stereo component amplifier assembly connector and E77 combination meter assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-2 (SPD) - E77-6 (+S) | Always | Below 1 Ω |
| F63-2 (SPD) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 2.INSPECT COMBINATION METER ASSEMBLY (OUTPUT WAVEFORM)

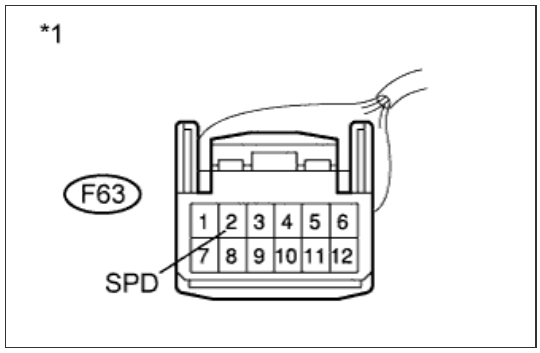
a. Reconnect the E77 combination meter assembly connector.

b. Check the input waveform.

i. Connect an oscilloscope to terminal F63-2 (SPD) and body ground.

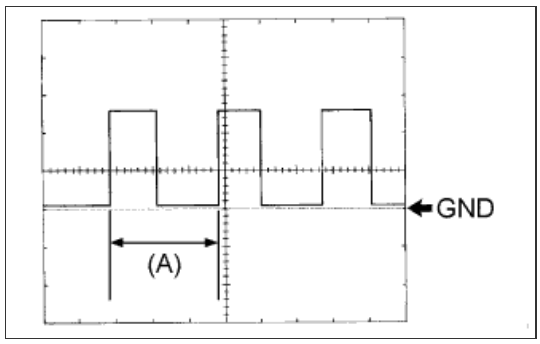
ii. Turn the engine switch on (IG).

iii. Turn a wheel slowly.




iv. Check the signal waveform according to the condition(s) in the table below.

| Item | Condition |
|---|---|
| Measurement terminal | F63-2 (SPD) - Body ground |
| Tool setting | 5 V/DIV., 20 ms./DIV. |
| Vehicle condition | Driving at approx. 20 km/h (12 mph) |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |

**OK:**

**The waveform is displayed as shown in the illustration.**

**HINT:**

When the system is functioning normally, one wheel revolution generates 4 pulses. As the vehicle speed increases, the width indicated by (A) in the illustration narrows.

**NG** → REPLACE COMBINATION METER ASSEMBLY (Click here)

**OK** →

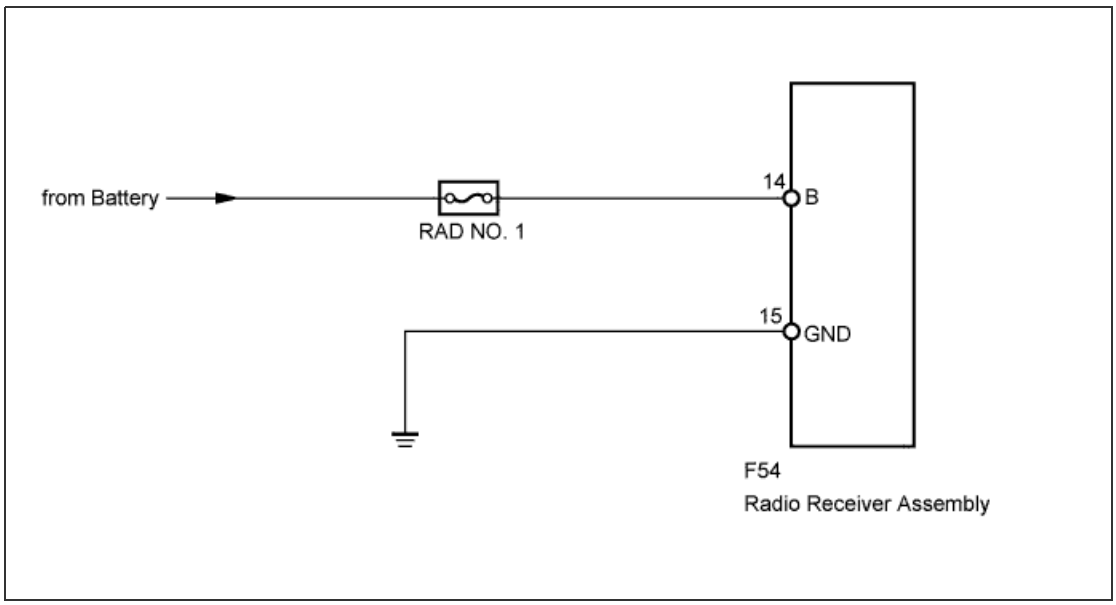
REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit provides power to the radio receiver assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuse for circuits related to this system before performing the following inspection procedure.

### 1.INSPECT RADIO RECEIVER ASSEMBLY

a. Disconnect the F54 radio receiver assembly connector.

b. Measure the resistance according to the value(s) in the table below.

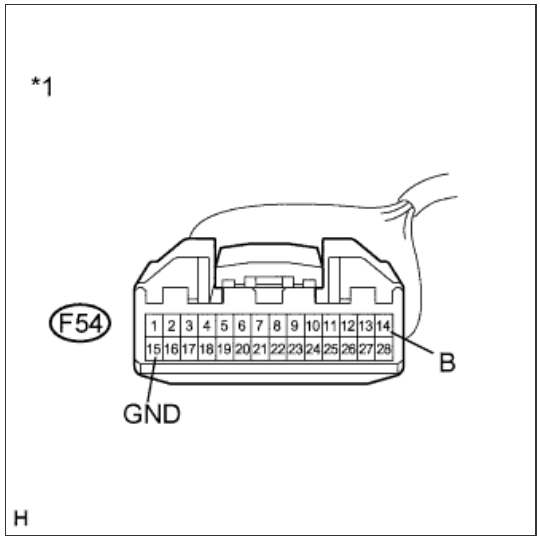
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-15 (GND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-14 (B) - F54-15 (GND) | Always | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Radio Receiver Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

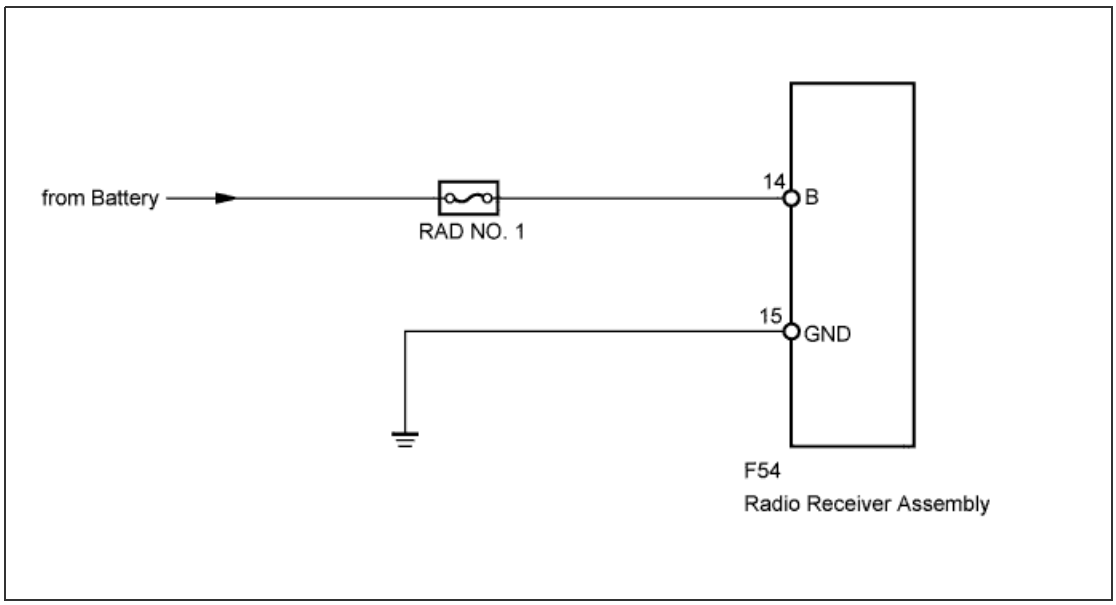
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit provides power to the radio receiver assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuse for circuits related to this system before performing the following inspection procedure.

### 1.INSPECT RADIO RECEIVER ASSEMBLY

a. Disconnect the F54 radio receiver assembly connector.

b. Measure the resistance according to the value(s) in the table below.

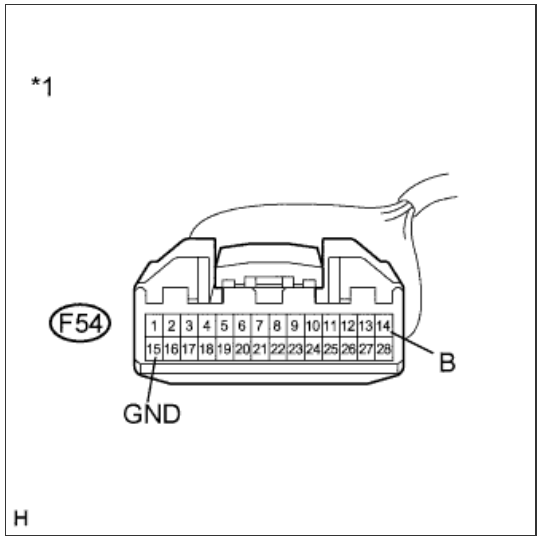
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-15 (GND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-14 (B) - F54-15 (GND) | Always | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Radio Receiver Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

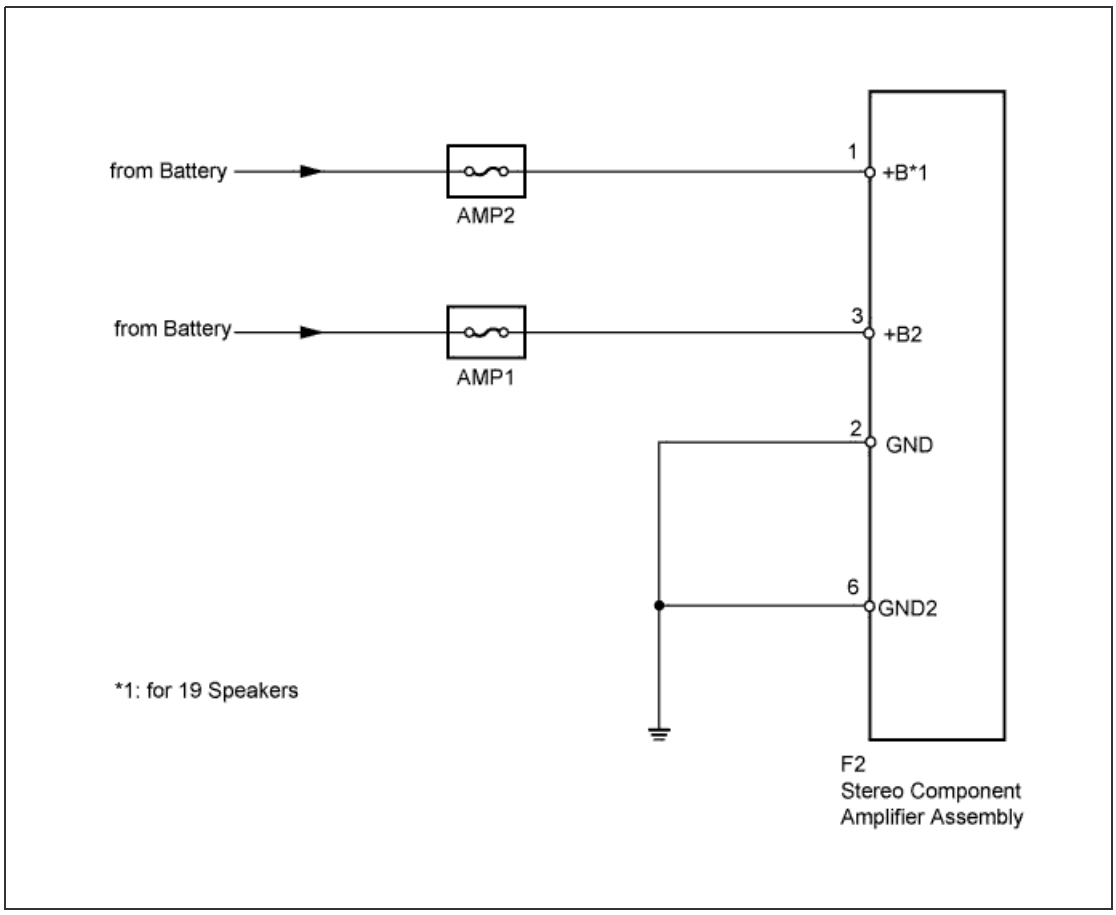
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit provides power to the stereo component amplifier assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

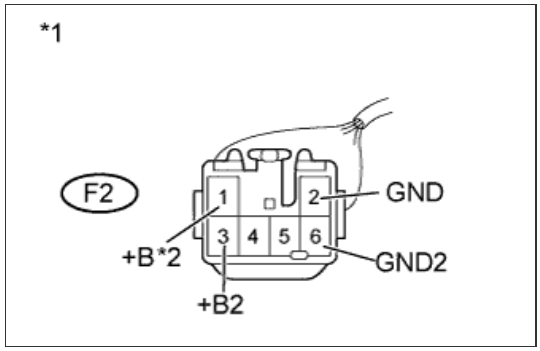
### 1.INSPECT STEREO COMPONENT AMPLIFIER ASSEMBLY

a. Disconnect the F2 stereo component amplifier assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-2 (GND) - Body ground | Always | Below 1 Ω |
| F2-6 (GND2) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| F2-1 (+B) - F2-2 (GND)*1 | Always | 11 to 14 V |
| F2-3 (+B2) - F2-2 (GND) | Always | 11 to 14 V |

*1: for 19 Speakers

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector<br>(to Stereo Component Amplifier Assembly) |
| *2 | for 19 Speakers |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

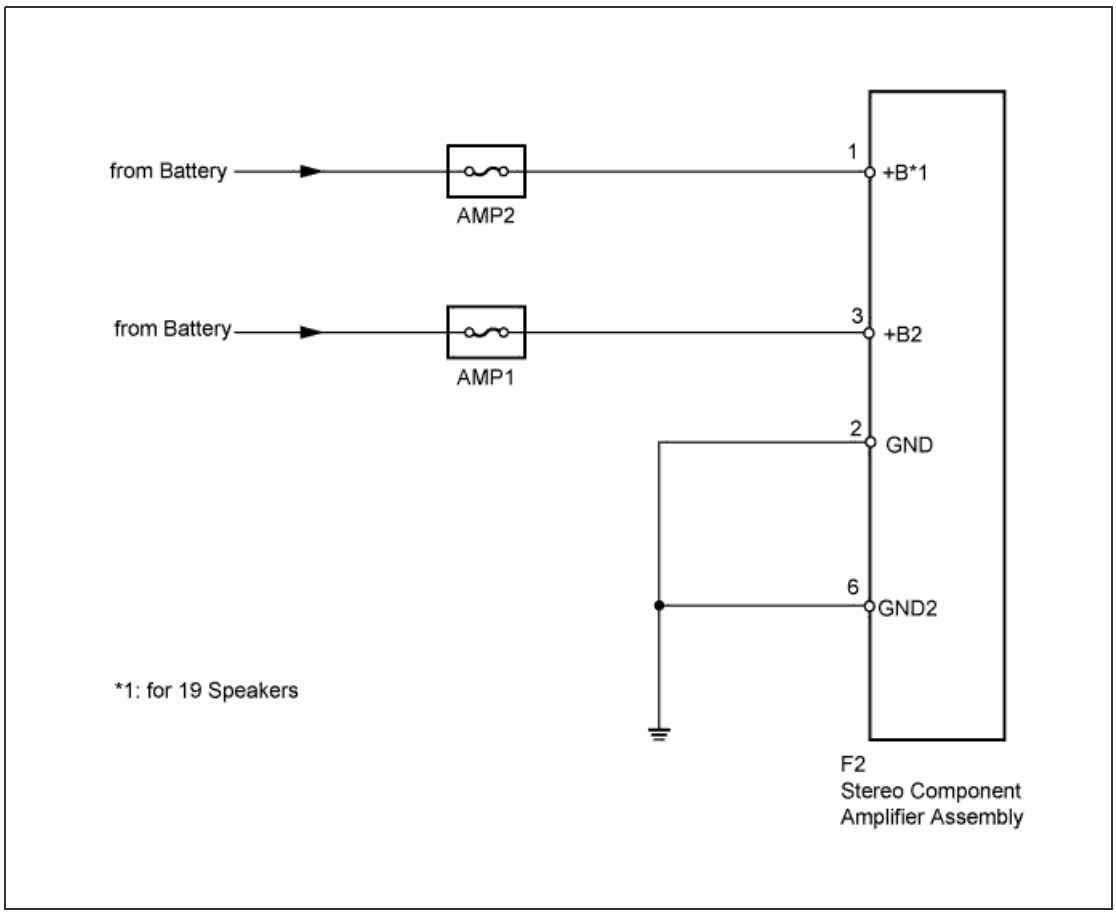
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit provides power to the stereo component amplifier assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

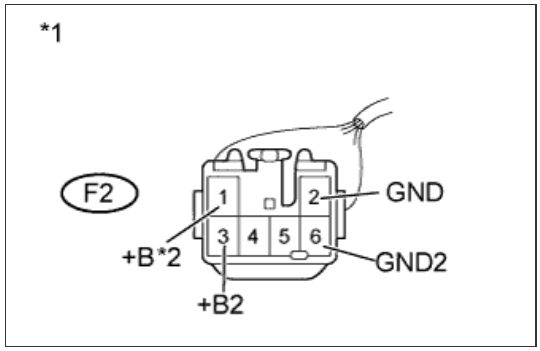
### 1.INSPECT STEREO COMPONENT AMPLIFIER ASSEMBLY

a. Disconnect the F2 stereo component amplifier assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-2 (GND) - Body ground | Always | Below 1 Ω |
| F2-6 (GND2) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| F2-1 (+B) - F2-2 (GND)*1 | Always | 11 to 14 V |
| F2-3 (+B2) - F2-2 (GND) | Always | 11 to 14 V |

*1: for 19 Speakers

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector<br>(to Stereo Component Amplifier Assembly) |
| *2 | for 19 Speakers |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

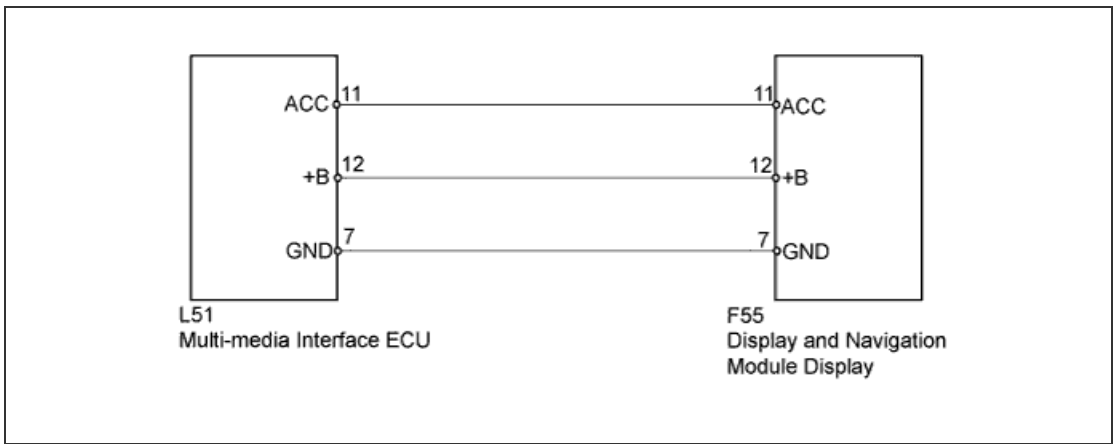
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit provides power to the multi-media interface ECU.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

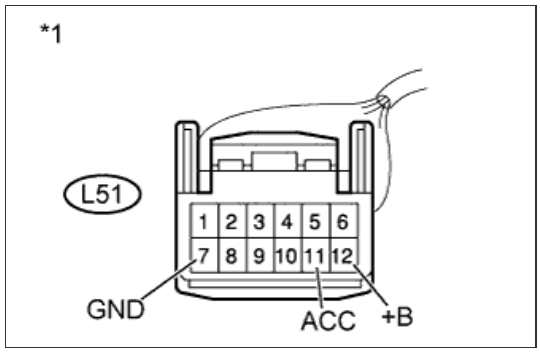
**NOTICE:**

When replacing the display and navigation module display, perform vehicle contract setting (w/ G-BOOK System) ( Click here).

### 1.INSPECT MULTI-MEDIA INTERFACE ECU

a. Disconnect the L51 multi-media interface ECU connector.

b. Measure the voltage according to the value(s) in the table below.




**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| L51-12 (+B) - L51-7 (GND) | Always | 11 to 14 V |
| L51-11 (ACC) - L51-7 (GND) | Engine switch on (ACC) | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Multi-media Interface ECU) |

NG → Go to step 2

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

### 2.CHECK HARNESS AND CONNECTOR (INTERFACE ECU - NAVIGATION MODULE)

a. Disconnect the F55 display and navigation module display connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| L51-11 (ACC) - F55-11 (ACC) | Always | Below 1 Ω |
| L51-12 (+B) - F55-12 (+B) | Always | Below 1 Ω |
| L51-7 (GND) - F55-7 (GND) | Always | Below 1 Ω |
| L51-11 (ACC) - Body ground | Always | 10 kΩ or higher |
| L51-12 (+B) - Body ground | Always | 10 kΩ or higher |
| L51-7 (GND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

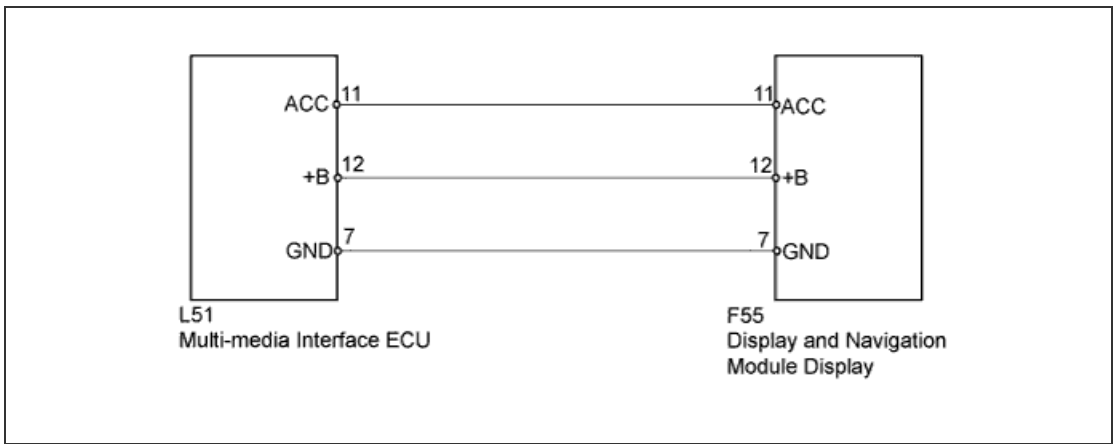
REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit provides power to the multi-media interface ECU.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

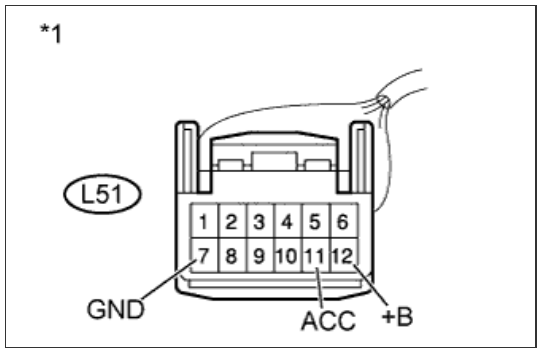
**NOTICE:**

When replacing the display and navigation module display, perform vehicle contract setting (w/ G-BOOK System) ( Click here).

### 1.INSPECT MULTI-MEDIA INTERFACE ECU

a. Disconnect the L51 multi-media interface ECU connector.

b. Measure the voltage according to the value(s) in the table below.




**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| L51-12 (+B) - L51-7 (GND) | Always | 11 to 14 V |
| L51-11 (ACC) - L51-7 (GND) | Engine switch on (ACC) | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Multi-media Interface ECU) |

NG → Go to step 2

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

### 2.CHECK HARNESS AND CONNECTOR (INTERFACE ECU - NAVIGATION MODULE)

a. Disconnect the F55 display and navigation module display connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|

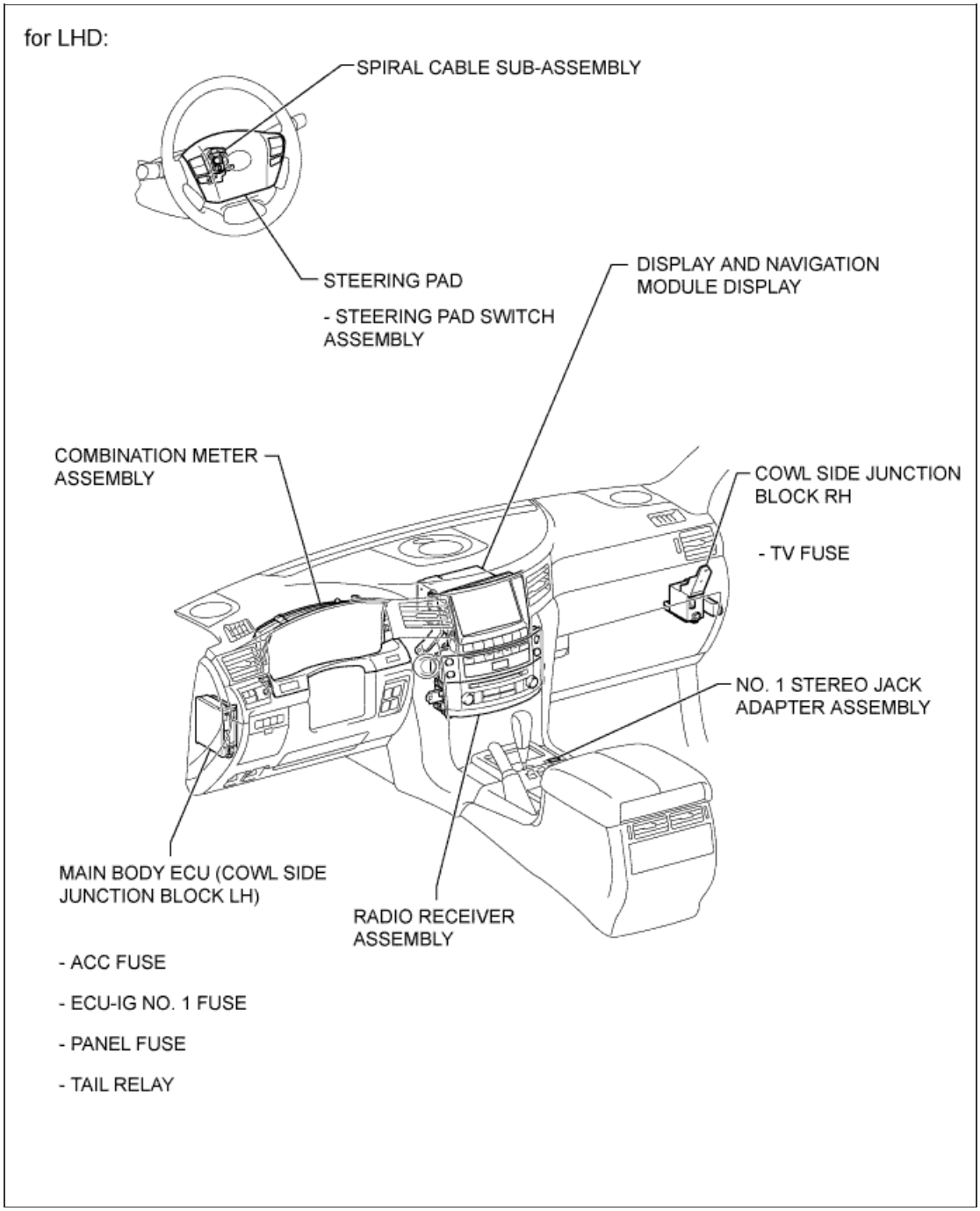
| | | |
|---|---|---|
| L51-11 (ACC) - F55-11 (ACC) | Always | Below 1 Ω |
| L51-12 (+B) - F55-12 (+B) | Always | Below 1 Ω |
| L51-7 (GND) - F55-7 (GND) | Always | Below 1 Ω |
| L51-11 (ACC) - Body ground | Always | 10 kΩ or higher |
| L51-12 (+B) - Body ground | Always | 10 kΩ or higher |
| L51-7 (GND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

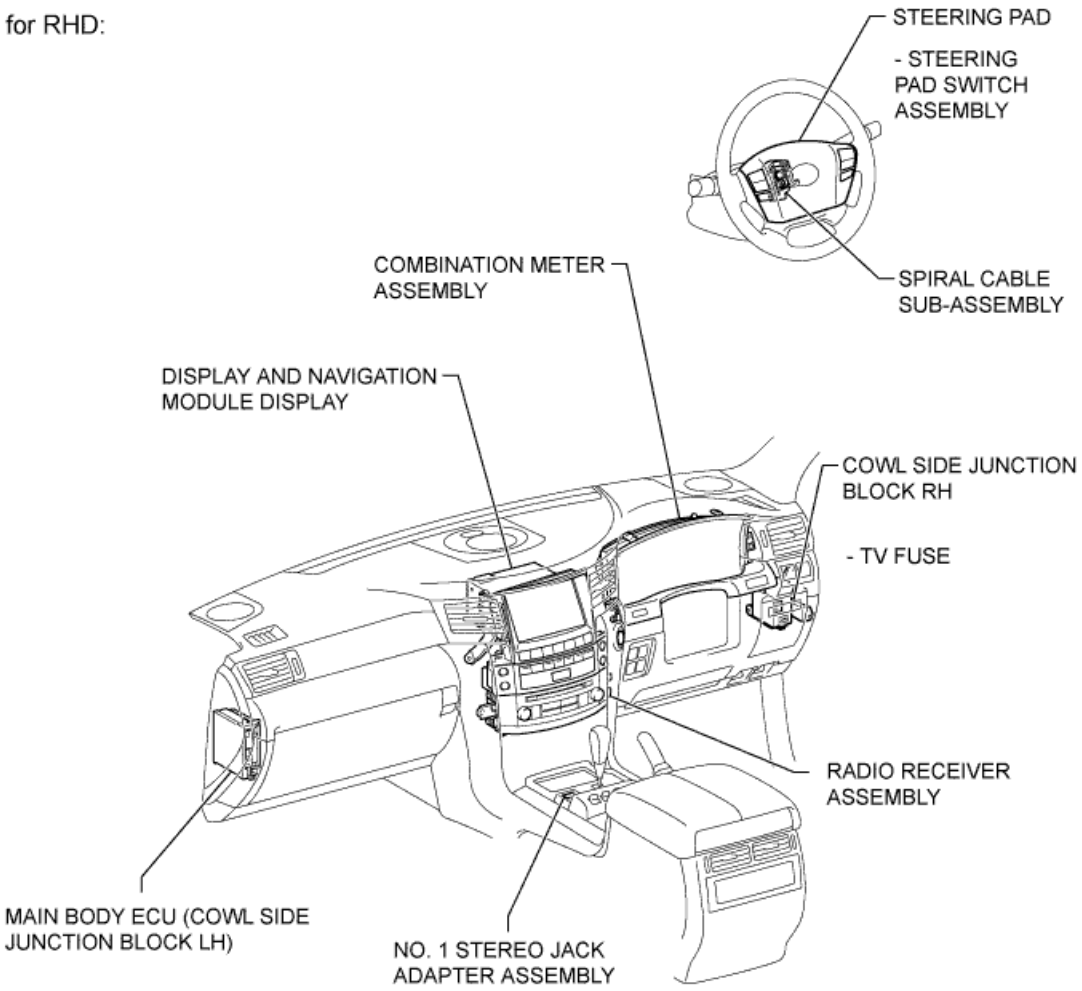
OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

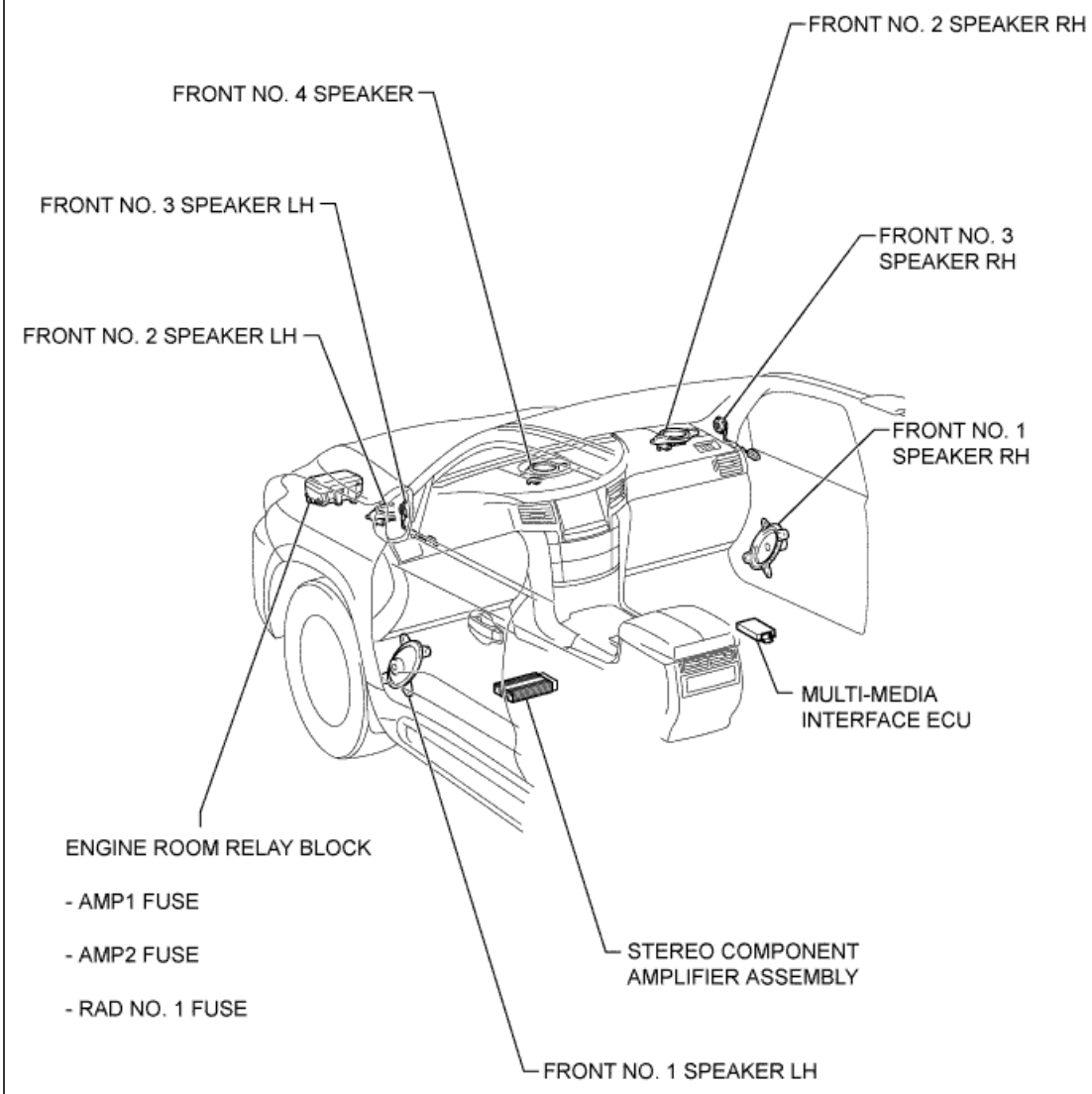


for RHD:

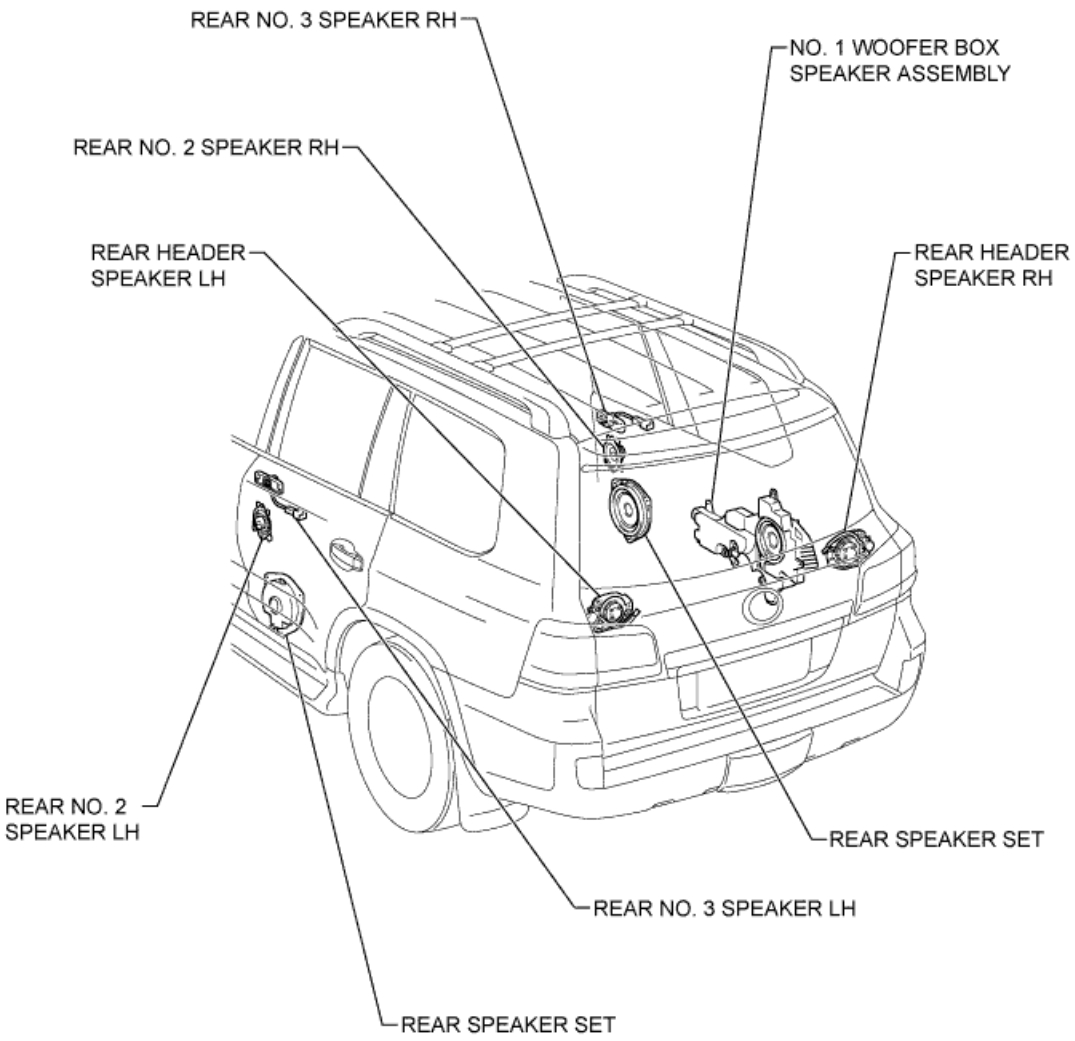



- ACC FUSE
- ECU-IG NO. 1 FUSE
- PANEL FUSE
- TAIL RELAY

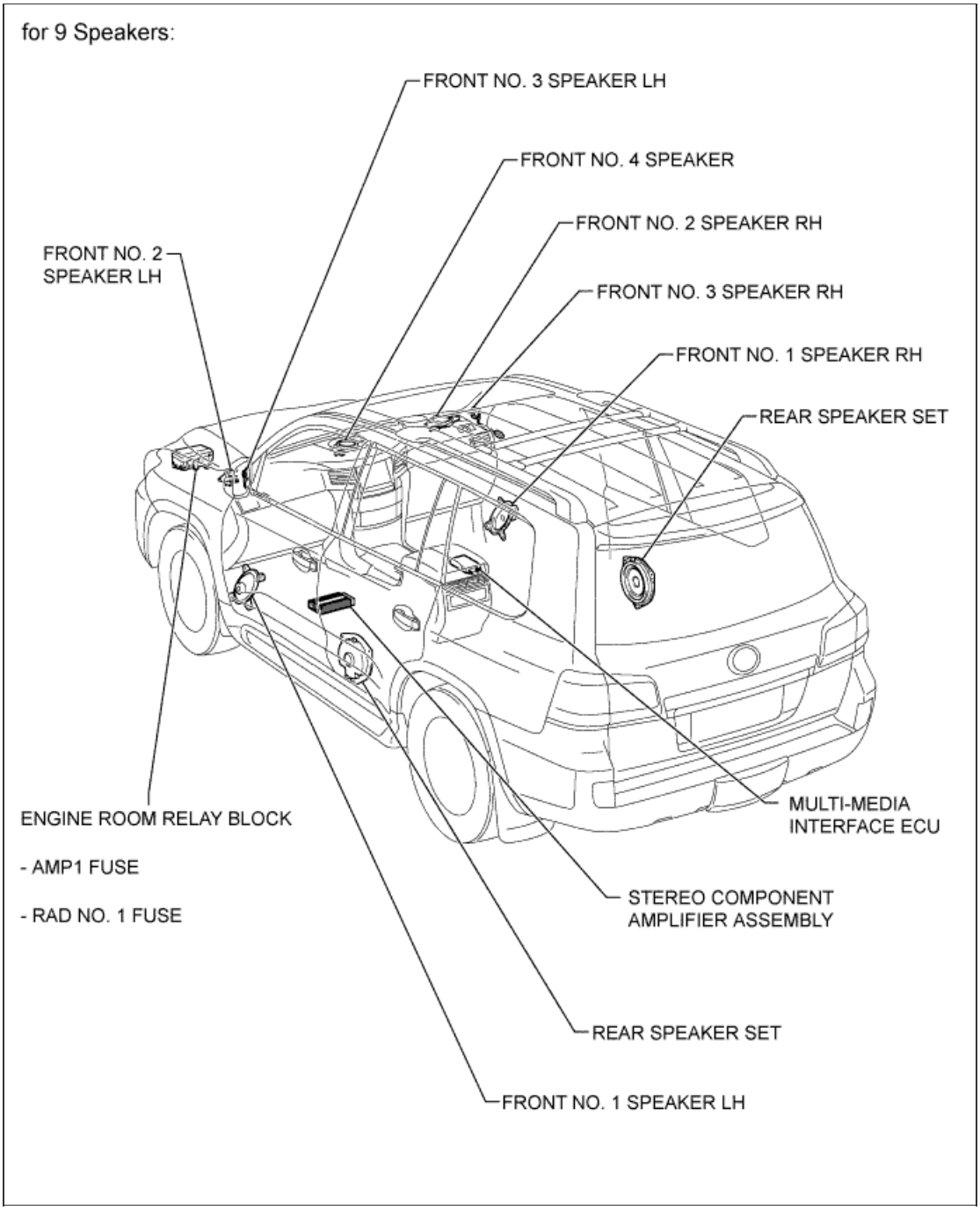
for 19 Speakers:

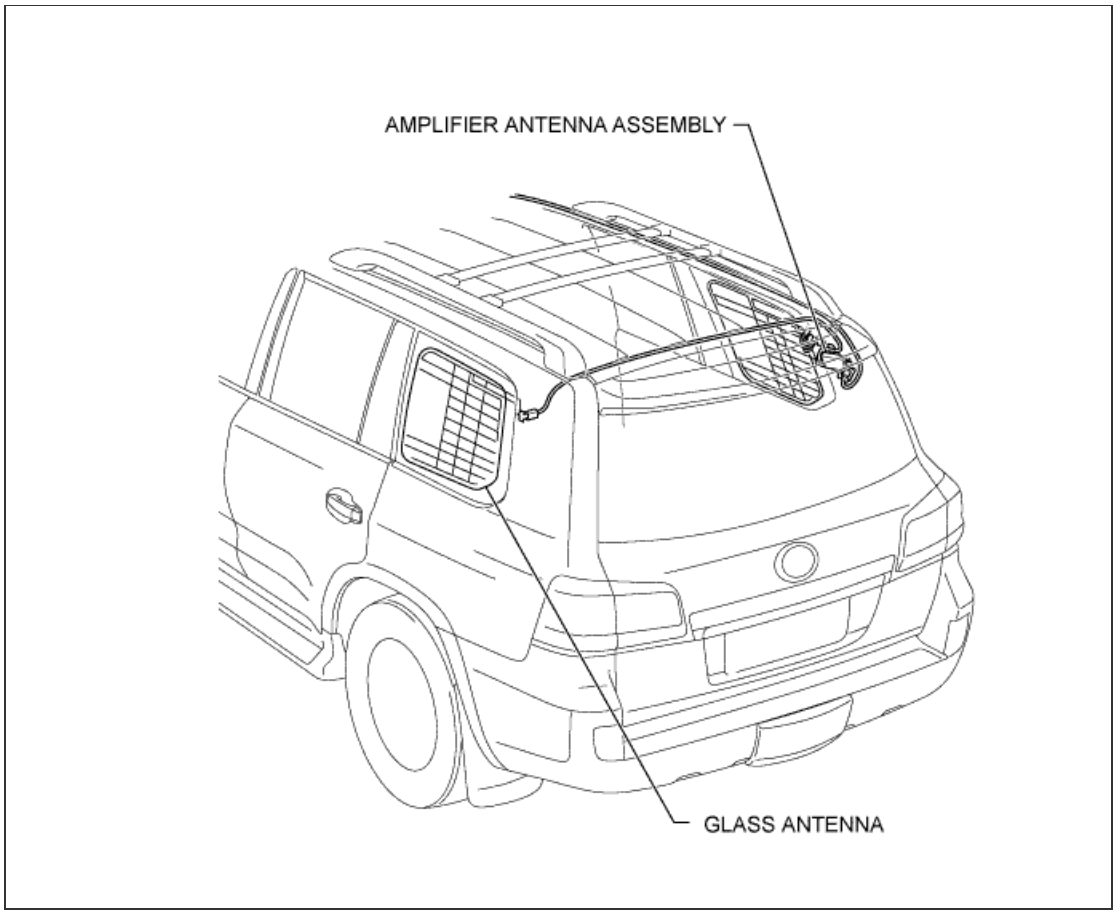


for 19 Speakers:

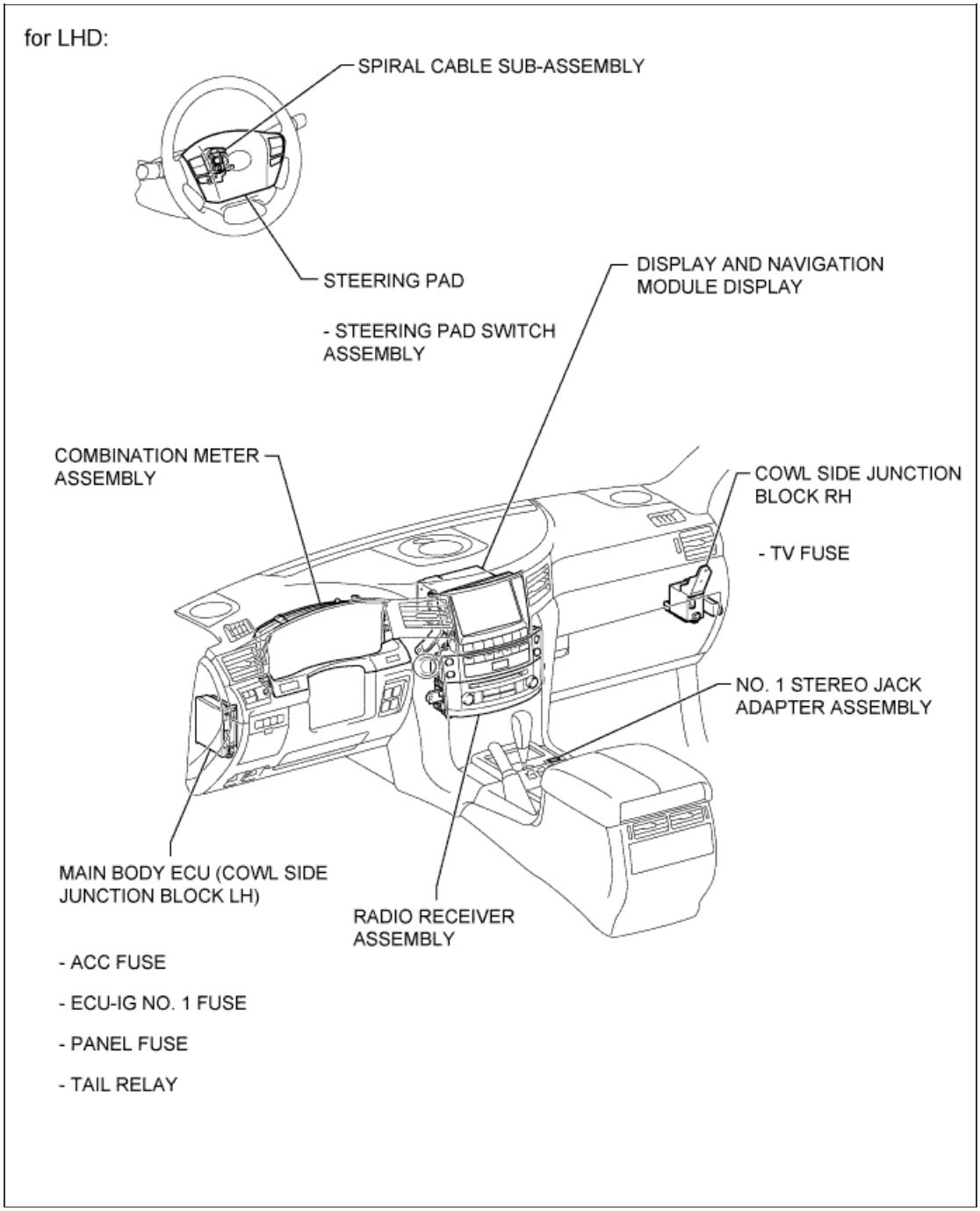


for 9 Speakers:

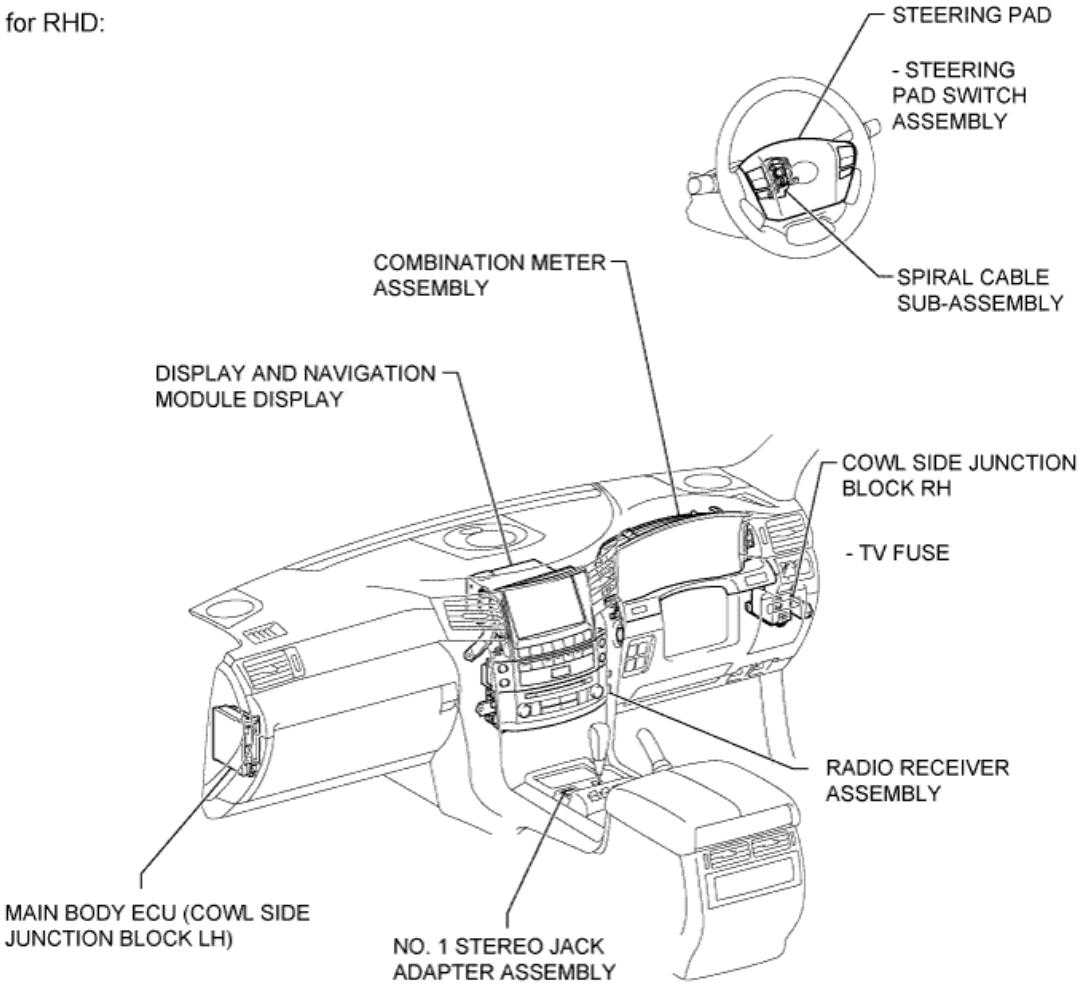



AMPLIFIER ANTENNA ASSEMBLY
GLASS ANTENNA

**for Preparation** Click here

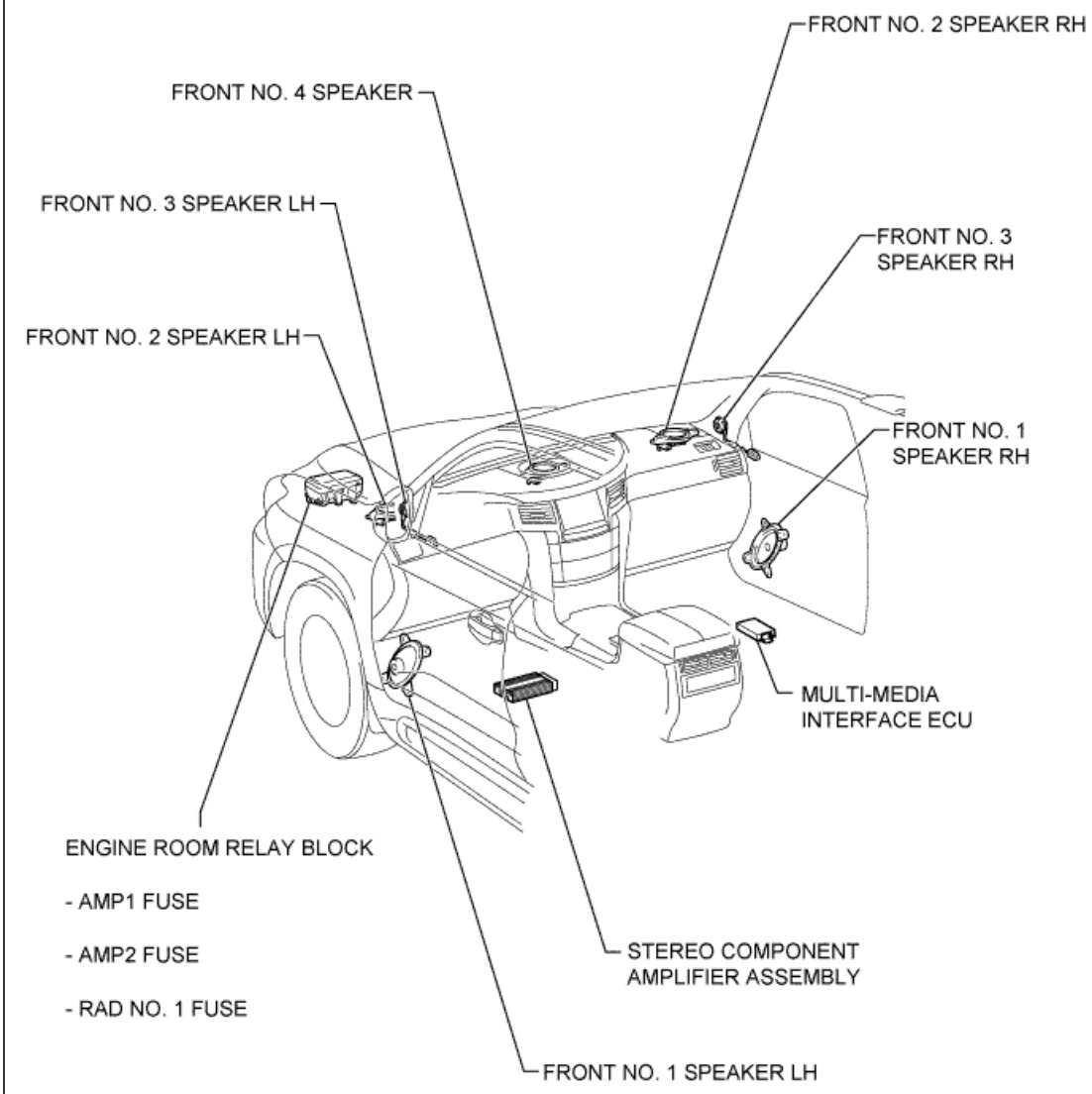


for RHD:

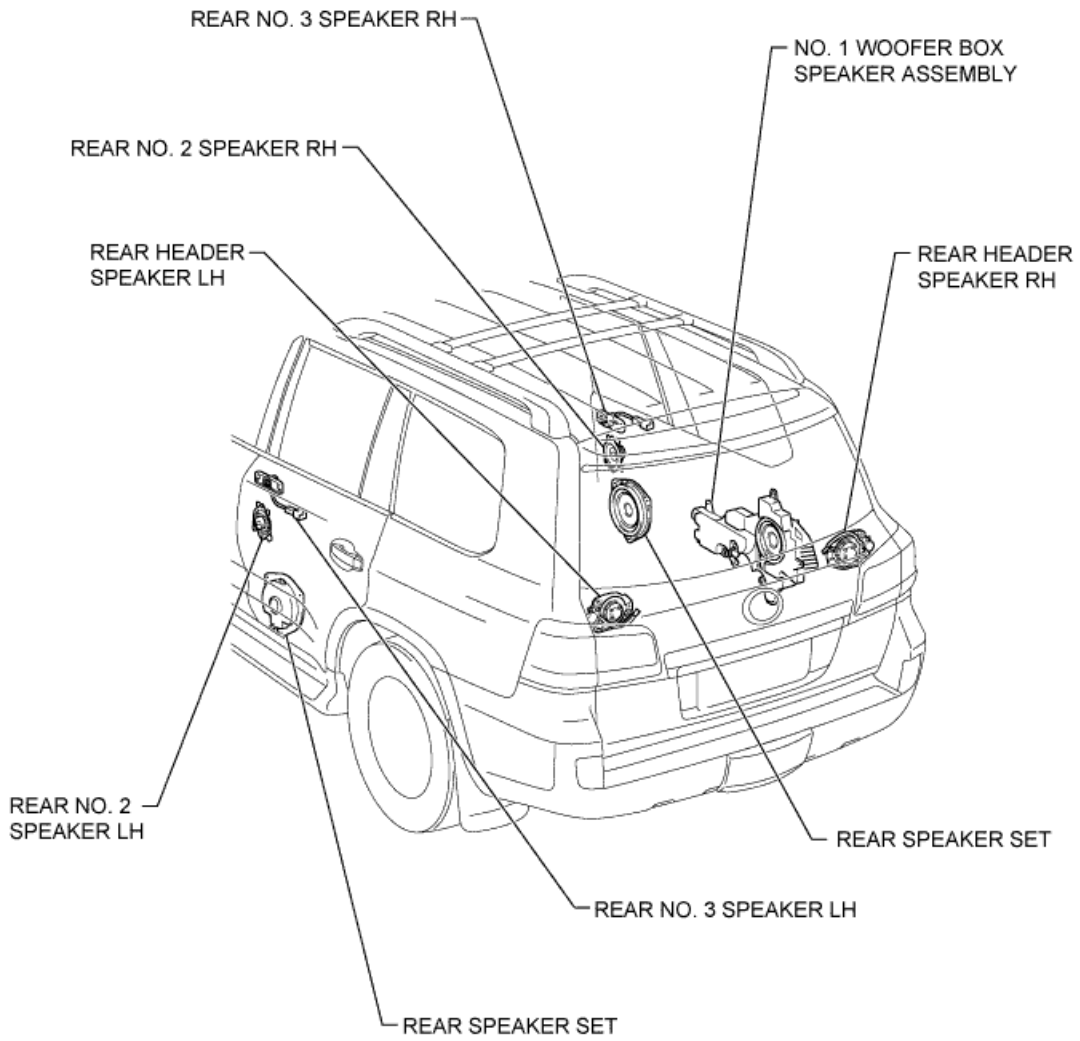



- ACC FUSE
- ECU-IG NO. 1 FUSE
- PANEL FUSE
- TAIL RELAY

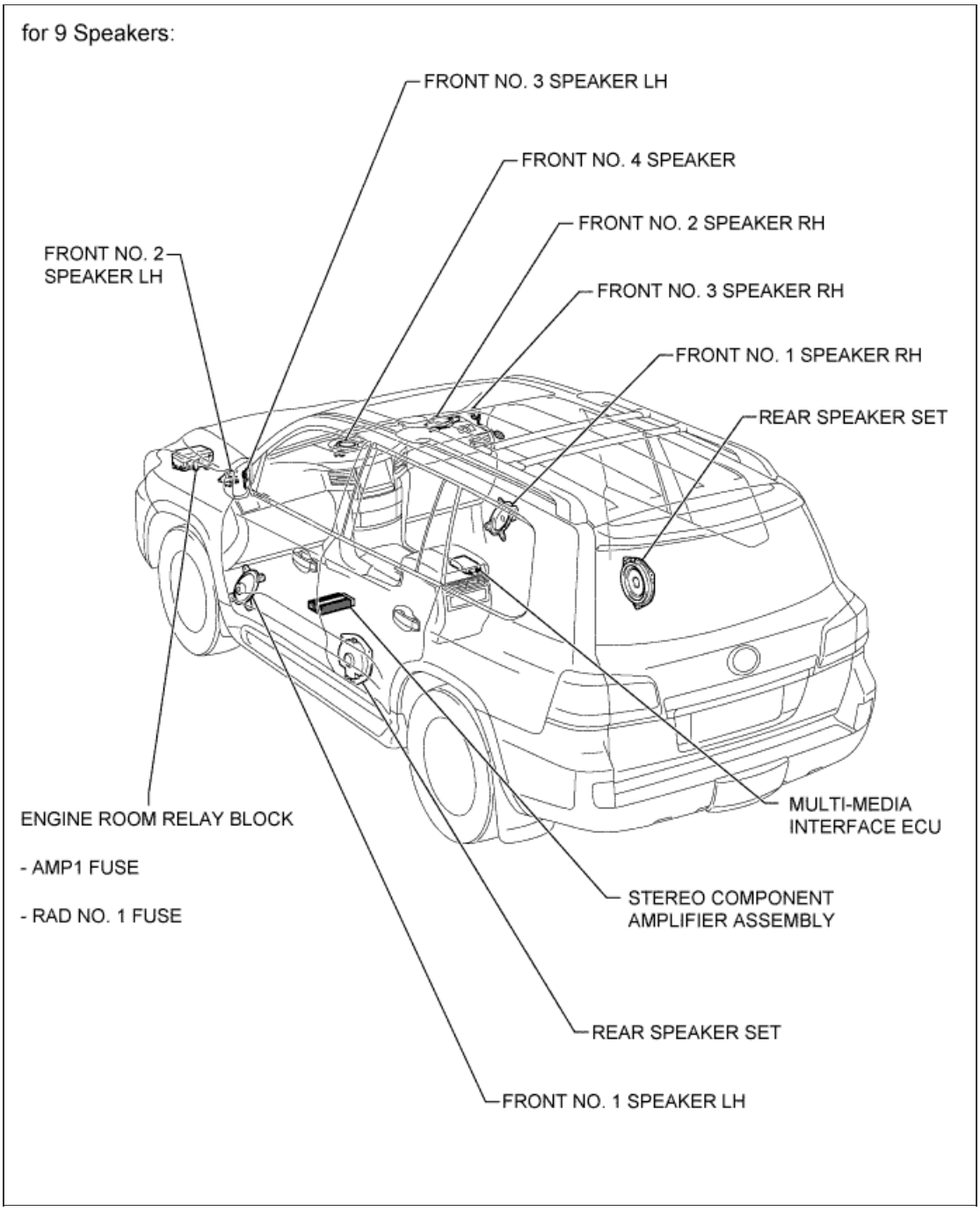
for 19 Speakers:

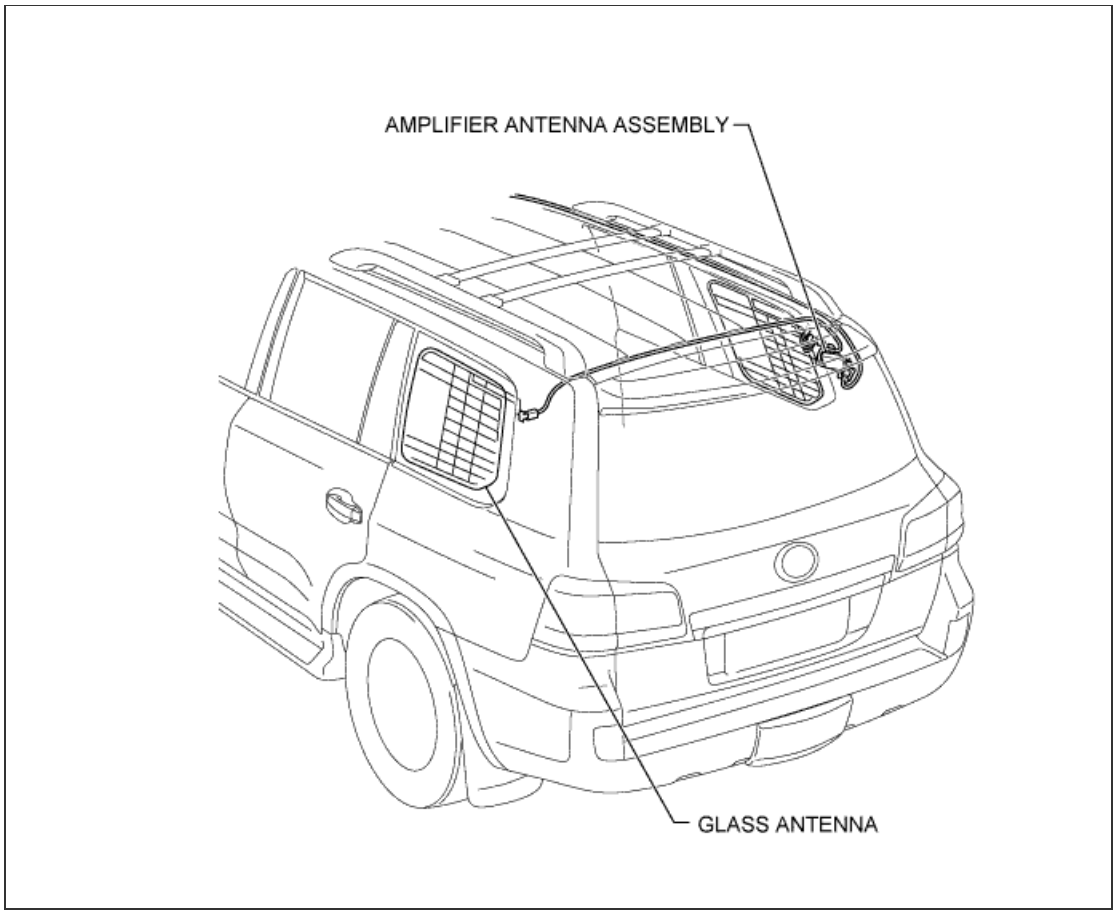


for 19 Speakers:

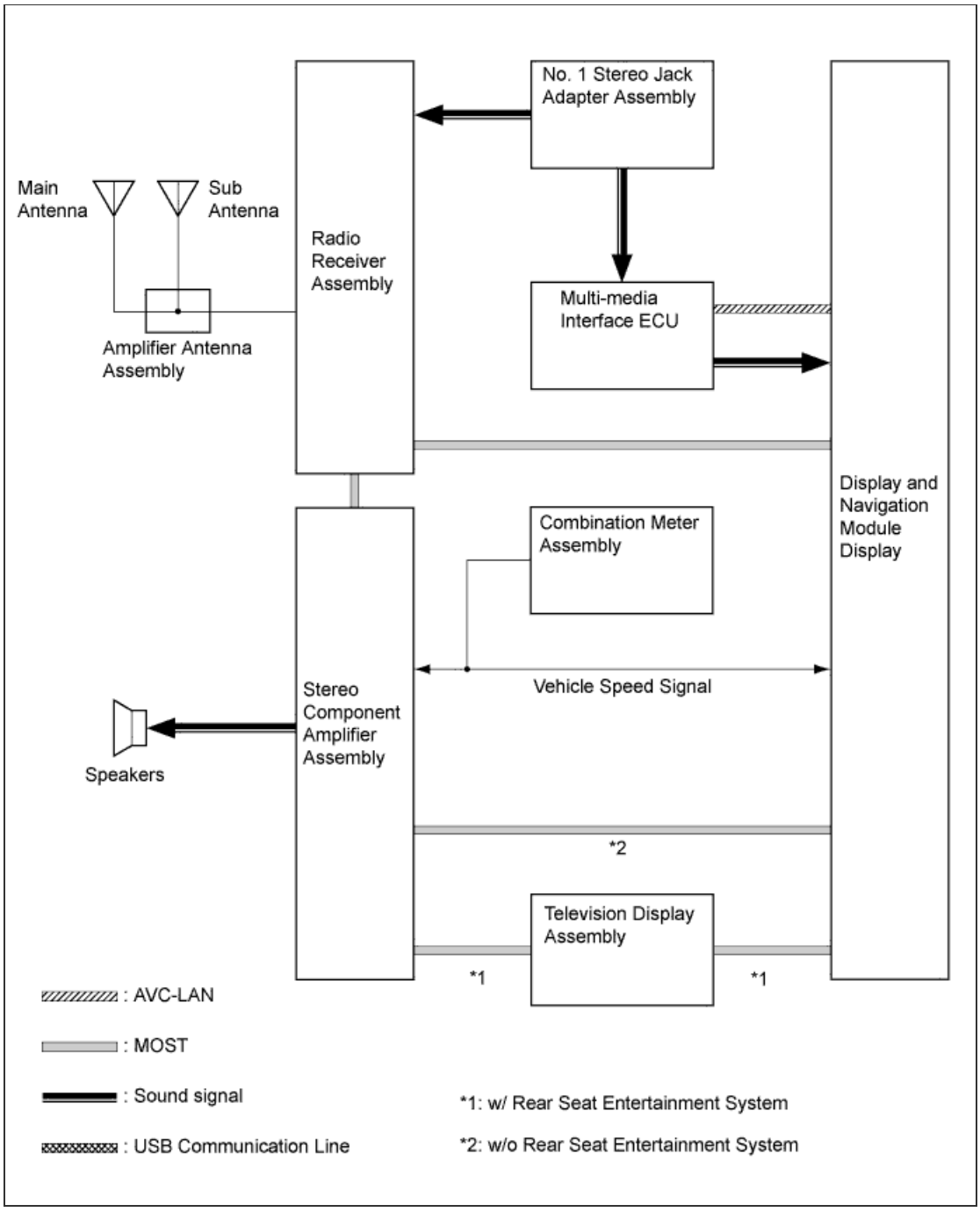


for 9 Speakers:




AMPLIFIER ANTENNA ASSEMBLY
GLASS ANTENNA

**for Preparation** Click here



**for Preparation** Click here

## DVD (Digital Versatile Disc) PLAYER OUTLINE

a. The DVD player can only play DVD videos, DVD audio and video CDs that have any of the following marks:




i. Precaution for use of discs

**NOTICE:**

- **PAL or SECAM color television standard discs cannot be played (only NTSC discs can be played).**
- **Keep the discs away from dirt. Be careful not to damage the discs or leave fingerprints on them.**
- **Hold discs by the outer edge and center hole with the label side up.**
- **Leaving the disc exposed halfway out of the slot for a long time after pressing the disc eject button may cause deformation of the disc, making the disc unusable.**
- **Do not use odd-shaped discs because these may cause player malfunctions.**
- **Do not use discs whose recording portion is transparent or translucent because they may not be inserted, ejected or played normally.**
- **DualDiscs that combine DVD recorded material on one side with CD digital audio material on the other cannot be played.**

## CD (Compact Disc) PLAYER OUTLINE

a. A compact disc player uses a laser pickup to read digital signals recorded on a compact disc (CD). By converting the digital signals to analog, it can play music and audio.

**CAUTION:**

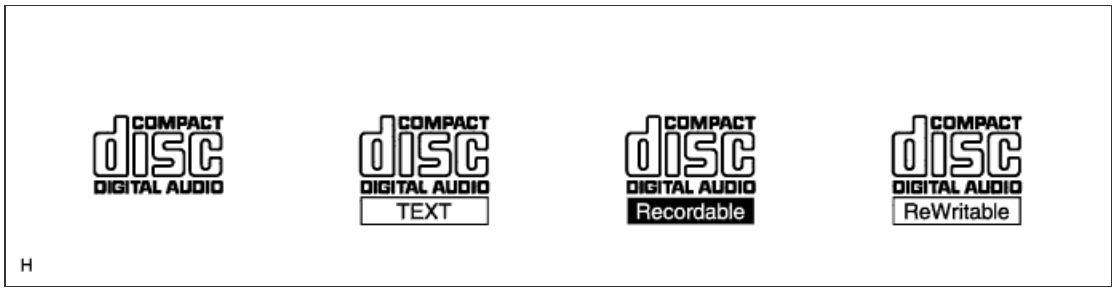
Do not look directly at the laser pickup because the CD player uses an invisible laser beam. Be sure to operate the player only as instructed.

**NOTICE:**

- **Do not disassemble any part of the CD player.**
- **Do not apply oil to the CD player.**
- **Do not insert anything but a CD into the CD player.**

b. Usable discs

i. This player can play only audio CDs, CD-Rs (CD-Recordable) and CD-RWs (CD-ReWritable) that have any of the following marks:



H

c. Precautions for use of discs

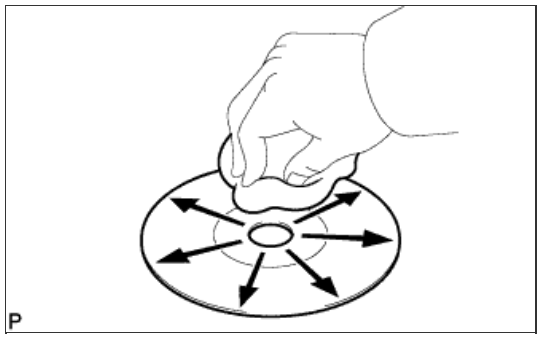
**NOTICE:**

- **Copy-protected CDs cannot be played.**
- **CD-Rs and CD-RWs may not be played depending on the recording conditions or characteristics of the discs, or due to damage, dirt or deterioration caused by leaving the discs in the cabin for a long time.**
- **Unfinalized CD-Rs and CD-RWs cannot be played.**
- **DualDiscs that combine DVD recorded material on one side with CD digital audio material on the other cannot be played.**
- **Keep the discs away from dirt. Be careful not to damage the discs or leave your fingerprints on them.**
- **Hold discs by the outer edge and center hole with the label side up.**
- **Leaving the disc exposed halfway out of the slot for a long time after pressing the disc eject button may cause deformation of the disc, making the disc unusable.**
- **If discs have adhesive tape, stickers, CD labels or any traces of such labels attached, the discs may not be ejected or player malfunctions may result.**
- **Keep the discs away from direct sunlight. (Exposure to direct sunlight may cause deformation of the disc, making the disc unusable.)**
- **Do not use odd-shaped CDs because these may cause player malfunctions.**
- **Do not use discs whose recording portion is transparent or translucent because they may not be inserted, ejected or played normally.**
- **Use only 4.7 in. (12 cm) CDs.**
- **Do not use 3 in. (8 cm) CDs, either with or without adapters.**

**HINT:**

- **When it is cold or it is raining, if the windows mist up, mist and condensation may form in the player. In such cases, the CD sound may skip or stop in the middle of play. Ventilate or dehumidify the cabin for a while before using the player.**
- **The CD sound may skip if the player experiences strong vibrations when the vehicle is driven on rough roads or similar uneven surface(s).**

d. Cleaning


P

**NOTICE:**

Do not use a lens cleaner because it may cause a malfunction in the pickup portion of the player.

i. If dirt is on the disc surface, wipe it clean with a soft dry cloth such as an eyeglass cleaner for plastic lenses from the inside to the outside in a radial direction.

**NOTICE:**

- **Pressing on the disc by hand or rubbing the disc with a hard cloth may scratch the disc surface.**
- **Use of solvent such as a record spray, antistatic agent, alcohol, benzine and thinner or a chemical cloth may cause damage to the disc, making the disc unusable.**

## MP3/WMA OUTLINE

a. Playable MP3 file standards

| | |
|---|---|
| Compatible standard | MP3 (MPEG1 LAYER 3, MPEG2 LSF LAYER 3) |
| Compatible sampling frequency | • MPEG1 LAYER 3: 32, 44.1, 48 (kHz)<br>• MPEG2 LSF LAYER 3: 16, 22.05, 24 (kHz) |
| Compatible bit rate | • MPEG1 LAYER 3: 64, 80, 96, 112, 128, 160, 192, 224, 256, 320 (kbps)<br>• MPEG2 LSF LAYER 3: 64, 80, 96, 112, 128, 144, 160 (kbps)<br>• Compatible with VBR |

| | |
|---|---|
| Compatible channel mode | Stereo, joint stereo, dual channel, monaural |

b. Playable WMA file standards

| | |
|---|---|
| Compatible standard | WMA Ver. 7, 8, and 9 |
| Compatible sampling frequency | 32, 44.1, 48 (kHz) |
| Compatible bit rate (Only compatible with 2-channel playback) | • Ver. 7, 8: CBR48, 64, 80, 96, 128, 160, 192 (kbps)<br>• Ver. 9: CBR48, 64, 80, 96, 128, 160, 192, 256, 320 (kbps) |

c. ID3 tag and WMA tag

i. Additional textual information called ID3 tag can be input to MP3 files. Information such as song titles and artist names can be stored.

**HINT:**

This player is compatible with the ID3 tags of ID3 Ver. 1.0 and 1.1, and ID3 Ver. 2.2 and 2.3. (Number of characters complies with ID3 Ver. 1.0 and 1.1.)

ii. Additional textual information called WMA tag can be input to WMA files. Information such as song titles and artist names can be stored.

d. Usable media

i. Only CD-ROMs, CD-Rs (CD-Recordable) and CD-RWs (CD-ReWritable) can be used to play MP3/WMA files.

**NOTICE:**

- **CD-Rs and CD-RWs are more easily affected by a hot and humid environment than discs used for normal audio CDs. For this reason, some CD-Rs and CD-RWs do not play.**
- **If there are fingerprints or scratches on a disc, the disc may not play or the CD sound may skip.**
- **Some CD-Rs and CD-RWs may deteriorate if they are left in the cabin for a long time.**
- **Keep CD-Rs and CD-RWs in an opaque case.**

e. Usable media format

i. Usable media format

| | |
|---|---|
| Disc format | CD-ROM Mode 1, CD-ROM XA Mode 2 Form1 |
| File format | ISO9660 Level 1 and Level 2 (Joliet, Romeo) |

**HINT:**

- **As for MP3/WMA files written in any unlisted format, the contents of the files may not be played normally or the file names or folder names may not be displayed correctly.**
- **This player is compatible with multi-session discs and can play CD-Rs and CD-RWs on which MP3/WMA files are added. However, only the first session can be played.**
- **Discs whose first session includes both music data and MP3 or WMA format data cannot be played.**

ii. Standard and restrictions

| | |
|---|---|
| Maximum directory levels | 8 levels |
| Maximum number of characters for a folder name/file name | 32 characters |
| Maximum number of folders | 192 (Including the empty folders, roof folders, and folders that do not contain MP3/WMA files) |
| Maximum number of files in a disc | 255 (Including non-MP3/WMA files) |

f. File names

i. Only files with an extension of ".mp3" or ".wma" can be recognized and played as MP3 or WMA files.

ii. Save MP3 or WMA files with an extension of ".mp3" or ".wma".

**NOTICE:**

If non-MP3 or non-WMA files are saved with an extension of ".mp3" or ".wma", those files may be wrongly recognized as MP3 or WMA files and played. A loud noise may occur and damage to the speakers may result.

## COMMUNICATION SYSTEM

**HINT:**

Refer to Electro Multi Vision System (Click here).

## DIAGNOSTIC FUNCTION OUTLINE

a. The electro multi vision system has a diagnostic function (the result is indicated on the master unit or the intelligent tester).

## DIAGNOSIS DISPLAY DETAILED DESCRIPTION

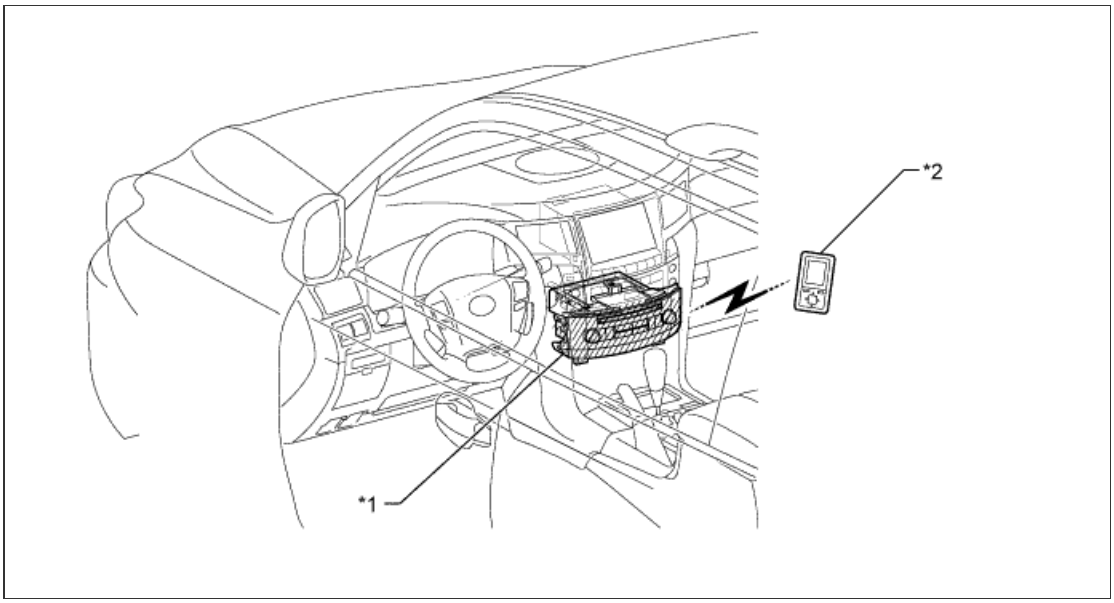
**HINT:**

Refer to Electro Multi Vision System (Click here).

## "BLUETOOTH" OUTLINE

a. "Bluetooth" is a trademark owned by Bluetooth SIG.

b. "Bluetooth" is a wireless connection technology that uses the 2.4 GHz frequency band. This makes it possible to connect a cellular phone ("Bluetooth" compatible phone*1) to the radio receiver assembly (the "Bluetooth" system is built in), and use the hands-free function of the cellular phone, even if it is in a pocket or bag. As a result, it is not necessary to use a connector attached directly to the cellular phone.
*1: Some versions of "Bluetooth" compatible cellular phones may not function.




**Text in Illustration**

| | | | |
|---|---|---|---|
| *1 | Radio Receiver Assembly<br>(Built-in "Bluetooth" receiver antenna) | *2 | Portable Player<br>("Bluetooth" compatible) |

**HINT:**

The communication performance of "Bluetooth" may vary depending on obstructions or radio wave conditions between communication devices, electromagnetic radiation, communication device sensitivity or antenna capacity.

c. "Bluetooth" audio function

i. The "Bluetooth" built-in radio receiver assembly and a "Bluetooth" compatible portable audio player*2 can be connected using a "Bluetooth" wireless connection. This enables files stored in the portable audio player to be heard from the vehicle speakers. In addition, operations such as play/stop can be performed directly from the radio receiver assembly.
*2: Some versions of "Bluetooth" compatible audio players may not be able to operate the "Bluetooth" function, or music may play, but functions available using the radio receiver assembly may be limited.

ii. Available "Bluetooth" audio devices

| | |
|---|---|
| "Bluetooth" specifications | Ver. 1.1 or higher (Recommended: Ver. 2.0+EDR or higher) |
| | • A2DP (Advanced Audio Distribution Profile) Ver. 1.0 or higher |

| | |
|---|---|
| Following profiles | • AVRCP (Audio/Video Remote Control Profile) Ver. 1.0 or higher (Conformed: Ver. 1.3 or higher) |
| Maximum number of audio devices that can be registered | 2 |

**HINT:**

The amount of remaining battery charge displayed on the radio receiver assembly may be different from that of the portable player.

## USB AUDIO SYSTEM FUNCTION OUTLINE

a. The No. 1 stereo jack adapter assembly is equipped with a USB terminal. Connecting a USB device or "iPod" to the No. 1 stereo jack adapter assembly allows music files to be played. Not only is it possible to play music from a USB device with audio functions, is also possible to play MP3 or WMA music files that are stored on a USB device. In addition, "iPod" control software is installed, allowing file selection from playlists and operation using shuffle mode.

**HINT:**

- **Visual contents of an "iPod" cannot be played.**
- **Operation through the controls of a USB device or "iPod" cannot be performed while it is connected.**

b. USB audio system compatible model

i. USB Device
The following device formats can be used:

| | |
|---|---|
| Compatible USB device formats | • USB communication format: USB 2.0 FS (12MBPS)<br>• File format: FAT16/32 (Windows)<br>• Class: Mass storage class |

MP3 and WMA files written in any format other than those listed above may not play correctly, and their names and folder names may not be displayed correctly.
Items related to standards and limitations are as follows:

- Maximum directory hierarchy: 8 levels
- Maximum number of folders in device: 999 (including the root folder)
- Maximum number of files in device: 65025
- Maximum number of files per folder: 255

ii. "iPod"
"iPod" is a trademark of Apple Inc., registered in the U.S. and other countries.

### Supported "iPod" Models and Firmware Versions

| Supported "iPod" Model | Supported Firmware Version |
|---|---|
| "iPod" 5G | Ver. 1.2 or more |
| "iPod Nano" 1G | Ver. 1.2 or more |
| "iPod Nano" 2G | Ver. 1.1.2 or more |
| "iPod Nano" 3G | Ver. 1.0 or more |
| "iPod touch" | Ver. 1.1 or more |
| "iPod classic" | Ver. 1.0 or more |

### Unsupported "iPod" Models

| | |
|---|---|
| Unsupported Models | "iPod shuffle" |
| | "iPhone" |
| | "iPod" 1G, 2G, 3G, 4G |
| | "iPod mini" |

**HINT:**

Depending on the generation of "iPod" used, response to commands from the vehicle may be delayed.

Items related to standards and limitations are as follows:

- Maximum number of lists in device: 9999
- Maximum number of songs in device: 65025
- Maximum number of songs per list: No limitation

## ASL (Automatic Sound Levelizer) FUNCTION OUTLINE

a. The Automatic Sound Levelizer (ASL) function automatically adjusts the sound data in order to provide the clear sound from the audio

system even when vehicle noise increases (as vehicle noise increases, the volume is turned up etc.). Vehicle speed signals are received from the combination meter assembly and used for the ASL.

**for Preparation** Click here

**HINT:**

- **Use the following procedure to troubleshoot the audio and visual system.**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

NEXT

## 2.INSPECT BATTERY VOLTAGE

**Standard Voltage:**
**11 to 14 V**

If the voltage is below 11 V, recharge or replace the battery before proceeding to the next step.

NEXT

## 3.BASIC INSPECTION

a. Turn the engine switch on (IG).

b. Check whether or not the radio receiver assembly turns on.

**Result**

| Result | Proceed to |
|---|---|
| Radio receiver assembly turns on. | A |
| Radio receiver assembly does not turn on. | B |

B. → Go to step 8

A

## 4.CHECK FOR DTC*

a. Refer to DTC Check/Clear of the electro multi vision system.
Refer to Electro Multi Vision System (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is output. | A |
| DTC is not output. | B |

**HINT:**

After the check using the intelligent tester, check the "System Check Mode" screen as necessary.

B. → Go to step 8

A

## 5.DTC CLEAR*

a. Refer to DTC Check/Clear of the electro multi vision system.

Refer to Electro Multi Vision System (Click here).

**HINT:**

The current DTCs may not indicate actual malfunctions depending on the vehicle operating conditions.

**NEXT**

## 6.RECHECK FOR DTC*

a. Refer to DTC Check/Clear of the electro multi vision system.
Refer to Electro Multi Vision System (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is output. | A |
| DTC is not output. | B |

**HINT:**

- **Even if the malfunction symptom is not confirmed, check for diagnostic trouble codes. This is because the system stores past diagnostic trouble codes.**
- **After the check using the intelligent tester, check the "System Check Mode" screen as necessary.**
- **Check the diagnostic trouble code and inspect the area code indicates.**

**B.** → Go to step 9

**A**

## 7.DIAGNOSTIC TROUBLE CODE CHART

a. Find the output code in Diagnostic Trouble Code Chart ( Click here).

**NOTICE:**

- **The electro multi vision system outputs DTCs for the following systems.**
- **When DTCs other than the codes in Diagnostic Trouble Code Chart for the audio and visual system are output, refer to Diagnostic Trouble Code Chart for the following systems.**
- **Refer to Electro Multi Vision System (Click here)**
- **Refer to Rear Seat Entertainment system (w/ Rear Seat Entertainment System) ( Click here).**

**Result**

| Result | Proceed to |
|---|---|
| Audio and Visual System (w/o Navigation System) are output. | A |
| Electro Multi Vision System are output. | B |
| Rear Seat Entertainment system are output. | C |

**A.** → Go to step 10

**B.** → GO TO ELECTRO MULTI VISION SYSTEM

**C.** → GO TO REAR SEAT ENTERTAINMENT SYSTEM

## 8.PROBLEM SYMPTOMS TABLE

a. Refer to Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in Problem Symptoms Table. | A |
| Fault is listed in Problem Symptoms Table. | B |

**HINT:**

If the symptom does not recur and no DTC is output, perform the symptom reproduction method ( Click here).

B. Go to step 10

A

9.CHECK ECU TERMINAL ARRANGEMENT BASED ON MALFUNCTION SYMPTOM

a. Refer to Terminals of ECU (Click here).

NEXT

10.CHECK CIRCUIT

a. Adjust, repair or replace as necessary.

NEXT

11.RECHECK FOR DIAGNOSTIC TROUBLE CODE

**HINT:**

After clearing DTCs, recheck for DTCs.

NEXT

12.PERFORM CONFIRMATION TEST

NEXT

END

**for Preparation** Click here

**HINT:**

- **Use the following procedure to troubleshoot the audio and visual system.**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

NEXT

## 2.INSPECT BATTERY VOLTAGE

**Standard Voltage:**
**11 to 14 V**

If the voltage is below 11 V, recharge or replace the battery before proceeding to the next step.

NEXT

## 3.BASIC INSPECTION

a. Turn the engine switch on (IG).

b. Check whether or not the radio receiver assembly turns on.

**Result**

| Result | Proceed to |
|---|---|
| Radio receiver assembly turns on. | A |
| Radio receiver assembly does not turn on. | B |

B. → Go to step 8

A

## 4.CHECK FOR DTC*

a. Refer to DTC Check/Clear of the electro multi vision system.
Refer to Electro Multi Vision System (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is output. | A |
| DTC is not output. | B |

**HINT:**

After the check using the intelligent tester, check the "System Check Mode" screen as necessary.

B. → Go to step 8

A

## 5.DTC CLEAR*

a. Refer to DTC Check/Clear of the electro multi vision system.

Refer to Electro Multi Vision System (Click here).

**HINT:**

The current DTCs may not indicate actual malfunctions depending on the vehicle operating conditions.

**NEXT**

## 6.RECHECK FOR DTC*

a. Refer to DTC Check/Clear of the electro multi vision system.
Refer to Electro Multi Vision System (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is output. | A |
| DTC is not output. | B |

**HINT:**

- **Even if the malfunction symptom is not confirmed, check for diagnostic trouble codes. This is because the system stores past diagnostic trouble codes.**
- **After the check using the intelligent tester, check the "System Check Mode" screen as necessary.**
- **Check the diagnostic trouble code and inspect the area code indicates.**

**B.** → Go to step 9

**A**

## 7.DIAGNOSTIC TROUBLE CODE CHART

a. Find the output code in Diagnostic Trouble Code Chart ( Click here).

**NOTICE:**

- **The electro multi vision system outputs DTCs for the following systems.**
- **When DTCs other than the codes in Diagnostic Trouble Code Chart for the audio and visual system are output, refer to Diagnostic Trouble Code Chart for the following systems.**
- **Refer to Electro Multi Vision System (Click here)**
- **Refer to Rear Seat Entertainment system (w/ Rear Seat Entertainment System) ( Click here).**

**Result**

| Result | Proceed to |
|---|---|
| Audio and Visual System (w/o Navigation System) are output. | A |
| Electro Multi Vision System are output. | B |
| Rear Seat Entertainment system are output. | C |

**A.** → Go to step 10

**B.** → GO TO ELECTRO MULTI VISION SYSTEM

**C.** → GO TO REAR SEAT ENTERTAINMENT SYSTEM

## 8.PROBLEM SYMPTOMS TABLE

a. Refer to Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in Problem Symptoms Table. | A |
| Fault is listed in Problem Symptoms Table. | B |

**HINT:**

If the symptom does not recur and no DTC is output, perform the symptom reproduction method ( Click here).

B. Go to step 10

A

9.CHECK ECU TERMINAL ARRANGEMENT BASED ON MALFUNCTION SYMPTOM

a. Refer to Terminals of ECU (Click here).

NEXT

10.CHECK CIRCUIT

a. Adjust, repair or replace as necessary.

NEXT

11.RECHECK FOR DIAGNOSTIC TROUBLE CODE

**HINT:**

After clearing DTCs, recheck for DTCs.

NEXT

12.PERFORM CONFIRMATION TEST

NEXT

END

**for Preparation** Click here

## RADIO DESCRIPTION

a. Radio frequency band

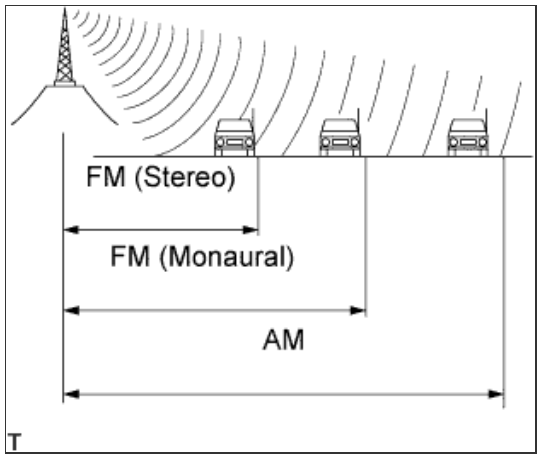
i. Radio broadcasts use the radio frequency bands shown in the table below.

| Frequency | 30 kHz | 300 kHz | 3 MHz | 30 MHz | 300 MHz |
|---|---|---|---|---|---|
| Designation | LF | MF | HF | VHF | |
| Radio Wave | | AM | | FM | |
| Modulation | | Amplitude Modulation | | Frequency Modulation | |

LF: Low Frequency MF: Medium Frequency HF: High Frequency VHF: Very High Frequency

b. Service area

i. The service areas of AM and FM broadcasts are vastly different. Sometimes an AM broadcast can be received very clearly but an FM stereo cannot. FM stereo has the smallest service area, and is prone to pick up static and other types of interference such as noise.

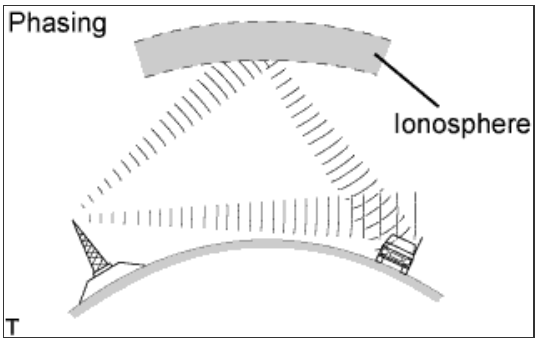



c. Radio reception problems

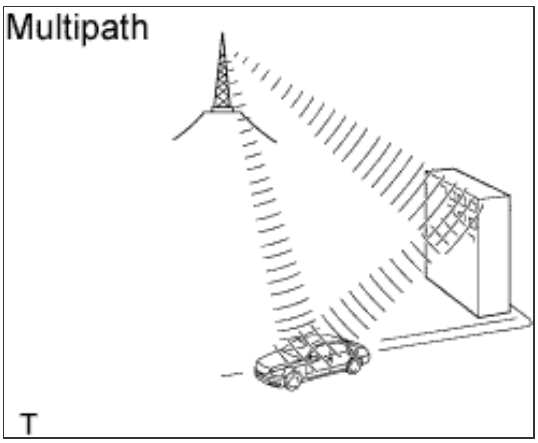
**HINT:**

In addition to static, other problems such as "phasing", "multipath" and "fade out" exist. These problems are not caused by electrical noise, but by the radio signal propagation method itself.

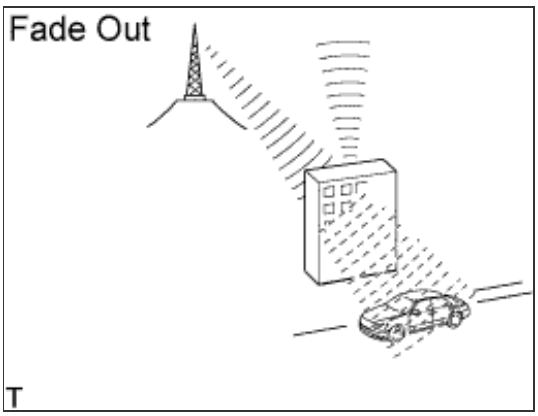
i. Phasing
AM broadcasts are susceptible to electrical interference and another kind of interference called phasing. Occurring only at night, phasing is the interference created when a vehicle receives 2 radio wave signals from the same transmitter. One signal is reflected off the ionosphere and the other signal is received directly from the transmitter.




ii. Multipath
Multipath is a type of interference created when a vehicle receives 2 radio wave signals from the same transmitter. One signal is reflected off buildings or mountains and the other signal is received directly from the transmitter.




iii. Fade out
Fade out is caused by objects (buildings, mountains and other such large obstacles) that deflect away part of a signal, resulting in a weaker signal when the object is between the transmitter and vehicle. High frequency radio waves, such as FM broadcasts, are easily deflected by obstructions. Low frequency radio waves, such as AM broadcasts, are less likely to deflect.




d. Noise problem
Technicians must have a clear understanding about each customer's noise complaint. Use the following table to diagnose noise problems.

| Radio Frequency | Noise Occurrence Condition | Presumable Cause |
|---|---|---|
| AM | Noise occurs in a specified area | Foreign noise |
| AM | Noise occurs when listening to an intermittent broadcast | An identical program transmitted from multiple towers can cause noise where the signals overlap |
| AM | Noise occurs only at night | Signal phasing |
| FM | Noise occurs while driving in a specified area | Multipath resulting from a change in FM frequency |

**for Preparation** Click here

**HINT:**

- **Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**
- **Inspect the fuses and relays related to this system before inspecting the suspected areas below.**

**Audio Function**

| Symptom | Suspected Area | See page |
|---|---|---|
| Pressing power switch does not turn on system. | Proceed to "Pressing Power Switch does not Turn on System" | Click here |
| | Radio receiver power source circuit | Click here |
| | Radio receiver assembly | Click here |
| Panel switch does not function. | Steering pad switch circuit | Click here |
| | Radio receiver assembly | Click here |
| No sound can be heard from speakers. (Audio is mute.) | Proceed to "No Sound can be Heard from Speakers" | Click here |
| | Stereo component amplifier power source circuit | Click here |
| | Speaker circuit | Click here |
| | Stereo component amplifier assembly | Click here |
| | Radio receiver assembly | Click here |
| Sound quality is bad in all modes. (Volume is too low.) | Proceed to "Poor Sound Quality in All Modes (Low Volume)" | Click here |
| | Speaker circuit | Click here |
| | Stereo component amplifier assembly | Click here |
| | Radio receiver assembly | Click here |
| ASL does not function. | Proceed to "Vehicle Speed Signal Circuit between Stereo Component Amplifier and Combination Meter" | Click here |
| External device sound cannot be heard or sound quality is bad. (Stereo jack is used.) | Radio receiver power source circuit | Click here |
| | Proceed to "Sound Signal Circuit between Radio Receiver and Stereo Jack Adapter" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Radio receiver assembly | Click here |
| Abnormal noise occurs. | Proceed to "Noise Occurs" | Click here |
| | Stereo component amplifier assembly | Click here |
| | Radio receiver assembly | Click here |
| Radio broadcast cannot be received or poor reception. | Proceed to "Radio Broadcast cannot be Received or Poor Reception" | Click here |
| Disc cannot be inserted/played or disc is ejected right after insertion. | Radio receiver power source circuit | Click here |
| | Proceed to "Disc cannot be Inserted or is Ejected Right After Insertion" | Click |

| | | |
|---|---|---|
| | | here |
| Disc cannot be ejected. | Radio receiver power source circuit | Click here |
| | Proceed to "Disc cannot be Ejected" | Click here |
| Sound quality is bad only when disc is played. (Volume is too low.) | Proceed to "Sound Quality is Bad Only when Disc is Played (Volume is Too Low)" | Click here |
| CD/DVD sound skips. | Proceed to "CD/DVD Sound Skips" | Click here |
| Radio receiver cannot be illuminated at night. | Illumination circuit | Click here |
| | Radio receiver assembly | Click here |

### Steering Pad Switch Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Audio system cannot be operated with steering pad switch. | Steering pad switch circuit | Click here |
| | Radio receiver assembly | Click here |

### "Bluetooth" Audio Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Portable player cannot be registered. | Proceed to "Portable Player cannot be Registered" | Click here |
| | Radio receiver assembly | Click here |
| Portable player cannot be connected manually/automatically. | Proceed to "Portable Player cannot be Registered" | Click here |
| | Proceed to "Portable Player cannot be Connected Manually / Automatically" | Click here |
| | Radio receiver assembly | Click here |
| Cellular phone with portable audio function cannot be recognized as "Bluetooth" audio device even when connected using "Bluetooth". | Proceed to "Portable Player cannot be Registered" | Click here |
| | Proceed to "Portable Player cannot be Connected Manually / Automatically" | Click here |
| | Radio receiver assembly | Click here |
| Sound of portable player cannot be heard from speakers, or sound is low. | Proceed to "Sound of Portable Player cannot be Heard from Speakers or Sound is Low" | Click here |
| | Radio receiver assembly | Click here |
| Portable player does not play even after "Bluetooth" audio mode is selected. | Proceed to "Does not Play even after Bluetooth Audio Mode is Selected" | Click here |
| | Radio receiver assembly | Click here |
| Portable player does not play. | Proceed to "Does not Play even after Bluetooth Audio Mode is Selected" | Click here |
| | Radio receiver assembly | Click here |
| Track information such as track number, track name and elapsed play time is not displayed. | Proceed to "Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device" | Click here |
| | Radio receiver assembly | Click here |
| Operation switches for portable player such as play, pause, repeat, random and scan are not displayed. | Proceed to "Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device" | Click here |
| | Radio receiver assembly | Click here |
| Battery condition of portable player is not displayed. | Proceed to "Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device" | Click here |
| | Radio receiver assembly | Click here |
| "Bluetooth" signal condition is not displayed. | Proceed to "Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device" | Click here |

| | | |
|---|---|---|
| | Radio receiver assembly | Click here |
| Portable player cannot pause, select file, fast forward, fast rewind, random play or scan. | Proceed to "Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device" | Click here |
| | Radio receiver assembly | Click here |
| Noise occurs or sound skips when portable player plays. | Proceed to "Noise Occurs or Sound Skips when Portable Player Plays" | Click here |
| | Radio receiver assembly | Click here |
| Registered device cannot be deleted. | Proceed to "Registered Device cannot be Deleted" | Click here |
| | Radio receiver assembly | Click here |

### USB Audio System Function

| Symptom | Suspected Area | See page |
|---|---|---|
| USB audio sound cannot be heard or sound quality is bad. (Stereo jack is used.) | Multi-media Interface ECU power source circuit | Click here |
| | Proceed to "Sound Signal Circuit between Navigation ECU and Multi-media Interface ECU" | Click here |
| | Proceed to "Sound Signal Circuit between Multi-media Interface ECU and Stereo Jack Adapter" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media interface ECU | Click here |
| | Display and navigation module display | Click here |
| USB device or "iPod" is not recognized. | Proceed to "USB Audio System Recognition/Play Error" | Click here |
| | Proceed to "Sound Signal Circuit between Multi-media Interface ECU and Stereo Jack Adapter" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media interface ECU | Click here |
| Track information such as track, artist and album names are not displayed. | Proceed to "USB Audio System Recognition/Play Error" | Click here |
| | Proceed to "Sound Signal Circuit between Multi-media Interface ECU and Stereo Jack Adapter" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media interface ECU | Click here |
| USB device or "iPod" is recognized but cannot play nor play in a sorted order. | Proceed to "USB Audio System Recognition/Play Error" | Click here |
| | Proceed to "Sound Signal Circuit between Multi-media Interface ECU and Stereo Jack Adapter" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media interface ECU | Click here |

**for Preparation** Click here

**HINT:**

- **Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**
- **Inspect the fuses and relays related to this system before inspecting the suspected areas below.**

**Audio Function**

| Symptom | Suspected Area | See page |
|---|---|---|
| Pressing power switch does not turn on system. | Proceed to "Pressing Power Switch does not Turn on System" | Click here |
| | Radio receiver power source circuit | Click here |
| | Radio receiver assembly | Click here |
| Panel switch does not function. | Steering pad switch circuit | Click here |
| | Radio receiver assembly | Click here |
| No sound can be heard from speakers. (Audio is mute.) | Proceed to "No Sound can be Heard from Speakers" | Click here |
| | Stereo component amplifier power source circuit | Click here |
| | Speaker circuit | Click here |
| | Stereo component amplifier assembly | Click here |
| | Radio receiver assembly | Click here |
| Sound quality is bad in all modes. (Volume is too low.) | Proceed to "Poor Sound Quality in All Modes (Low Volume)" | Click here |
| | Speaker circuit | Click here |
| | Stereo component amplifier assembly | Click here |
| | Radio receiver assembly | Click here |
| ASL does not function. | Proceed to "Vehicle Speed Signal Circuit between Stereo Component Amplifier and Combination Meter" | Click here |
| External device sound cannot be heard or sound quality is bad. (Stereo jack is used.) | Radio receiver power source circuit | Click here |
| | Proceed to "Sound Signal Circuit between Radio Receiver and Stereo Jack Adapter" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Radio receiver assembly | Click here |
| Abnormal noise occurs. | Proceed to "Noise Occurs" | Click here |
| | Stereo component amplifier assembly | Click here |
| | Radio receiver assembly | Click here |
| Radio broadcast cannot be received or poor reception. | Proceed to "Radio Broadcast cannot be Received or Poor Reception" | Click here |
| Disc cannot be inserted/played or disc is ejected right after insertion. | Radio receiver power source circuit | Click here |
| | Proceed to "Disc cannot be Inserted or is Ejected Right After Insertion" | Click |

| | | |
|---|---|---|
| | | here |
| Disc cannot be ejected. | Radio receiver power source circuit | Click here |
| | Proceed to "Disc cannot be Ejected" | Click here |
| Sound quality is bad only when disc is played. (Volume is too low.) | Proceed to "Sound Quality is Bad Only when Disc is Played (Volume is Too Low)" | Click here |
| CD/DVD sound skips. | Proceed to "CD/DVD Sound Skips" | Click here |
| Radio receiver cannot be illuminated at night. | Illumination circuit | Click here |
| | Radio receiver assembly | Click here |

### Steering Pad Switch Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Audio system cannot be operated with steering pad switch. | Steering pad switch circuit | Click here |
| | Radio receiver assembly | Click here |

### "Bluetooth" Audio Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Portable player cannot be registered. | Proceed to "Portable Player cannot be Registered" | Click here |
| | Radio receiver assembly | Click here |
| Portable player cannot be connected manually/automatically. | Proceed to "Portable Player cannot be Registered" | Click here |
| | Proceed to "Portable Player cannot be Connected Manually / Automatically" | Click here |
| | Radio receiver assembly | Click here |
| Cellular phone with portable audio function cannot be recognized as "Bluetooth" audio device even when connected using "Bluetooth". | Proceed to "Portable Player cannot be Registered" | Click here |
| | Proceed to "Portable Player cannot be Connected Manually / Automatically" | Click here |
| | Radio receiver assembly | Click here |
| Sound of portable player cannot be heard from speakers, or sound is low. | Proceed to "Sound of Portable Player cannot be Heard from Speakers or Sound is Low" | Click here |
| | Radio receiver assembly | Click here |
| Portable player does not play even after "Bluetooth" audio mode is selected. | Proceed to "Does not Play even after Bluetooth Audio Mode is Selected" | Click here |
| | Radio receiver assembly | Click here |
| Portable player does not play. | Proceed to "Does not Play even after Bluetooth Audio Mode is Selected" | Click here |
| | Radio receiver assembly | Click here |
| Track information such as track number, track name and elapsed play time is not displayed. | Proceed to "Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device" | Click here |
| | Radio receiver assembly | Click here |
| Operation switches for portable player such as play, pause, repeat, random and scan are not displayed. | Proceed to "Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device" | Click here |
| | Radio receiver assembly | Click here |
| Battery condition of portable player is not displayed. | Proceed to "Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device" | Click here |
| | Radio receiver assembly | Click here |
| "Bluetooth" signal condition is not displayed. | Proceed to "Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device" | Click here |

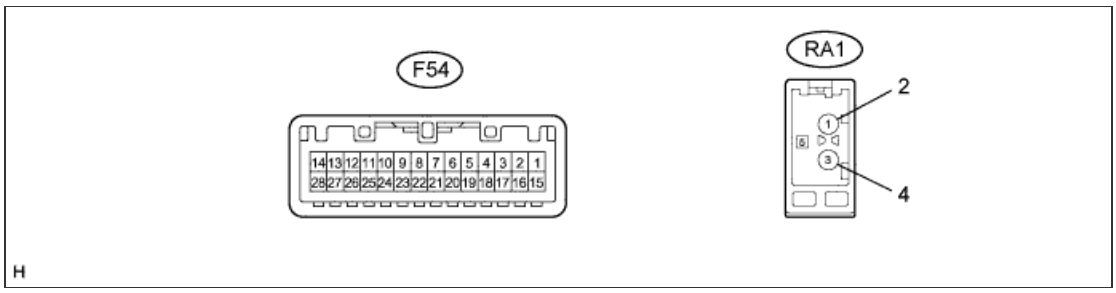
| | | |
|---|---|---|
| | Radio receiver assembly | Click here |
| Portable player cannot pause, select file, fast forward, fast rewind, random play or scan. | Proceed to "Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device" | Click here |
| | Radio receiver assembly | Click here |
| Noise occurs or sound skips when portable player plays. | Proceed to "Noise Occurs or Sound Skips when Portable Player Plays" | Click here |
| | Radio receiver assembly | Click here |
| Registered device cannot be deleted. | Proceed to "Registered Device cannot be Deleted" | Click here |
| | Radio receiver assembly | Click here |

### USB Audio System Function

| Symptom | Suspected Area | See page |
|---|---|---|
| USB audio sound cannot be heard or sound quality is bad. (Stereo jack is used.) | Multi-media Interface ECU power source circuit | Click here |
| | Proceed to "Sound Signal Circuit between Navigation ECU and Multi-media Interface ECU" | Click here |
| | Proceed to "Sound Signal Circuit between Multi-media Interface ECU and Stereo Jack Adapter" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media interface ECU | Click here |
| | Display and navigation module display | Click here |
| USB device or "iPod" is not recognized. | Proceed to "USB Audio System Recognition/Play Error" | Click here |
| | Proceed to "Sound Signal Circuit between Multi-media Interface ECU and Stereo Jack Adapter" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media interface ECU | Click here |
| Track information such as track, artist and album names are not displayed. | Proceed to "USB Audio System Recognition/Play Error" | Click here |
| | Proceed to "Sound Signal Circuit between Multi-media Interface ECU and Stereo Jack Adapter" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media interface ECU | Click here |
| USB device or "iPod" is recognized but cannot play nor play in a sorted order. | Proceed to "USB Audio System Recognition/Play Error" | Click here |
| | Proceed to "Sound Signal Circuit between Multi-media Interface ECU and Stereo Jack Adapter" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media interface ECU | Click here |

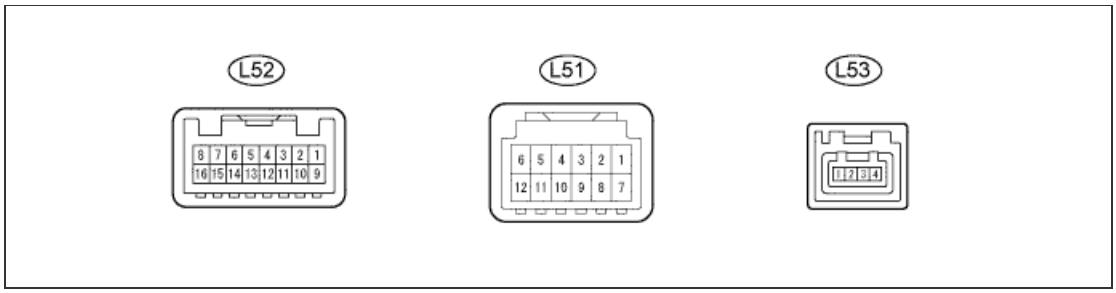
**for Preparation** Click here

## RADIO RECEIVER ASSEMBLY




| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specification |
|---|---|---|---|---|
| F54-3 (ILL+) - F54-15 (GND) | G - BR | Illumination signal | Light control switch off | Below 1 V |
| | | | Light control switch tail | 11 to 14 V |
| F54-5 (AUXI) - F54-15 (GND) | V - BR | External device connection detection signal | External device connected | Below 1 V |
| F54-6 (AGND) - Body ground | Shield - Body ground | Shield ground | Always | Below 1 V |
| F54-7 (SLD) - Body ground | Shield - Body ground | Shield ground | Always | Below 1 V |
| F54-8 (NTSC) - F54-15 (GND) | W - BR | DVD image signal | DVD playing | A waveform synchronized with display signals is output |
| F54-9 (MI+) | B | MOST communication signal | - | - |
| F54-10 (SLDI) - Body ground | BR - Body ground | Shield ground | Always | Below 1 V |
| F54-11 (MO+) | B | MOST communication signal | - | - |
| F54-12 (WUI) - F54-15 (GND) | R - BR | MOST communication wake up signal | Engine switch on (ACC) | 4.5 V or higher |
| F54-14 (B) - F54-15 (GND) | L - BR | Battery | Always | 11 to 14 V |
| F54-15 (GND) - Body ground | BR - Body ground | Ground | Always | Below 1 V |
| F54-17 (ILL-) - F54-15 (GND) | W - BR | Illumination (rheostat) signal | Light control switch off | Below 1 V |
| | | | Light control switch tail | Pulse generation |
| F54-19 (ARI) - F54-15 (GND) | W - BR | Sound signal (Right) | External device playing (When stereo jack used) | A waveform synchronized with sounds is output |
| F54-20 (ALI ) - F54-15 (GND) | B - BR | Sound signal (Left) | External device playing (When stereo jack used) | A waveform synchronized with sounds is output |
| F54-21 (ASGN) - F54-15 (GND) | R - BR | Shield ground | Always | Below 1 V |
| F54-22 (GND) - F54-15 (GND) | B - BR | Shield ground | Always | Below 1 V |
| F54-23 (MI-) | W | MOST communication signal | - | - |
| F54-24 (SLDI) - Body ground | BR - Body ground | Shield ground | Always | Below 1 V |
| F54-25 (MO-) | W | MOST communication signal | - | - |
| F54-26 (WUO) - F54-15 (GND) | R - RB | MOST communication wake up signal | Engine switch on (ACC) | 4.5 V or higher |
| RA1-5 (ANT+) - F54-15 (GND) | BR- RB | Power source of antenna | Engine switch on (ACC) Radio switch on and AM or FM | 11 to 14 V |

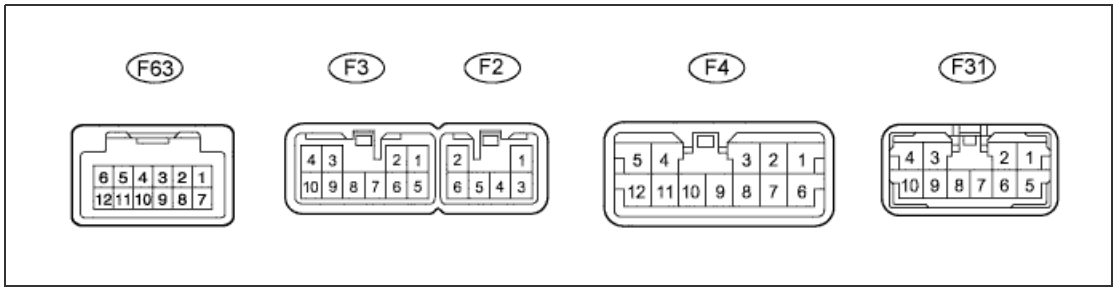
## MULTI-MEDIA INTERFACE ECU




| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specification |
|---|---|---|---|---|
| L51-1 (USD1) - Body ground | Shield - Body ground | Shield ground | Always | Below 1 V |
| L51-2 (URO+) - L51-7 (GND) | W - B | USB audio system sound signal | USB audio system playing | A waveform synchronized with sounds is output |
| L51-3 (ULO+) - L51-7 (GND) | B - B | USB audio system sound signal | USB audio system playing | A waveform synchronized with sounds is output |
| L51-4 (UGD1) - L51-7 (GND) | R - B | USB audio system sound signal | USB audio system playing | A waveform synchronized with sounds is output |
| L51-7 (GND) - Body ground | B - Body ground | Ground | Always | Below 1 V |
| L51-9 (TX1+) | W | AVC-LAN communication signal | - | - |
| L51-10 (TX1-) | L | AVC-LAN communication signal | - | - |
| L51-11 (ACC) - L51-7 (GND) | GR - B | Accessory (ON) | Engine switch off | Below 1 V |
| | | | Engine switch on (ACC) | 11 to 14 V |
| L51-12 (+B) - L51-7 (GND) | R - B | Battery | Always | 11 to 14 V |
| L53-1 (UPO) - L53-4 (UESG) | - | Battery | Always | 5 V |
| L53-2 (UDI-) | - | Data signal | USB device or "iPod" connected | - |
| L53-3 (UDI+) | - | Data signal | USB device or "iPod" connected | - |
| L53-4 (UESG) - Body ground | - | Ground | Always | Below 1 V |
| L52-1 (VRI) - L52-10 (VGN)*1 | W - R | Aux sound signal (right) | External device is playing (When stereo jack is used) | A waveform synchronized with sounds is output |
| L52-2 (SGND) - Body ground*1 | Shield - Body ground | Shield ground | Always | Below 1 V |
| L52-9 (VLI) - L52-10 (VGN)*1 | B - R | Aux sound signal (left) | External device is playing (When stereo jack is used) | A waveform synchronized with sounds is output |
| L52-10 (VGN) - Body ground*1 | R - Body ground | Ground | Always | Below 1 V |

*1: w/ Rear Seat Entertainment System

## CHECK STEREO COMPONENT AMPLIFIER ASSEMBLY (for 19 Speakers)

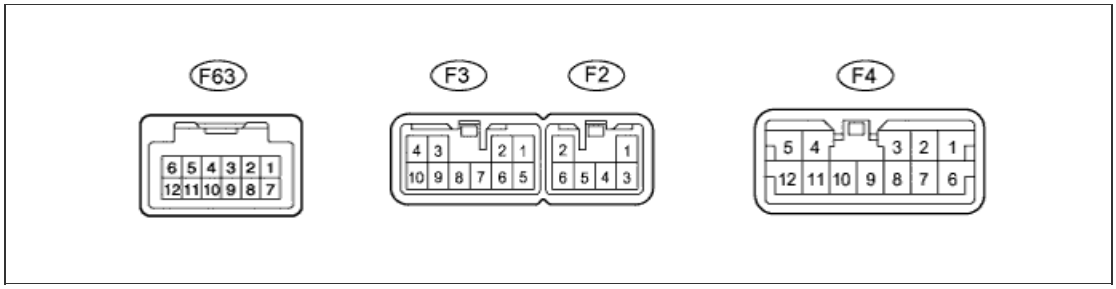



| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F2-2 (GND) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F2-6 (GND2) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F2-1 (+B) - F2-2 (GND) | B - W-B | Battery | Always | 11 to 14 V |
| F2-3 (+B2) - F2-2 (GND) | L - W-B | Battery | Always | 11 to 14 V |
| F3-3 (CTR+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-9 (CTR-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |

| | | | | |
|---|---|---|---|---|
| F31-2 (FL+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-6 (FL-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-8 (FR+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-7 (FR-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-4 (RL+) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-10 (RL-) - F2-2 (GND) | Y - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-1 (RR+) - F2-2 (GND) | R - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-5 (RR-) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-1 (WF1+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-6 (WF1-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-3 (R-L+) - F2-2 (GND) | W - W-B | Sound signal (left) | Audio system playing | Waveform synchronized with sound is output |
| F31-9 (R-L-) - F2-2 (GND) | B - W-B | Sound signal (left) | Audio system playing | Waveform synchronized with sound is output |
| F31-4 (R-R+) - F2-2 (GND) | W - W-B | Sound signal (right) | Audio system playing | Waveform synchronized with sound is output |
| F31-10 (R-R-) - F2-2 (GND) | B - W-B | Sound signal (right) | Audio system playing | Waveform synchronized with sound is output |
| F4-2 (SL+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-7 (SL-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-1 (SR+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-6 (SR-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-10 (WFL+) - F2-2 (GND) | P - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-8 (WFL-) - F2-2 (GND) | V - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-5 (WFR+) - F2-2 (GND) | LG - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-11 (WFR-) - F2-2 (GND) | L - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F63-2 (SPD) - F2-2 (GND) | V - W-B | Speed signal from combination meter assembly | Engine switch on (IG)<br>Drive wheels turned slowly | Pulse generation |
| F63-3 (WUI) - F2-2 (GND) | R - W-B | MOST communication wake up signal | Engine switch on (ACC) | 4.5 V or higher |
| F63-4 (MI+) | B | MOST communication signal | - | - |
| F63-5 (SLDI) - Body ground | BR - Body ground | Shield ground | Always | Below 1 V |
| F63-6 (MO+) | W | MOST communication signal | - | - |
| F63-9 (WUO) - F2-2 (GND)*1 | P - W-B | MOST communication wake up signal | Engine switch on (ACC) | 4.5 V or higher |
| F63-10 (MI-) | W | MOST communication signal | - | - |
| F63-11 (SLDO) - Body ground | BR - Body ground | Shield ground | Always | Below 1 V |
| F63-12 (MO-) | B | MOST communication signal | - | - |

*1: w/ Rear Seat Entertainment System

## CHECK STEREO COMPONENT AMPLIFIER ASSEMBLY (for 9 Speakers)



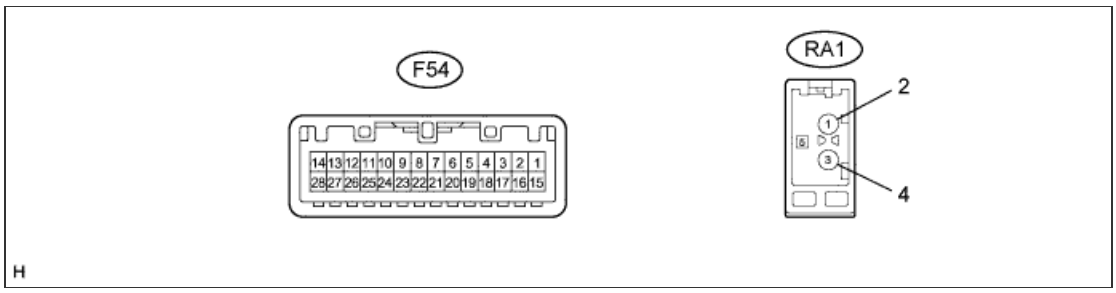

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F2-2 (GND) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F2-6 (GND2) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F2-3 (+B2) - F2-2 (GND) | L - W-B | Battery | Always | 11 to 14 V |
| F3-8 (CTR+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-7 (CTR-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-3 (FL+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-8 (FL-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-10 (FR+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-9 (FR-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-4 (RL+) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-11 (RL-) - F2-2 (GND) | Y - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-5 (RR+) - F2-2 (GND) | R - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-12 (RR-) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-1 (WFL+) - F2-2 (GND) | P - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-5 (WFL-) - F2-2 (GND) | V - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-2 (WFR+) - F2-2 (GND) | LG - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-6 (WFR-) - F2-2 (GND) | L - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F63-2 (SPD) - F2-2 (GND) | V - W-B | Speed signal from combination meter assembly | Engine switch on (IG)<br>Drive wheels turned slowly | Pulse generation |
| F63-3 (WUI) - F2-2 (GND) | R - W-B | MOST communication wake up signal | Engine switch on (ACC) | 4.5 V or higher |
| F63-4 (MI+) | B | MOST communication signal | - | - |
| F63-5 (SLDI) - Body ground | BR - Body ground | Shield ground | Always | Below 1 V |
| F63-6 (MO+) | W | MOST communication signal | - | - |
| F63-9 (WUO) - F2-2 (GND)*1 | P - W-B | MOST communication wake up signal | Engine switch on (ACC) | 4.5 V or higher |
| F63-10 (MI-) | W | MOST communication signal | - | - |
| F63-11 (SLDO) - Body ground | BR - Body ground | Shield ground | Always | Below 1 V |
| F63-12 (MO-) | B | MOST communication signal | - | - |

*1: w/ Rear Seat Entertainment System

DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

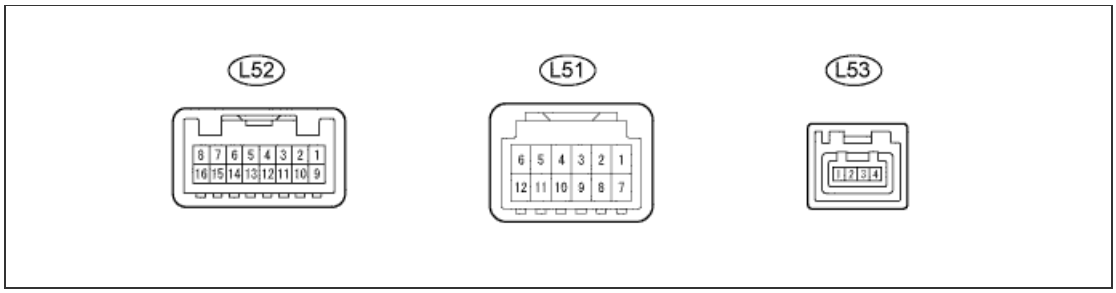
**for Preparation** Click here

## RADIO RECEIVER ASSEMBLY




| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specification |
|---|---|---|---|---|
| F54-3 (ILL+) - F54-15 (GND) | G - BR | Illumination signal | Light control switch off | Below 1 V |
| | | | Light control switch tail | 11 to 14 V |
| F54-5 (AUXI) - F54-15 (GND) | V - BR | External device connection detection signal | External device connected | Below 1 V |
| F54-6 (AGND) - Body ground | Shield - Body ground | Shield ground | Always | Below 1 V |
| F54-7 (SLD) - Body ground | Shield - Body ground | Shield ground | Always | Below 1 V |
| F54-8 (NTSC) - F54-15 (GND) | W - BR | DVD image signal | DVD playing | A waveform synchronized with display signals is output |
| F54-9 (MI+) | B | MOST communication signal | - | - |
| F54-10 (SLDI) - Body ground | BR - Body ground | Shield ground | Always | Below 1 V |
| F54-11 (MO+) | B | MOST communication signal | - | - |
| F54-12 (WUI) - F54-15 (GND) | R - BR | MOST communication wake up signal | Engine switch on (ACC) | 4.5 V or higher |
| F54-14 (B) - F54-15 (GND) | L - BR | Battery | Always | 11 to 14 V |
| F54-15 (GND) - Body ground | BR - Body ground | Ground | Always | Below 1 V |
| F54-17 (ILL-) - F54-15 (GND) | W - BR | Illumination (rheostat) signal | Light control switch off | Below 1 V |
| | | | Light control switch tail | Pulse generation |
| F54-19 (ARI) - F54-15 (GND) | W - BR | Sound signal (Right) | External device playing (When stereo jack used) | A waveform synchronized with sounds is output |
| F54-20 (ALI ) - F54-15 (GND) | B - BR | Sound signal (Left) | External device playing (When stereo jack used) | A waveform synchronized with sounds is output |
| F54-21 (ASGN) - F54-15 (GND) | R - BR | Shield ground | Always | Below 1 V |
| F54-22 (GND) - F54-15 (GND) | B - BR | Shield ground | Always | Below 1 V |
| F54-23 (MI-) | W | MOST communication signal | - | - |
| F54-24 (SLDI) - Body ground | BR - Body ground | Shield ground | Always | Below 1 V |
| F54-25 (MO-) | W | MOST communication signal | - | - |
| F54-26 (WUO) - F54-15 (GND) | R - RB | MOST communication wake up signal | Engine switch on (ACC) | 4.5 V or higher |
| RA1-5 (ANT+) - F54-15 (GND) | BR- RB | Power source of antenna | Engine switch on (ACC) Radio switch on and AM or FM | 11 to 14 V |

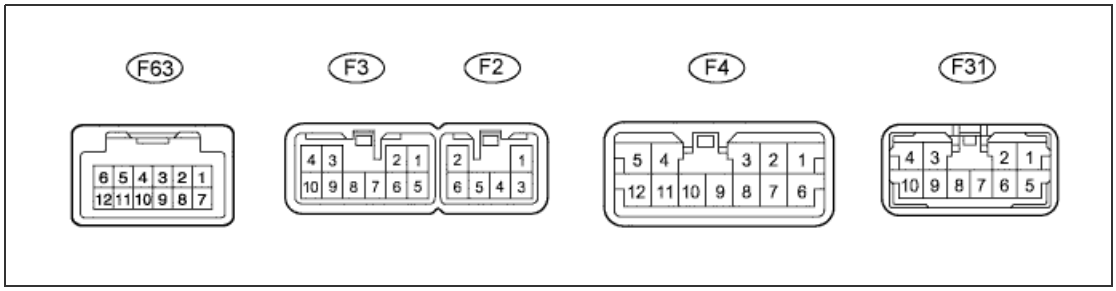
## MULTI-MEDIA INTERFACE ECU




| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specification |
|---|---|---|---|---|
| L51-1 (USD1) - Body ground | Shield - Body ground | Shield ground | Always | Below 1 V |
| L51-2 (URO+) - L51-7 (GND) | W - B | USB audio system sound signal | USB audio system playing | A waveform synchronized with sounds is output |
| L51-3 (ULO+) - L51-7 (GND) | B - B | USB audio system sound signal | USB audio system playing | A waveform synchronized with sounds is output |
| L51-4 (UGD1) - L51-7 (GND) | R - B | USB audio system sound signal | USB audio system playing | A waveform synchronized with sounds is output |
| L51-7 (GND) - Body ground | B - Body ground | Ground | Always | Below 1 V |
| L51-9 (TX1+) | W | AVC-LAN communication signal | - | - |
| L51-10 (TX1-) | L | AVC-LAN communication signal | - | - |
| L51-11 (ACC) - L51-7 (GND) | GR - B | Accessory (ON) | Engine switch off | Below 1 V |
| | | | Engine switch on (ACC) | 11 to 14 V |
| L51-12 (+B) - L51-7 (GND) | R - B | Battery | Always | 11 to 14 V |
| L53-1 (UPO) - L53-4 (UESG) | - | Battery | Always | 5 V |
| L53-2 (UDI-) | - | Data signal | USB device or "iPod" connected | - |
| L53-3 (UDI+) | - | Data signal | USB device or "iPod" connected | - |
| L53-4 (UESG) - Body ground | - | Ground | Always | Below 1 V |
| L52-1 (VRI) - L52-10 (VGN)*1 | W - R | Aux sound signal (right) | External device is playing (When stereo jack is used) | A waveform synchronized with sounds is output |
| L52-2 (SGND) - Body ground*1 | Shield - Body ground | Shield ground | Always | Below 1 V |
| L52-9 (VLI) - L52-10 (VGN)*1 | B - R | Aux sound signal (left) | External device is playing (When stereo jack is used) | A waveform synchronized with sounds is output |
| L52-10 (VGN) - Body ground*1 | R - Body ground | Ground | Always | Below 1 V |

*1: w/ Rear Seat Entertainment System

## CHECK STEREO COMPONENT AMPLIFIER ASSEMBLY (for 19 Speakers)

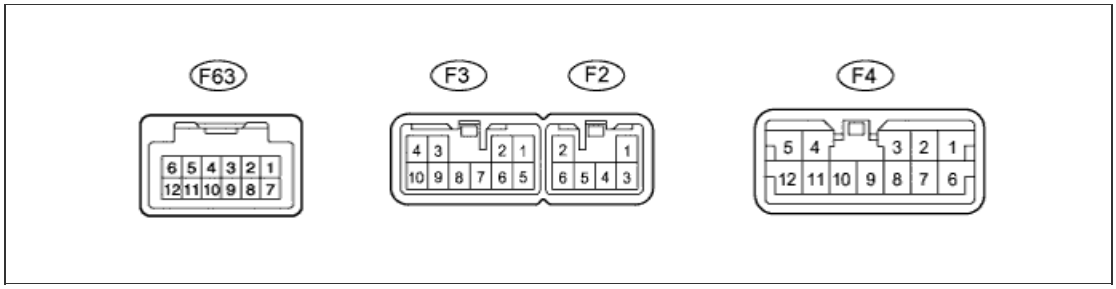



| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F2-2 (GND) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F2-6 (GND2) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F2-1 (+B) - F2-2 (GND) | B - W-B | Battery | Always | 11 to 14 V |
| F2-3 (+B2) - F2-2 (GND) | L - W-B | Battery | Always | 11 to 14 V |
| F3-3 (CTR+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-9 (CTR-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |

| | | | | |
|---|---|---|---|---|
| F31-2 (FL+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-6 (FL-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-8 (FR+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-7 (FR-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-4 (RL+) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-10 (RL-) - F2-2 (GND) | Y - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-1 (RR+) - F2-2 (GND) | R - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-5 (RR-) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-1 (WF1+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-6 (WF1-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F31-3 (R-L+) - F2-2 (GND) | W - W-B | Sound signal (left) | Audio system playing | Waveform synchronized with sound is output |
| F31-9 (R-L-) - F2-2 (GND) | B - W-B | Sound signal (left) | Audio system playing | Waveform synchronized with sound is output |
| F31-4 (R-R+) - F2-2 (GND) | W - W-B | Sound signal (right) | Audio system playing | Waveform synchronized with sound is output |
| F31-10 (R-R-) - F2-2 (GND) | B - W-B | Sound signal (right) | Audio system playing | Waveform synchronized with sound is output |
| F4-2 (SL+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-7 (SL-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-1 (SR+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-6 (SR-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-10 (WFL+) - F2-2 (GND) | P - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-8 (WFL-) - F2-2 (GND) | V - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-5 (WFR+) - F2-2 (GND) | LG - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-11 (WFR-) - F2-2 (GND) | L - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F63-2 (SPD) - F2-2 (GND) | V - W-B | Speed signal from combination meter assembly | Engine switch on (IG)<br>Drive wheels turned slowly | Pulse generation |
| F63-3 (WUI) - F2-2 (GND) | R - W-B | MOST communication wake up signal | Engine switch on (ACC) | 4.5 V or higher |
| F63-4 (MI+) | B | MOST communication signal | - | - |
| F63-5 (SLDI) - Body ground | BR - Body ground | Shield ground | Always | Below 1 V |
| F63-6 (MO+) | W | MOST communication signal | - | - |
| F63-9 (WUO) - F2-2 (GND)*1 | P - W-B | MOST communication wake up signal | Engine switch on (ACC) | 4.5 V or higher |
| F63-10 (MI-) | W | MOST communication signal | - | - |
| F63-11 (SLDO) - Body ground | BR - Body ground | Shield ground | Always | Below 1 V |
| F63-12 (MO-) | B | MOST communication signal | - | - |

*1: w/ Rear Seat Entertainment System

## CHECK STEREO COMPONENT AMPLIFIER ASSEMBLY (for 9 Speakers)




| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F2-2 (GND) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F2-6 (GND2) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F2-3 (+B2) - F2-2 (GND) | L - W-B | Battery | Always | 11 to 14 V |
| F3-8 (CTR+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-7 (CTR-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-3 (FL+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-8 (FL-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-10 (FR+) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-9 (FR-) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-4 (RL+) - F2-2 (GND) | B - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-11 (RL-) - F2-2 (GND) | Y - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-5 (RR+) - F2-2 (GND) | R - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F4-12 (RR-) - F2-2 (GND) | W - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-1 (WFL+) - F2-2 (GND) | P - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-5 (WFL-) - F2-2 (GND) | V - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-2 (WFR+) - F2-2 (GND) | LG - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F3-6 (WFR-) - F2-2 (GND) | L - W-B | Sound signal | Audio system playing | Waveform synchronized with sound is output |
| F63-2 (SPD) - F2-2 (GND) | V - W-B | Speed signal from combination meter assembly | Engine switch on (IG)<br>Drive wheels turned slowly | Pulse generation |
| F63-3 (WUI) - F2-2 (GND) | R - W-B | MOST communication wake up signal | Engine switch on (ACC) | 4.5 V or higher |
| F63-4 (MI+) | B | MOST communication signal | - | - |
| F63-5 (SLDI) - Body ground | BR - Body ground | Shield ground | Always | Below 1 V |
| F63-6 (MO+) | W | MOST communication signal | - | - |
| F63-9 (WUO) - F2-2 (GND)*1 | P - W-B | MOST communication wake up signal | Engine switch on (ACC) | 4.5 V or higher |
| F63-10 (MI-) | W | MOST communication signal | - | - |
| F63-11 (SLDO) - Body ground | BR - Body ground | Shield ground | Always | Below 1 V |
| F63-12 (MO-) | B | MOST communication signal | - | - |

*1: w/ Rear Seat Entertainment System

DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

**HINT:**

Refer to Electro Multi Vision System (Click here).

**for Preparation** Click here

**HINT:**

Refer to Electro Multi Vision System (Click here).

**for Preparation** Click here

### Audio and Visual System

| DTC Code | Detection Item | Trouble Area | See page |
|---|---|---|---|
| B1585 | USB Media Malfunction | 1. Multi-media interface ECU<br>2. USB device or "iPod" | Click here |
| B15A1 | Audio HU Malfunction | Radio receiver assembly | Click here |
| B15A3 | Stereo Component Amplifier Malfunction | Stereo component amplifier assembly | Click here |
| B15B3 | Radio Tuner Malfunction | Radio receiver assembly | Click here |
| B15B5 | DVD Changer Malfunction | Radio receiver assembly | Click here |
| B15B7 | Bluetooth Module Malfunction | Radio receiver assembly | Click here |
| B15BB | Multi-media Interface ECU Malfunction | 1. USB device or "iPod"<br>2. No. 1 stereo jack adapter assembly<br>3. Wire harness or connector<br>4. Multi-media interface ECU | Click here |
| B15C3 | Speaker Output Short | 1. Wire harness or connector<br>2. Speaker<br>3. Stereo component amplifier assembly | Click here |
| B15DF | USB Communication Malfunction | 1. Multi-media interface ECU<br>2. USB device or "iPod" | Click here |
| B15E1 | Media Malfunction | 1. CD or DVD<br>2. Radio receiver assembly | Click here |

**for Preparation** Click here

### Audio and Visual System

| DTC Code | Detection Item | Trouble Area | See page |
|---|---|---|---|
| B1585 | USB Media Malfunction | - Multi-media interface ECU<br>- USB device or "iPod" | Click here |
| B15A1 | Audio HU Malfunction | Radio receiver assembly | Click here |
| B15A3 | Stereo Component Amplifier Malfunction | Stereo component amplifier assembly | Click here |
| B15B3 | Radio Tuner Malfunction | Radio receiver assembly | Click here |
| B15B5 | DVD Changer Malfunction | Radio receiver assembly | Click here |
| B15B7 | Bluetooth Module Malfunction | Radio receiver assembly | Click here |
| B15BB | Multi-media Interface ECU Malfunction | - USB device or "iPod"<br>- No. 1 stereo jack adapter assembly<br>- Wire harness or connector<br>- Multi-media interface ECU | Click here |
| B15C3 | Speaker Output Short | - Wire harness or connector<br>- Speaker<br>- Stereo component amplifier assembly | Click here |
| B15DF | USB Communication Malfunction | - Multi-media interface ECU<br>- USB device or "iPod" | Click here |
| B15E1 | Media Malfunction | - CD or DVD<br>- Radio receiver assembly | Click here |

# DTC B1585 USB Media Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when a malfunction occurs in a connected device.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1585 | When one of the conditions below is met:<br>• Non mass-storage class or incompatible protocol USB device<br>• USB device with an incompatible file system, corrupted or incompatible File Allocation Table (FAT)<br>• "iPod" malfunction<br>• "iPod" with unsupported firmware<br>• Unsupported "iPod" model | • Multi-media interface ECU<br>• USB device or "iPod" |

## INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs.

### 1.REPLACE USB DEVICE OR "iPod"

a. Disconnect the USB device or "iPod" from the No. 1 stereo jack adapter assembly.

b. Turn the engine switch off.

**HINT:**

When this DTC has been stored, it is necessary to turn off the engine switch to make it possible for the vehicle to recognize a new device when it is connected.

c. Turn the engine switch on (ACC).

d. Connect a known good USB device or "iPod" to the No. 1 stereo jack adapter assembly.

**HINT:**

- **If the malfunction occurred when a USB device was in use, use another USB device for the inspection. If the malfunction occurred when an "iPod" was in use, use another "iPod" for the inspection.**
- **Refer to System Description for compatible formats and versions (Click here).**

**NEXT**

### 2.CLEAR DTC

a. Clear the DTCs (Click here).

**NEXT**

### 3.CHECK DTC

a. Recheck for DTCs.

**HINT:**

If DTCs are detected frequently, replace the multi-media interface ECU.

**OK:**
**No DTC is output.**

**NG** → REPLACE MULTI-MEDIA INTERFACE ECU (Click here)

OK

USB DEVICE FORMAT WAS INCOMPATIBLE, "iPod" VERSION WAS INCOMPATIBLE, OR USB DEVICE OR "iPod" WAS DEFECTIVE

# DTC B15A3 Stereo Component Amplifier Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when a malfunction occurs in the stereo component amplifier assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A3 | When one of the conditions below is met:<br>• Internal power supply malfunction<br>• DSP error<br>• EEPROM error | Stereo component amplifier assembly |

## INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTC and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → **REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

# DTC B1585 USB Media Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when a malfunction occurs in a connected device.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1585 | When one of the conditions below is met:<br>• Non mass-storage class or incompatible protocol USB device<br>• USB device with an incompatible file system, corrupted or incompatible File Allocation Table (FAT)<br>• "iPod" malfunction<br>• "iPod" with unsupported firmware<br>• Unsupported "iPod" model | • Multi-media interface ECU<br>• USB device or "iPod" |

## INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs.

### 1.REPLACE USB DEVICE OR "iPod"

a. Disconnect the USB device or "iPod" from the No. 1 stereo jack adapter assembly.

b. Turn the engine switch off.

**HINT:**

When this DTC has been stored, it is necessary to turn off the engine switch to make it possible for the vehicle to recognize a new device when it is connected.

c. Turn the engine switch on (ACC).

d. Connect a known good USB device or "iPod" to the No. 1 stereo jack adapter assembly.

**HINT:**

- **If the malfunction occurred when a USB device was in use, use another USB device for the inspection. If the malfunction occurred when an "iPod" was in use, use another "iPod" for the inspection.**
- **Refer to System Description for compatible formats and versions (Click here).**

**NEXT**

### 2.CLEAR DTC

a. Clear the DTCs (Click here).

**NEXT**

### 3.CHECK DTC

a. Recheck for DTCs.

**HINT:**

If DTCs are detected frequently, replace the multi-media interface ECU.

**OK:**
**No DTC is output.**

**NG** → REPLACE MULTI-MEDIA INTERFACE ECU (Click here)

OK

USB DEVICE FORMAT WAS INCOMPATIBLE, "iPod" VERSION WAS INCOMPATIBLE, OR USB DEVICE OR "iPod" WAS DEFECTIVE

# DTC B15A3 Stereo Component Amplifier Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when a malfunction occurs in the stereo component amplifier assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A3 | When one of the conditions below is met:<br>• Internal power supply malfunction<br>• DSP error<br>• EEPROM error | Stereo component amplifier assembly |

## INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTC and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → **REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC B15A1 Audio HU Malfunction

## DTC B15B3 Radio Tuner Malfunction

## DTC B15B5 DVD Changer Malfunction

## DTC B15B7 Bluetooth Module Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the radio receiver assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A1 | Bus malfunction, sub-micro processor malfunction | Radio receiver assembly |
| B15B3 | Tuner communication error | |
| B15B5 | When one of the conditions below is met:<br>• Mechanical communication error<br>• Read malfunction<br>• Mechanical malfunction | |
| B15B7 | "Bluetooth" module malfunction | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

**OK**

USE SIMULATION METHOD TO CHECK (Click here)

## DTC B15BB Multi-media Interface ECU Malfunction

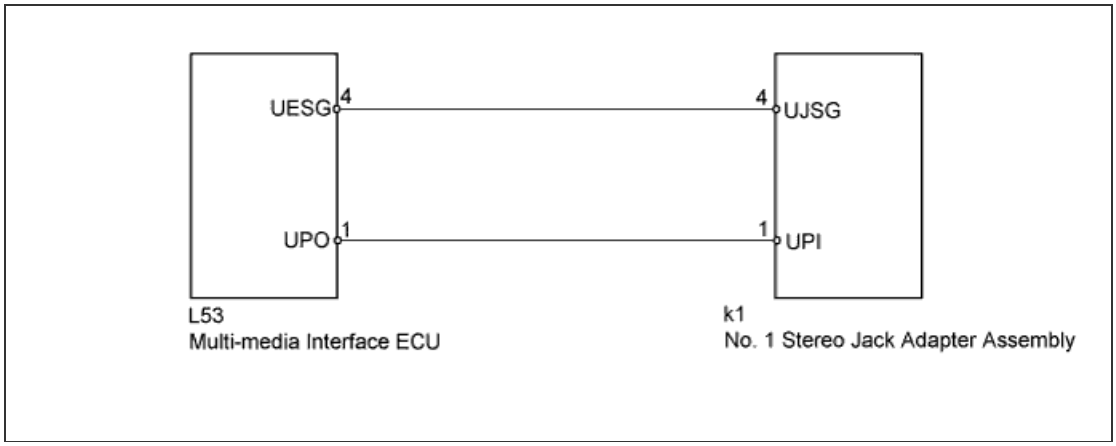
**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a malfunction occurs in the multi-media interface ECU.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15BB | When one of the conditions below is met:<br>• System microprocessor malfunction<br>• Media interface microprocessor malfunction<br>• CD-LSI (Large Scale Integration) malfunction<br>• Internal power supply malfunction | • USB device or "iPod"<br>• Wire harness or connector<br>• No. 1 stereo jack adapter assembly<br>• Multi-media interface ECU |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTC.

#### 1.REPLACE USB DEVICE OR "iPod"

a. Disconnect the USB device or "iPod" from the No. 1 stereo jack adapter assembly.

b. Turn the engine switch off.

**HINT:**

When this DTC has been stored, it is necessary to turn off the engine switch to make it possible for the vehicle to recognize a new device when it is connected.

c. Turn the engine switch on (ACC).

d. Connect a known good USB device or "iPod" to the No. 1 stereo jack adapter assembly.

**HINT:**

- **If the malfunction occurred when a USB device was in use, use another USB device for the inspection. If the malfunction occurred when an "iPod" was in use, use another "iPod" for the inspection.**

**NEXT**

#### 2.CLEAR DTC

a. Clear the DTCs (Click here).

**NEXT**

3.RECHECK FOR DTC

a. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

NG → Go to step 4

OK

USB DEVICE OR "iPod" WAS DEFECTIVE

4.INSPECT MULTI-MEDIA INTERFACE ECU

a. Disconnect the k1 No. 1 stereo jack adapter assembly connector.

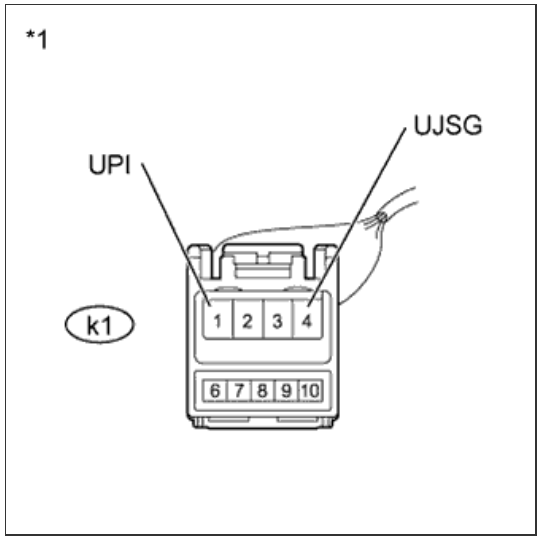
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| k1-1 (UPI) - k1-4 (UJSG) | Always | 5 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to No. 1 Stereo Jack Adapter Assembly) |




NG → Go to step 5

OK

REPLACE NO. 1 STEREO JACK ADAPTER ASSEMBLY (Click here)

5.CHECK HARNESS AND CONNECTOR (INTERFACE ECU - STEREO JACK ADAPTER)

a. Disconnect the L53 multi-media interface ECU connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L53-1 (UPO) - k1-1 (UPI) | Always | Below 1 Ω |
| L53-4 (UESG) - k1-4 (UJSG) | Always | Below 1 Ω |
| k1-1 (UPI) - Body ground | Always | 10 kΩ or higher |
| k1-4 (UJSG) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE MULTI-MEDIA INTERFACE ECU (Click here)

## DTC B15A1 Audio HU Malfunction

## DTC B15B3 Radio Tuner Malfunction

## DTC B15B5 DVD Changer Malfunction

## DTC B15B7 Bluetooth Module Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the radio receiver assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A1 | Bus malfunction, sub-micro processor malfunction | Radio receiver assembly |
| B15B3 | Tuner communication error | |
| B15B5 | When one of the conditions below is met:<br>• Mechanical communication error<br>• Read malfunction<br>• Mechanical malfunction | |
| B15B7 | "Bluetooth" module malfunction | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

**OK**

USE SIMULATION METHOD TO CHECK (Click here)

## DTC B15BB Multi-media Interface ECU Malfunction

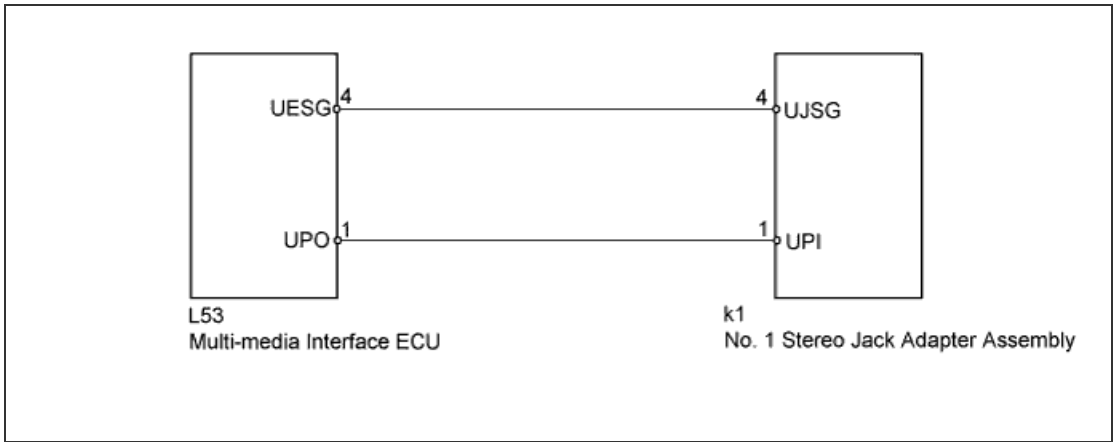
**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a malfunction occurs in the multi-media interface ECU.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15BB | When one of the conditions below is met:<br>• System microprocessor malfunction<br>• Media interface microprocessor malfunction<br>• CD-LSI (Large Scale Integration) malfunction<br>• Internal power supply malfunction | • USB device or "iPod"<br>• Wire harness or connector<br>• No. 1 stereo jack adapter assembly<br>• Multi-media interface ECU |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTC.

#### 1.REPLACE USB DEVICE OR "iPod"

a. Disconnect the USB device or "iPod" from the No. 1 stereo jack adapter assembly.

b. Turn the engine switch off.

**HINT:**

When this DTC has been stored, it is necessary to turn off the engine switch to make it possible for the vehicle to recognize a new device when it is connected.

c. Turn the engine switch on (ACC).

d. Connect a known good USB device or "iPod" to the No. 1 stereo jack adapter assembly.

**HINT:**

- **If the malfunction occurred when a USB device was in use, use another USB device for the inspection. If the malfunction occurred when an "iPod" was in use, use another "iPod" for the inspection.**

**NEXT**

#### 2.CLEAR DTC

a. Clear the DTCs (Click here).

**NEXT**

3.RECHECK FOR DTC

a. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

NG → Go to step 4

OK

USB DEVICE OR "iPod" WAS DEFECTIVE

4.INSPECT MULTI-MEDIA INTERFACE ECU

a. Disconnect the k1 No. 1 stereo jack adapter assembly connector.

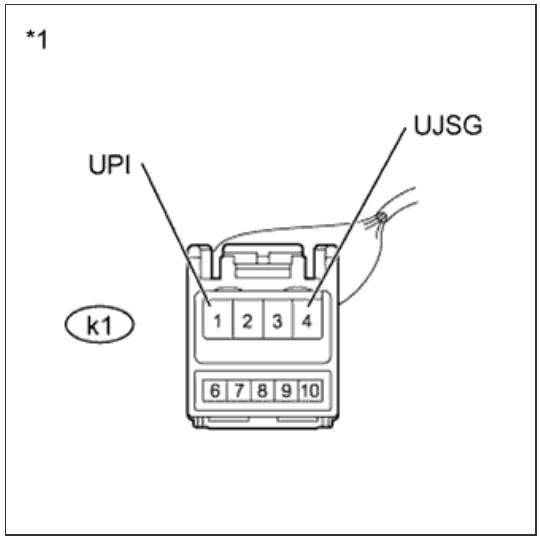
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| k1-1 (UPI) - k1-4 (UJSG) | Always | 5 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to No. 1 Stereo Jack Adapter Assembly) |




NG → Go to step 5

OK

REPLACE NO. 1 STEREO JACK ADAPTER ASSEMBLY (Click here)

5.CHECK HARNESS AND CONNECTOR (INTERFACE ECU - STEREO JACK ADAPTER)

a. Disconnect the L53 multi-media interface ECU connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L53-1 (UPO) - k1-1 (UPI) | Always | Below 1 Ω |
| L53-4 (UESG) - k1-4 (UJSG) | Always | Below 1 Ω |
| k1-1 (UPI) - Body ground | Always | 10 kΩ or higher |
| k1-4 (UJSG) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE MULTI-MEDIA INTERFACE ECU (Click here)

## DTC B15A1 Audio HU Malfunction

## DTC B15B3 Radio Tuner Malfunction

## DTC B15B5 DVD Changer Malfunction

## DTC B15B7 Bluetooth Module Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the radio receiver assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A1 | Bus malfunction, sub-micro processor malfunction | Radio receiver assembly |
| B15B3 | Tuner communication error | |
| B15B5 | When one of the conditions below is met:<br>• Mechanical communication error<br>• Read malfunction<br>• Mechanical malfunction | |
| B15B7 | "Bluetooth" module malfunction | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

**OK**

USE SIMULATION METHOD TO CHECK (Click here)

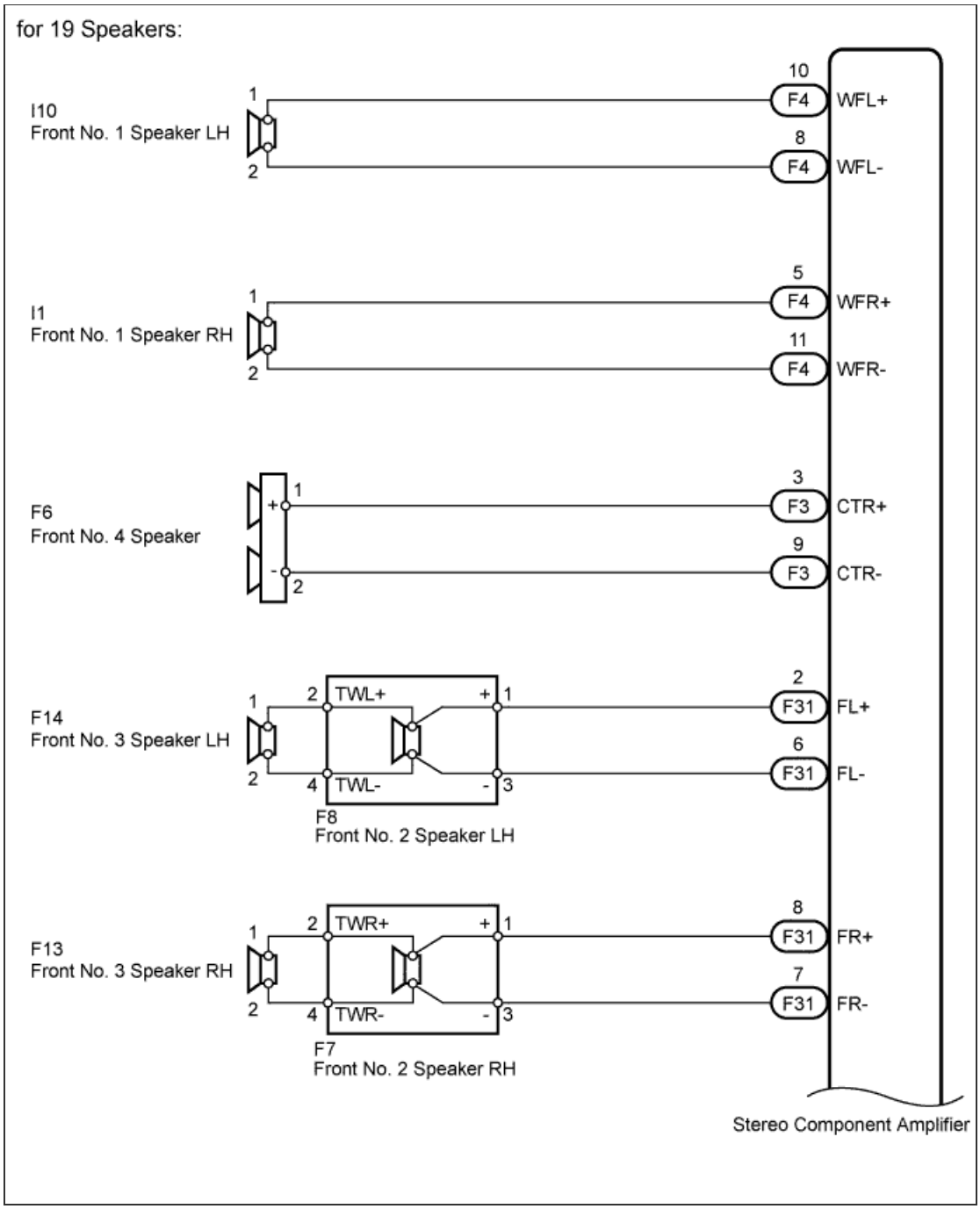
## DTC B15C3 Speaker Output Short

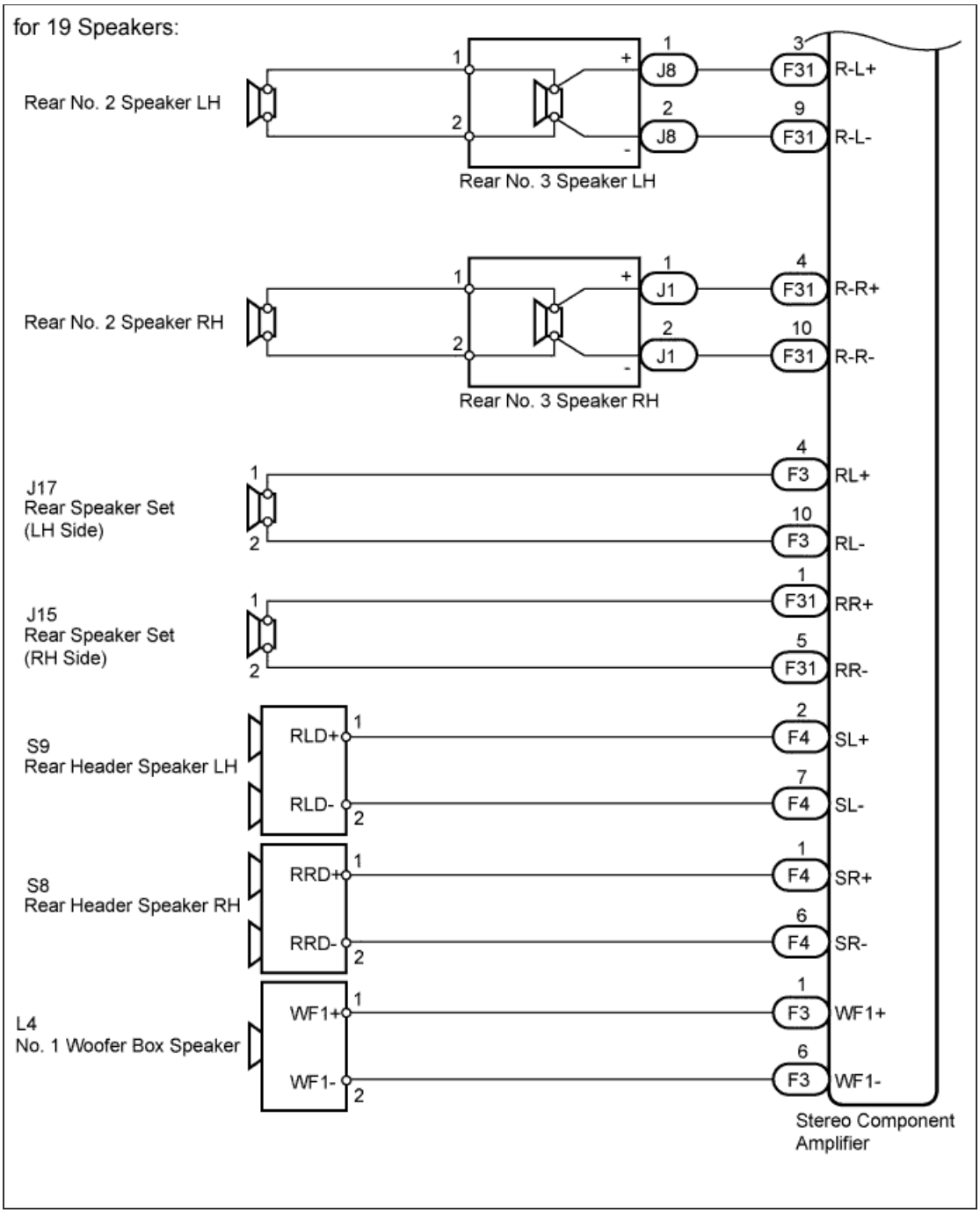
**for Preparation** [Click here]

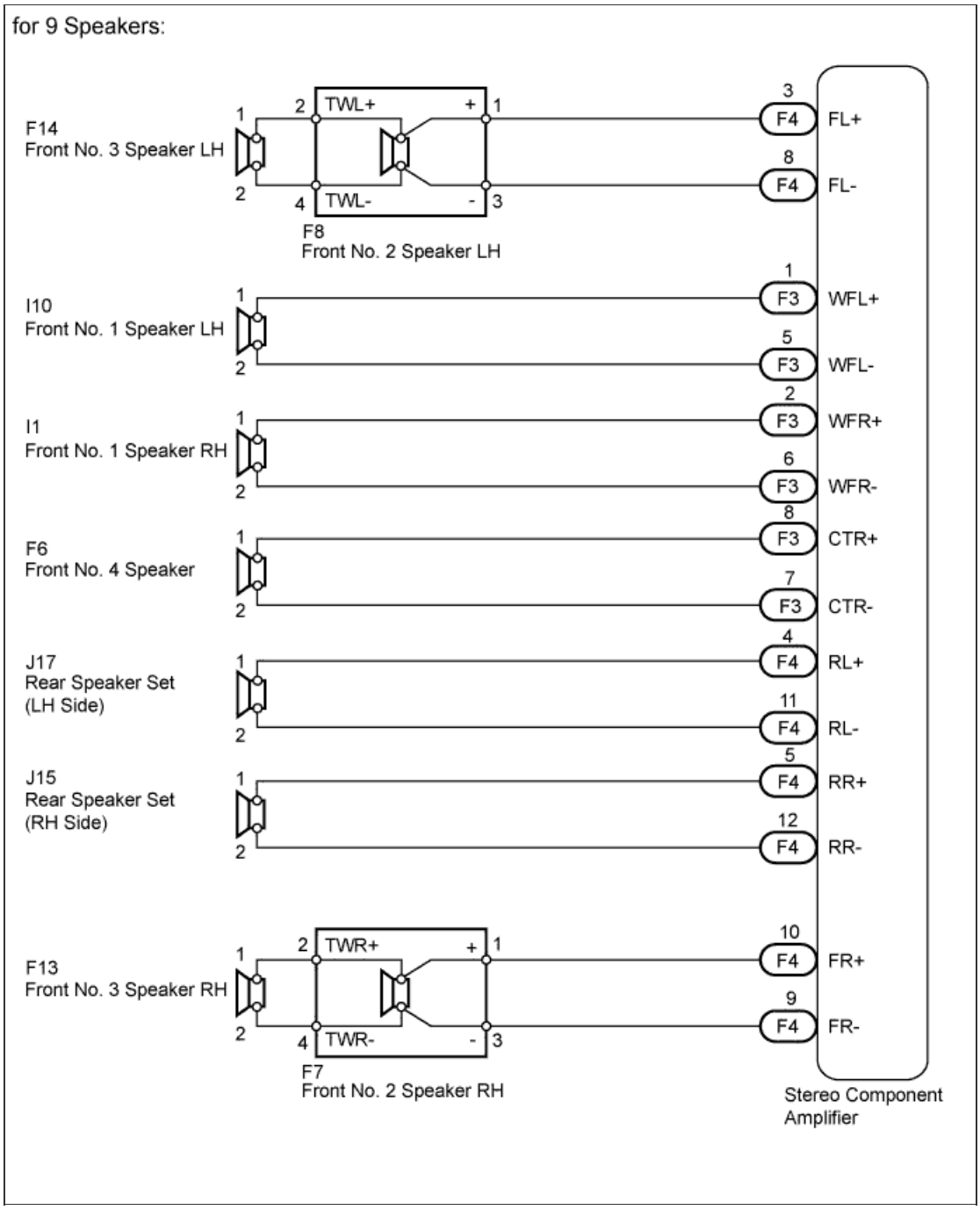
### DESCRIPTION

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15C3 | A short is detected in the speaker output circuit. | • Wire harness or connector<br>• Speaker<br>• Stereo component amplifier assembly |

### WIRING DIAGRAM




for 19 Speakers:
Rear No. 2 Speaker LH
1
2
+
-
1
J8
2
J8
Rear No. 3 Speaker LH
3
F31
R-L+
9
F31
R-L-
Rear No. 2 Speaker RH
1
2
+
-
1
J1
2
J1
Rear No. 3 Speaker RH
4
F31
R-R+
10
F31
R-R-
J17
Rear Speaker Set
(LH Side)
1
2
4
F3
RL+
10
F3
RL-
J15
Rear Speaker Set
(RH Side)
1
2
1
F31
RR+
5
F31
RR-
S9
Rear Header Speaker LH
RLD+
RLD-
1
2
2
F4
SL+
7
F4
SL-
S8
Rear Header Speaker RH
RRD+
RRD-
1
2
1
F4
SR+
6
F4
SR-
L4
No. 1 Woofer Box Speaker
WF1+
WF1-
1
2
1
F3
WF1+
6
F3
WF1-
Stereo Component
Amplifier




## INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs.

### 1.CHECK AUDIO MODELS

a. Check the audio model.

**Result**

| Result | Proceed to |
|---|---|
| 19 speakers | A |
| 9 speakers | B |

B → Go to step 19

A

### 2.CHECK DTC

a. Disconnect the F31, F4 and F3 amplifier connectors.

b. Clear the DTCs.

c. Check if DTC B15C3 is output.

**OK:**
**DTC B15C3 is not output.**

NG → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

OK

### 3.CHECK DTC

a. Reconnect the F3 amplifier connector.

b. Check if DTC B15C3 is output.

**OK:**
**DTC B15C3 is not output.**

NG → Go to step 8

OK

### 4.CHECK DTC

a. Reconnect the F31 amplifier connector.

b. Check if DTC B15C3 is output.

**OK:**
**DTC B15C3 is not output.**

NG → Go to step 12

OK

### 5.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - SPEAKER)

a. Disconnect the F4 amplifier connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-1 (SR+) - Body ground | Always | 10 kΩ or higher |
| F4-2 (SL+) - Body ground | | |
| F4-5 (WFR+) - Body ground | | |
| F4-6 (SR-) - Body ground | | |
| F4-7 (SL-) - Body ground | | |
| F4-8 (WFL-) - Body ground | | |
| F4-10 (WFL+) - Body ground | | |
| F4-11 (WFR-) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 6.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY

a. Disconnect the I10 and I1 speaker connectors.

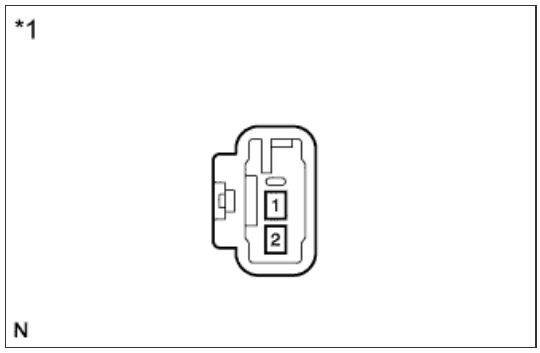
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 11 to 13 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 1 Speaker Assembly) |




NG → REPLACE FRONT NO. 1 SPEAKER ASSEMBLY (Click here)

OK

## 7.INSPECT REAR HEADER SPEAKER ASSEMBLY

a. Disconnect the S9 and S8 speaker connectors.

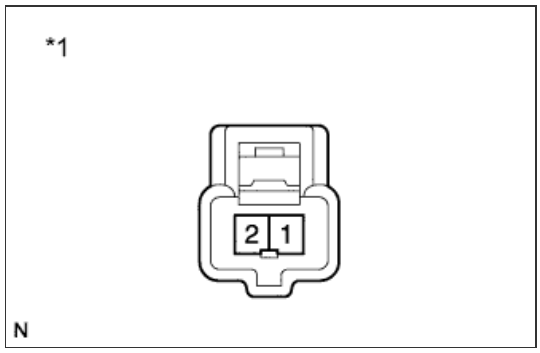
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Rear Header Speaker Assembly) |




NG → REPLACE REAR HEADER SPEAKER ASSEMBLY (Click here)

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 8.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - SPEAKER)

a. Disconnect the F3 amplifier connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-3 (CTR+) - Body ground | | |
| F3-9 (CTR-) - Body ground | | |
| F3-4 (RL+) - Body ground | | |

| | | |
|---|---|---|
| F3-10 (RL-) - Body ground | Always | 10 kΩ or higher |
| F3-1 (WF1+) - Body ground | | |
| F3-6 (WF1-) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 9.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY

a. Disconnect the F6 speaker connector.

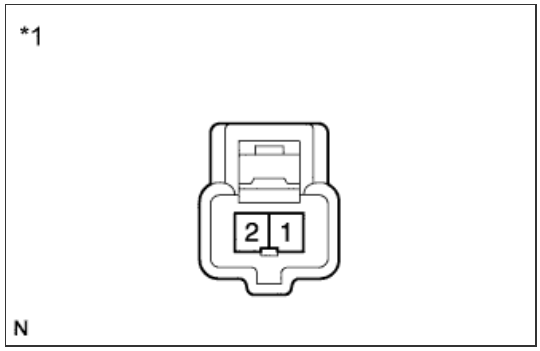
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 4 Speaker Assembly) |




NG → REPLACE FRONT NO. 4 SPEAKER ASSEMBLY (Click here)

OK

## 10.INSPECT REAR SPEAKER SET LH

a. Disconnect the J17 speaker connector.

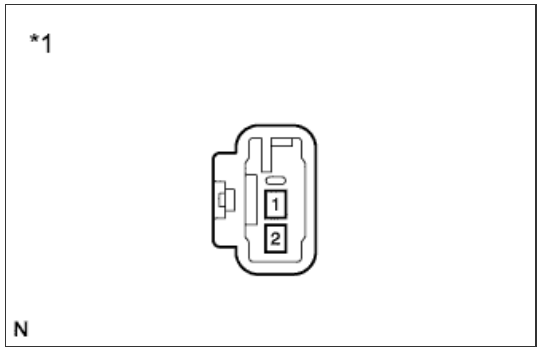
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4.8 to 7.2 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Rear Speaker Set LH) |




NG → REPLACE REAR SPEAKER SET LH (Click here)

OK

## 11.INSPECT NO. 1 WOOFER BOX SPEAKER ASSEMBLY

a. Disconnect the L4 speaker connector.

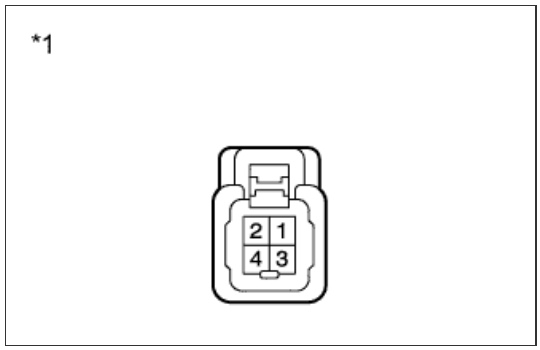
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 8.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (No. 1 Woofer Box Speaker Assembly) |




NG → REPLACE NO. 1 WOOFER BOX SPEAKER ASSEMBLY (Click here)

OK → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 12.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - SPEAKER)

a. Disconnect the F31 amplifier connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-1 (RR+) - Body ground | Always | 10 kΩ or higher |
| F31-5 (RR-) - Body ground | | |
| F31-3 (R-L+) - Body ground | | |
| F31-9 (R-L-) - Body ground | | |
| F31-4 (R-R+) - Body ground | | |
| F31-10 (R-R-) - Body ground | | |
| F31-2 (FL+) - Body ground | | |
| F31-6 (FL-) - Body ground | | |
| F31-7 (FR-) - Body ground | | |
| F31-8 (FR+) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 13.INSPECT REAR SPEAKER SET RH

a. Disconnect the J15 speaker connector.

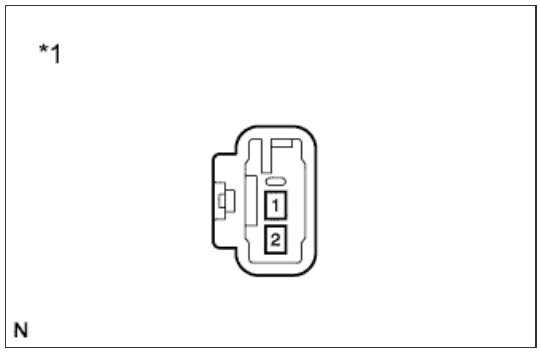
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4.8 to 7.2 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Rear Speaker set RH) |




NG → REPLACE REAR SPEAKER SET RH ( Click here )

OK →

**14.INSPECT REAR NO. 2 SPEAKER ASSEMBLY**

a. Disconnect the rear No. 2 speaker connectors.

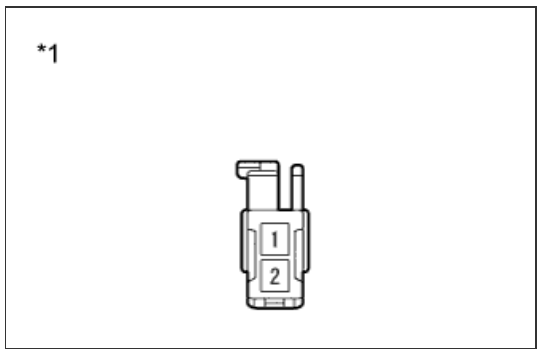
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Rear No. 2 Speaker Assembly) |




NG → REPLACE REAR NO. 2 SPEAKER ASSEMBLY ( Click here )

OK →

**15.CHECK REAR NO. 3 SPEAKER ASSEMBLY**

a. Disconnect the rear No. 3 speaker connectors.

b. Interchange the rear No. 3 speaker LH with RH.

c. Check that the malfunction disappears.

**OK:**
**Malfunction disappears.**

**HINT:**

- **Connect all the connectors to the rear No. 3 speakers.**
- **When there is a possibility that either the right or left rear speaker is defective, inspect by interchanging the right one with the left one.**
- **Perform the inspection above on both the LH and RH sides.**

NG → Go to step 16

OK →

REPLACE REAR NO. 3 SPEAKER ASSEMBLY ( Click here )

**16.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY**

a. Disconnect the F8 and F7 speaker connectors.

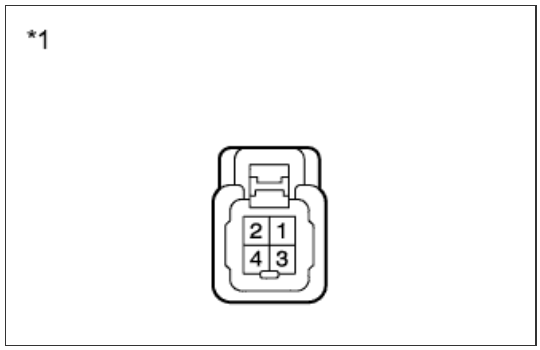
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | Below 1 Ω |
| 3 - 4 | Always | Below 1 Ω |
| 2 - 4 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 2 Speaker Assembly) |




NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

**17.CHECK FRONT NO. 3 SPEAKER ASSEMBLY**

a. Disconnect the F14 and F13 speaker connectors.

b. Interchange the front No. 3 speaker LH with RH.

c. Check that the malfunction disappears.

**OK:**
**Malfunction disappears.**

**HINT:**

- **Connect all the connectors to the front No. 3 speakers.**
- **When there is a possibility that either the right or left front speaker is defective, inspect by interchanging the right one with the left one.**
- **Perform the inspection above on both the LH and RH sides.**

NG → Go to step 18

OK

REPLACE FRONT NO. 3 SPEAKER ASSEMBLY (Click here)

**18.CHECK HARNESS AND CONNECTOR (FRONT NO. 2 SPEAKER - FRONT NO. 3 SPEAKER)**

a. Disconnect the F8, F7, F14 and F13 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F8-2 (TWL+) - F14-1 | Always | Below 1 Ω |
| F8-4 (TWL-) - F14-2 | | |
| F8-2 (TWL+) - Body ground | Always | 10 kΩ or higher |
| F8-4 (TWL-) - Body ground | | |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F7-2 (TWR+) - F13-1 | Always | Below 1 Ω |
| F7-4 (TWR-) - F13-2 | | |

| | | |
|---|---|---|
| F7-2 (TWR+) - Body ground | Always | 10 kΩ or higher |
| F7-4 (TWR-) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

END (STEREO COMPONENT AMPLIFIER IS DEFECTIVE)

19.CHECK DTC

a. Disconnect the F3 and F4 amplifier connectors.

b. Clear the DTCs.

c. Check if DTC B15C3 is output.

**OK:**
**DTC B15C3 is not output.**

NG → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

OK

20.CHECK DTC

a. Reconnect the F31 amplifier connector.

b. Clear the DTCs.

c. Check if DTC B15C3 is output.

**OK:**
**DTC B15C3 is not output.**

NG → Go to step 24

OK

21.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - SPEAKER)

a. Disconnect the F3 amplifier connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-8 (CTR+) - Body ground | Always | 10 kΩ or higher |
| F3-7 (CTR-) - Body ground | | |
| F3-1 (WFL+) - Body ground | | |
| F3-5 (WFL-) - Body ground | | |
| F3-6 (WFR-) - Body ground | | |
| F3-2 (WFR+) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 22.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY

a. Disconnect the I1 and J10 speaker connectors.

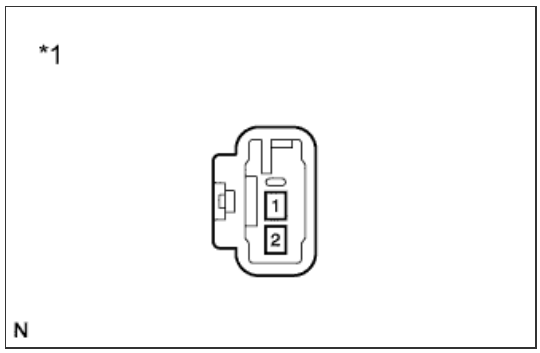
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 3 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 1 Speaker Assembly) |




NG → REPLACE FRONT NO. 1 SPEAKER ASSEMBLY (Click here)

OK

## 23.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY

a. Disconnect the F6 speaker connector.

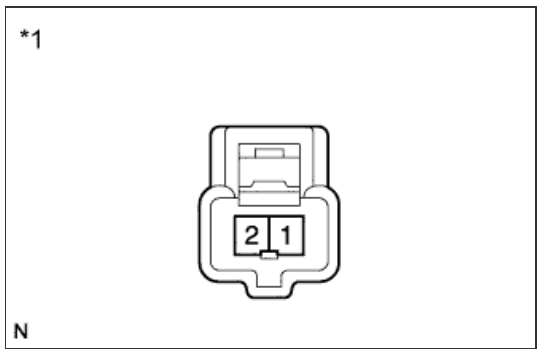
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 6 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 4 Speaker Assembly) |




NG → REPLACE FRONT NO. 4 SPEAKER ASSEMBLY (Click here)

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 24.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - SPEAKER)

a. Disconnect the F4 amplifier connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-8 (FL-) - Body ground | | |
| F4-3 (FL+) - Body ground | | |
| F4-9 (FR-) - Body ground | | |
| F4-5 (RR+) - Body | | |

| | | |
|---|---|---|
| ground | Always | 10 kΩ or higher |
| F4-4 (RL+) - Body ground | | |
| F4-10 (FR+) - Body ground | | |
| F4-12 (RR-) - Body ground | | |
| F4-11 (RL-) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**25.INSPECT REAR SPEAKER SET**

a. Disconnect the J17 and J15 speaker connectors.

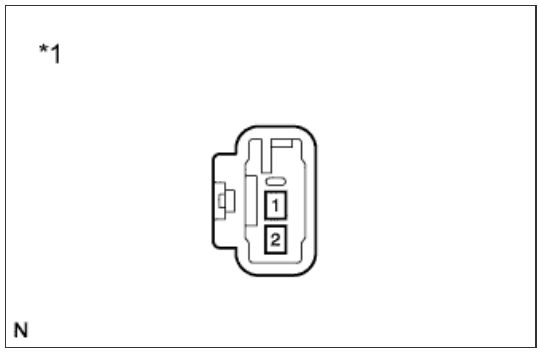
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Rear Speaker Set) |




NG → REPLACE REAR SPEAKER SET (Click here)

OK

**26.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY**

a. Disconnect the F8 and F7 speaker connectors.

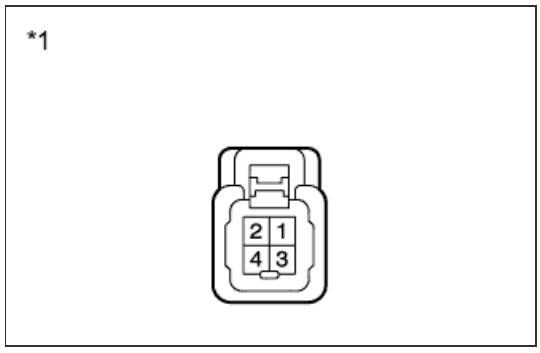
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | Below 1 Ω |
| 3 - 4 | Always | Below 1 Ω |
| 2 - 4 | Always | 4 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 2 Speaker Assembly) |



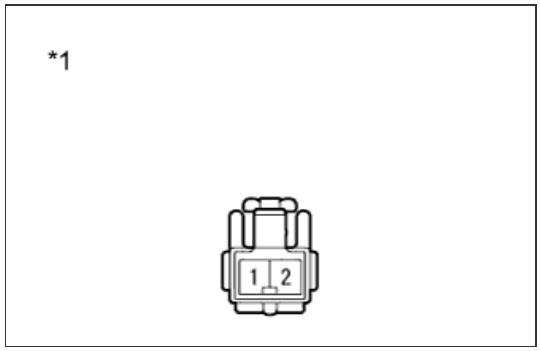

NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

**27.INSPECT FRONT NO. 3 SPEAKER ASSEMBLY**

a. Disconnect the F14 and F13 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.




**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 3 Speaker Assembly) |

NG → REPLACE FRONT NO. 3 SPEAKER ASSEMBLY (Click here)

OK

**28.CHECK HARNESS AND CONNECTOR (FRONT NO. 2 SPEAKER - FRONT NO. 3 SPEAKER)**

a. Disconnect the F8, F7, F14 and F13 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F8-2 (TWL+) - F14-1 | Always | Below 1 Ω |
| F8-4 (TWL-) - F14-2 | | |
| F8-2 (TWL+) - Body ground | Always | 10 kΩ or higher |
| F8-4 (TWL-) - Body ground | | |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F7-2 (TWR+) - F13-1 | Always | Below 1 Ω |
| F7-4 (TWR-) - F13-2 | | |
| F7-2 (TWR+) - Body ground | Always | 10 kΩ or higher |
| F7-4 (TWR-) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

END (STEREO COMPONENT AMPLIFIER IS DEFECTIVE)

## DTC B15A1 Audio HU Malfunction

## DTC B15B3 Radio Tuner Malfunction

## DTC B15B5 DVD Changer Malfunction

## DTC B15B7 Bluetooth Module Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the radio receiver assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A1 | Bus malfunction, sub-micro processor malfunction | Radio receiver assembly |
| B15B3 | Tuner communication error | |
| B15B5 | When one of the conditions below is met:<br>• Mechanical communication error<br>• Read malfunction<br>• Mechanical malfunction | |
| B15B7 | "Bluetooth" module malfunction | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

**OK**

USE SIMULATION METHOD TO CHECK (Click here)

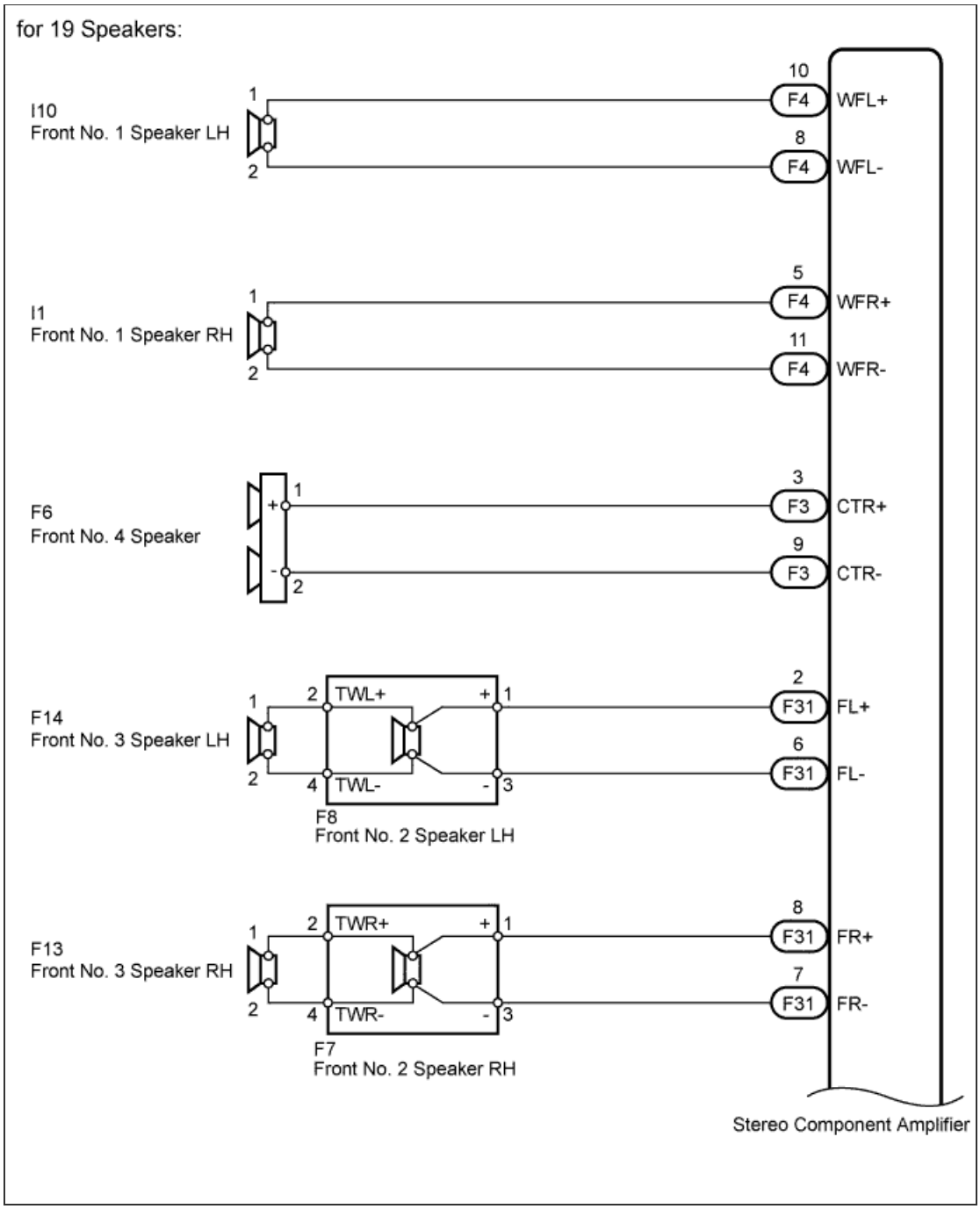
## DTC B15C3 Speaker Output Short

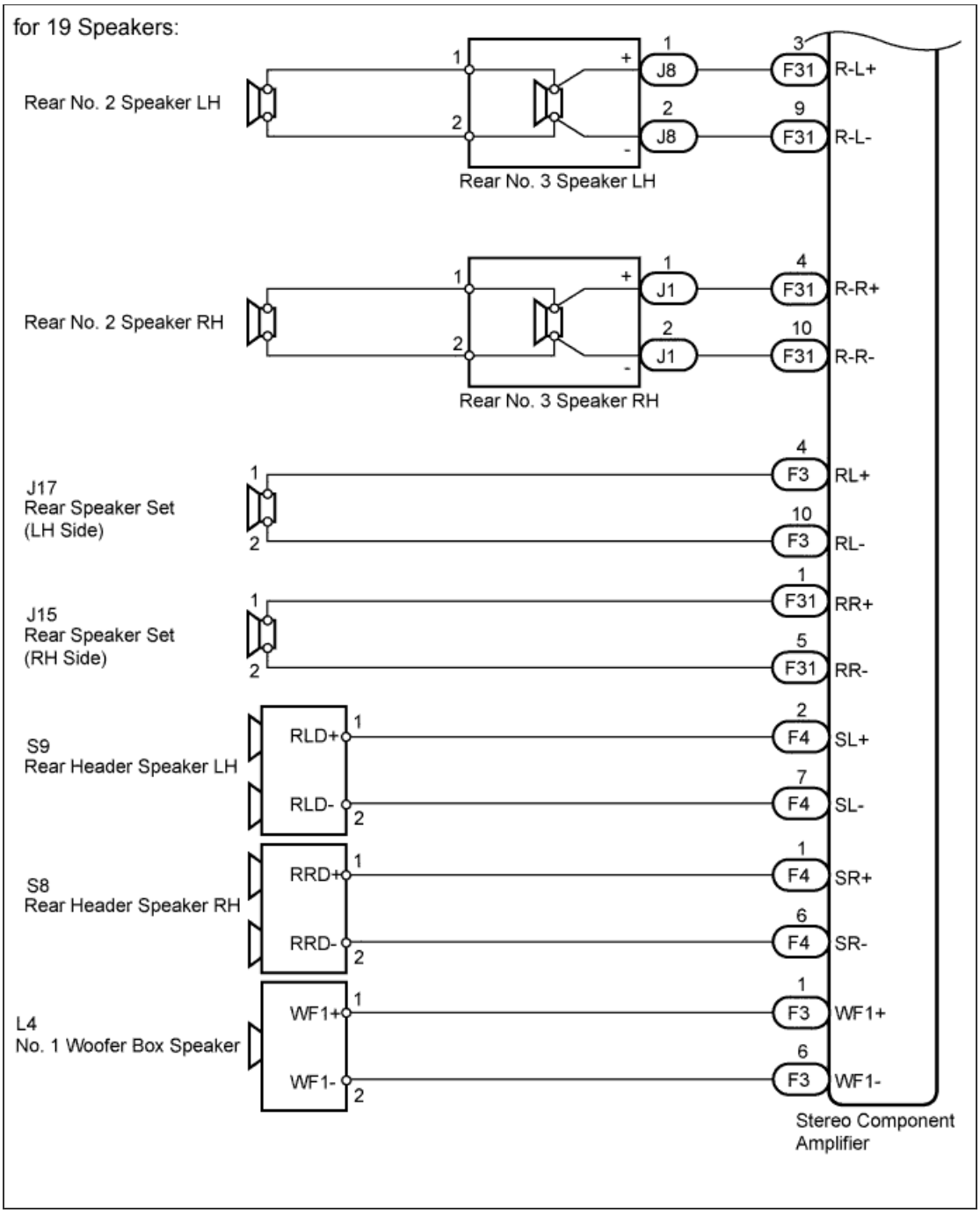
**for Preparation** [Click here]

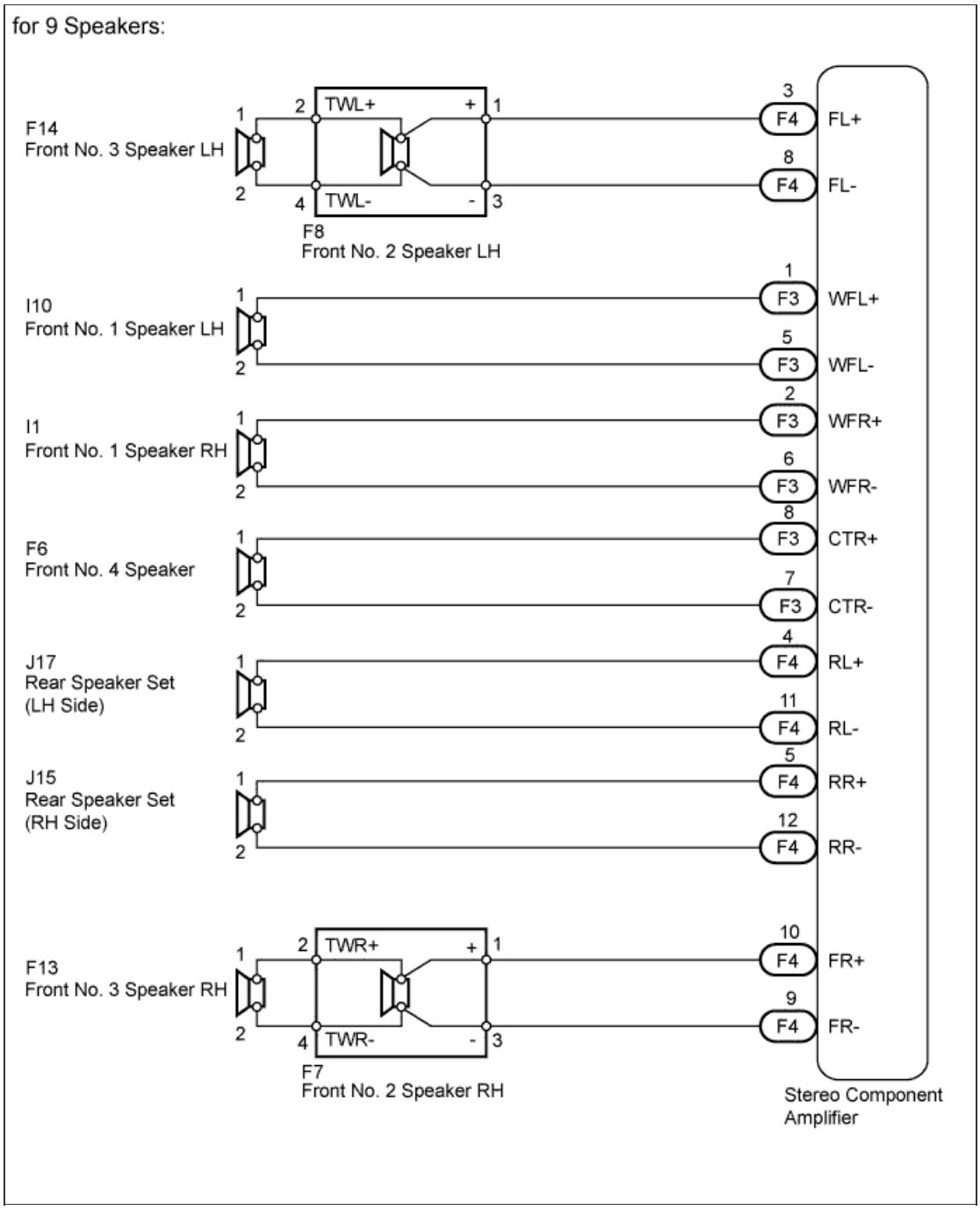
### DESCRIPTION

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15C3 | A short is detected in the speaker output circuit. | • Wire harness or connector<br>• Speaker<br>• Stereo component amplifier assembly |

### WIRING DIAGRAM




for 19 Speakers:
Rear No. 2 Speaker LH
1
2
+
-
1
J8
2
J8
Rear No. 3 Speaker LH
3
F31
R-L+
9
F31
R-L-
Rear No. 2 Speaker RH
1
2
+
-
1
J1
2
J1
Rear No. 3 Speaker RH
4
F31
R-R+
10
F31
R-R-
J17
Rear Speaker Set
(LH Side)
1
2
4
F3
RL+
10
F3
RL-
J15
Rear Speaker Set
(RH Side)
1
2
1
F31
RR+
5
F31
RR-
S9
Rear Header Speaker LH
RLD+
RLD-
1
2
2
F4
SL+
7
F4
SL-
S8
Rear Header Speaker RH
RRD+
RRD-
1
2
1
F4
SR+
6
F4
SR-
L4
No. 1 Woofer Box Speaker
WF1+
WF1-
1
2
1
F3
WF1+
6
F3
WF1-
Stereo Component
Amplifier




## INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs.

### 1.CHECK AUDIO MODELS

a. Check the audio model.

**Result**

| Result | Proceed to |
|---|---|
| 19 speakers | A |
| 9 speakers | B |

B → Go to step 19

A

### 2.CHECK DTC

a. Disconnect the F31, F4 and F3 amplifier connectors.

b. Clear the DTCs.

c. Check if DTC B15C3 is output.

**OK:**
**DTC B15C3 is not output.**

NG → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

OK

### 3.CHECK DTC

a. Reconnect the F3 amplifier connector.

b. Check if DTC B15C3 is output.

**OK:**
**DTC B15C3 is not output.**

NG → Go to step 8

OK

### 4.CHECK DTC

a. Reconnect the F31 amplifier connector.

b. Check if DTC B15C3 is output.

**OK:**
**DTC B15C3 is not output.**

NG → Go to step 12

OK

### 5.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - SPEAKER)

a. Disconnect the F4 amplifier connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-1 (SR+) - Body ground | Always | 10 kΩ or higher |
| F4-2 (SL+) - Body ground | | |
| F4-5 (WFR+) - Body ground | | |
| F4-6 (SR-) - Body ground | | |
| F4-7 (SL-) - Body ground | | |
| F4-8 (WFL-) - Body ground | | |
| F4-10 (WFL+) - Body ground | | |
| F4-11 (WFR-) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 6.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY

a. Disconnect the I10 and I1 speaker connectors.

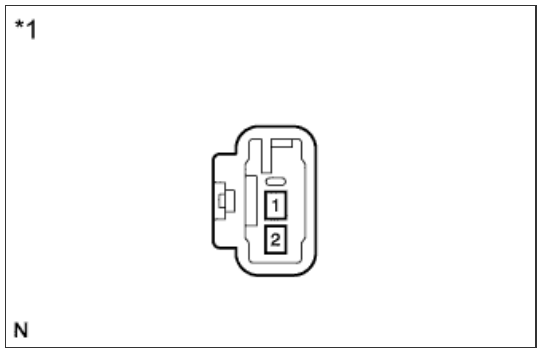
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 11 to 13 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 1 Speaker Assembly) |




NG → REPLACE FRONT NO. 1 SPEAKER ASSEMBLY (Click here)

OK

## 7.INSPECT REAR HEADER SPEAKER ASSEMBLY

a. Disconnect the S9 and S8 speaker connectors.

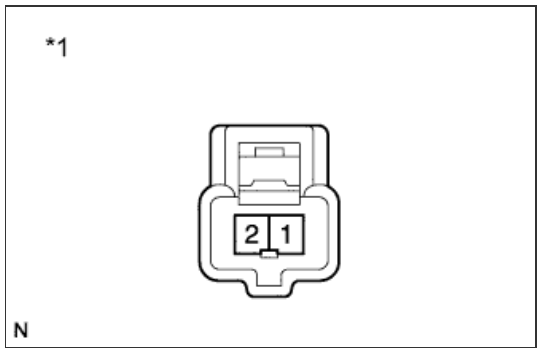
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Rear Header Speaker Assembly) |




NG → REPLACE REAR HEADER SPEAKER ASSEMBLY (Click here)

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 8.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - SPEAKER)

a. Disconnect the F3 amplifier connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-3 (CTR+) - Body ground | | |
| F3-9 (CTR-) - Body ground | | |
| F3-4 (RL+) - Body ground | | |

| | | |
|---|---|---|
| F3-10 (RL-) - Body ground | Always | 10 kΩ or higher |
| F3-1 (WF1+) - Body ground | | |
| F3-6 (WF1-) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 9.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY

a. Disconnect the F6 speaker connector.

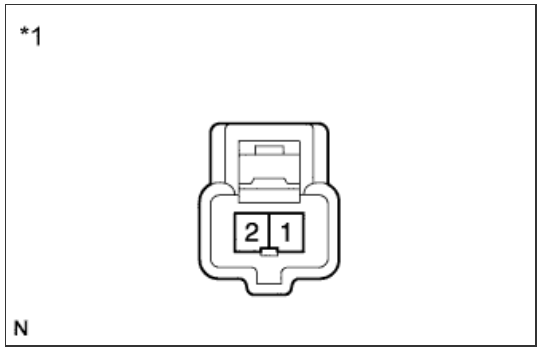
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 4 Speaker Assembly) |




NG → REPLACE FRONT NO. 4 SPEAKER ASSEMBLY (Click here)

OK

## 10.INSPECT REAR SPEAKER SET LH

a. Disconnect the J17 speaker connector.

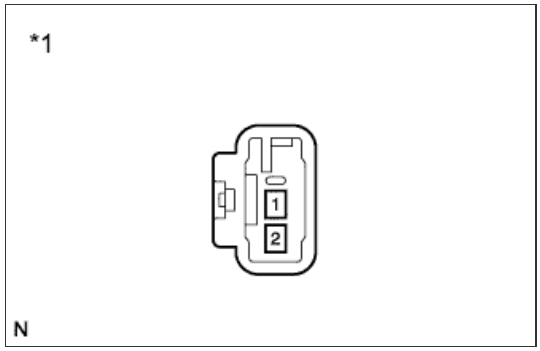
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4.8 to 7.2 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Rear Speaker Set LH) |




NG → REPLACE REAR SPEAKER SET LH (Click here)

OK

## 11.INSPECT NO. 1 WOOFER BOX SPEAKER ASSEMBLY

a. Disconnect the L4 speaker connector.

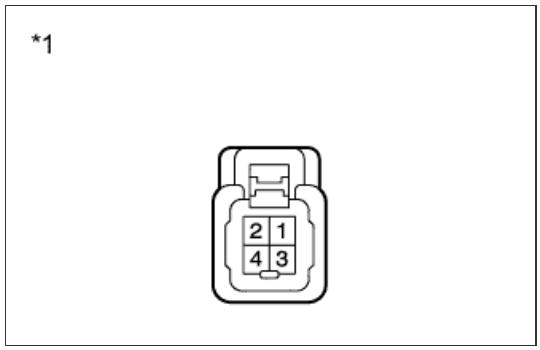
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 8.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (No. 1 Woofer Box Speaker Assembly) |




NG → REPLACE NO. 1 WOOFER BOX SPEAKER ASSEMBLY (Click here)

OK → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 12.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - SPEAKER)

a. Disconnect the F31 amplifier connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-1 (RR+) - Body ground | Always | 10 kΩ or higher |
| F31-5 (RR-) - Body ground | | |
| F31-3 (R-L+) - Body ground | | |
| F31-9 (R-L-) - Body ground | | |
| F31-4 (R-R+) - Body ground | | |
| F31-10 (R-R-) - Body ground | | |
| F31-2 (FL+) - Body ground | | |
| F31-6 (FL-) - Body ground | | |
| F31-7 (FR-) - Body ground | | |
| F31-8 (FR+) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 13.INSPECT REAR SPEAKER SET RH

a. Disconnect the J15 speaker connector.

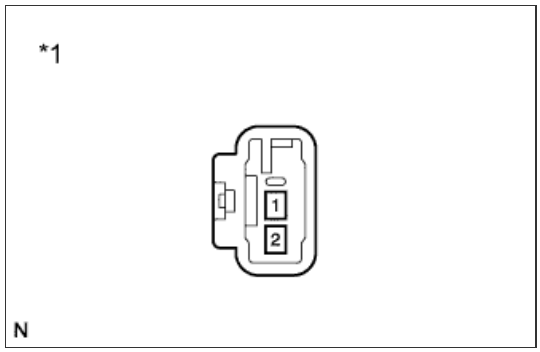
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4.8 to 7.2 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Rear Speaker set RH) |




NG → REPLACE REAR SPEAKER SET RH ( Click here )

OK →

**14.INSPECT REAR NO. 2 SPEAKER ASSEMBLY**

a. Disconnect the rear No. 2 speaker connectors.

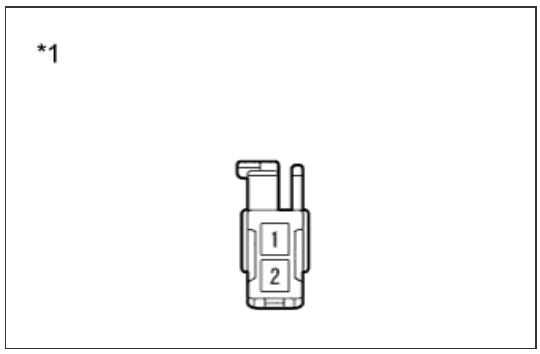
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Rear No. 2 Speaker Assembly) |




NG → REPLACE REAR NO. 2 SPEAKER ASSEMBLY ( Click here )

OK →

**15.CHECK REAR NO. 3 SPEAKER ASSEMBLY**

a. Disconnect the rear No. 3 speaker connectors.

b. Interchange the rear No. 3 speaker LH with RH.

c. Check that the malfunction disappears.

**OK:**
**Malfunction disappears.**

**HINT:**

- **Connect all the connectors to the rear No. 3 speakers.**
- **When there is a possibility that either the right or left rear speaker is defective, inspect by interchanging the right one with the left one.**
- **Perform the inspection above on both the LH and RH sides.**

NG → Go to step 16

OK →

REPLACE REAR NO. 3 SPEAKER ASSEMBLY ( Click here )

**16.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY**

a. Disconnect the F8 and F7 speaker connectors.

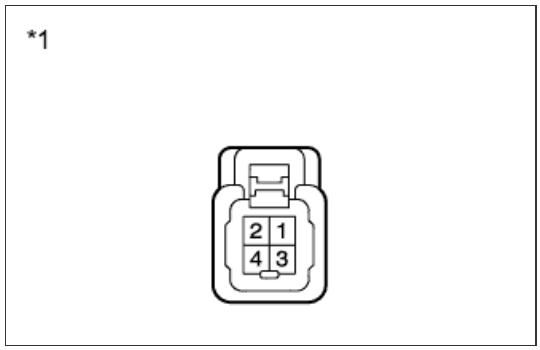
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | Below 1 Ω |
| 3 - 4 | Always | Below 1 Ω |
| 2 - 4 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 2 Speaker Assembly) |




NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

**17.CHECK FRONT NO. 3 SPEAKER ASSEMBLY**

a. Disconnect the F14 and F13 speaker connectors.

b. Interchange the front No. 3 speaker LH with RH.

c. Check that the malfunction disappears.

**OK:**
**Malfunction disappears.**

**HINT:**

- **Connect all the connectors to the front No. 3 speakers.**
- **When there is a possibility that either the right or left front speaker is defective, inspect by interchanging the right one with the left one.**
- **Perform the inspection above on both the LH and RH sides.**

NG → Go to step 18

OK

REPLACE FRONT NO. 3 SPEAKER ASSEMBLY (Click here)

**18.CHECK HARNESS AND CONNECTOR (FRONT NO. 2 SPEAKER - FRONT NO. 3 SPEAKER)**

a. Disconnect the F8, F7, F14 and F13 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F8-2 (TWL+) - F14-1 | Always | Below 1 Ω |
| F8-4 (TWL-) - F14-2 | | |
| F8-2 (TWL+) - Body ground | Always | 10 kΩ or higher |
| F8-4 (TWL-) - Body ground | | |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F7-2 (TWR+) - F13-1 | Always | Below 1 Ω |
| F7-4 (TWR-) - F13-2 | | |

| | | |
|---|---|---|
| F7-2 (TWR+) - Body ground | Always | 10 kΩ or higher |
| F7-4 (TWR-) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

END (STEREO COMPONENT AMPLIFIER IS DEFECTIVE)

19.CHECK DTC

a. Disconnect the F3 and F4 amplifier connectors.

b. Clear the DTCs.

c. Check if DTC B15C3 is output.

**OK:**
**DTC B15C3 is not output.**

NG → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

OK

20.CHECK DTC

a. Reconnect the F31 amplifier connector.

b. Clear the DTCs.

c. Check if DTC B15C3 is output.

**OK:**
**DTC B15C3 is not output.**

NG → Go to step 24

OK

21.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - SPEAKER)

a. Disconnect the F3 amplifier connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-8 (CTR+) - Body ground | Always | 10 kΩ or higher |
| F3-7 (CTR-) - Body ground | | |
| F3-1 (WFL+) - Body ground | | |
| F3-5 (WFL-) - Body ground | | |
| F3-6 (WFR-) - Body ground | | |
| F3-2 (WFR+) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 22.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY

a. Disconnect the I1 and J10 speaker connectors.

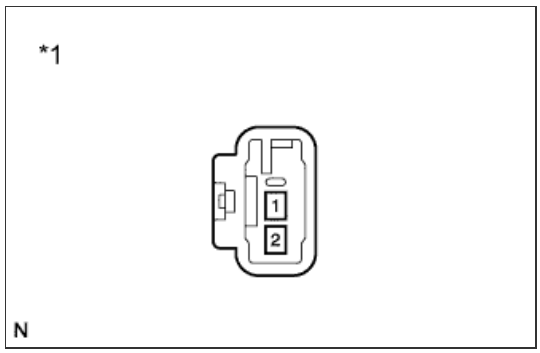
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 3 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 1 Speaker Assembly) |




NG → REPLACE FRONT NO. 1 SPEAKER ASSEMBLY (Click here)

OK

## 23.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY

a. Disconnect the F6 speaker connector.

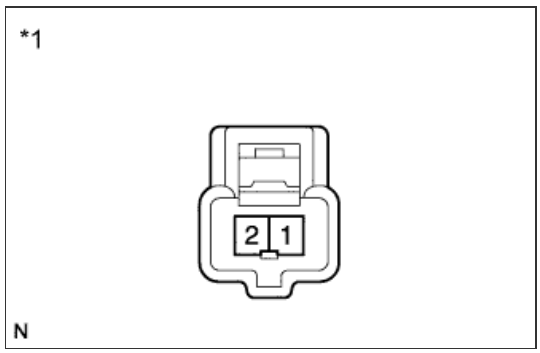
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 6 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 4 Speaker Assembly) |




NG → REPLACE FRONT NO. 4 SPEAKER ASSEMBLY (Click here)

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 24.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - SPEAKER)

a. Disconnect the F4 amplifier connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-8 (FL-) - Body ground | | |
| F4-3 (FL+) - Body ground | | |
| F4-9 (FR-) - Body ground | | |
| F4-5 (RR+) - Body | | |

| | | |
|---|---|---|
| ground | Always | 10 kΩ or higher |
| F4-4 (RL+) - Body ground | | |
| F4-10 (FR+) - Body ground | | |
| F4-12 (RR-) - Body ground | | |
| F4-11 (RL-) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**25.INSPECT REAR SPEAKER SET**

a. Disconnect the J17 and J15 speaker connectors.

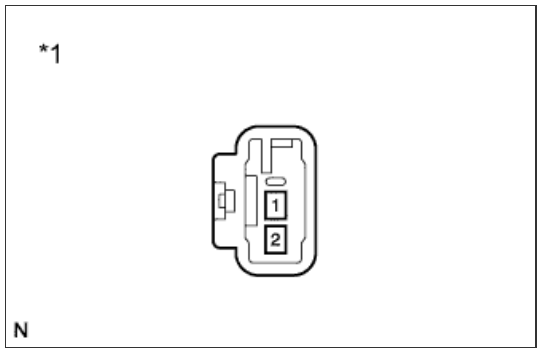
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Rear Speaker Set) |




NG → REPLACE REAR SPEAKER SET (Click here)

OK

**26.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY**

a. Disconnect the F8 and F7 speaker connectors.

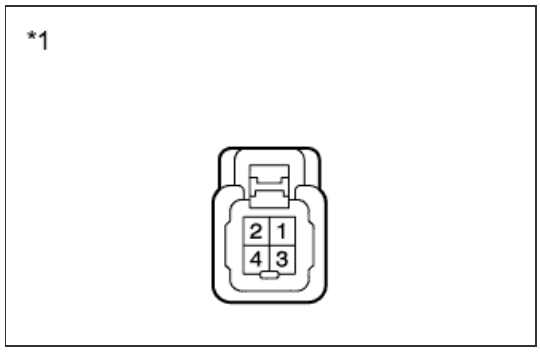
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | Below 1 Ω |
| 3 - 4 | Always | Below 1 Ω |
| 2 - 4 | Always | 4 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 2 Speaker Assembly) |



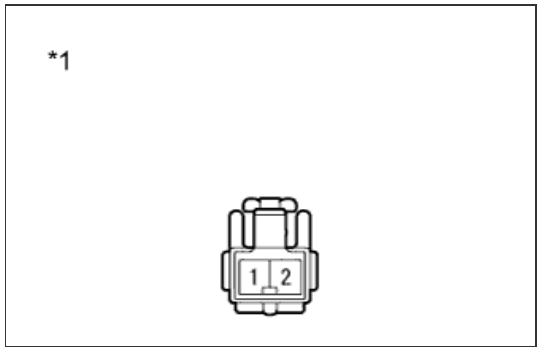

NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

**27.INSPECT FRONT NO. 3 SPEAKER ASSEMBLY**

a. Disconnect the F14 and F13 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.




**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 3 Speaker Assembly) |

NG → REPLACE FRONT NO. 3 SPEAKER ASSEMBLY (Click here)

OK

**28.CHECK HARNESS AND CONNECTOR (FRONT NO. 2 SPEAKER - FRONT NO. 3 SPEAKER)**

a. Disconnect the F8, F7, F14 and F13 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F8-2 (TWL+) - F14-1 | Always | Below 1 Ω |
| F8-4 (TWL-) - F14-2 | | |
| F8-2 (TWL+) - Body ground | Always | 10 kΩ or higher |
| F8-4 (TWL-) - Body ground | | |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F7-2 (TWR+) - F13-1 | Always | Below 1 Ω |
| F7-4 (TWR-) - F13-2 | | |
| F7-2 (TWR+) - Body ground | Always | 10 kΩ or higher |
| F7-4 (TWR-) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

END (STEREO COMPONENT AMPLIFIER IS DEFECTIVE)

## DTC B15A1 Audio HU Malfunction

## DTC B15B3 Radio Tuner Malfunction

## DTC B15B5 DVD Changer Malfunction

## DTC B15B7 Bluetooth Module Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the radio receiver assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A1 | Bus malfunction, sub-micro processor malfunction | Radio receiver assembly |
| B15B3 | Tuner communication error | |
| B15B5 | When one of the conditions below is met:<br>• Mechanical communication error<br>• Read malfunction<br>• Mechanical malfunction | |
| B15B7 | "Bluetooth" module malfunction | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

**OK**

USE SIMULATION METHOD TO CHECK (Click here)

# DTC B15DF USB Communication Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when a malfunction occurs in communication with a USB device or "iPod".

| DTC NO. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15DF | When one of the conditions below is met:<br>• Communication error with USB device<br>• "iPod" control software of system microprocessor malfunction<br>• Communication error with "iPod" | • Multi-media interface ECU<br>• USB device or "iPod" |

## INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs.

### 1.REPLACE USB DEVICE OR "iPod"

a. Disconnect the USB device or "iPod" from the No. 1 stereo jack adapter assembly.

b. Turn the engine switch off.

**HINT:**

When this DTC has been stored, it is necessary to turn off the engine switch to make it possible for the vehicle to recognize a new device when it is connected.

c. Turn the engine switch on (ACC).

d. Connect a known good USB device or "iPod" to the No. 1 stereo jack adapter assembly.

**HINT:**

- **If the malfunction occurred when a USB device was in use, use another USB device for the inspection. If the malfunction occurred when an "iPod" was in use, use another "iPod" for the inspection.**

**NEXT**

### 2.CLEAR DTC

a. Clear the DTCs (Click here).

**NEXT**

### 3.RECHECK FOR DTC

a. Recheck for DTCs.

**HINT:**

If DTCs are detected frequently, replace the multi-media interface ECU.

**OK:**
**No DTC is output.**

**NG** → REPLACE MULTI-MEDIA INTERFACE ECU (Click here)

**OK**

### USB DEVICE OR "iPod" WAS DEFECTIVE

## DTC B15A1 Audio HU Malfunction

## DTC B15B3 Radio Tuner Malfunction

## DTC B15B5 DVD Changer Malfunction

## DTC B15B7 Bluetooth Module Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the radio receiver assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A1 | Bus malfunction, sub-micro processor malfunction | Radio receiver assembly |
| B15B3 | Tuner communication error | |
| B15B5 | When one of the conditions below is met:<br>• Mechanical communication error<br>• Read malfunction<br>• Mechanical malfunction | |
| B15B7 | "Bluetooth" module malfunction | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

**OK**

USE SIMULATION METHOD TO CHECK (Click here)

# DTC B15DF USB Communication Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when a malfunction occurs in communication with a USB device or "iPod".

| DTC NO. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15DF | When one of the conditions below is met:<br>• Communication error with USB device<br>• "iPod" control software of system microprocessor malfunction<br>• Communication error with "iPod" | • Multi-media interface ECU<br>• USB device or "iPod" |

## INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs.

### 1.REPLACE USB DEVICE OR "iPod"

a. Disconnect the USB device or "iPod" from the No. 1 stereo jack adapter assembly.

b. Turn the engine switch off.

**HINT:**

When this DTC has been stored, it is necessary to turn off the engine switch to make it possible for the vehicle to recognize a new device when it is connected.

c. Turn the engine switch on (ACC).

d. Connect a known good USB device or "iPod" to the No. 1 stereo jack adapter assembly.

**HINT:**

- **If the malfunction occurred when a USB device was in use, use another USB device for the inspection. If the malfunction occurred when an "iPod" was in use, use another "iPod" for the inspection.**

**NEXT**

### 2.CLEAR DTC

a. Clear the DTCs (Click here).

**NEXT**

### 3.RECHECK FOR DTC

a. Recheck for DTCs.

**HINT:**

If DTCs are detected frequently, replace the multi-media interface ECU.

**OK:**
**No DTC is output.**

**NG** → REPLACE MULTI-MEDIA INTERFACE ECU (Click here)

**OK**

### USB DEVICE OR "iPod" WAS DEFECTIVE

## DTC B15A1 Audio HU Malfunction

## DTC B15B3 Radio Tuner Malfunction

## DTC B15B5 DVD Changer Malfunction

## DTC B15B7 Bluetooth Module Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the radio receiver assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A1 | Bus malfunction, sub-micro processor malfunction | Radio receiver assembly |
| B15B3 | Tuner communication error | |
| B15B5 | When one of the conditions below is met:<br>• Mechanical communication error<br>• Read malfunction<br>• Mechanical malfunction | |
| B15B7 | "Bluetooth" module malfunction | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

**OK**

USE SIMULATION METHOD TO CHECK (Click here)

# DTC B15E1 Media Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when signals from the disc in the radio receiver assembly cannot be read.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15E1 | When one of the conditions below is met:<br>• An unsuitable disc is inserted.<br>• The disc cannot be read.<br>• The disc cannot be read because of dirt or scratches.<br>• The disc cannot be read because it is inserted upside down. | • CD or DVD<br>• Radio receiver assembly |

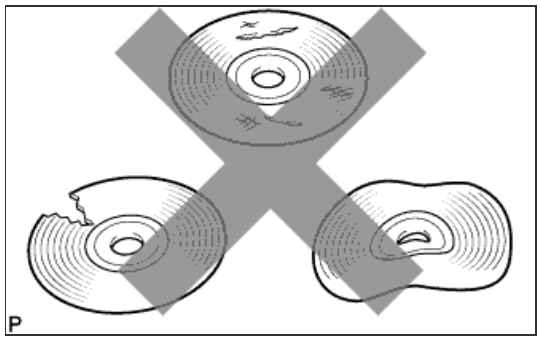
## INSPECTION PROCEDURE

### 1.CHECK DISC

a. Check that the disc is not deformed or cracked.

**OK:**

**No deformation or cracks on the disc**




NG → CHANGE DISC

OK

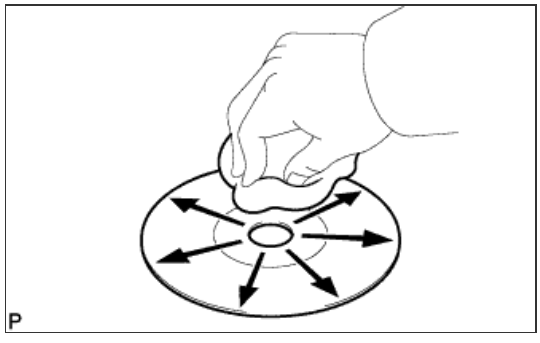
### 2.DISC CLEANING

a. Disc cleaning

i. If dirt is on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

**NOTICE:**

Do not use a conventional record cleaner or anti-static preservative.




NEXT

### 3.REPLACE DISC WITH ANOTHER AND RECHECK

a. Replace the disc with another and recheck.

b. Clear the DTC (Click here).

c. Recheck for DTC and check if the same trouble occurs again.

**OK:**

No DTC is output.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

END

## DTC B15A1 Audio HU Malfunction

## DTC B15B3 Radio Tuner Malfunction

## DTC B15B5 DVD Changer Malfunction

## DTC B15B7 Bluetooth Module Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the radio receiver assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A1 | Bus malfunction, sub-micro processor malfunction | Radio receiver assembly |
| B15B3 | Tuner communication error | |
| B15B5 | When one of the conditions below is met:<br>• Mechanical communication error<br>• Read malfunction<br>• Mechanical malfunction | |
| B15B7 | "Bluetooth" module malfunction | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

**OK**

USE SIMULATION METHOD TO CHECK (Click here)

# DTC B15E1 Media Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when signals from the disc in the radio receiver assembly cannot be read.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15E1 | When one of the conditions below is met:<br>• An unsuitable disc is inserted.<br>• The disc cannot be read.<br>• The disc cannot be read because of dirt or scratches.<br>• The disc cannot be read because it is inserted upside down. | • CD or DVD<br>• Radio receiver assembly |

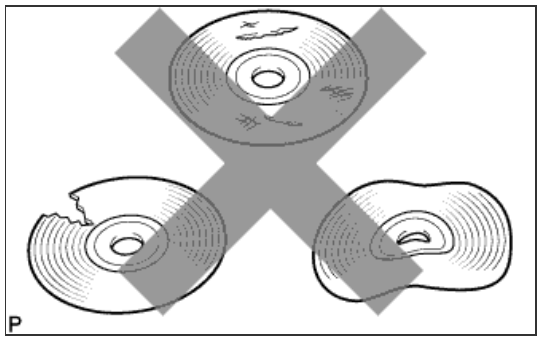
## INSPECTION PROCEDURE

### 1.CHECK DISC

a. Check that the disc is not deformed or cracked.

**OK:**

**No deformation or cracks on the disc**




NG → CHANGE DISC

OK

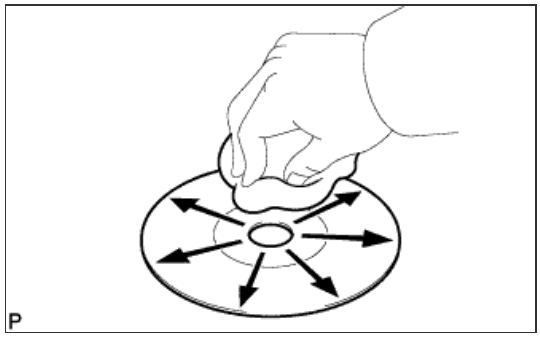
### 2.DISC CLEANING

a. Disc cleaning

i. If dirt is on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

**NOTICE:**

Do not use a conventional record cleaner or anti-static preservative.




NEXT

### 3.REPLACE DISC WITH ANOTHER AND RECHECK

a. Replace the disc with another and recheck.

b. Clear the DTC (Click here).

c. Recheck for DTC and check if the same trouble occurs again.

**OK:**

No DTC is output.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

END

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.NOISE CONDITION

a. Check from which direction the noise comes (front left or right, rear left or right).

i. Check from which direction the noise comes.

**OK:**
**The location of the noise source can be determined.**

NG → Go to step 3

OK

### 2.CHECK SPEAKERS

a. Check the installation conditions of the speaker units that are located near the noise source and that there are no cracks, scratches, deformation or other malfunctions.

**Result**

| Condition | Proceed to |
|---|---|
| A speaker is installed incorrectly | A |
| Foreign objects are in the speaker | B |
| A speaker cone paper is broken | C |
| No malfunction is found | D |

A → REINSTALL SPEAKER

B → REMOVE FOREIGN OBJECT

C → REPLACE SPEAKER

D

### 3.CHECK NOISE CONDITION

a. Check the noise condition.

**HINT:**

The radio has a noise prevention function to reduce noise when listening to the radio. If a loud noise occurs, check whether the ground at the antenna mounting base and the noise prevention unit are installed and wired correctly.

| Condition under which Noise Occurs | Noise Source |
|---|---|
| Noise increases when the accelerator pedal is depressed, but stops when the engine is stopped. | Generator |
| Noise occurs during A/C or heater operation. | Blower motor |
| Noise occurs when the horn switch is pressed and released or when pressed and held. | Horn |
| Noise occurs synchronously with the blink of the turn signal. | Flasher |
| Noise occurs during window washer operation. | Washer |
| Noise occurs during wiper operation. | Wiper |
| Noise occurs when the brake pedal is depressed. | Stop light switch |
| Noise occurs when the sliding roof moves. | Sliding roof motor |
| Others | Static electricity |

**HINT:**

- **In the chart left column, find the situation that matches the customer's complaint. Then, in the right column, find the part**

that is causing the noise. Check the respective noise filter.

- To save time and avoid a misdiagnosis, first make sure that the noise is not coming from outside the vehicle.
- Troubleshoot noises in descending order of loudness.
- Setting the radio to a frequency where no signal is received may make recognition of the noise problem easier.

**OK:**

The noise source cannot be determined.

| | | |
|---|---|---|
| | NG | REPAIR OR REPLACE NOISE SOURCE |
| OK | | |
| PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here) | | |

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.NOISE CONDITION

a. Check from which direction the noise comes (front left or right, rear left or right).

i. Check from which direction the noise comes.

**OK:**
**The location of the noise source can be determined.**

NG → Go to step 3

OK

### 2.CHECK SPEAKERS

a. Check the installation conditions of the speaker units that are located near the noise source and that there are no cracks, scratches, deformation or other malfunctions.

**Result**

| Condition | Proceed to |
|---|---|
| A speaker is installed incorrectly | A |
| Foreign objects are in the speaker | B |
| A speaker cone paper is broken | C |
| No malfunction is found | D |

A → REINSTALL SPEAKER

B → REMOVE FOREIGN OBJECT

C → REPLACE SPEAKER

D

### 3.CHECK NOISE CONDITION

a. Check the noise condition.

**HINT:**

The radio has a noise prevention function to reduce noise when listening to the radio. If a loud noise occurs, check whether the ground at the antenna mounting base and the noise prevention unit are installed and wired correctly.

| Condition under which Noise Occurs | Noise Source |
|---|---|
| Noise increases when the accelerator pedal is depressed, but stops when the engine is stopped. | Generator |
| Noise occurs during A/C or heater operation. | Blower motor |
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| Noise occurs synchronously with the blink of the turn signal. | Flasher |
| Noise occurs during window washer operation. | Washer |
| Noise occurs during wiper operation. | Wiper |
| Noise occurs when the brake pedal is depressed. | Stop light switch |
| Noise occurs when the sliding roof moves. | Sliding roof motor |
| Others | Static electricity |

**HINT:**

- **In the chart left column, find the situation that matches the customer's complaint. Then, in the right column, find the part**

that is causing the noise. Check the respective noise filter.

- To save time and avoid a misdiagnosis, first make sure that the noise is not coming from outside the vehicle.
- Troubleshoot noises in descending order of loudness.
- Setting the radio to a frequency where no signal is received may make recognition of the noise problem easier.

**OK:**

The noise source cannot be determined.

| | | |
|---|---|---|
| | NG | REPAIR OR REPLACE NOISE SOURCE |
| OK | | |
| PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here) | | |

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.CHECK VEHICLE CONDITION**

a. Check that conditions in the cabin are not likely to cause condensation.

**HINT:**

This problem occurs if the cabin is humid and the temperature changes rapidly. This may produce condensation, resulting in a short circuit.

**OK:**

**Condensation is not likely being produced.**

NG → **DRY OUT CABIN AND RECHECK CONDITION**

OK

**PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)**

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.CHECK VEHICLE CONDITION**

a. Check that conditions in the cabin are not likely to cause condensation.

**HINT:**

This problem occurs if the cabin is humid and the temperature changes rapidly. This may produce condensation, resulting in a short circuit.

**OK:**

**Condensation is not likely being produced.**

NG → **DRY OUT CABIN AND RECHECK CONDITION**

OK

**PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)**

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.CHECK RADIO RECEIVER ASSEMBLY**

a. Check the radio receiver assembly settings.

i. Check that the volume is not set to "0".

ii. Check that mute is off.

**OK:**
**The volume is not set to "0" and mute is off.**

NG → SET VOLUME TO HIGH AND TURN MUTE OFF

OK

**PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)**

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.CHECK RADIO RECEIVER ASSEMBLY**

a. Check the radio receiver assembly settings.

i. Check that the volume is not set to "0".

ii. Check that mute is off.

**OK:**
**The volume is not set to "0" and mute is off.**

NG → SET VOLUME TO HIGH AND TURN MUTE OFF

OK

**PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)**

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.REPLACE DISC AND RECHECK**

a. Replace the disc with a known good one and recheck.

i. Check if the same trouble occurs again.

**OK:**
**Malfunction disappears.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK → END

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK IF A PROPER DISC IS INSERTED

a. Make sure that the disc is an audio disc or a disc with MP3 or WMA files, and that it is not deformed, flawed, stained, deteriorated or otherwise defective.

**OK:**
**Normal disc**

**HINT:**

- **Translucent or uniquely-shaped discs cannot be played.**
- **CDs and DVDs with adhesive paper labels should not be played.**
- **Commercial audio CDs and DVDs can be played.**
- **CD-DA files on CD-ROMs, CD-Rs and CD-RWs can be played.**
- **MP3 and WMA files on CD-ROMs, CD-Rs and CD-RWs can be played.**
- **For details on playable CDs and DVDs, refer to the Owner's Manual.**

NG → CHANGE DISC

OK

### 2.CHECK THAT DISC IS INSERTED PROPERLY

a. Check whether or not the disc is inserted upside down.

**OK:**
**Disc is properly inserted.**

NG → INSERT DISC PROPERLY

OK

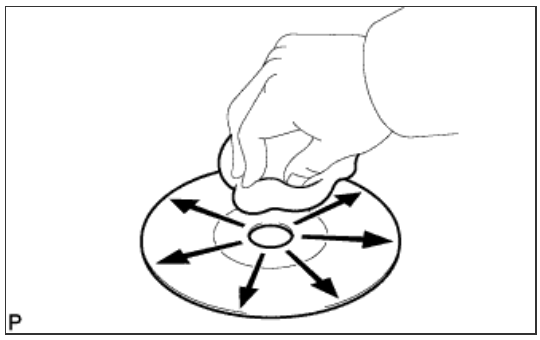
### 3.CLEAN DISC AND RECHECK

a. Clean the disc by wiping it clean with a soft cloth from the inside to the outside in a radial direction.

**OK:**
**Malfunction disappears.**

**NOTICE:**

Do not use a conventional record cleaner or anti-static preservative.




NG → Go to step 4

OK

END

### 4.REPLACE DISC AND RECHECK

a. Replace the disc with a known good one and check if the same trouble occurs again.

**OK:**

Malfunction disappears.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

END

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.PRESS EJECT AND CHECK OPERATION**

a. Press the disc eject switch of the radio receiver assembly for 2 seconds or more and check that the disc is ejected.

**OK:**
**Disc is ejected.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK ↓

**2.REPLACE DISC AND RECHECK**

a. Replace the disc with a known good one and recheck.

**OK:**
**Disc is ejected.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK ↓

**END**

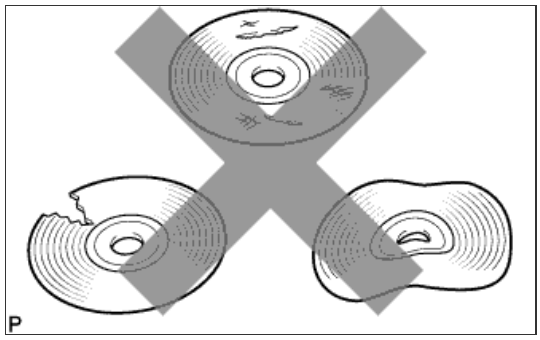
**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK DISC

a. Check that the disc is not deformed or cracked.

**OK:**
**No deformation or cracks on the disc**




NG → CHANGE DISC

OK

### 2.CHECK DISC

a. Check the disc.

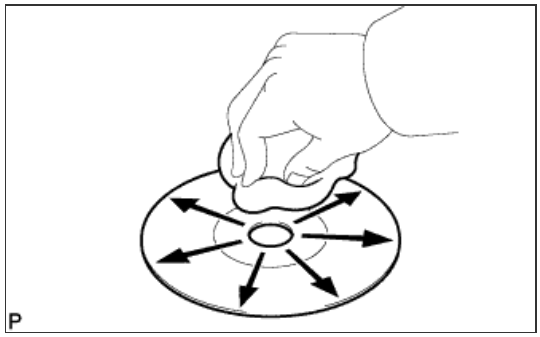
**OK:**
**The disc is clean.**

**HINT:**

If dirt is on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

**NOTICE:**

Do not use a conventional record cleaner or anti-static preservative.




NG → CLEAN DISC

OK

### 3.CHECK OPERATION

a. Check if the same problem occurs again using a known good disc.

**OK:**
**Malfunction disappears.**

NG → Go to step 4

OK

END

### 4.CHECK RADIO RECEIVER ASSEMBLY

a. Check that the radio receiver assembly is properly installed.

**OK:**

**Radio receiver assembly is properly installed.**

**NG** → REINSTALL RADIO RECEIVER ASSEMBLY PROPERLY

**OK**

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK RADIO RECEIVER ASSEMBLY

a. Check the radio automatic station search function.

i. Check the radio automatic station search function by activating it.

**Result**

| Result | Proceed to |
|---|---|
| Automatic station search function stops on a station | A |
| Automatic station search function does not stop | B |

B → Go to step 2

A →

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

### 2.CHECK OPTIONAL COMPONENTS

a. Check optional components (sunshade film, telephone antenna, etc.).

i. Check if any optional components that may decrease reception capacity, such as sunshade film or a telephone antenna, are installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components are installed | A |
| Optional components are not installed | B |

**NOTICE:**

Do not remove any optional components installed by the customer without his or her consent.

B → Go to step 3

A →

REMOVE OPTIONAL COMPONENTS AND CHECK AGAIN (SEE NOTICE ABOVE)

### 3.CHECK RADIO RECEIVER ASSEMBLY

a. Preparation for check

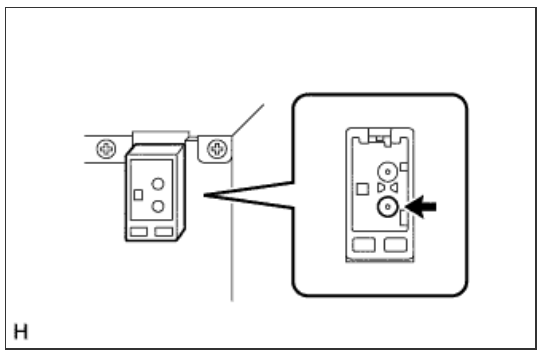
i. Remove the antenna plug from the radio receiver assembly.

b. Check for noise

i. Turn the engine switch on (ACC) with the radio receiver assembly connector connected.

ii. Turn the radio on and tune into AM mode.

iii. Place a screwdriver, thin wire or other metal object on the radio receiver assembly antenna jack and check that noise can be heard from the speakers.




**OK:**

**Noise can be heard from the speaker.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

## 4.CHECK GLASS ANTENNA

a. Check for continuity of the antenna.

**HINT:**

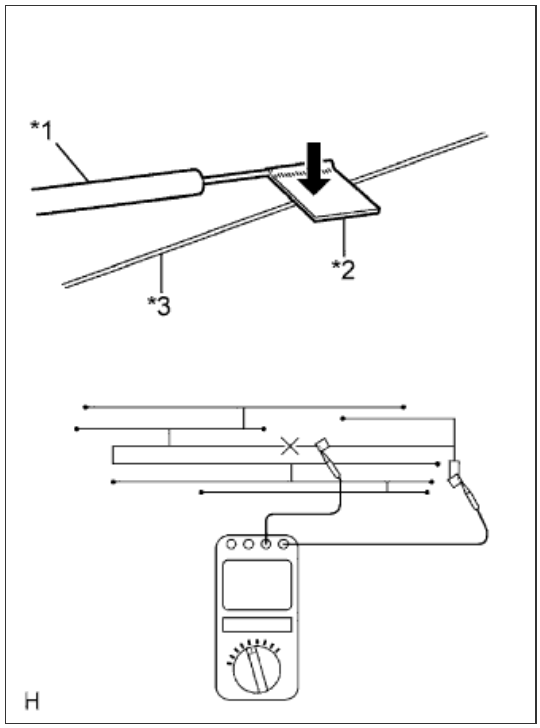
Check for continuity at the center of each antenna wire as shown in the illustration.

**NOTICE:**

When cleaning the glass, wipe it in the direction of the wire with a soft dry cloth. Take care not to damage the wire. Do not use detergents or glass cleaners with abrasive ingredients. When measuring resistance, wrap a piece of tin foil around the tip of each probe and press the foil against the wire with your finger, as shown in the illustration.

**OK:**

**There is continuity in the antenna.**




**Text in Illustration**

| | |
|---|---|
| *1 | Tester Probe |
| *2 | Tin Foil |
| *3 | Antenna Wire |

NG → REPAIR GLASS ANTENNA (Click here)

OK

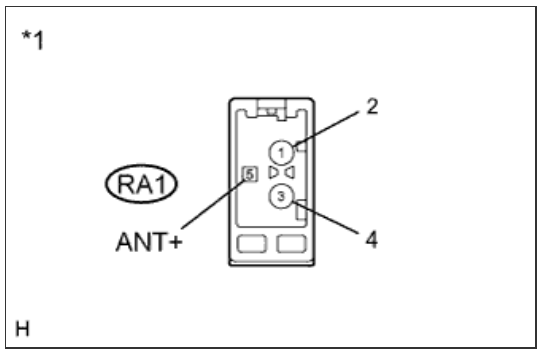
## 5.INSPECT RADIO RECEIVER ASSEMBLY

a. Disconnect the radio receiver assembly connector.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| RA1-5 (ANT+) - Body ground | Engine switch on (ACC)<br>Radio switch on | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Radio Receiver Assembly) |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

## 6.CHECK ANTENNA CORD

a. Remove the antenna plug of the radio receiver assembly and antenna.

b. Measure the resistance between the antenna and radio receiver assembly to check for an open circuit in the antenna cord.

**Standard Resistance:**
**Below 1 Ω**

c. Measure the resistance between the antenna cord and body ground to check for a short circuit in the antenna cord.

**Standard Resistance:**
**10 kΩ or higher**

NG → REPLACE ANTENNA CORD (Click here)

OK

**7.REPLACE AMPLIFIER ANTENNA ASSEMBLY**

a. Replace the amplifier antenna assembly and check if radio broadcasts can be received normally ( Click here).

**OK:**
**Radio broadcasts can be received.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

**NORMAL OPERATION**

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK RADIO RECEIVER ASSEMBLY

a. Check the radio automatic station search function.

i. Check the radio automatic station search function by activating it.

**Result**

| Result | Proceed to |
|---|---|
| Automatic station search function stops on a station | A |
| Automatic station search function does not stop | B |

B → Go to step 2

A →

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

### 2.CHECK OPTIONAL COMPONENTS

a. Check optional components (sunshade film, telephone antenna, etc.).

i. Check if any optional components that may decrease reception capacity, such as sunshade film or a telephone antenna, are installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components are installed | A |
| Optional components are not installed | B |

**NOTICE:**

Do not remove any optional components installed by the customer without his or her consent.

B → Go to step 3

A →

REMOVE OPTIONAL COMPONENTS AND CHECK AGAIN (SEE NOTICE ABOVE)

### 3.CHECK RADIO RECEIVER ASSEMBLY

a. Preparation for check

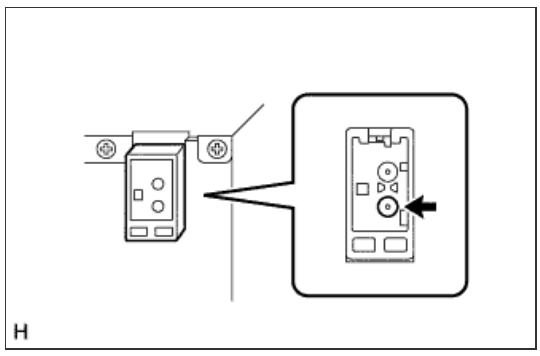
i. Remove the antenna plug from the radio receiver assembly.

b. Check for noise

i. Turn the engine switch on (ACC) with the radio receiver assembly connector connected.

ii. Turn the radio on and tune into AM mode.

iii. Place a screwdriver, thin wire or other metal object on the radio receiver assembly antenna jack and check that noise can be heard from the speakers.




**OK:**

**Noise can be heard from the speaker.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

## 4.CHECK GLASS ANTENNA

a. Check for continuity of the antenna.

**HINT:**

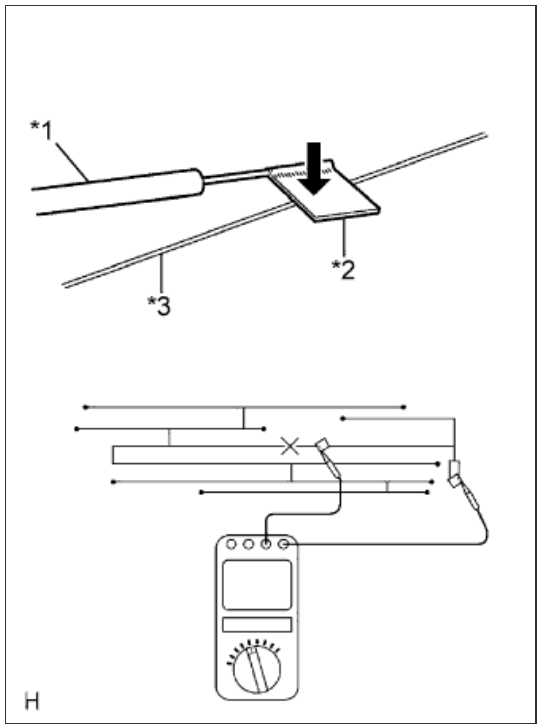
Check for continuity at the center of each antenna wire as shown in the illustration.

**NOTICE:**

When cleaning the glass, wipe it in the direction of the wire with a soft dry cloth. Take care not to damage the wire. Do not use detergents or glass cleaners with abrasive ingredients. When measuring resistance, wrap a piece of tin foil around the tip of each probe and press the foil against the wire with your finger, as shown in the illustration.

**OK:**

**There is continuity in the antenna.**




**Text in Illustration**

| | |
|---|---|
| *1 | Tester Probe |
| *2 | Tin Foil |
| *3 | Antenna Wire |

NG → REPAIR GLASS ANTENNA (Click here)

OK

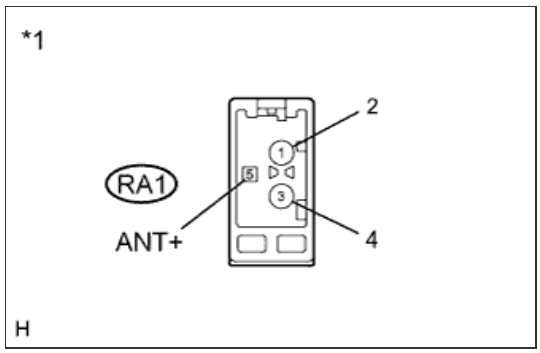
## 5.INSPECT RADIO RECEIVER ASSEMBLY

a. Disconnect the radio receiver assembly connector.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| RA1-5 (ANT+) - Body ground | Engine switch on (ACC)<br>Radio switch on | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Radio Receiver Assembly) |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

## 6.CHECK ANTENNA CORD

a. Remove the antenna plug of the radio receiver assembly and antenna.

b. Measure the resistance between the antenna and radio receiver assembly to check for an open circuit in the antenna cord.

**Standard Resistance:**
**Below 1 Ω**

c. Measure the resistance between the antenna cord and body ground to check for a short circuit in the antenna cord.

**Standard Resistance:**
**10 kΩ or higher**

NG → REPLACE ANTENNA CORD (Click here)

OK

**7.REPLACE AMPLIFIER ANTENNA ASSEMBLY**

a. Replace the amplifier antenna assembly and check if radio broadcasts can be received normally ( Click here).

**OK:**
**Radio broadcasts can be received.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

**NORMAL OPERATION**

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.CHECK AUDIO SETTINGS**

a. Set "BASS", "MID" and "TREB" to the initial values and check that sound is normal.

**OK:**
**Malfunction disappears.**

NG → Go to step 2

OK → END

**2.COMPARE WITH ANOTHER VEHICLE OF SAME MODEL**

a. Compare with another vehicle of the same model.

i. Compare with another vehicle of the same model which does not have trouble to see if there is any difference in the sound quality.

**OK:**
**No difference is found.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK → END

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.CHECK AUDIO SETTINGS**

a. Set "BASS", "MID" and "TREB" to the initial values and check that sound is normal.

**OK:**
**Malfunction disappears.**

NG → Go to step 2

OK → END

**2.COMPARE WITH ANOTHER VEHICLE OF SAME MODEL**

a. Compare with another vehicle of the same model.

i. Compare with another vehicle of the same model which does not have trouble to see if there is any difference in the sound quality.

**OK:**
**No difference is found.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK → END

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK PORTABLE PLAYER SETTINGS

a. Check the portable player settings.

i. Check that the volume is not set to "0".

ii. Check that the mute is off.

b. Check that the sound of the portable player can be heard from the speakers.

**OK:**
**Sound of the portable player can be heard from the speakers.**

NG → Go to step 2

OK →

END

### 2.CHECK AUDIO SETTINGS

a. Check the audio settings.

i. Check that the volume is not set to "0".

b. Check that the sound of the portable player can be heard from the speakers.

**OK:**
**Sound of the portable player can be heard from the speakers.**

NG → Go to step 3

OK →

END

### 3.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL

a. Check that the sound of the portable player can be heard from the speakers on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**Sound of the portable player can be heard from the speakers.**

NG → MALFUNCTION IN PORTABLE PLAYER

OK →

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK PORTABLE PLAYER SETTINGS

a. Check the portable player settings.

i. Check that the volume is not set to "0".

ii. Check that the mute is off.

b. Check that the sound of the portable player can be heard from the speakers.

**OK:**
**Sound of the portable player can be heard from the speakers.**

NG → Go to step 2

OK →

END

### 2.CHECK AUDIO SETTINGS

a. Check the audio settings.

i. Check that the volume is not set to "0".

b. Check that the sound of the portable player can be heard from the speakers.

**OK:**
**Sound of the portable player can be heard from the speakers.**

NG → Go to step 3

OK →

END

### 3.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL

a. Check that the sound of the portable player can be heard from the speakers on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**Sound of the portable player can be heard from the speakers.**

NG → MALFUNCTION IN PORTABLE PLAYER

OK →

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

Even if the portable player can play audio content, it may not be able to play via the in-vehicle device. This does not necessarily indicate a malfunction of the in-vehicle device.

### 1.CHECK OPERATION

a. Check if the portable player operates normally.

**OK:**
**The portable player operates normally.**

NG → MALFUNCTION IN PORTABLE PLAYER

OK ↓

### 2.CHECK AUDIO SETTINGS

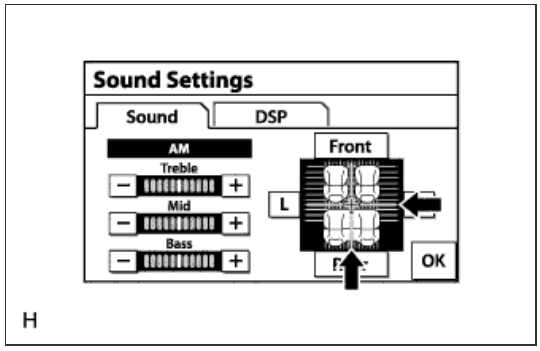
a. Enter the "Sound Settings" screen by pressing the "Sound" switch on the audio display.

b. Set volume, fader and balance to the initial values and check that sound is normal.

**OK:**
**Audio system returns to normal.**

**HINT:**

Sound quality adjustment measures vary according to the type of the amplifier.



H

NG → SET VOLUME TO HIGH AND TURN MUTE OFF

OK ↓

### 3.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL

a. Check if the "Bluetooth" audio player plays normally on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**"Bluetooth" audio plays normally.**

NG → MALFUNCTION IN PORTABLE PLAYER

OK ↓

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

Even if the portable player can play audio content, it may not be able to play via the in-vehicle device. This does not necessarily indicate a malfunction of the in-vehicle device.

### 1.CHECK OPERATION

a. Check if the portable player operates normally.

**OK:**
**The portable player operates normally.**

NG → MALFUNCTION IN PORTABLE PLAYER

OK ↓

### 2.CHECK AUDIO SETTINGS

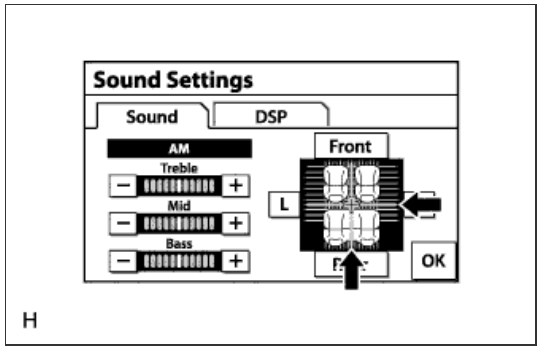
a. Enter the "Sound Settings" screen by pressing the "Sound" switch on the audio display.

b. Set volume, fader and balance to the initial values and check that sound is normal.

**OK:**
**Audio system returns to normal.**

**HINT:**

Sound quality adjustment measures vary according to the type of the amplifier.



H

NG → SET VOLUME TO HIGH AND TURN MUTE OFF

OK ↓

### 3.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL

a. Check if the "Bluetooth" audio player plays normally on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**"Bluetooth" audio plays normally.**

NG → MALFUNCTION IN PORTABLE PLAYER

OK ↓

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

# AUDIO AND VISUAL SYSTEM (w/o Navigation System) > Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL**

a. Check if track information is displayed normally on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**Track information is displayed normally.**

NG → **PORTABLE PLAYER IS NOT COMPATIBLE**

OK ↓

**PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)**

# AUDIO AND VISUAL SYSTEM (w/o Navigation System) > Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL**

a. Check if track information is displayed normally on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**Track information is displayed normally.**

NG → **PORTABLE PLAYER IS NOT COMPATIBLE**

OK ↓

**PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)**

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

- **Perform this check with the portable player volume set at an appropriate level.**
- **Make sure there are no obstructions between the portable player and radio receiver assembly that may block signals, and that the portable player and radio receiver assembly are not excessively far apart.**
- **Make sure devices other than the radio receiver assembly are not connected to the portable player.**
- **Make sure there is no interference from a wireless LAN, etc.**

### 1.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL

a. Check that the same problem does not occur in the sound heard from the speakers on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**The same problem does not occur in the sound heard from the speakers.**

NG → MALFUNCTION IN PORTABLE PLAYER

OK

### 2.REMOVE ADDITIONAL DEVICES WHICH USE RADIO WAVES

a. Remove additional devices which use radio waves.

b. Play the portable player and check that the same problem does not occur in the sound heard from the speakers.

**OK:**
**The same problem does not occur in the sound heard from the speakers.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

### END

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

- **Perform this check with the portable player volume set at an appropriate level.**
- **Make sure there are no obstructions between the portable player and radio receiver assembly that may block signals, and that the portable player and radio receiver assembly are not excessively far apart.**
- **Make sure devices other than the radio receiver assembly are not connected to the portable player.**
- **Make sure there is no interference from a wireless LAN, etc.**

### 1.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL

a. Check that the same problem does not occur in the sound heard from the speakers on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**The same problem does not occur in the sound heard from the speakers.**

NG → MALFUNCTION IN PORTABLE PLAYER

OK

### 2.REMOVE ADDITIONAL DEVICES WHICH USE RADIO WAVES

a. Remove additional devices which use radio waves.

b. Play the portable player and check that the same problem does not occur in the sound heard from the speakers.

**OK:**
**The same problem does not occur in the sound heard from the speakers.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

### END

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

Some versions of "Bluetooth" compatible audio players may not function, or the function may be limited using the radio receiver assembly, even if the portable audio player itself can play files (Click here).

### 1.CHECK CONNECTED DEVICE SETTINGS

a. Display the "Select Portable Player" screen and check if the portable player is registered as a connected device.




**NOTICE:**

If a cellular phone is used as a portable player, it must be registered independently from the registration that is performed for the hands-free system.

**HINT:**

Only 2 portable players can be registered.

**Result**

| Result | Proceed to |
|---|---|
| The portable player is registered as a connected device. | A |
| The portable player is not registered as a connected device. | B |

B → REGISTER PORTABLE PLAYER AS CONNECTED DEVICE

A

### 2.CHECK SYMPTOMS

a. Check the connection condition between the portable player and radio receiver assembly.

**HINT:**
**The portable player cannot be connected under any of the following conditions:**

- **The portable player is connected to another device.**
- **The portable player is connected to the radio receiver assembly using the hands-free function.**
- **The radio receiver assembly has cleared the portable player registration.**
- **The portable player is off.**

**Result**

| Result | Proceed to |
|---|---|
| The portable player cannot be connected manually. | A |
| The portable player cannot be connected automatically. | B |

B → Go to step 4

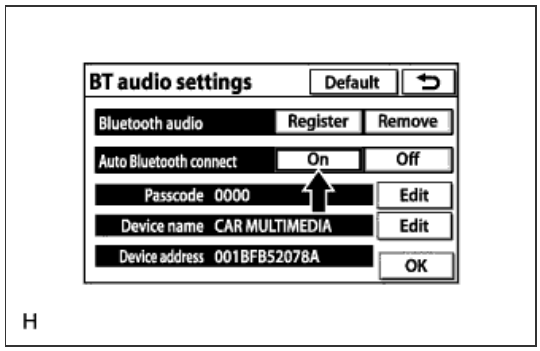
A

### 3.CHECK AUTOMATIC CONNECTION SETTINGS

a. Display the "BT Audio settings" screen and check automatic connection settings of the "Bluetooth" audio.

i. Check if On is displayed for "Auto Bluetooth connect" on the "BT audio settings" screen.

**OK:**
**On is displayed for "Auto Bluetooth connect".**




NG → CHANGE "AUTO BLUETOOTH CONNECT" TO ON

OK ↓

**4.CHECK PORTABLE PLAYER STATUS**

a. Check the status of the portable player.

i. Check that the portable player is in standby mode.

ii. Check that the portable player is not connected to another device (headphones etc.).

**OK:**
**The portable player is in standby mode and not connected to another device (headphones etc.).**

NG → CHANGE PORTABLE PLAYER TO STANDBY MODE AND DISCONNECT OTHER DEVICES (HEADPHONES etc.)

OK ↓

**5.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL**

a. Check if the portable player can be connected manually/automatically on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**The portable player can be connected manually/automatically.**

NG → PORTABLE PLAYER IS NOT COMPATIBLE

OK ↓

**6.REMOVE ADDITIONAL DEVICES WHICH USE RADIO WAVES**

a. Remove additional devices which use radio waves.

b. Check if the portable player can be connected manually/automatically.

**OK:**
**The portable player can be connected manually/automatically.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK ↓

**END**

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

Some versions of "Bluetooth" compatible audio players may not function, or the function may be limited using the radio receiver assembly, even if the portable audio player itself can play files (Click here).

### 1.CHECK CONNECTED DEVICE SETTINGS

a. Display the "Select Portable Player" screen and check if the portable player is registered as a connected device.




**NOTICE:**

If a cellular phone is used as a portable player, it must be registered independently from the registration that is performed for the hands-free system.

**HINT:**

Only 2 portable players can be registered.

**Result**

| Result | Proceed to |
|---|---|
| The portable player is registered as a connected device. | A |
| The portable player is not registered as a connected device. | B |

B → REGISTER PORTABLE PLAYER AS CONNECTED DEVICE

A

### 2.CHECK SYMPTOMS

a. Check the connection condition between the portable player and radio receiver assembly.

**HINT:**
**The portable player cannot be connected under any of the following conditions:**

- **The portable player is connected to another device.**
- **The portable player is connected to the radio receiver assembly using the hands-free function.**
- **The radio receiver assembly has cleared the portable player registration.**
- **The portable player is off.**

**Result**

| Result | Proceed to |
|---|---|
| The portable player cannot be connected manually. | A |
| The portable player cannot be connected automatically. | B |

B → Go to step 4

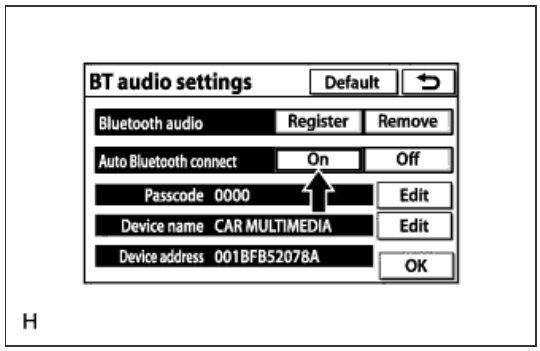
A

### 3.CHECK AUTOMATIC CONNECTION SETTINGS

a. Display the "BT Audio settings" screen and check automatic connection settings of the "Bluetooth" audio.

i. Check if On is displayed for "Auto Bluetooth connect" on the "BT audio settings" screen.

**OK:**
**On is displayed for "Auto Bluetooth connect".**




NG → CHANGE "AUTO BLUETOOTH CONNECT" TO ON

OK ↓

**4.CHECK PORTABLE PLAYER STATUS**

a. Check the status of the portable player.

i. Check that the portable player is in standby mode.

ii. Check that the portable player is not connected to another device (headphones etc.).

**OK:**
**The portable player is in standby mode and not connected to another device (headphones etc.).**

NG → CHANGE PORTABLE PLAYER TO STANDBY MODE AND DISCONNECT OTHER DEVICES (HEADPHONES etc.)

OK ↓

**5.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL**

a. Check if the portable player can be connected manually/automatically on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**The portable player can be connected manually/automatically.**

NG → PORTABLE PLAYER IS NOT COMPATIBLE

OK ↓

**6.REMOVE ADDITIONAL DEVICES WHICH USE RADIO WAVES**

a. Remove additional devices which use radio waves.

b. Check if the portable player can be connected manually/automatically.

**OK:**
**The portable player can be connected manually/automatically.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK ↓

**END**

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.DELETE OPERATION**

a. Check if a registered portable player can be deleted normally.

**OK:**
**Registered portable player can be deleted normally.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

**END**

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.DELETE OPERATION**

a. Check if a registered portable player can be deleted normally.

**OK:**
**Registered portable player can be deleted normally.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

**END**

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

Some versions of "Bluetooth" compatible audio players may not function, or the function may be limited using the radio receiver assembly, even if the portable audio player itself can play files (Click here).

### 1.CHECK THAT PORTABLE PLAYER IS "BLUETOOTH" AUDIO COMPATIBLE

a. Check if the portable player is "Bluetooth" audio compatible.

**Result**

| Result | Proceed to |
|---|---|
| The portable player is "Bluetooth" audio compatible. | A |
| The portable player is not "Bluetooth" audio compatible. | B |

B → USE A "BLUETOOTH" AUDIO COMPATIBLE PORTABLE PLAYER

A

### 2.CHECK CONNECTION PROCEDURE OF CONNECTED DEVICE

a. Referring to the owner's manual, correctly register the portable player.

b. Check that the portable player can be registered as a connected device.

**HINT:**
**The portable player cannot be registered under any of the following conditions:**

- **The A2DP (Advanced Audio Distribution Profile) is not used when registering a cellular phone.**
- **A different portable player registration remains in the radio receiver assembly.**
- **A different radio receiver assembly registration remains in the portable player.**
- **The portable player is off.**

**OK:**
**The portable player has been registered as a connected device.**

NG → Go to step 3

OK

END

### 3.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL

a. Check if the portable player can be registered normally on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**The portable player can be registered.**

NG → MALFUNCTION IN PORTABLE PLAYER

OK

### 4.REMOVE ADDITIONAL DEVICES WHICH USE RADIO WAVES

a. Remove additional devices which use radio waves.

b. Check that the portable player can be registered as a connected device.

**OK:**
**The portable player can be registered.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK → END

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

Some versions of "Bluetooth" compatible audio players may not function, or the function may be limited using the radio receiver assembly, even if the portable audio player itself can play files (Click here).

### 1.CHECK THAT PORTABLE PLAYER IS "BLUETOOTH" AUDIO COMPATIBLE

a. Check if the portable player is "Bluetooth" audio compatible.

**Result**

| Result | Proceed to |
|---|---|
| The portable player is "Bluetooth" audio compatible. | A |
| The portable player is not "Bluetooth" audio compatible. | B |

B → USE A "BLUETOOTH" AUDIO COMPATIBLE PORTABLE PLAYER

A

### 2.CHECK CONNECTION PROCEDURE OF CONNECTED DEVICE

a. Referring to the owner's manual, correctly register the portable player.

b. Check that the portable player can be registered as a connected device.

**HINT:**
**The portable player cannot be registered under any of the following conditions:**

- **The A2DP (Advanced Audio Distribution Profile) is not used when registering a cellular phone.**
- **A different portable player registration remains in the radio receiver assembly.**
- **A different radio receiver assembly registration remains in the portable player.**
- **The portable player is off.**

**OK:**
**The portable player has been registered as a connected device.**

NG → Go to step 3

OK

END

### 3.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL

a. Check if the portable player can be registered normally on another "Bluetooth" audio compatible vehicle of the same model.

**OK:**
**The portable player can be registered.**

NG → MALFUNCTION IN PORTABLE PLAYER

OK

### 4.REMOVE ADDITIONAL DEVICES WHICH USE RADIO WAVES

a. Remove additional devices which use radio waves.

b. Check that the portable player can be registered as a connected device.

**OK:**
**The portable player can be registered.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK → END

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

- **When a large amount of data is in a USB device, it may take a while to before play begins.**
- **When using a USB device, files that are copy protected or encrypted by copyright cannot be played.**
- **When files are not played in the sorted order, perform the following procedure before inspection.**
  1. **Add numbers in front of the file names.**
  2. **Put the files in a folder and copy the folder data to the USB device.**

### 1.CHECK USB DEVICE OR "iPod"

a. Disconnect the USB device or "iPod" from the No. 1 stereo jack adapter assembly.

b. Check if playable files are present on the USB device or "iPod".

**HINT:**

Refer to System Description for playable files ( Click here).

c. Check if the USB device is a compatible format or "iPod" is a compatible version.

**HINT:**

Refer to System Description for compatible formats and versions ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| No playable files exist, or incompatible device format or version | A |
| Playable files exist, and compatible device format or version | B |

**B** → Go to step 2

**A**

### USB DEVICE FORMAT WAS INCOMPATIBLE, "iPod" VERSION WAS INCOMPATIBLE, OR NO PLAYABLE FILES PRESENT

### 2.FORMAT USB DEVICE OR RESTORE "iPod" AND RECHECK

a. Delete all files in the USB device or "iPod" and format/restore it.

b. Save the data again and check if it can be played on the in-vehicle device.

**NOTICE:**

Formatting a USB device or restoring an "iPod" erases all music on the device. Ensure that backup music data is available before performing this operation.

**OK:**
**Malfunction disappears.**

**NG** → Go to step 3

**OK**

### END

### 3.REPLACE USB DEVICE OR "iPod"

a. Turn the engine switch off.

**HINT:**

When this malfunction occurs, it is necessary to turn off the engine switch to make it possible for the vehicle to recognize a new device when it is connected.

b. Turn the engine switch on (ACC).

c. Connect a known good USB device or "iPod" to the No. 1 stereo jack adapter assembly.

**HINT:**

- **If the malfunction occurred when a USB device was in use, use another USB device for the inspection. If the malfunction occurred when an "iPod" was in use, use another "iPod" for the inspection.**
- **Refer to System Description for compatible formats and versions (Click here).**

**NEXT**

**4.CHECK USB Device or "iPod"**

a. Check if USB device or "iPod" is recognized by the display and navigation module display, if information such as track, artist and album names are displayed on screen or if can play.

**OK:**
**Malfunction disappears.**

**NG** → **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)**

**OK**

**USB DEVICE OR "iPod" WAS INCOMPATIBLE OR DEFECTIVE**

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

- **When a large amount of data is in a USB device, it may take a while to before play begins.**
- **When using a USB device, files that are copy protected or encrypted by copyright cannot be played.**
- **When files are not played in the sorted order, perform the following procedure before inspection.**
  1. **Add numbers in front of the file names.**
  2. **Put the files in a folder and copy the folder data to the USB device.**

### 1.CHECK USB DEVICE OR "iPod"

a. Disconnect the USB device or "iPod" from the No. 1 stereo jack adapter assembly.

b. Check if playable files are present on the USB device or "iPod".

**HINT:**

Refer to System Description for playable files ( Click here).

c. Check if the USB device is a compatible format or "iPod" is a compatible version.

**HINT:**

Refer to System Description for compatible formats and versions ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| No playable files exist, or incompatible device format or version | A |
| Playable files exist, and compatible device format or version | B |

**B** → Go to step 2

**A**

### USB DEVICE FORMAT WAS INCOMPATIBLE, "iPod" VERSION WAS INCOMPATIBLE, OR NO PLAYABLE FILES PRESENT

### 2.FORMAT USB DEVICE OR RESTORE "iPod" AND RECHECK

a. Delete all files in the USB device or "iPod" and format/restore it.

b. Save the data again and check if it can be played on the in-vehicle device.

**NOTICE:**

Formatting a USB device or restoring an "iPod" erases all music on the device. Ensure that backup music data is available before performing this operation.

**OK:**
**Malfunction disappears.**

**NG** → Go to step 3

**OK**

### END

### 3.REPLACE USB DEVICE OR "iPod"

a. Turn the engine switch off.

**HINT:**

When this malfunction occurs, it is necessary to turn off the engine switch to make it possible for the vehicle to recognize a new device when it is connected.

b. Turn the engine switch on (ACC).

c. Connect a known good USB device or "iPod" to the No. 1 stereo jack adapter assembly.

**HINT:**

- **If the malfunction occurred when a USB device was in use, use another USB device for the inspection. If the malfunction occurred when an "iPod" was in use, use another "iPod" for the inspection.**
- **Refer to System Description for compatible formats and versions (Click here).**

**NEXT**

**4.CHECK USB Device or "iPod"**

a. Check if USB device or "iPod" is recognized by the display and navigation module display, if information such as track, artist and album names are displayed on screen or if can play.

**OK:**
**Malfunction disappears.**

**NG** → **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)**

**OK**

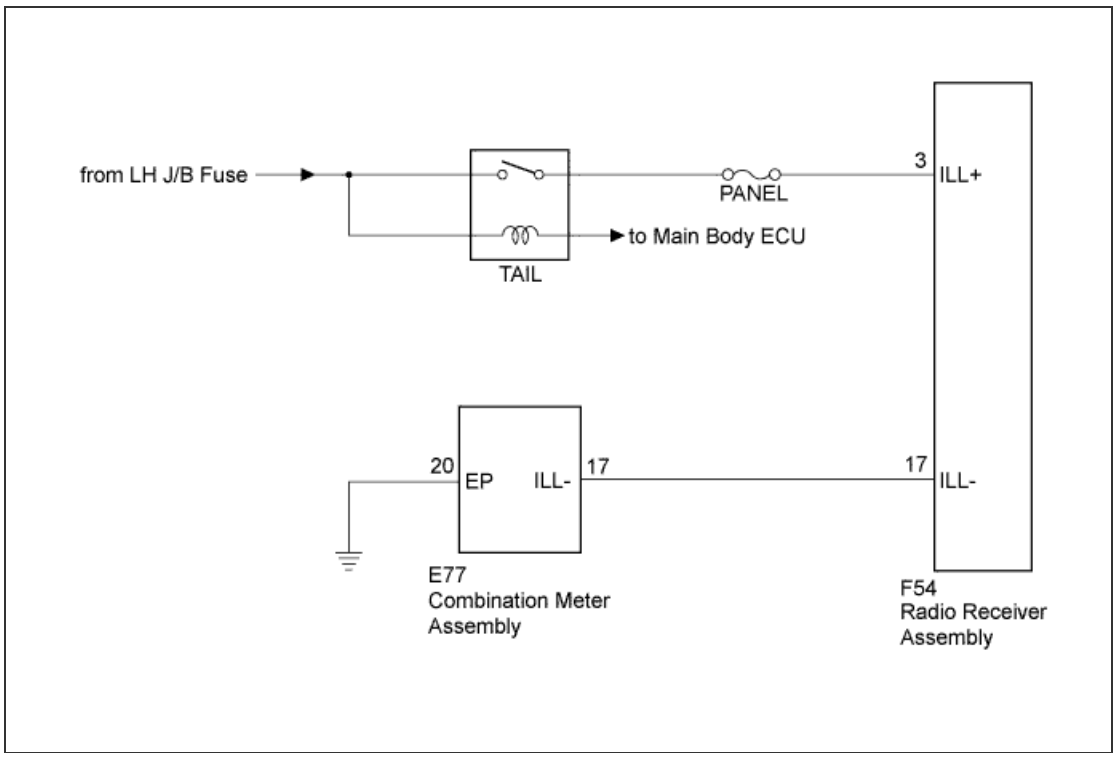
**USB DEVICE OR "iPod" WAS INCOMPATIBLE OR DEFECTIVE**

**for Preparation** Click here

## DESCRIPTION

Power is supplied to the radio receiver assembly illumination when the light control switch is in the tail or head position.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuse for circuits related to this system before performing the following inspection procedure.

### 1.CHECK ILLUMINATION

a. Check if the illumination for the radio receiver assembly, heater control switch or others (hazard switch, transmission control switch, etc.) comes on when the light control switch is turned to the head or tail position.

**Result**

| Result | Proceed to |
|---|---|
| Illumination comes on for all components except radio receiver assembly. | A |
| No illumination comes on (radio receiver assembly, hazard switch, heater control switch, etc.). | B |

B → GO TO LIGHTING SYSTEM (Click here)

A

### 2.CHECK HARNESS AND CONNECTOR (BATTERY - RADIO RECEIVER ASSEMBLY)

a. Disconnect the F54 radio receiver assembly connector.

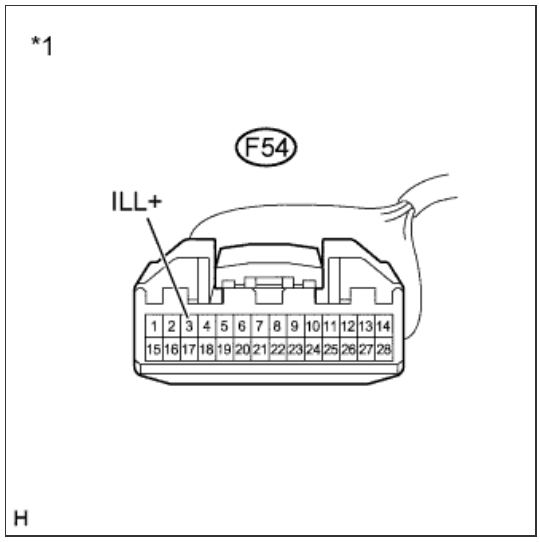
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F54-3 (ILL+) - Body ground | Light control switch tail or head | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Radio Receiver Assembly) |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**3.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY - COMBINATION METER ASSEMBLY)**

a. Disconnect the F54 radio receiver assembly connector and E77 combination meter assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-17 (ILL-) - E77-17 (ILL-) | Always | Below 1 Ω |
| E77-17 (ILL-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

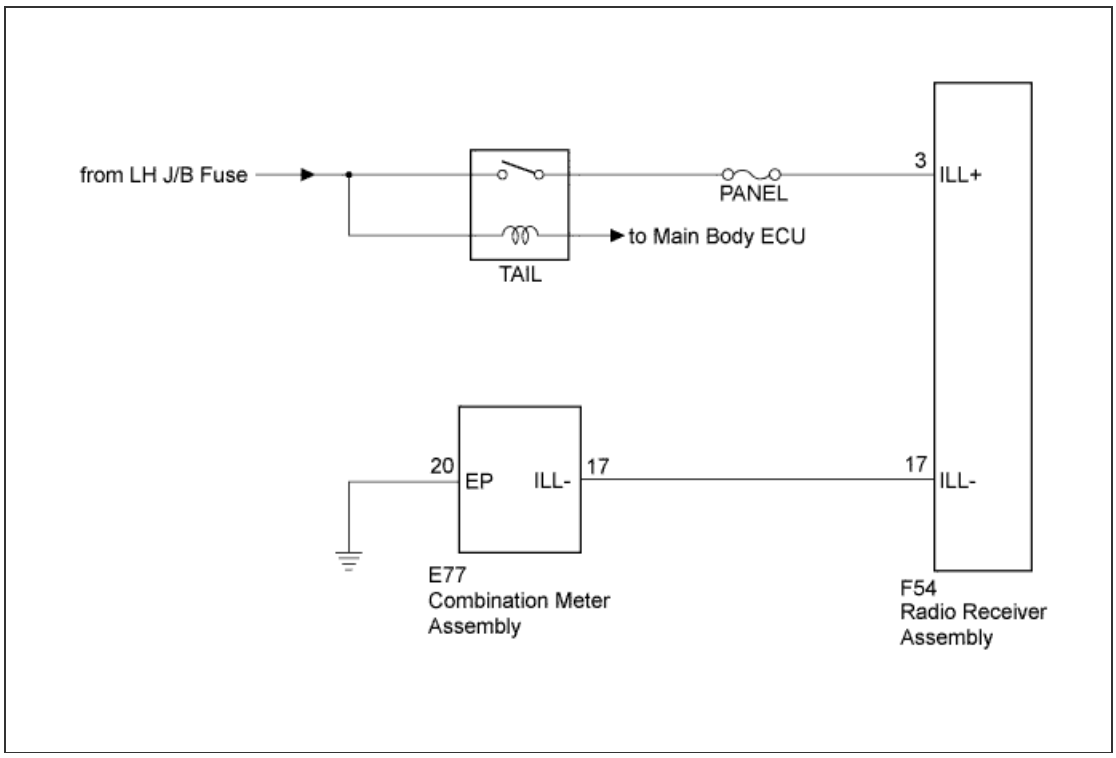
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

Power is supplied to the radio receiver assembly illumination when the light control switch is in the tail or head position.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuse for circuits related to this system before performing the following inspection procedure.

### 1.CHECK ILLUMINATION

a. Check if the illumination for the radio receiver assembly, heater control switch or others (hazard switch, transmission control switch, etc.) comes on when the light control switch is turned to the head or tail position.

**Result**

| Result | Proceed to |
|---|---|
| Illumination comes on for all components except radio receiver assembly. | A |
| No illumination comes on (radio receiver assembly, hazard switch, heater control switch, etc.). | B |

B → GO TO LIGHTING SYSTEM (Click here)

A

### 2.CHECK HARNESS AND CONNECTOR (BATTERY - RADIO RECEIVER ASSEMBLY)

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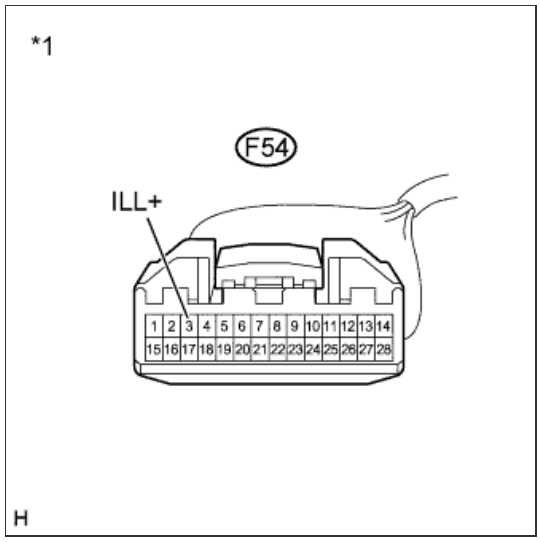
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| Tester Connection | Switch Condition | Specified Condition |
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| F54-3 (ILL+) - Body ground | Light control switch tail or head | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Radio Receiver Assembly) |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**3.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY - COMBINATION METER ASSEMBLY)**

a. Disconnect the F54 radio receiver assembly connector and E77 combination meter assembly connector.

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|---|---|---|
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| E77-17 (ILL-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

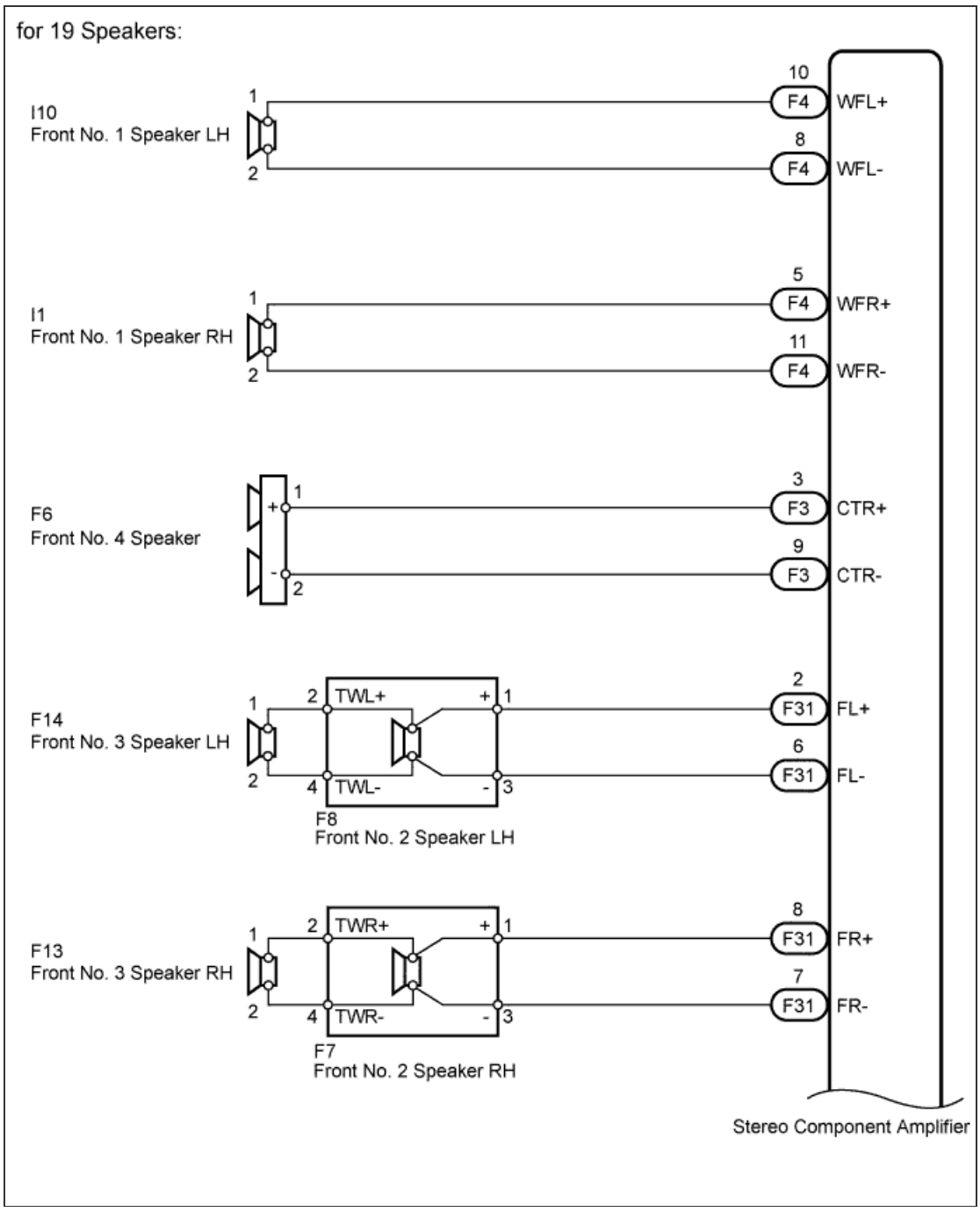
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

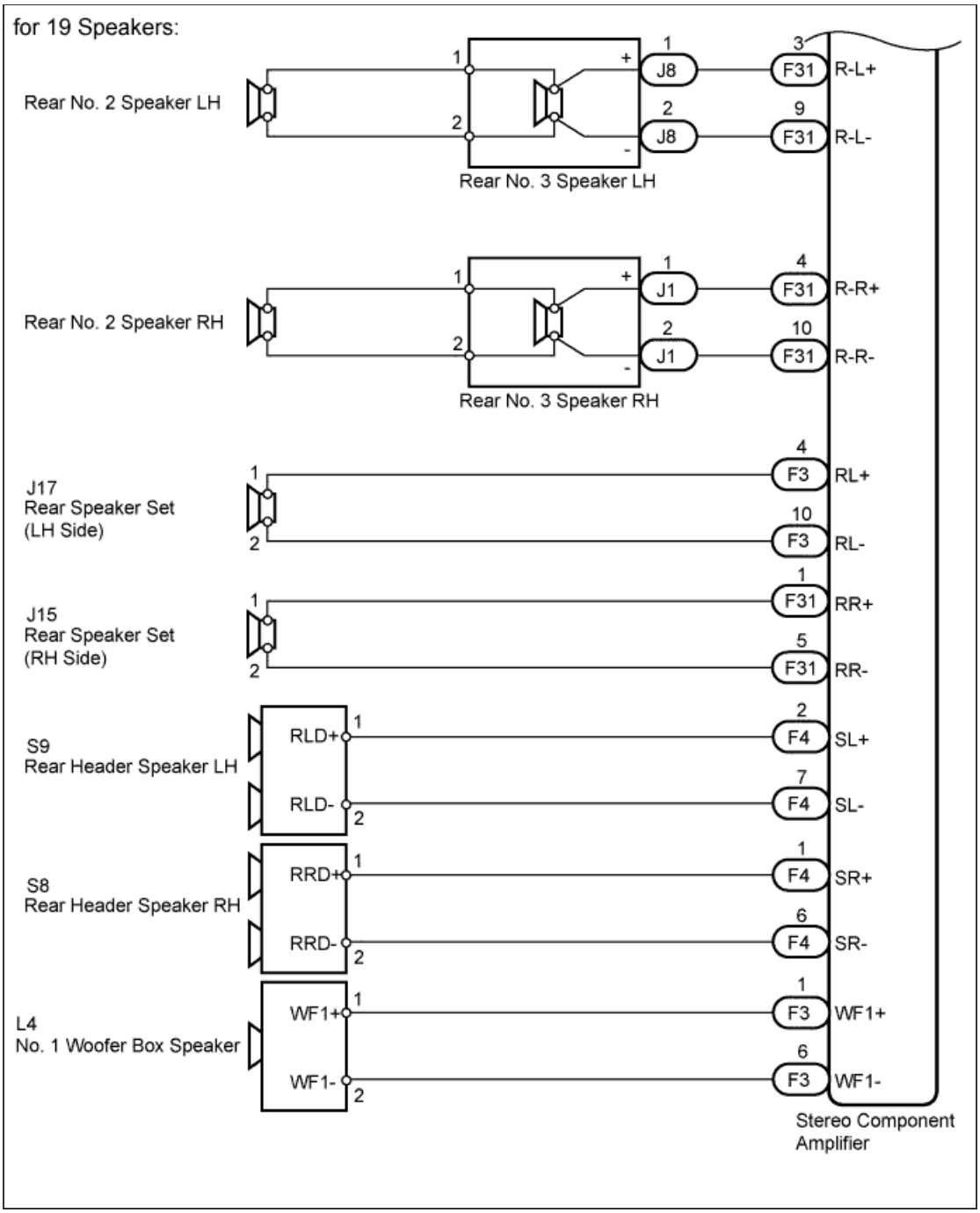
**for Preparation** Click here

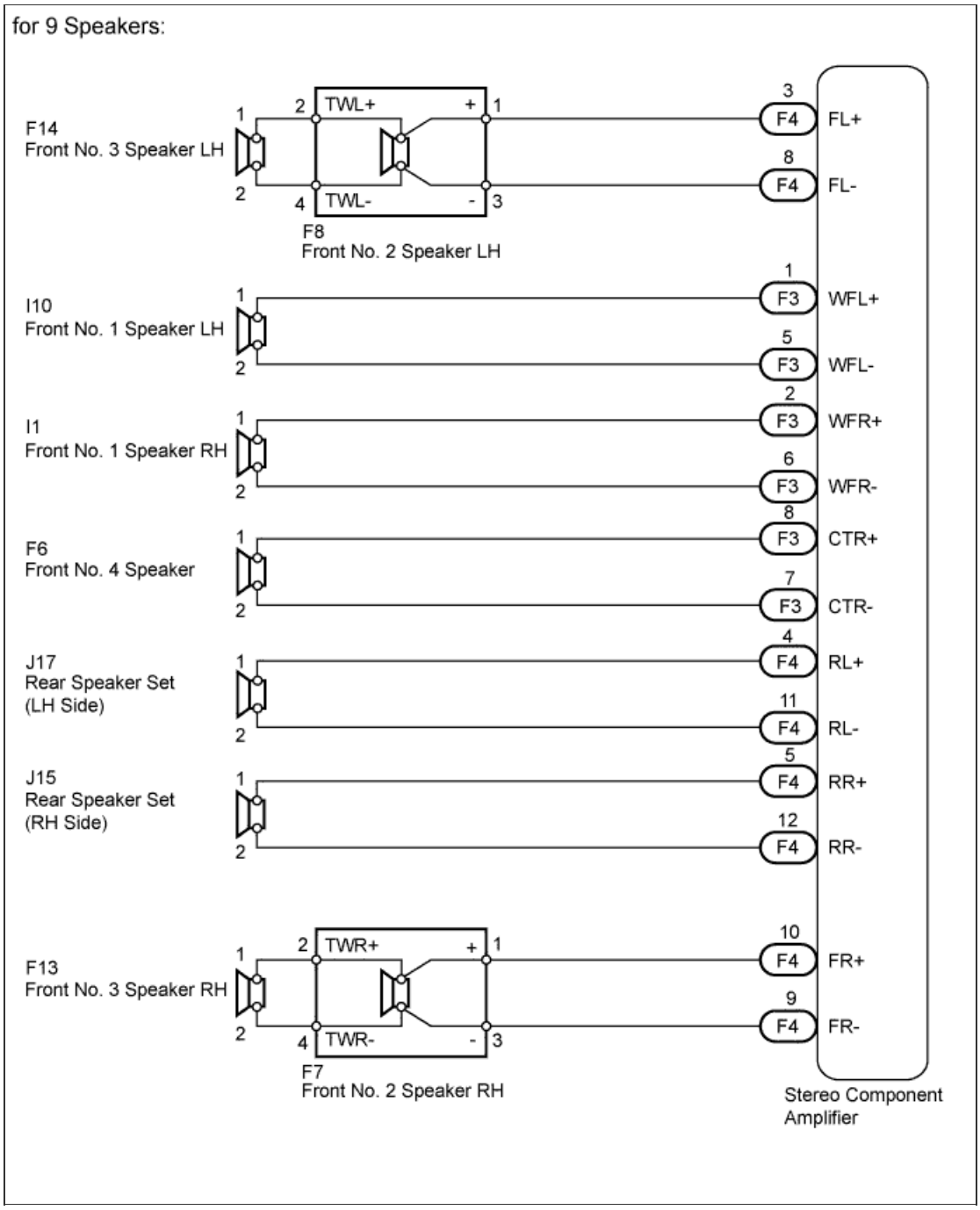
## DESCRIPTION

The stereo component amplifier sends sound signals to the speakers.

## WIRING DIAGRAM




for 19 Speakers:
Rear No. 2 Speaker LH
1
2
+
-
1
J8
2
J8
Rear No. 3 Speaker LH
3
F31
R-L+
9
F31
R-L-
Rear No. 2 Speaker RH
1
2
+
-
1
J1
2
J1
Rear No. 3 Speaker RH
4
F31
R-R+
10
F31
R-R-
J17
Rear Speaker Set
(LH Side)
1
2
4
F3
RL+
10
F3
RL-
J15
Rear Speaker Set
(RH Side)
1
2
1
F31
RR+
5
F31
RR-
S9
Rear Header Speaker LH
RLD+
RLD-
1
2
2
F4
SL+
7
F4
SL-
S8
Rear Header Speaker RH
RRD+
RRD-
1
2
1
F4
SR+
6
F4
SR-
L4
No. 1 Woofer Box Speaker
WF1+
WF1-
1
2
1
F3
WF1+
6
F3
WF1-
Stereo Component
Amplifier




## INSPECTION PROCEDURE

### 1.CHECK AUDIO MODELS

a. Check the audio model.

**Result**

| Result | Proceed to |
|---|---|
| 19 speakers | A |
| 9 speakers | B |

**B** → Go to step 22

**A**

### 2.CHECK SPEAKER

a. Check the malfunctioning speakers.

**Result**

| Result | Proceed to |
|---|---|
| Malfunction in front speaker area | A |

| | |
|---|---|
| Malfunction in rear speaker area | B |

B → Go to step 12

A

### 3.CHECK SPEAKER

a. Check the malfunctioning speakers.

**Result**

| Result | Proceed to |
|---|---|
| Front No. 4 speaker | A |
| Front No. 2 speaker | B |
| Front No. 1 speaker | C |
| Front No. 3 speaker | D |

B → Go to step 6

C → Go to step 8

D → Go to step 10

A

### 4.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY

a. Disconnect the F6 speaker connector.

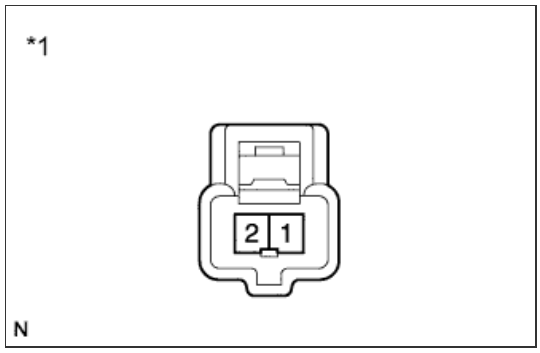
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 4 Speaker Assembly) |




NG → REPLACE FRONT NO. 4 SPEAKER ASSEMBLY (Click here)

OK

### 5.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 4 SPEAKER)

a. Disconnect the F6 speaker connector.

b. Disconnect the F3 amplifier connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-3 (CTR+) - F6-1 | Always | Below 1 Ω |
| F3-9 (CTR-) - F6-2 | Always | Below 1 Ω |
| F3-3 (CTR+) - Body ground | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| F3-9 (CTR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

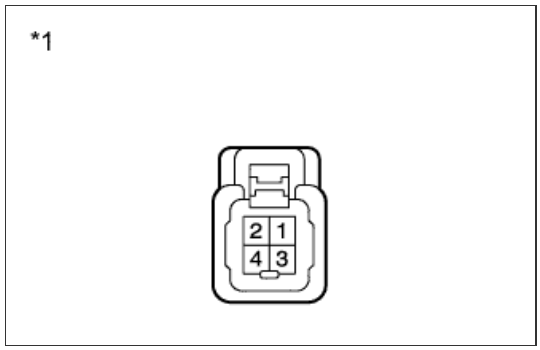
OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 6.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

a. Disconnect the F8 and F7 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.




**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | Below 1 Ω |
| 3 - 4 | Always | Below 1 Ω |
| 2 - 4 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 2 Speaker Assembly) |

NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

## 7.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 2 SPEAKER)

a. Disconnect the F31 amplifier connector.

b. Disconnect the F8 and F7 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-2 (FL+) - F8-1 (+) | Always | Below 1 Ω |
| F31-6 (FL-) - F8-3 (-) | Always | Below 1 Ω |
| F31-2 (FL+) - Body ground | Always | 10 kΩ or higher |
| F31-6 (FL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-8 (FR+) - F7-1 (+) | Always | Below 1 Ω |
| F31-7 (FR-) - F7-3 (-) | Always | Below 1 Ω |
| F31-8 (FR+) - Body ground | Always | 10 kΩ or higher |
| F31-7 (FR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

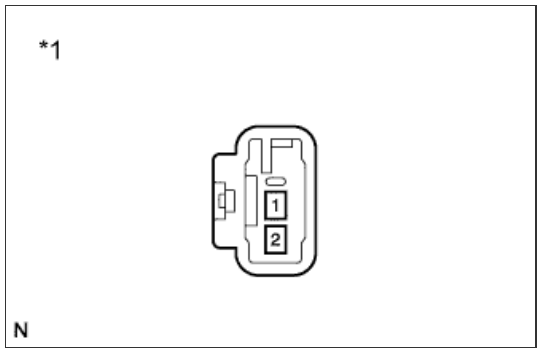
OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

8.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY

a. Disconnect the I10 and I1 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.




**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 11 to 13 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 1 Speaker Assembly) |

NG → REPLACE FRONT NO. 1 SPEAKER ASSEMBLY (Click here)

OK

9.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 1 SPEAKER)

a. Disconnect the I10 and I1 speaker connectors.

b. Disconnect the F4 amplifier connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-10 (WFL+) - I10-1 | Always | Below 1 Ω |
| F4-8 (WFL-) - I10-2 | Always | Below 1 Ω |
| F4-10 (WFL+) - Body ground | Always | 10 kΩ or higher |
| F4-8 (WFL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-5 (WFR+) - I1-1 | Always | Below 1 Ω |
| F4-11 (WFR-) - I1-2 | Always | Below 1 Ω |
| F4-5 (WFR+) - Body ground | Always | 10 kΩ or higher |
| F4-11 (WFR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 10.CHECK FRONT NO. 3 SPEAKER ASSEMBLY

a. Disconnect the F14 and F13 speaker connectors.

b. Interchange the front No. 3 speaker LH with RH.

c. Check that the malfunction disappears.

**OK:**
**Malfunction disappears.**

**HINT:**

- **Connect all the connectors to the front No. 3 speakers.**
- **When there is a possibility that either the right or left front speaker is defective, inspect by interchanging the right one with the left one.**
- **Perform the inspection above on both the LH and RH sides.**

**NG** → Go to step 11

**OK**

REPLACE FRONT NO. 3 SPEAKER ASSEMBLY (Click here)

## 11.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

a. Disconnect the F8 and F7 speaker connectors.

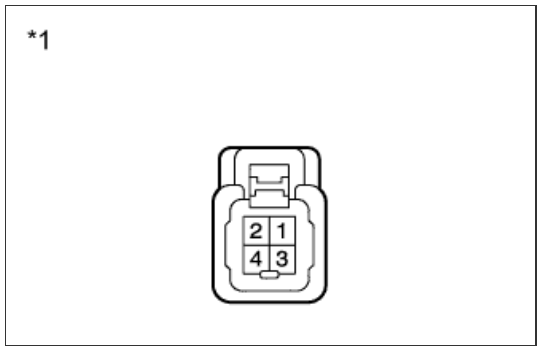
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 2 - 4 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 2 Speaker Assembly) |




**NG** → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

**OK**

REPAIR OR REPLACE HARNESS OR CONNECTOR (FRONT NO. 2 SPEAKER - FRONT NO. 3 SPEAKER)

## 12.CHECK SPEAKER

a. Check the malfunctioning speakers.

**Result**

| Result | Proceed to |
|---|---|
| Rear No. 2 speaker | A |
| Rear No. 3 speaker | B |
| Rear speaker set | C |
| No. 1 woofer box speaker | D |
| Rear header speaker | E |

**B** → Go to step 14

**C** → Go to step 16

**D** → Go to step 18

E → Go to step 20

A

## 13.INSPECT REAR NO. 2 SPEAKER ASSEMBLY

a. Disconnect the rear No. 2 speaker connectors.

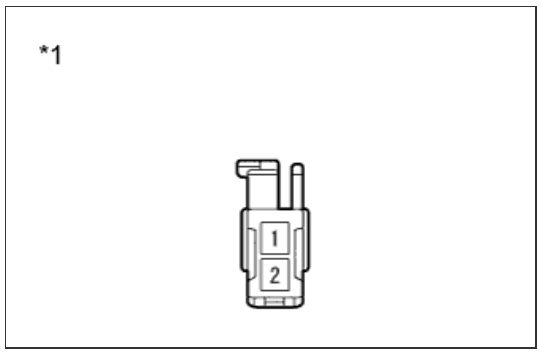
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 2 Speaker Assembly) |




NG → REPLACE REAR NO. 2 SPEAKER ASSEMBLY (Click here)

OK

REPLACE REAR NO. 3 SPEAKER ASSEMBLY (Click here)

## 14.CHECK REAR NO. 3 SPEAKER ASSEMBLY

a. Disconnect the rear No. 3 speaker connectors.

b. Interchange the rear No. 3 speaker LH with RH.

c. Check that the malfunction disappears.

**OK:**
**Malfunction disappears.**

**HINT:**

- **Connect all the connectors to the rear No. 3 speakers.**
- **When there is a possibility that either the right or left rear speaker is defective, inspect by interchanging the right one with the left one.**
- **Perform the inspection above on both the LH and RH sides.**

NG → Go to step 15

OK

REPLACE REAR NO. 3 SPEAKER ASSEMBLY (Click here)

## 15.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - REAR NO. 3 SPEAKER)

a. Disconnect the F31 amplifier connector.

b. Disconnect the J8 and J1 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**
**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-3 (R-L+) - J8-1 (+) | Always | Below 1 Ω |
| F31-9 (R-L-) - J8-2 (-) | Always | Below 1 Ω |

| | | |
|---|---|---|
| F31-3 (R-L+) - Body ground | Always | 10 kΩ or higher |
| F31-9 (R-L-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-4 (R-R+) - J1-1 (+) | Always | Below 1 Ω |
| F31-10 (R-R-) - J1-2 (-) | Always | Below 1 Ω |
| F31-4 (R-R+) - Body ground | Always | 10 kΩ or higher |
| F31-10 (R-R-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 16.INSPECT REAR SPEAKER SET

a. Disconnect the J17 and J15 speaker connectors.

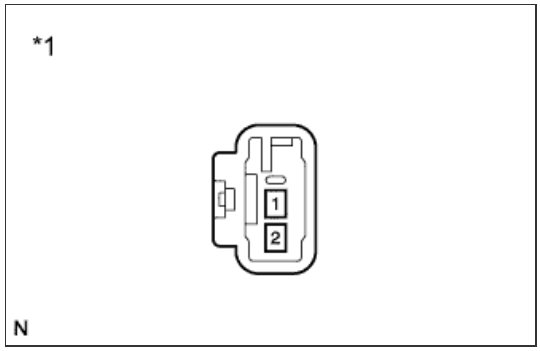
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4.8 to 7.2 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Rear Speaker set) |




NG → REPLACE REAR SPEAKER SET (Click here)

OK

## 17.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - REAR SPEAKER SET)

a. Disconnect the F3 and F31 amplifier connectors.

b. Disconnect the J17 and J15 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-4 (RL+) - J17-1 | Always | Below 1 Ω |
| F3-10 (RL-) - J17-2 | Always | Below 1 Ω |
| F3-4 (RL+) - Body ground | Always | 10 kΩ or higher |
| F3-10 (RL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| F31-1 (RR+) - J15-1 | Always | Below 1 Ω |
| F31-5 (RR-) - J15-2 | Always | Below 1 Ω |
| F31-1 (RR+) - Body ground | Always | 10 kΩ or higher |
| F31-5 (RR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK →

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**18.INSPECT NO. 1 WOOFER BOX SPEAKER ASSEMBLY**

a. Disconnect the L4 speaker connector.

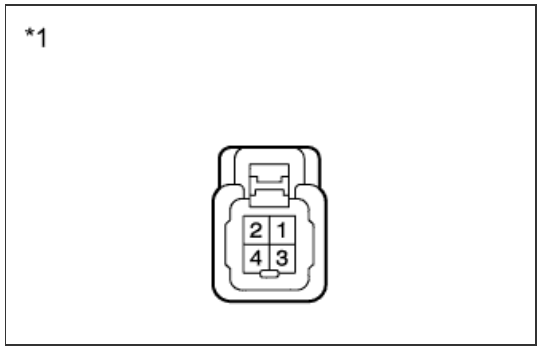
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 8.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (No. 1 Woofer Box Speaker Assembly) |




NG → REPLACE NO. 1 WOOFER BOX SPEAKER ASSEMBLY (Click here)

OK →

**19.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - NO. 1 WOOFER BOX SPEAKER)**

a. Disconnect the F3 amplifier connector.

b. Disconnect the L4 speaker connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-1 (WF1+) - L4-1 (WF1+) | Always | Below 1 Ω |
| F3-6 (WF1-) - L4-2 (WF1-) | Always | Below 1 Ω |
| F3-1 (WF1+) - Body ground | Always | 10 kΩ or higher |
| F3-6 (WF1-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK →

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**20.INSPECT REAR HEADER SPEAKER ASSEMBLY**

a. Disconnect the S9 and S8 speaker connectors.

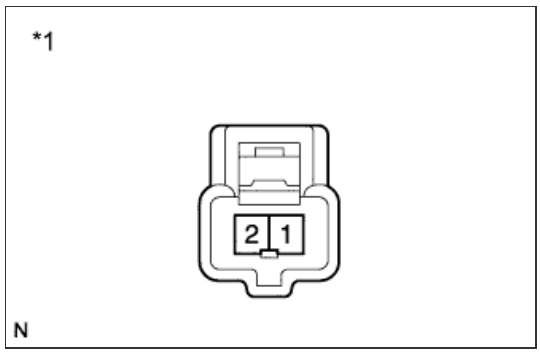
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Rear Header Speaker Assembly) |




NG → REPLACE REAR HEADER SPEAKER ASSEMBLY (Click here)

OK

## 21.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - REAR HEADER SPEAKER)

a. Disconnect the F4 amplifier connector.

b. Disconnect the S9 and S8 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-2 (SL+) - S9-1 (RLD+) | Always | Below 1 Ω |
| F4-7 (SL-) - S9-2 (RLD-) | Always | Below 1 Ω |
| F4-2 (SL+) - Body ground | Always | 10 kΩ or higher |
| F4-7 (SL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-1 (SR+) - S8-1 (RRD+) | Always | Below 1 Ω |
| F4-6 (SR-) - S8-2 (RRD-) | Always | Below 1 Ω |
| F4-1 (SR+) - Body ground | Always | 10 kΩ or higher |
| F4-6 (SR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 22.CHECK SPEAKER

a. Check the malfunctioning speakers.

**Result**

| Result | Proceed to |
|---|---|
| Front No. 4 speaker | A |

| | |
|---|---|
| Front No. 2 speaker | B |
| Front No. 1 speaker | C |
| Front No. 3 speaker | D |
| Rear speaker set | E |

B → Go to step 25

C → Go to step 27

D → Go to step 29

E → Go to step 31

A

**23.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY**

a. Disconnect the F6 speaker connector.

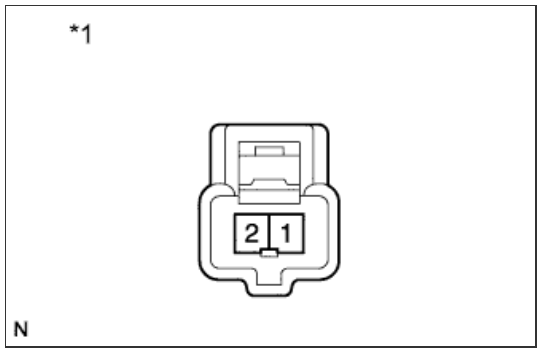
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 6 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 4 Speaker Assembly) |




NG → REPLACE FRONT NO. 4 SPEAKER ASSEMBLY (Click here)

OK

**24.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 4 SPEAKER)**

a. Disconnect the F6 speaker connector.

b. Disconnect the F3 amplifier connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-8 (CTR+) - F6-1 | Always | Below 1 Ω |
| F3-7 (CTR-) - F6-2 | Always | Below 1 Ω |
| F3-8 (CTR+) - Body ground | Always | 10 kΩ or higher |
| F3-7 (CTR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

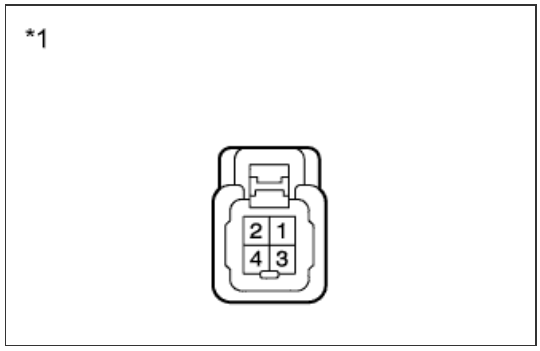
OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**25.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY**

a. Disconnect the F8 and F7 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.




**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | Below 1 Ω |
| 3 - 4 | Always | Below 1 Ω |
| 2 - 4 | Always | 4 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 2 Speaker Assembly) |

NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

**26.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 2 SPEAKER)**

a. Disconnect the F4 amplifier connector.

b. Disconnect the F8 and F7 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-3 (FL+) - F8-1 (+) | Always | Below 1 Ω |
| F4-8 (FL-) - F8-3 (-) | Always | Below 1 Ω |
| F4-3 (FL+) - Body ground | Always | 10 kΩ or higher |
| F4-8 (FL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-10 (FR+) - F7-1 (+) | Always | Below 1 Ω |
| F4-9 (FR-) - F7-3 (-) | Always | Below 1 Ω |
| F4-10 (FR+) - Body ground | Always | 10 kΩ or higher |
| F4-9 (FR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**27.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY**

a. Disconnect the I10 and I1 speaker connectors.

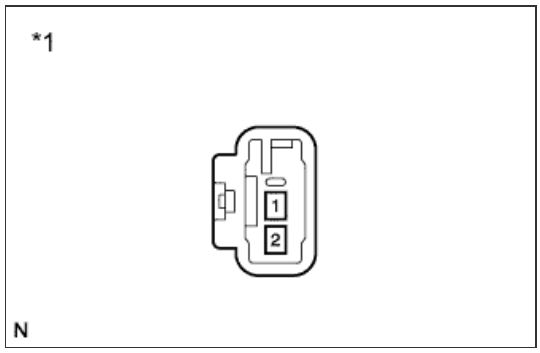
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 3 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 1 Speaker Assembly) |




NG → REPLACE FRONT NO. 1 SPEAKER ASSEMBLY (Click here)

OK

**28.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 1 SPEAKER)**

a. Disconnect the I10 and I1 speaker connectors.

b. Disconnect the F3 amplifier connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-1 (WFL+) - I10-1 | Always | Below 1 Ω |
| F3-5 (WFL-) - I10-2 | Always | Below 1 Ω |
| F3-1 (WFL+) - Body ground | Always | 10 kΩ or higher |
| F3-5 (WFL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-2 (WFR+) - I1-1 | Always | Below 1 Ω |
| F3-6 (WFR-) - I1-2 | Always | Below 1 Ω |
| F3-2 (WFR+) - Body ground | Always | 10 kΩ or higher |
| F3-6 (WFR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**29.INSPECT FRONT NO. 3 SPEAKER ASSEMBLY**

a. Disconnect the F14 and F13 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

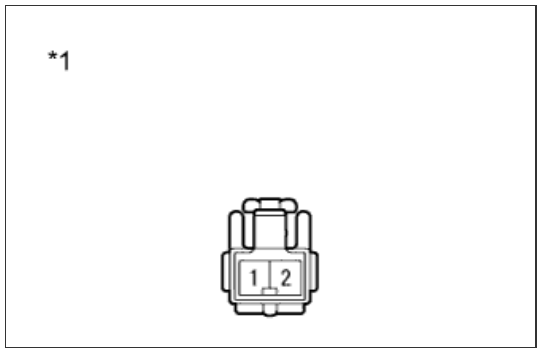
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| 1 - 2 | Always | 4 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 3 Speaker Assembly) |




NG → REPLACE FRONT NO. 3 SPEAKER ASSEMBLY (Click here)

OK

**30.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY**

a. Disconnect the F8 and F7 speaker connectors.

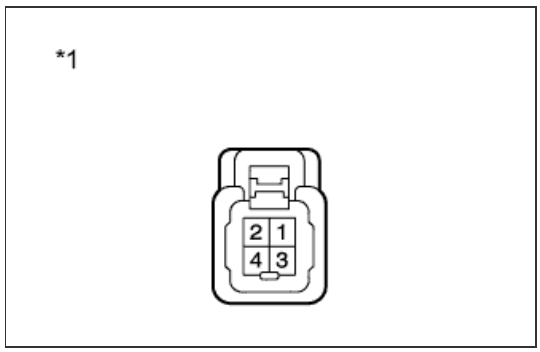
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | Below 1 Ω |
| 3 - 4 | Always | Below 1 Ω |
| 2 - 4 | Always | 4 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 2 Speaker Assembly) |




NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

REPAIR OR REPLACE HARNESS OR CONNECTOR (FRONT NO. 2 SPEAKER - FRONT NO. 3 SPEAKER)

**31.INSPECT REAR SPEAKER SET**

a. Disconnect the J17 and J15 speaker connectors.

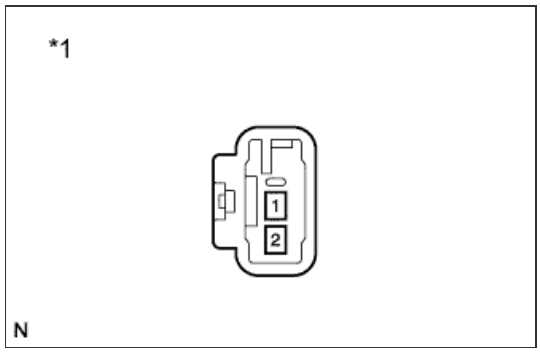
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Rear Speaker set) |




NG → REPLACE REAR SPEAKER SET (Click here)

OK

**32.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - REAR SPEAKER SET)**

a. Disconnect the F4 amplifier connector.

b. Disconnect the J17 and J15 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-4 (RL+) - J17-1 (+) | Always | Below 1 Ω |
| F4-11 (RL-) - J17-2 (-) | Always | Below 1 Ω |
| F4-4 (RL+) - Body ground | Always | 10 kΩ or higher |
| F4-11 (RL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-5 (RR+) - J15-1 (+) | Always | Below 1 Ω |
| F4-12 (RR-) - J15-2 (-) | Always | Below 1 Ω |
| F4-5 (RR+) - Body ground | Always | 10 kΩ or higher |
| F4-12 (RR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

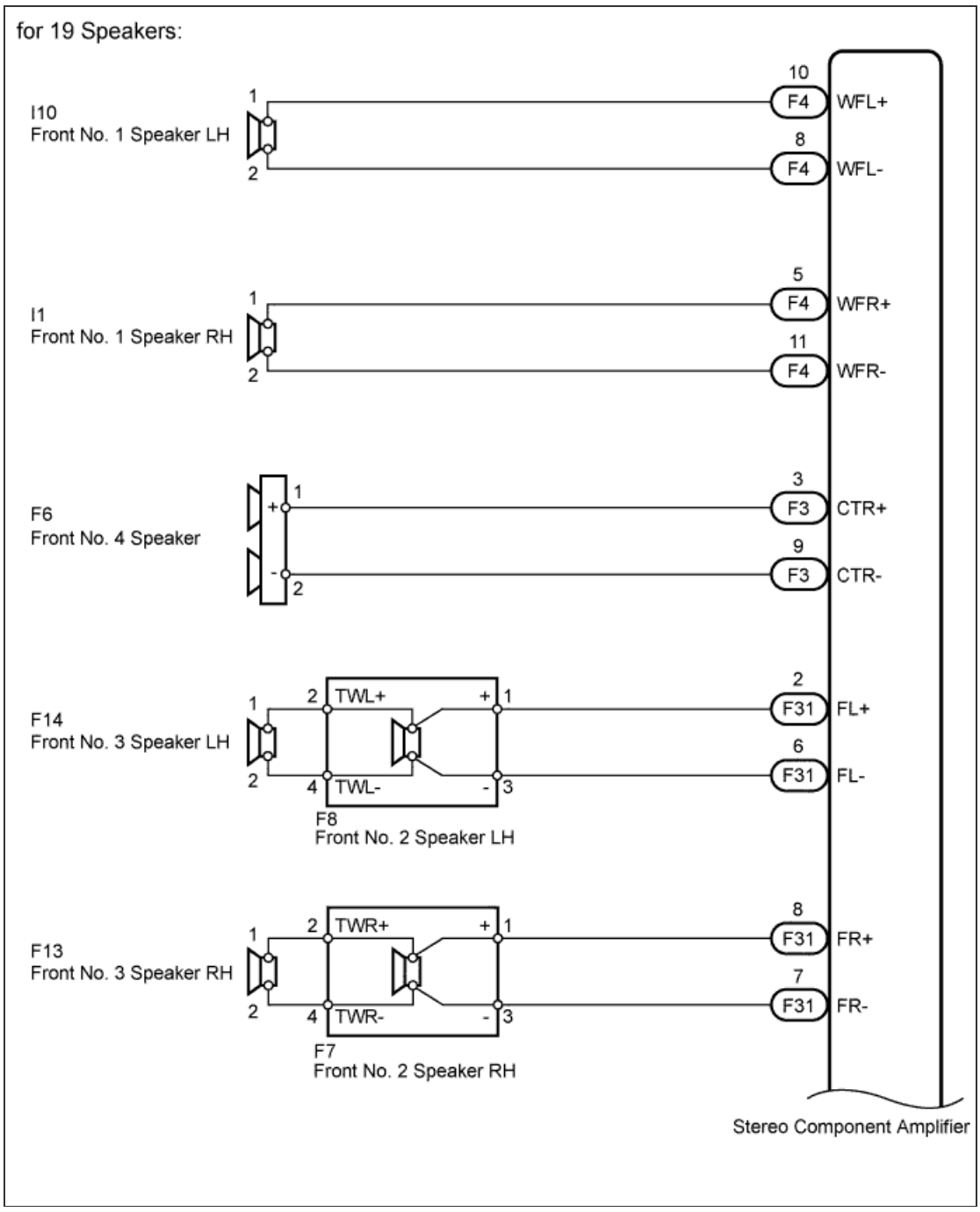
REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

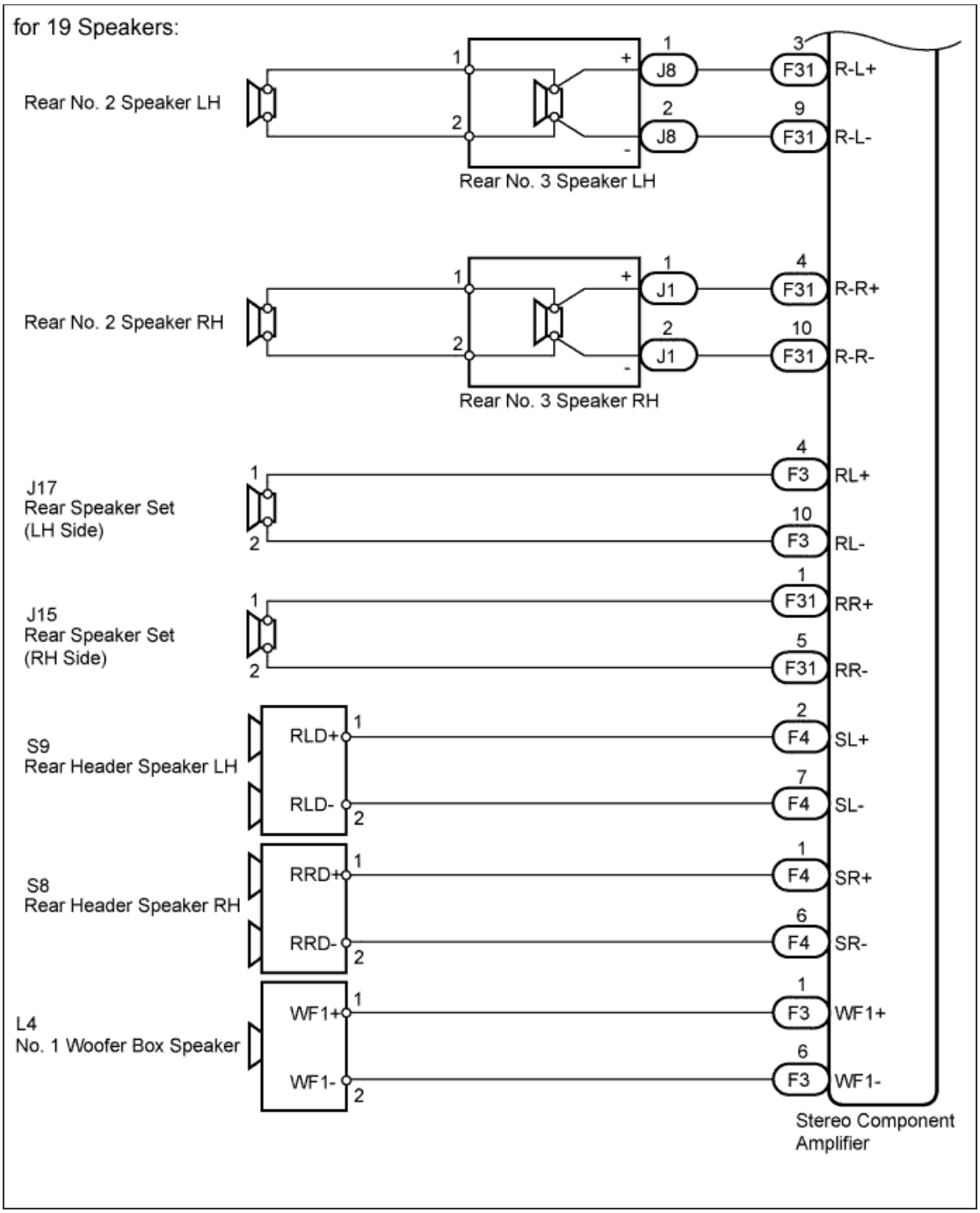
**for Preparation** Click here

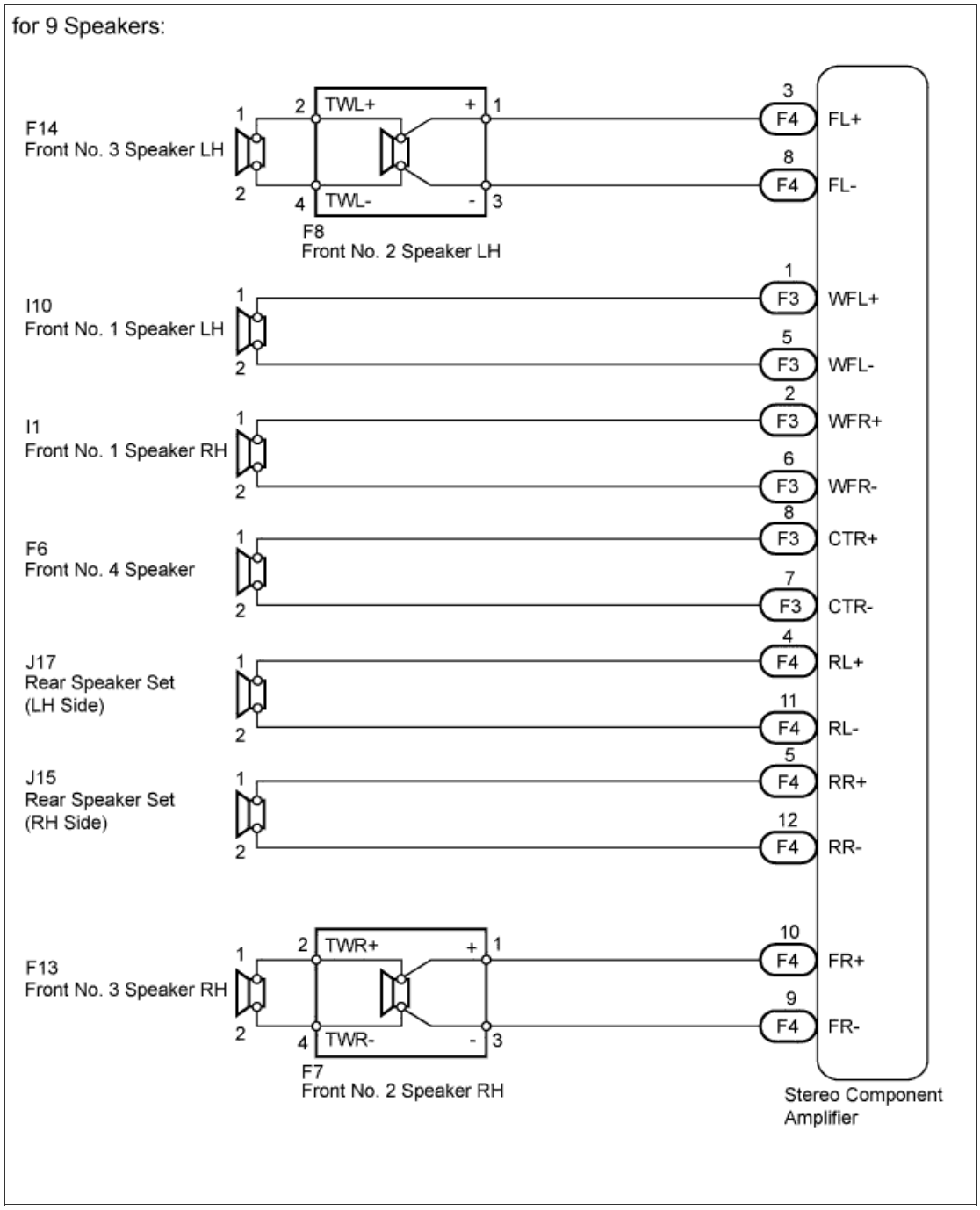
## DESCRIPTION

The stereo component amplifier sends sound signals to the speakers.

## WIRING DIAGRAM




for 19 Speakers:
Rear No. 2 Speaker LH
1
2
+
-
1
J8
2
J8
Rear No. 3 Speaker LH
3
F31
R-L+
9
F31
R-L-
Rear No. 2 Speaker RH
1
2
+
-
1
J1
2
J1
Rear No. 3 Speaker RH
4
F31
R-R+
10
F31
R-R-
J17
Rear Speaker Set
(LH Side)
1
2
4
F3
RL+
10
F3
RL-
J15
Rear Speaker Set
(RH Side)
1
2
1
F31
RR+
5
F31
RR-
S9
Rear Header Speaker LH
RLD+
RLD-
1
2
2
F4
SL+
7
F4
SL-
S8
Rear Header Speaker RH
RRD+
RRD-
1
2
1
F4
SR+
6
F4
SR-
L4
No. 1 Woofer Box Speaker
WF1+
WF1-
1
2
1
F3
WF1+
6
F3
WF1-
Stereo Component
Amplifier




## INSPECTION PROCEDURE

### 1.CHECK AUDIO MODELS

a. Check the audio model.

**Result**

| Result | Proceed to |
|---|---|
| 19 speakers | A |
| 9 speakers | B |

**B** → Go to step 22

**A**

### 2.CHECK SPEAKER

a. Check the malfunctioning speakers.

**Result**

| Result | Proceed to |
|---|---|
| Malfunction in front speaker area | A |

| | |
|---|---|
| Malfunction in rear speaker area | B |

B → Go to step 12

A

### 3.CHECK SPEAKER

a. Check the malfunctioning speakers.

**Result**

| Result | Proceed to |
|---|---|
| Front No. 4 speaker | A |
| Front No. 2 speaker | B |
| Front No. 1 speaker | C |
| Front No. 3 speaker | D |

B → Go to step 6

C → Go to step 8

D → Go to step 10

A

### 4.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY

a. Disconnect the F6 speaker connector.

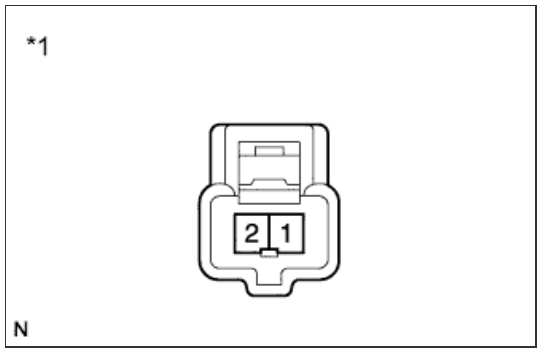
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 4 Speaker Assembly) |




NG → REPLACE FRONT NO. 4 SPEAKER ASSEMBLY (Click here)

OK

### 5.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 4 SPEAKER)

a. Disconnect the F6 speaker connector.

b. Disconnect the F3 amplifier connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-3 (CTR+) - F6-1 | Always | Below 1 Ω |
| F3-9 (CTR-) - F6-2 | Always | Below 1 Ω |
| F3-3 (CTR+) - Body ground | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| F3-9 (CTR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

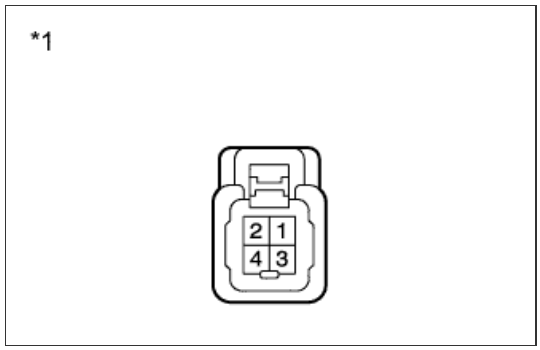
OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 6.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

a. Disconnect the F8 and F7 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.




**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | Below 1 Ω |
| 3 - 4 | Always | Below 1 Ω |
| 2 - 4 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 2 Speaker Assembly) |

NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

## 7.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 2 SPEAKER)

a. Disconnect the F31 amplifier connector.

b. Disconnect the F8 and F7 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-2 (FL+) - F8-1 (+) | Always | Below 1 Ω |
| F31-6 (FL-) - F8-3 (-) | Always | Below 1 Ω |
| F31-2 (FL+) - Body ground | Always | 10 kΩ or higher |
| F31-6 (FL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-8 (FR+) - F7-1 (+) | Always | Below 1 Ω |
| F31-7 (FR-) - F7-3 (-) | Always | Below 1 Ω |
| F31-8 (FR+) - Body ground | Always | 10 kΩ or higher |
| F31-7 (FR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

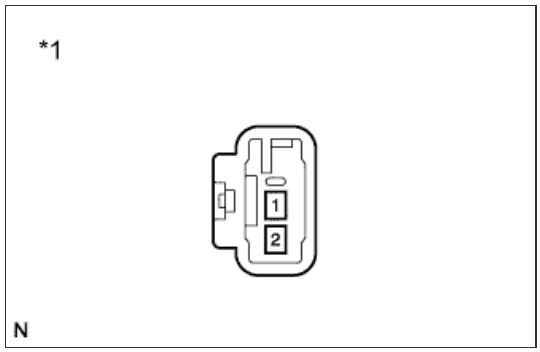
OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

8.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY

a. Disconnect the I10 and I1 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.




**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 11 to 13 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 1 Speaker Assembly) |

NG → REPLACE FRONT NO. 1 SPEAKER ASSEMBLY (Click here)

OK

9.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 1 SPEAKER)

a. Disconnect the I10 and I1 speaker connectors.

b. Disconnect the F4 amplifier connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-10 (WFL+) - I10-1 | Always | Below 1 Ω |
| F4-8 (WFL-) - I10-2 | Always | Below 1 Ω |
| F4-10 (WFL+) - Body ground | Always | 10 kΩ or higher |
| F4-8 (WFL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-5 (WFR+) - I1-1 | Always | Below 1 Ω |
| F4-11 (WFR-) - I1-2 | Always | Below 1 Ω |
| F4-5 (WFR+) - Body ground | Always | 10 kΩ or higher |
| F4-11 (WFR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 10.CHECK FRONT NO. 3 SPEAKER ASSEMBLY

a. Disconnect the F14 and F13 speaker connectors.

b. Interchange the front No. 3 speaker LH with RH.

c. Check that the malfunction disappears.

**OK:**
**Malfunction disappears.**

**HINT:**

- **Connect all the connectors to the front No. 3 speakers.**
- **When there is a possibility that either the right or left front speaker is defective, inspect by interchanging the right one with the left one.**
- **Perform the inspection above on both the LH and RH sides.**

**NG** → Go to step 11

**OK**

REPLACE FRONT NO. 3 SPEAKER ASSEMBLY (Click here)

## 11.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

a. Disconnect the F8 and F7 speaker connectors.

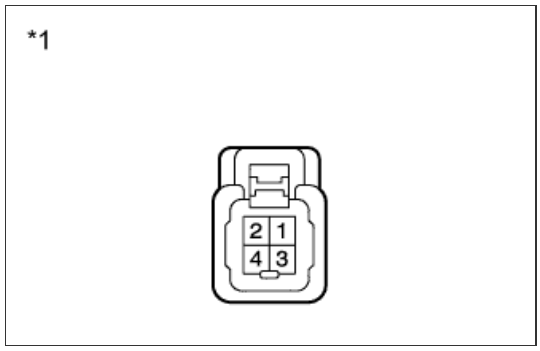
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 2 - 4 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 2 Speaker Assembly) |




**NG** → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

**OK**

REPAIR OR REPLACE HARNESS OR CONNECTOR (FRONT NO. 2 SPEAKER - FRONT NO. 3 SPEAKER)

## 12.CHECK SPEAKER

a. Check the malfunctioning speakers.

**Result**

| Result | Proceed to |
|---|---|
| Rear No. 2 speaker | A |
| Rear No. 3 speaker | B |
| Rear speaker set | C |
| No. 1 woofer box speaker | D |
| Rear header speaker | E |

**B** → Go to step 14

**C** → Go to step 16

**D** → Go to step 18

E → Go to step 20

A

## 13.INSPECT REAR NO. 2 SPEAKER ASSEMBLY

a. Disconnect the rear No. 2 speaker connectors.

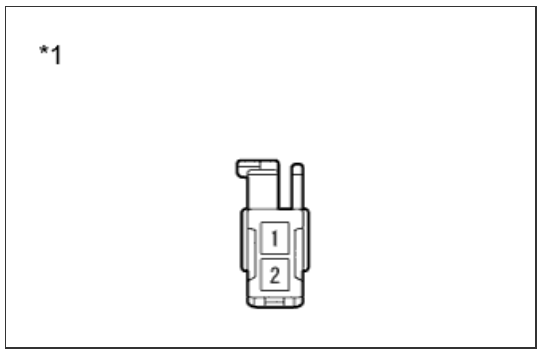
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 2 Speaker Assembly) |




NG → REPLACE REAR NO. 2 SPEAKER ASSEMBLY (Click here)

OK

REPLACE REAR NO. 3 SPEAKER ASSEMBLY (Click here)

## 14.CHECK REAR NO. 3 SPEAKER ASSEMBLY

a. Disconnect the rear No. 3 speaker connectors.

b. Interchange the rear No. 3 speaker LH with RH.

c. Check that the malfunction disappears.

**OK:**
**Malfunction disappears.**

**HINT:**

- **Connect all the connectors to the rear No. 3 speakers.**
- **When there is a possibility that either the right or left rear speaker is defective, inspect by interchanging the right one with the left one.**
- **Perform the inspection above on both the LH and RH sides.**

NG → Go to step 15

OK

REPLACE REAR NO. 3 SPEAKER ASSEMBLY (Click here)

## 15.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - REAR NO. 3 SPEAKER)

a. Disconnect the F31 amplifier connector.

b. Disconnect the J8 and J1 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**
**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-3 (R-L+) - J8-1 (+) | Always | Below 1 Ω |
| F31-9 (R-L-) - J8-2 (-) | Always | Below 1 Ω |

| | | |
|---|---|---|
| F31-3 (R-L+) - Body ground | Always | 10 kΩ or higher |
| F31-9 (R-L-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F31-4 (R-R+) - J1-1 (+) | Always | Below 1 Ω |
| F31-10 (R-R-) - J1-2 (-) | Always | Below 1 Ω |
| F31-4 (R-R+) - Body ground | Always | 10 kΩ or higher |
| F31-10 (R-R-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 16.INSPECT REAR SPEAKER SET

a. Disconnect the J17 and J15 speaker connectors.

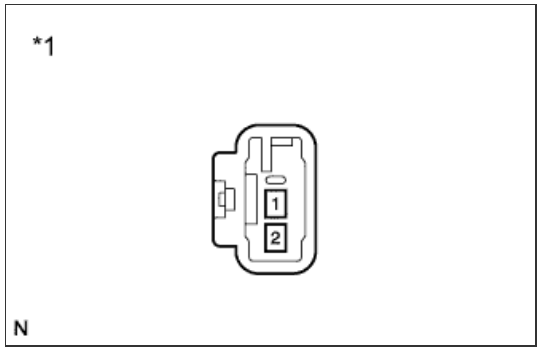
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4.8 to 7.2 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Rear Speaker set) |




NG → REPLACE REAR SPEAKER SET (Click here)

OK

## 17.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - REAR SPEAKER SET)

a. Disconnect the F3 and F31 amplifier connectors.

b. Disconnect the J17 and J15 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-4 (RL+) - J17-1 | Always | Below 1 Ω |
| F3-10 (RL-) - J17-2 | Always | Below 1 Ω |
| F3-4 (RL+) - Body ground | Always | 10 kΩ or higher |
| F3-10 (RL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| F31-1 (RR+) - J15-1 | Always | Below 1 Ω |
| F31-5 (RR-) - J15-2 | Always | Below 1 Ω |
| F31-1 (RR+) - Body ground | Always | 10 kΩ or higher |
| F31-5 (RR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK →

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**18.INSPECT NO. 1 WOOFER BOX SPEAKER ASSEMBLY**

a. Disconnect the L4 speaker connector.

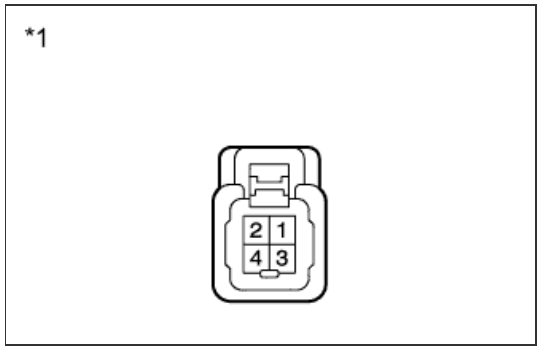
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 8.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (No. 1 Woofer Box Speaker Assembly) |




NG → REPLACE NO. 1 WOOFER BOX SPEAKER ASSEMBLY (Click here)

OK →

**19.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - NO. 1 WOOFER BOX SPEAKER)**

a. Disconnect the F3 amplifier connector.

b. Disconnect the L4 speaker connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-1 (WF1+) - L4-1 (WF1+) | Always | Below 1 Ω |
| F3-6 (WF1-) - L4-2 (WF1-) | Always | Below 1 Ω |
| F3-1 (WF1+) - Body ground | Always | 10 kΩ or higher |
| F3-6 (WF1-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK →

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**20.INSPECT REAR HEADER SPEAKER ASSEMBLY**

a. Disconnect the S9 and S8 speaker connectors.

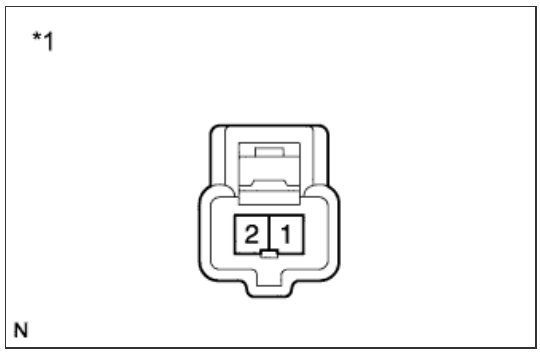
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 5.0 to 7.0 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Rear Header Speaker Assembly) |




NG → REPLACE REAR HEADER SPEAKER ASSEMBLY (Click here)

OK

## 21.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - REAR HEADER SPEAKER)

a. Disconnect the F4 amplifier connector.

b. Disconnect the S9 and S8 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-2 (SL+) - S9-1 (RLD+) | Always | Below 1 Ω |
| F4-7 (SL-) - S9-2 (RLD-) | Always | Below 1 Ω |
| F4-2 (SL+) - Body ground | Always | 10 kΩ or higher |
| F4-7 (SL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-1 (SR+) - S8-1 (RRD+) | Always | Below 1 Ω |
| F4-6 (SR-) - S8-2 (RRD-) | Always | Below 1 Ω |
| F4-1 (SR+) - Body ground | Always | 10 kΩ or higher |
| F4-6 (SR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 22.CHECK SPEAKER

a. Check the malfunctioning speakers.

**Result**

| Result | Proceed to |
|---|---|
| Front No. 4 speaker | A |

| | |
|---|---|
| Front No. 2 speaker | B |
| Front No. 1 speaker | C |
| Front No. 3 speaker | D |
| Rear speaker set | E |

B → Go to step 25

C → Go to step 27

D → Go to step 29

E → Go to step 31

A

**23.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY**

a. Disconnect the F6 speaker connector.

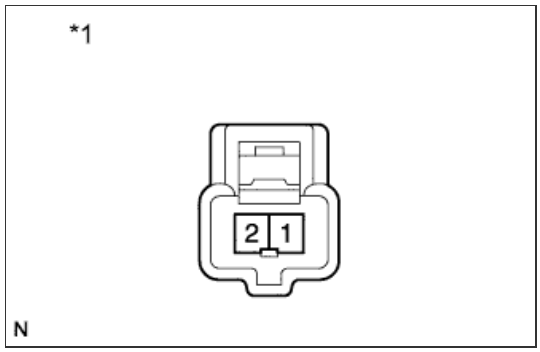
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 6 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 4 Speaker Assembly) |




NG → REPLACE FRONT NO. 4 SPEAKER ASSEMBLY (Click here)

OK

**24.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 4 SPEAKER)**

a. Disconnect the F6 speaker connector.

b. Disconnect the F3 amplifier connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-8 (CTR+) - F6-1 | Always | Below 1 Ω |
| F3-7 (CTR-) - F6-2 | Always | Below 1 Ω |
| F3-8 (CTR+) - Body ground | Always | 10 kΩ or higher |
| F3-7 (CTR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

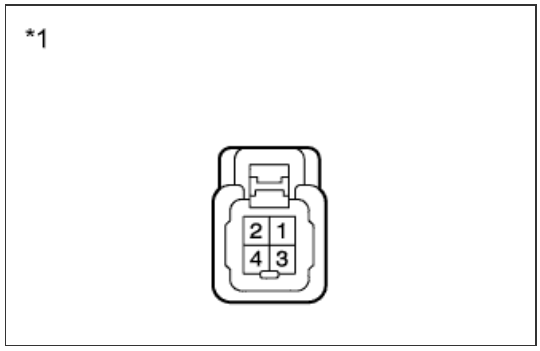
OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**25.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY**

a. Disconnect the F8 and F7 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.




**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | Below 1 Ω |
| 3 - 4 | Always | Below 1 Ω |
| 2 - 4 | Always | 4 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 2 Speaker Assembly) |

NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

**26.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 2 SPEAKER)**

a. Disconnect the F4 amplifier connector.

b. Disconnect the F8 and F7 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-3 (FL+) - F8-1 (+) | Always | Below 1 Ω |
| F4-8 (FL-) - F8-3 (-) | Always | Below 1 Ω |
| F4-3 (FL+) - Body ground | Always | 10 kΩ or higher |
| F4-8 (FL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-10 (FR+) - F7-1 (+) | Always | Below 1 Ω |
| F4-9 (FR-) - F7-3 (-) | Always | Below 1 Ω |
| F4-10 (FR+) - Body ground | Always | 10 kΩ or higher |
| F4-9 (FR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**27.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY**

a. Disconnect the I10 and I1 speaker connectors.

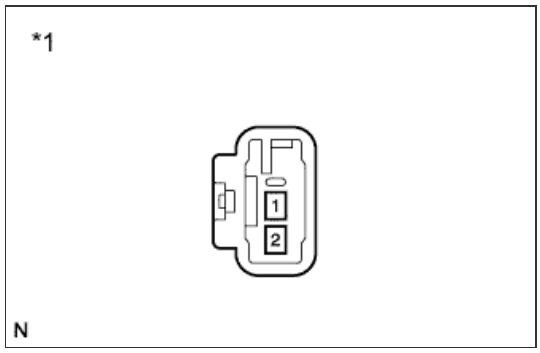
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 3 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 1 Speaker Assembly) |




NG → REPLACE FRONT NO. 1 SPEAKER ASSEMBLY (Click here)

OK

**28.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 1 SPEAKER)**

a. Disconnect the I10 and I1 speaker connectors.

b. Disconnect the F3 amplifier connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-1 (WFL+) - I10-1 | Always | Below 1 Ω |
| F3-5 (WFL-) - I10-2 | Always | Below 1 Ω |
| F3-1 (WFL+) - Body ground | Always | 10 kΩ or higher |
| F3-5 (WFL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F3-2 (WFR+) - I1-1 | Always | Below 1 Ω |
| F3-6 (WFR-) - I1-2 | Always | Below 1 Ω |
| F3-2 (WFR+) - Body ground | Always | 10 kΩ or higher |
| F3-6 (WFR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**29.INSPECT FRONT NO. 3 SPEAKER ASSEMBLY**

a. Disconnect the F14 and F13 speaker connectors.

b. Measure the resistance according to the value(s) in the table below.

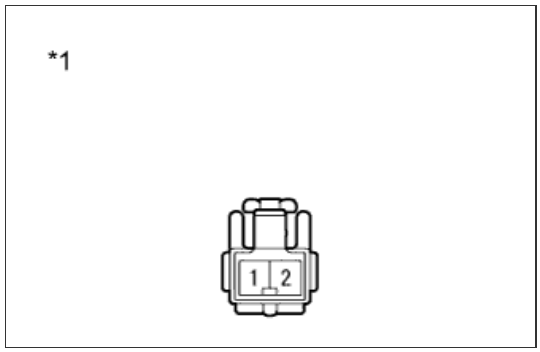
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| 1 - 2 | Always | 4 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 3 Speaker Assembly) |




NG → REPLACE FRONT NO. 3 SPEAKER ASSEMBLY (Click here)

OK

**30.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY**

a. Disconnect the F8 and F7 speaker connectors.

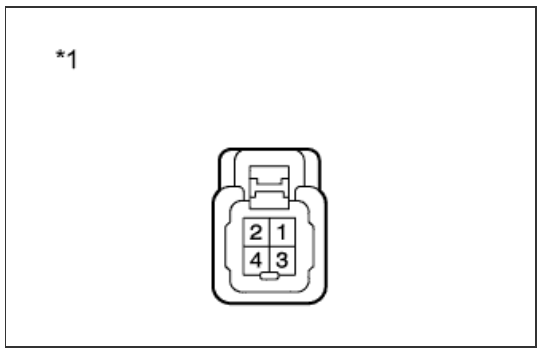
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | Below 1 Ω |
| 3 - 4 | Always | Below 1 Ω |
| 2 - 4 | Always | 4 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Front No. 2 Speaker Assembly) |




NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

REPAIR OR REPLACE HARNESS OR CONNECTOR (FRONT NO. 2 SPEAKER - FRONT NO. 3 SPEAKER)

**31.INSPECT REAR SPEAKER SET**

a. Disconnect the J17 and J15 speaker connectors.

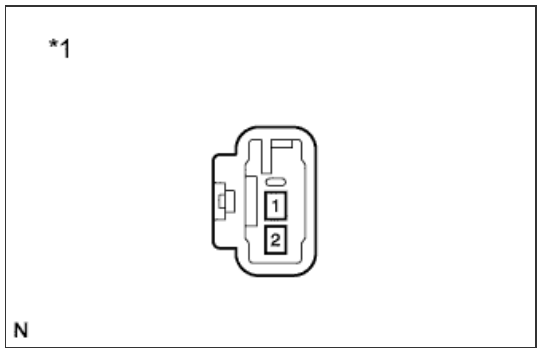
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Rear Speaker set) |




NG → REPLACE REAR SPEAKER SET (Click here)

OK

**32.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - REAR SPEAKER SET)**

a. Disconnect the F4 amplifier connector.

b. Disconnect the J17 and J15 speaker connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-4 (RL+) - J17-1 (+) | Always | Below 1 Ω |
| F4-11 (RL-) - J17-2 (-) | Always | Below 1 Ω |
| F4-4 (RL+) - Body ground | Always | 10 kΩ or higher |
| F4-11 (RL-) - Body ground | Always | 10 kΩ or higher |

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F4-5 (RR+) - J15-1 (+) | Always | Below 1 Ω |
| F4-12 (RR-) - J15-2 (-) | Always | Below 1 Ω |
| F4-5 (RR+) - Body ground | Always | 10 kΩ or higher |
| F4-12 (RR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

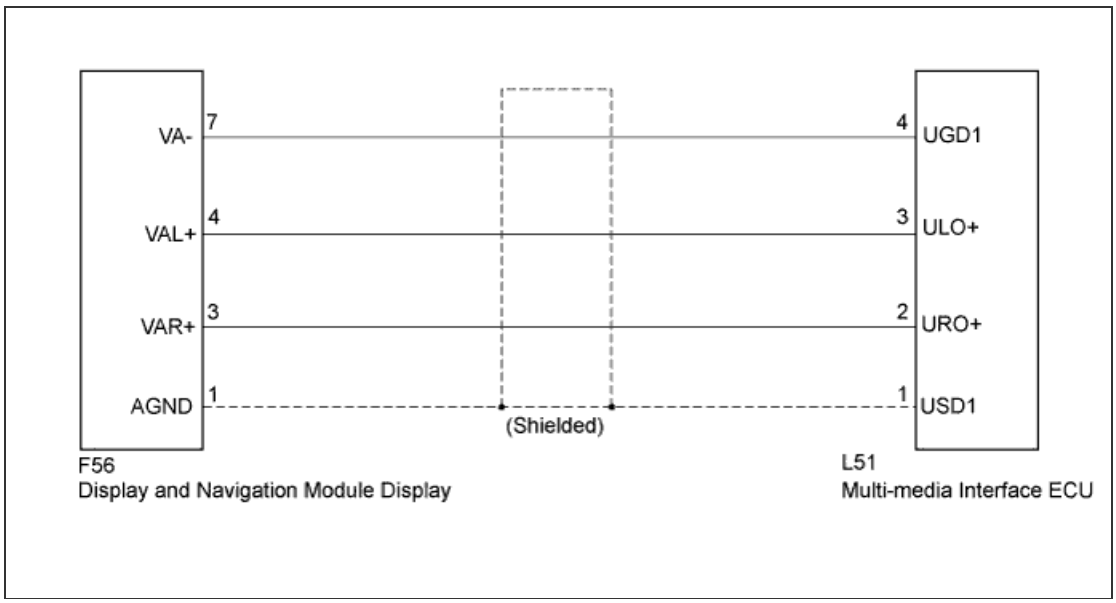
REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**for Preparation** Click here

## DESCRIPTION

The multi-media interface ECU sends a sound signal to the display and navigation module display through this circuit.
If there is an open or short in the circuit, sound cannot be heard from the speakers even if there is no malfunction in the stereo component amplifier assembly, radio receiver assembly, display and navigation module display or speakers.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - MULTI-MEDIA INTERFACE ECU)

a. Disconnect the F56 display and navigation module display connector.

b. Disconnect the L51 multi-media interface ECU connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F56-1 (AGND) - L51-1 (USD1) | Always | Below 1 Ω |
| F56-3 (VAR+) - L51-2 (URO+) | Always | Below 1 Ω |
| F56-4 (VAL+) - L51-3 (ULO+) | Always | Below 1 Ω |
| F56-7 (VA-) - L51-4 (UGD1) | Always | Below 1 Ω |
| F56-1 (AGND) - Body ground | Always | 10 kΩ or higher |
| F56-3 (VAR+) - Body ground | Always | 10 kΩ or higher |
| F56-4 (VAL+) - Body ground | Always | 10 kΩ or higher |
| F56-7 (VA-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

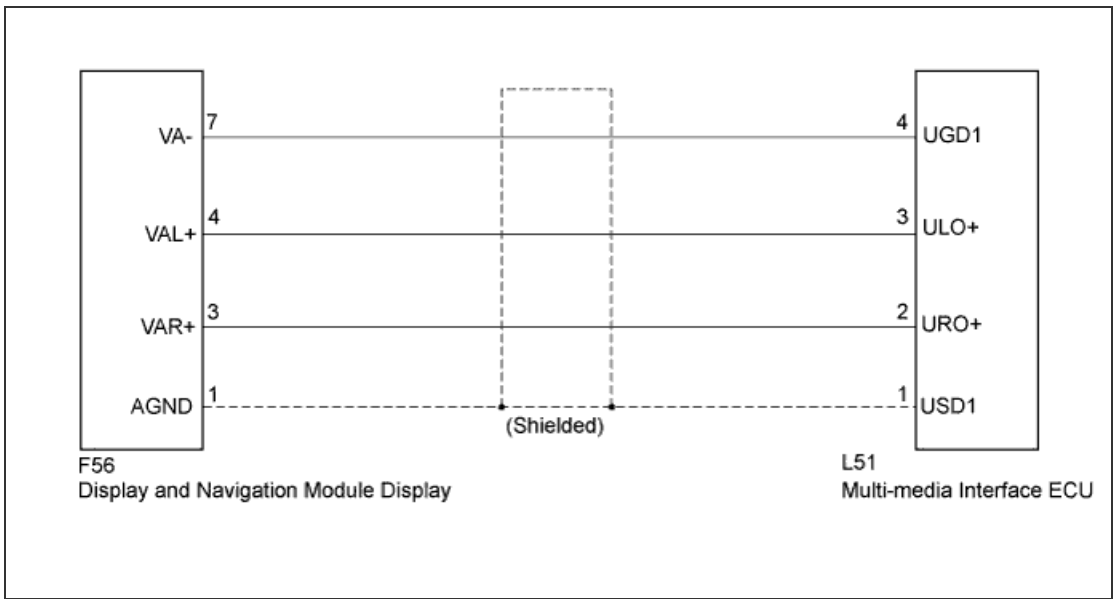
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

The multi-media interface ECU sends a sound signal to the display and navigation module display through this circuit.
If there is an open or short in the circuit, sound cannot be heard from the speakers even if there is no malfunction in the stereo component amplifier assembly, radio receiver assembly, display and navigation module display or speakers.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - MULTI-MEDIA INTERFACE ECU)

a. Disconnect the F56 display and navigation module display connector.

b. Disconnect the L51 multi-media interface ECU connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F56-1 (AGND) - L51-1 (USD1) | Always | Below 1 Ω |
| F56-3 (VAR+) - L51-2 (URO+) | Always | Below 1 Ω |
| F56-4 (VAL+) - L51-3 (ULO+) | Always | Below 1 Ω |
| F56-7 (VA-) - L51-4 (UGD1) | Always | Below 1 Ω |
| F56-1 (AGND) - Body ground | Always | 10 kΩ or higher |
| F56-3 (VAR+) - Body ground | Always | 10 kΩ or higher |
| F56-4 (VAL+) - Body ground | Always | 10 kΩ or higher |
| F56-7 (VA-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

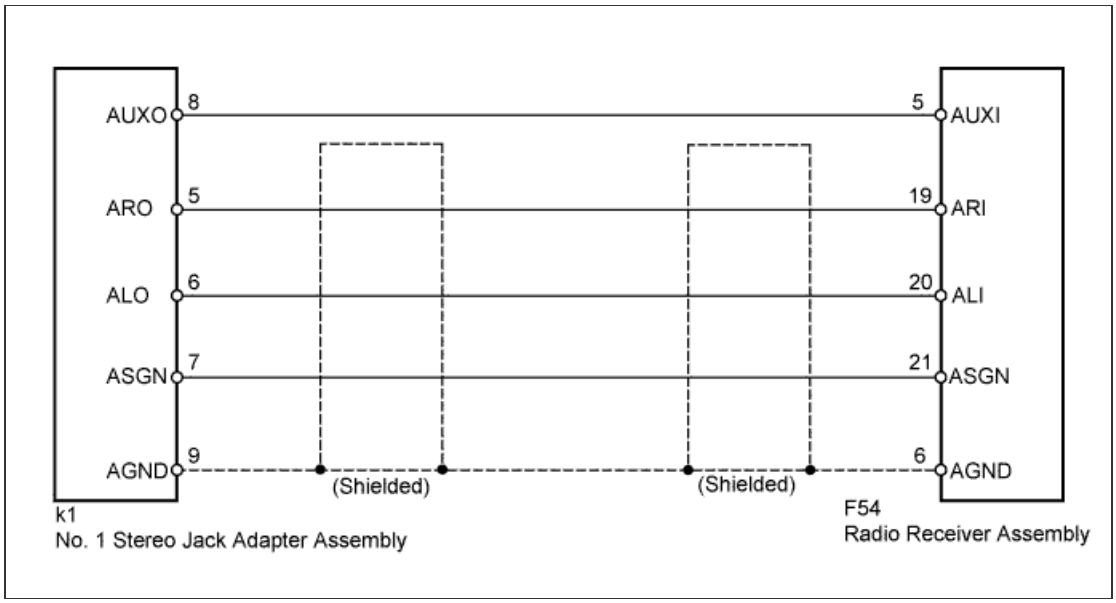
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

The No. 1 stereo jack adapter assembly sends an external device sound signal to the radio receiver assembly through this circuit.
The sound signal that has been sent is amplified by the stereo component amplifier assembly or radio receiver assembly, and then is sent to the speakers.
If there is an open or short in the circuit, sound cannot be heard from the speakers even if there is no malfunction in the stereo component amplifier assembly, radio receiver assembly or speakers.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY - NO. 1 STEREO JACK ADAPTER ASSEMBLY)

a. Disconnect the k1 No. 1 stereo jack adapter assembly connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| k1-8 (AUXO) - F54-5 (AUXI) | Always | Below 1 Ω |
| k1-7 (ASGN) - F54-21 (ASGN) | Always | Below 1 Ω |
| k1-5 (ARO) - F54-19 (ARI) | Always | Below 1 Ω |
| k1-6 (ALO) - F54-20 (ALI) | Always | Below 1 Ω |
| k1-9 (AGND) - F54-6 (AGND) | Always | Below 1 Ω |
| k1-8 (AUXO) - Body ground | Always | 10 kΩ or higher |
| k1-7 (ASGN) - Body ground | Always | 10 kΩ or higher |
| k1-5 (ARO) - Body ground | Always | 10 kΩ or higher |
| k1-6 (ALO) - Body ground | Always | 10 kΩ or higher |
| k1-9 (AGND) - | | |

| | | |
|---|---|---|
| Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

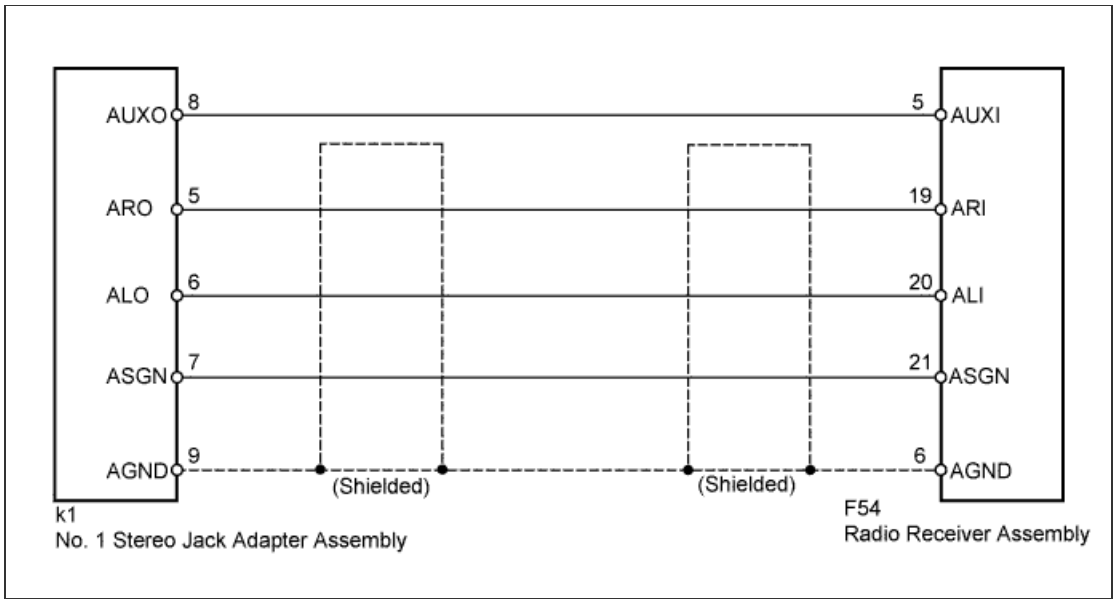
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

The No. 1 stereo jack adapter assembly sends an external device sound signal to the radio receiver assembly through this circuit.
The sound signal that has been sent is amplified by the stereo component amplifier assembly or radio receiver assembly, and then is sent to the speakers.
If there is an open or short in the circuit, sound cannot be heard from the speakers even if there is no malfunction in the stereo component amplifier assembly, radio receiver assembly or speakers.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY - NO. 1 STEREO JACK ADAPTER ASSEMBLY)

a. Disconnect the k1 No. 1 stereo jack adapter assembly connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| k1-8 (AUXO) - F54-5 (AUXI) | Always | Below 1 Ω |
| k1-7 (ASGN) - F54-21 (ASGN) | Always | Below 1 Ω |
| k1-5 (ARO) - F54-19 (ARI) | Always | Below 1 Ω |
| k1-6 (ALO) - F54-20 (ALI) | Always | Below 1 Ω |
| k1-9 (AGND) - F54-6 (AGND) | Always | Below 1 Ω |
| k1-8 (AUXO) - Body ground | Always | 10 kΩ or higher |
| k1-7 (ASGN) - Body ground | Always | 10 kΩ or higher |
| k1-5 (ARO) - Body ground | Always | 10 kΩ or higher |
| k1-6 (ALO) - Body ground | Always | 10 kΩ or higher |
| k1-9 (AGND) - | | |

| | | |
|---|---|---|
| Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

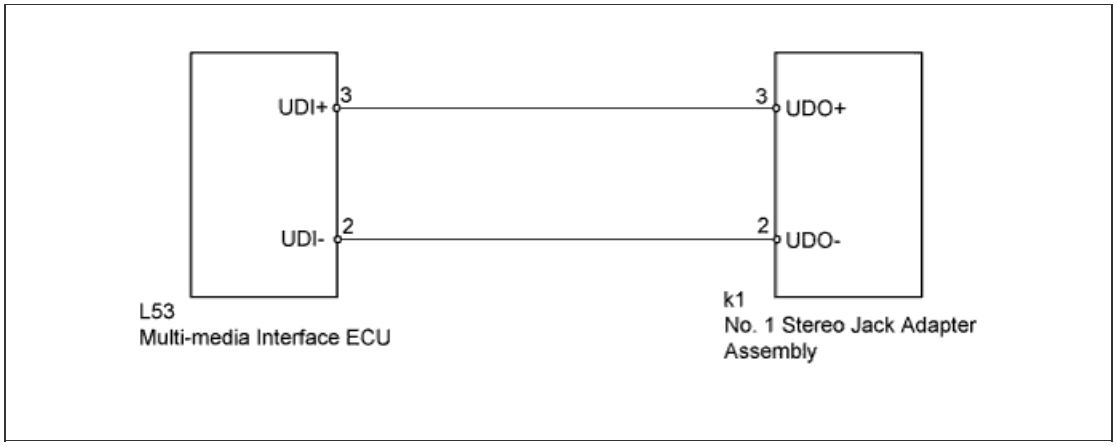
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

The No. 1 stereo jack adapter assembly sends the sound data signal of an external device to the multi-media interface ECU through this circuit.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

1.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU - NO. 1 STEREO JACK ADAPTER ASSEMBLY)

a. Disconnect the L53 multi-media interface ECU connector.

b. Disconnect the k1 No. 1 stereo jack adapter assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| k1-3 (UDO+) - L53-3 (UDI+) | Always | Below 1 Ω |
| k1-2 (UDO-) - L53-2 (UDI-) | Always | Below 1 Ω |
| k1-3 (UDO+) - Body ground | Always | 10 kΩ or higher |
| k1-2 (UDO-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

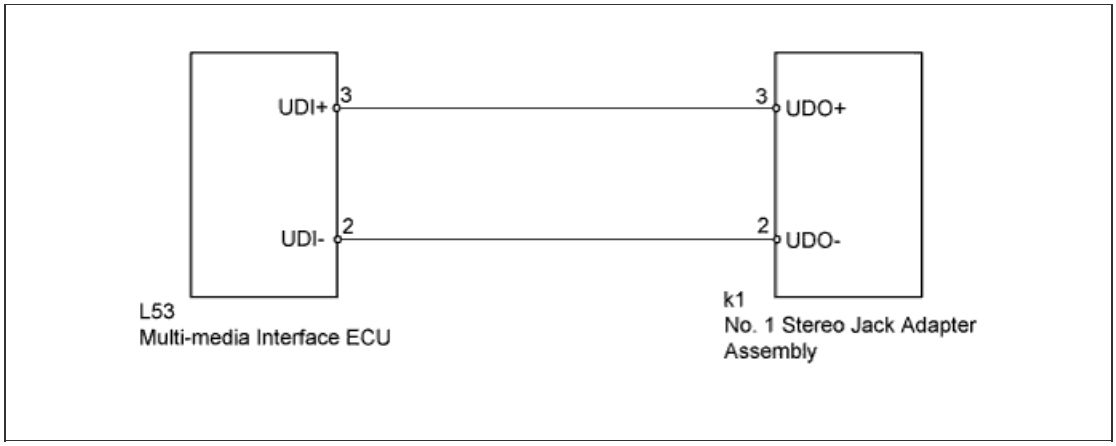
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

The No. 1 stereo jack adapter assembly sends the sound data signal of an external device to the multi-media interface ECU through this circuit.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

1.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU - NO. 1 STEREO JACK ADAPTER ASSEMBLY)

a. Disconnect the L53 multi-media interface ECU connector.

b. Disconnect the k1 No. 1 stereo jack adapter assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| k1-3 (UDO+) - L53-3 (UDI+) | Always | Below 1 Ω |
| k1-2 (UDO-) - L53-2 (UDI-) | Always | Below 1 Ω |
| k1-3 (UDO+) - Body ground | Always | 10 kΩ or higher |
| k1-2 (UDO-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

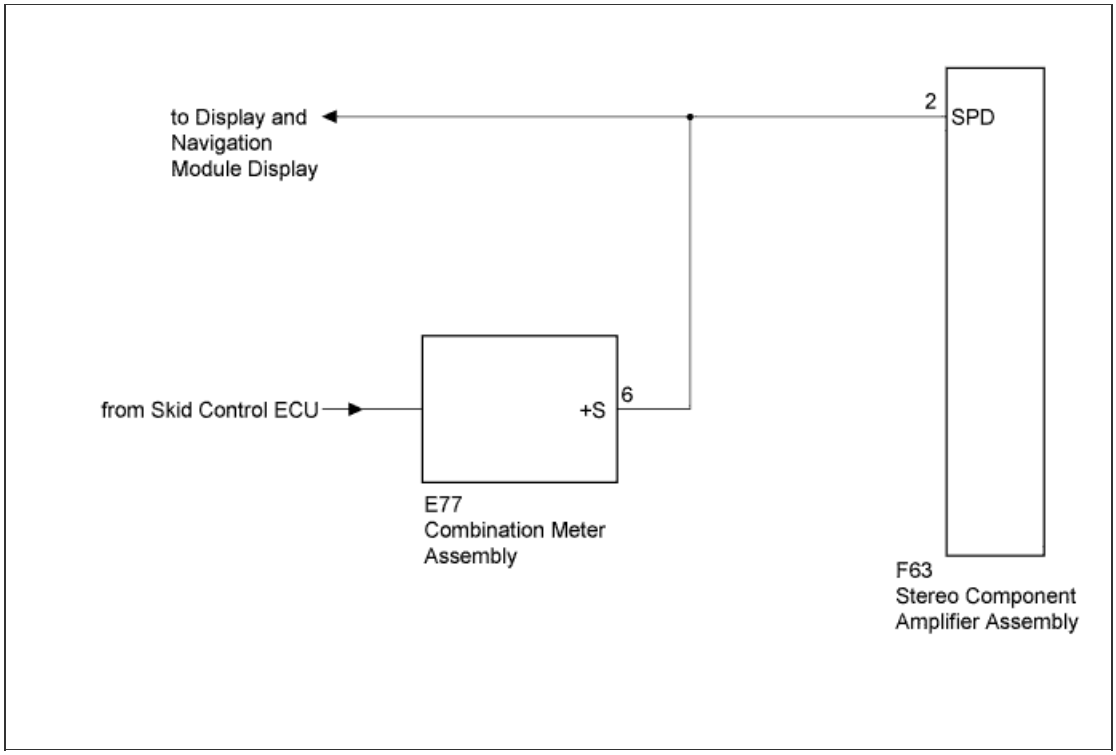
## DESCRIPTION

The circuit is necessary for the Automatic Sound Levelizer (ASL) built into the stereo component amplifier assembly.
Speed signals are received from the combination meter assembly and used for the ASL.
The ASL function automatically adjusts the sound volume in order to clear audio quality even when vehicle noise increases (as vehicle noise increases, the volume is turned up etc.).

**HINT:**

- **A voltage of 12 V or 5 V is output from each ECU and then input to the combination meter assembly. The signal is changed to a pulse signal at the transistor in the combination meter assembly. Each ECU controls the respective system based on the pulse signal.**
- **If a short occurs in any of the ECUs or in the wire harness connected to an ECU, all systems in the diagram below will not operate normally.**

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - COMBINATION METER ASSEMBLY)

a. Disconnect the F63 stereo component amplifier assembly connector and E77 combination meter assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-2 (SPD) - E77-6 (+S) | Always | Below 1 Ω |
| F63-2 (SPD) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 2.INSPECT COMBINATION METER ASSEMBLY (OUTPUT WAVEFORM)

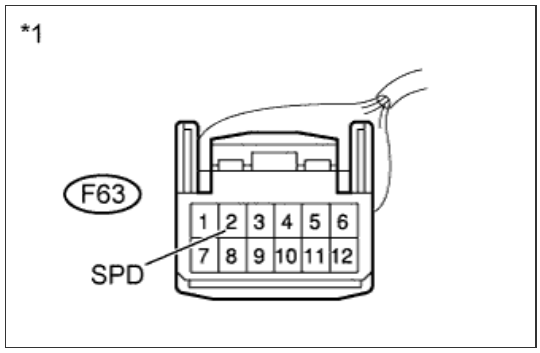
a. Reconnect the E77 combination meter assembly connector.

b. Check the input waveform.

i. Connect an oscilloscope to terminal F63-2 (SPD) and body ground.

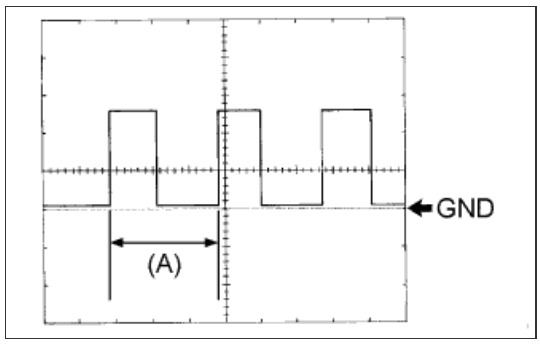
ii. Turn the engine switch on (IG).

iii. Turn a wheel slowly.




iv. Check the signal waveform according to the condition(s) in the table below.

| Item | Condition |
|---|---|
| Measurement terminal | F63-2 (SPD) - Body ground |
| Measurement setting | 5 V/DIV., 20 ms./DIV. |
| Condition | Driving at approx. 20 km/h (12 mph) |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |

**OK:**

**The waveform is displayed as shown in the illustration.**

**HINT:**

When the system is functioning normally, one wheel revolution generates 4 pulses. As the vehicle speed increases, the width indicated by (A) in the illustration narrows.

NG → REPLACE COMBINATION METER ASSEMBLY (Click here)

OK → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**for Preparation** Click here

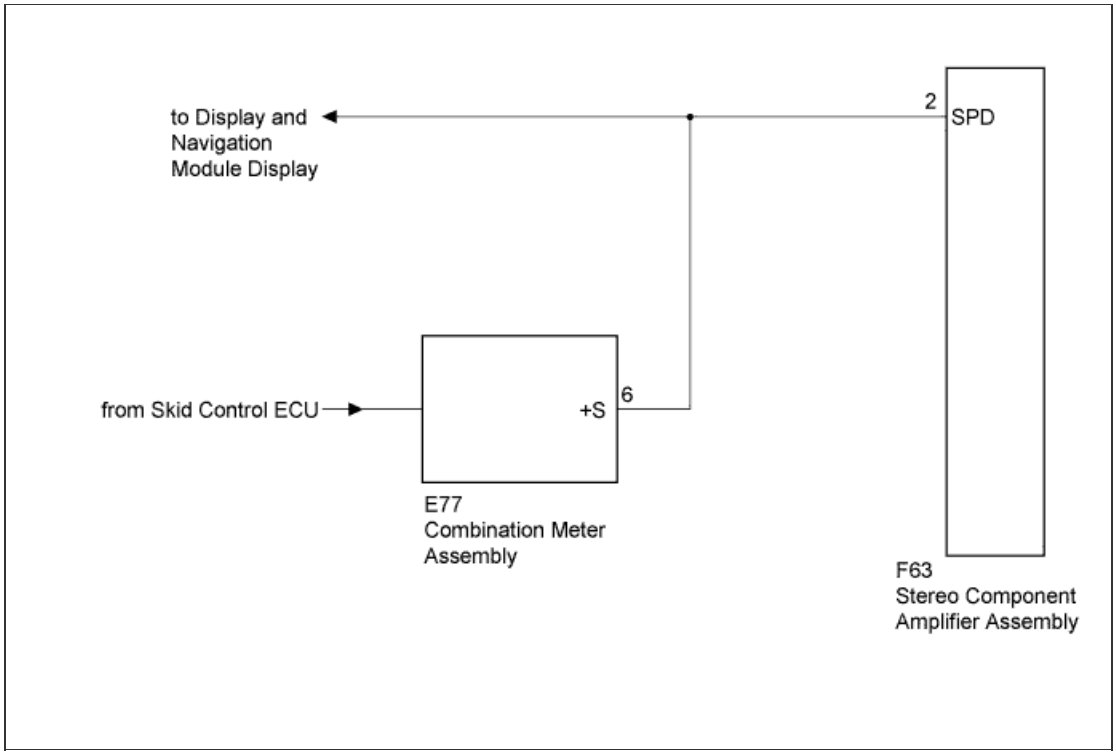
## DESCRIPTION

The circuit is necessary for the Automatic Sound Levelizer (ASL) built into the stereo component amplifier assembly.
Speed signals are received from the combination meter assembly and used for the ASL.
The ASL function automatically adjusts the sound volume in order to clear audio quality even when vehicle noise increases (as vehicle noise increases, the volume is turned up etc.).

**HINT:**

- **A voltage of 12 V or 5 V is output from each ECU and then input to the combination meter assembly. The signal is changed to a pulse signal at the transistor in the combination meter assembly. Each ECU controls the respective system based on the pulse signal.**
- **If a short occurs in any of the ECUs or in the wire harness connected to an ECU, all systems in the diagram below will not operate normally.**

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - COMBINATION METER ASSEMBLY)

a. Disconnect the F63 stereo component amplifier assembly connector and E77 combination meter assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-2 (SPD) - E77-6 (+S) | Always | Below 1 Ω |
| F63-2 (SPD) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 2.INSPECT COMBINATION METER ASSEMBLY (OUTPUT WAVEFORM)

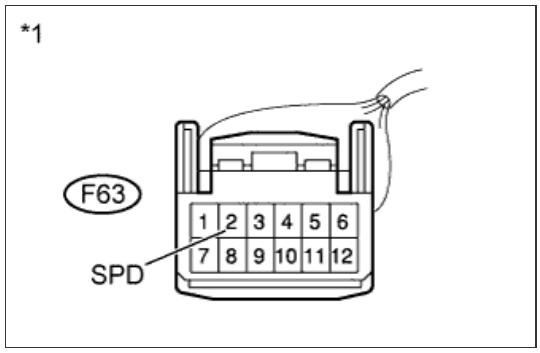
a. Reconnect the E77 combination meter assembly connector.

b. Check the input waveform.

i. Connect an oscilloscope to terminal F63-2 (SPD) and body ground.

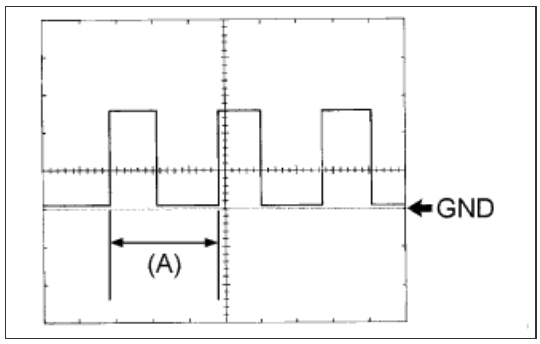
ii. Turn the engine switch on (IG).

iii. Turn a wheel slowly.




iv. Check the signal waveform according to the condition(s) in the table below.

| Item | Condition |
|---|---|
| Measurement terminal | F63-2 (SPD) - Body ground |
| Measurement setting | 5 V/DIV., 20 ms./DIV. |
| Condition | Driving at approx. 20 km/h (12 mph) |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |

**OK:**

**The waveform is displayed as shown in the illustration.**

**HINT:**

When the system is functioning normally, one wheel revolution generates 4 pulses. As the vehicle speed increases, the width indicated by (A) in the illustration narrows.

NG → REPLACE COMBINATION METER ASSEMBLY (Click here)

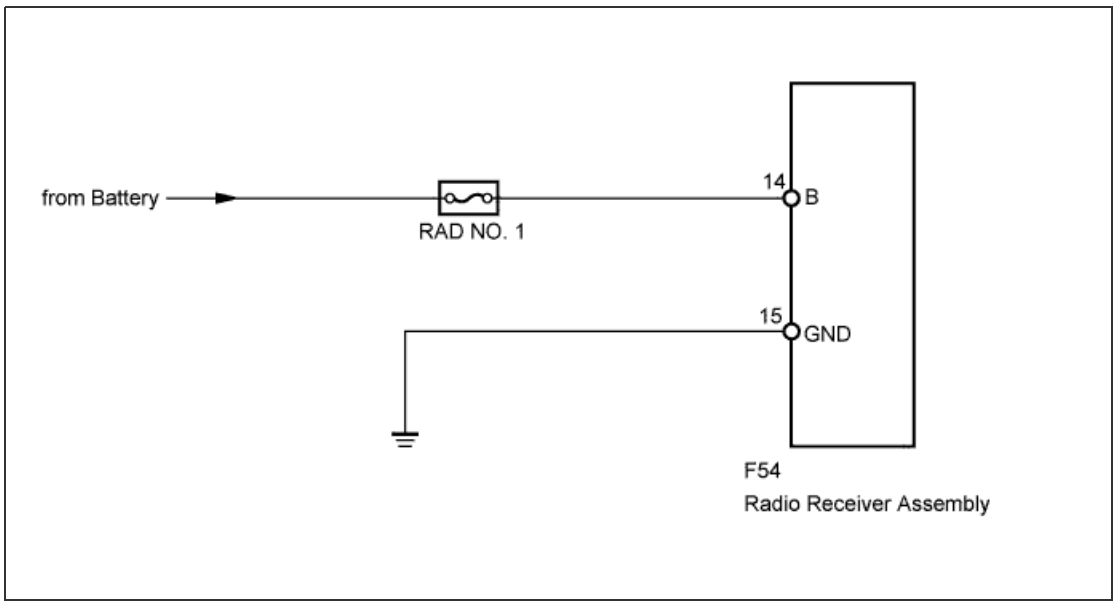
OK → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit provides power to the radio receiver assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuse for circuits related to this system before performing the following inspection procedure.

### 1.INSPECT RADIO RECEIVER ASSEMBLY

a. Disconnect the F54 radio receiver assembly connector.

b. Measure the resistance according to the value(s) in the table below.

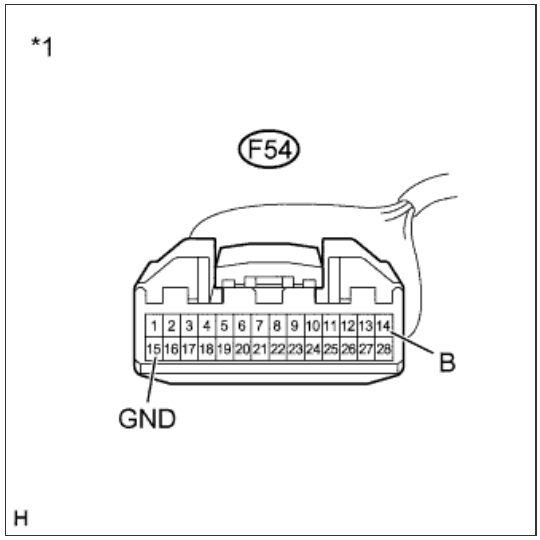
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-15 (GND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-14 (B) - F54-15 (GND) | Always | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Radio Receiver Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

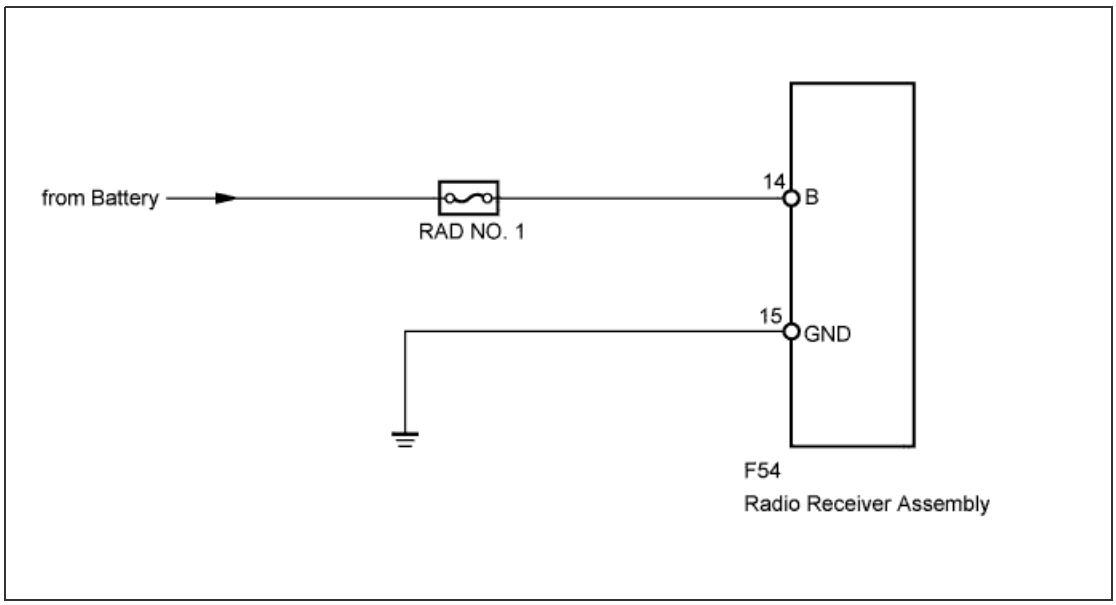
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit provides power to the radio receiver assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuse for circuits related to this system before performing the following inspection procedure.

### 1.INSPECT RADIO RECEIVER ASSEMBLY

a. Disconnect the F54 radio receiver assembly connector.

b. Measure the resistance according to the value(s) in the table below.

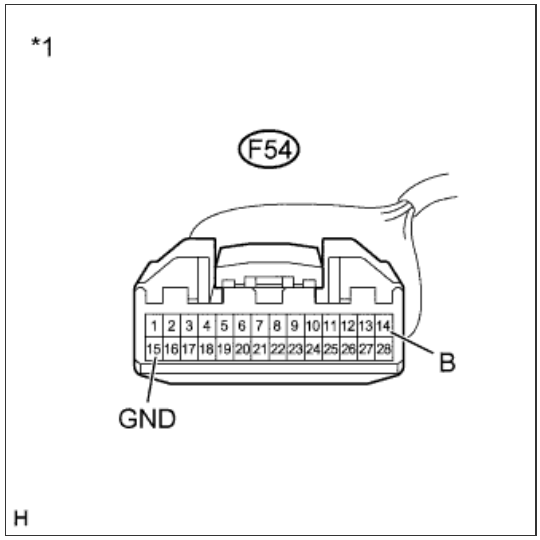
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-15 (GND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-14 (B) - F54-15 (GND) | Always | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Radio Receiver Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

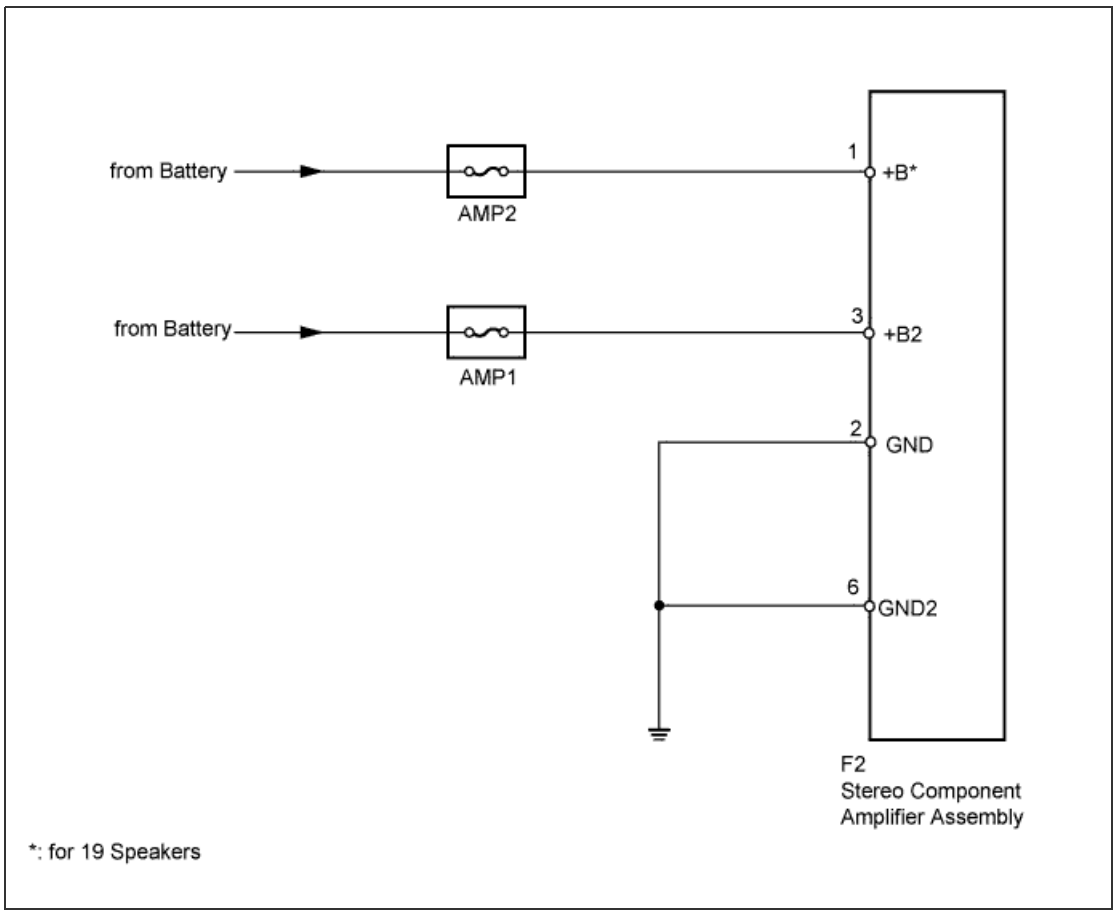
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit provides power to the stereo component amplifier assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

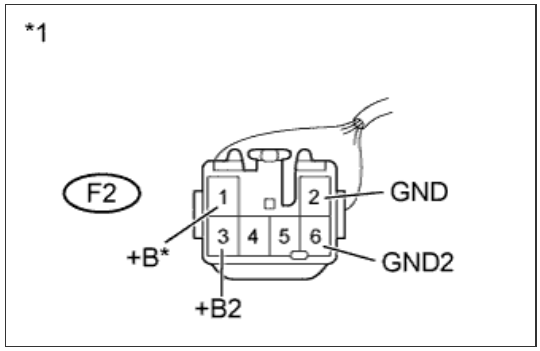
### 1.INSPECT STEREO COMPONENT AMPLIFIER ASSEMBLY

a. Disconnect the F2 stereo component amplifier assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-2 (GND) - Body ground | Always | Below 1 Ω |
| F2-6 (GND2) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| F2-1 (+B) - F2-2 (GND)* | Always | 11 to 14 V |
| F2-3 (+B2) - F2-2 (GND) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector<br>(to Stereo Component Amplifier Assembly) |

*: for 19 Speakers

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

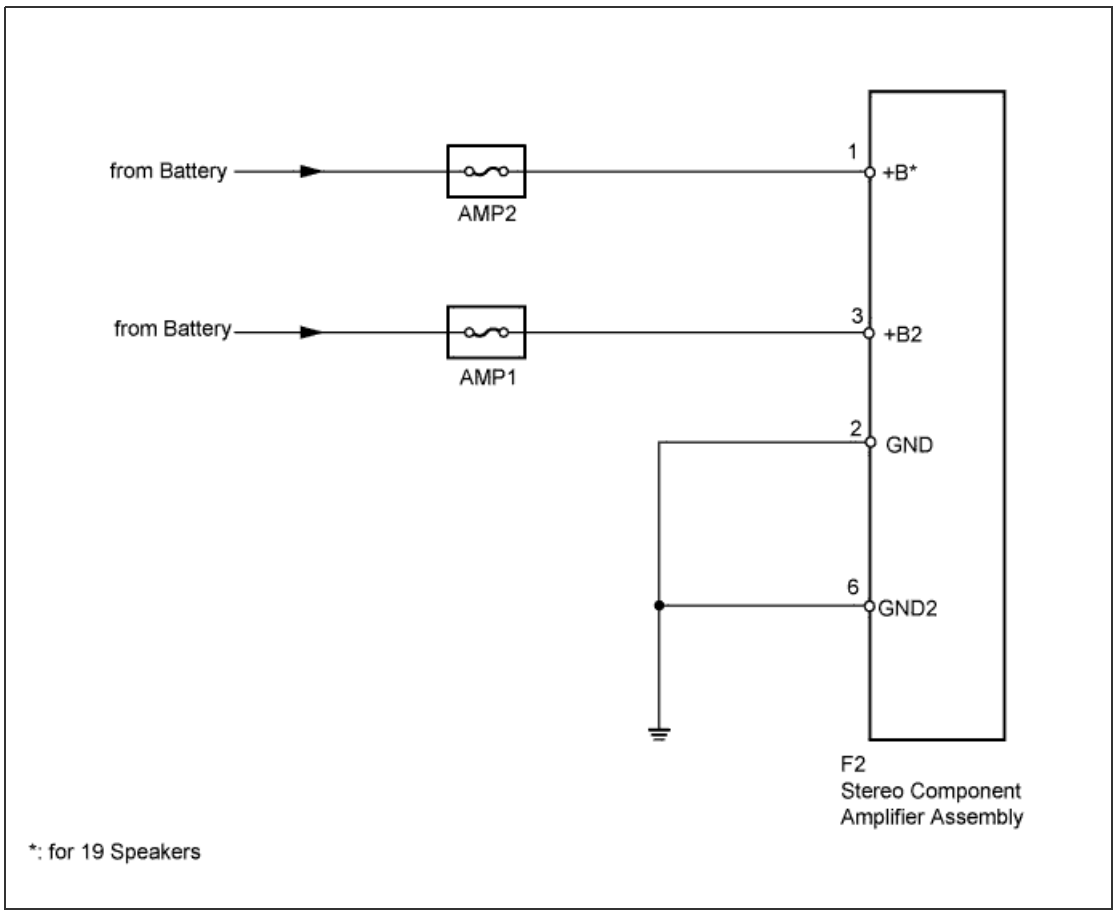
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit provides power to the stereo component amplifier assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

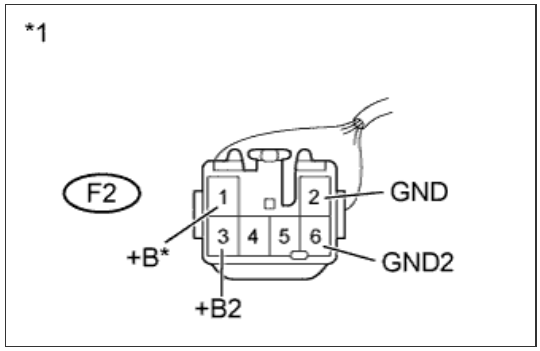
### 1.INSPECT STEREO COMPONENT AMPLIFIER ASSEMBLY

a. Disconnect the F2 stereo component amplifier assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-2 (GND) - Body ground | Always | Below 1 Ω |
| F2-6 (GND2) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| F2-1 (+B) - F2-2 (GND)* | Always | 11 to 14 V |
| F2-3 (+B2) - F2-2 (GND) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector<br>(to Stereo Component Amplifier Assembly) |

*: for 19 Speakers

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

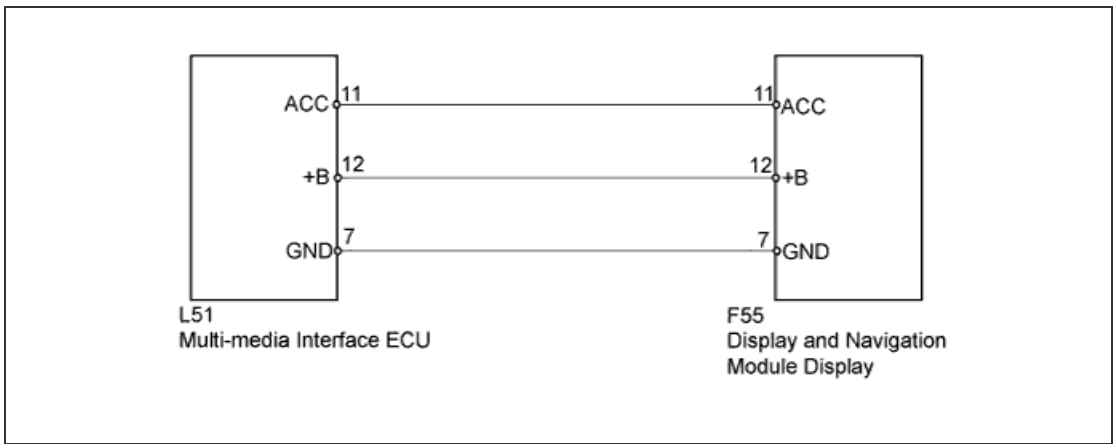
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit provides power to the multi-media interface ECU.

## WIRING DIAGRAM

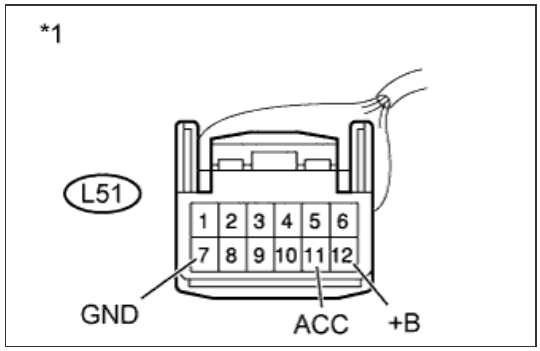



## INSPECTION PROCEDURE

### 1.INSPECT MULTI-MEDIA INTERFACE ECU

a. Disconnect the L51 multi-media interface ECU connector.

b. Measure the voltage according to the value(s) in the table below.




**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| L51-12 (+B) - L51-7 (GND) | Always | 11 to 14 V |
| L51-11 (ACC) - L51-7 (GND) | Engine switch on (ACC) | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Multi-media Interface ECU) |

NG → Go to step 2

OK →

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

### 2.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - MULTI-MEDIA INTERFACE ECU)

a. Disconnect the F55 display and navigation module display connector.

b. Disconnect the L51 multi-media interface ECU connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-11 (ACC) - F55-11 (ACC) | Always | Below 1 Ω |

| | | |
|---|---|---|
| L51-12 (+B) - F55-12 (+B) | Always | Below 1 Ω |
| L51-7 (GND) - F55-7 (GND) | Always | Below 1 Ω |
| L51-11 (ACC) - Body ground | Always | 10 kΩ or higher |
| L51-12 (+B) - Body ground | Always | 10 kΩ or higher |
| L51-7 (GND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

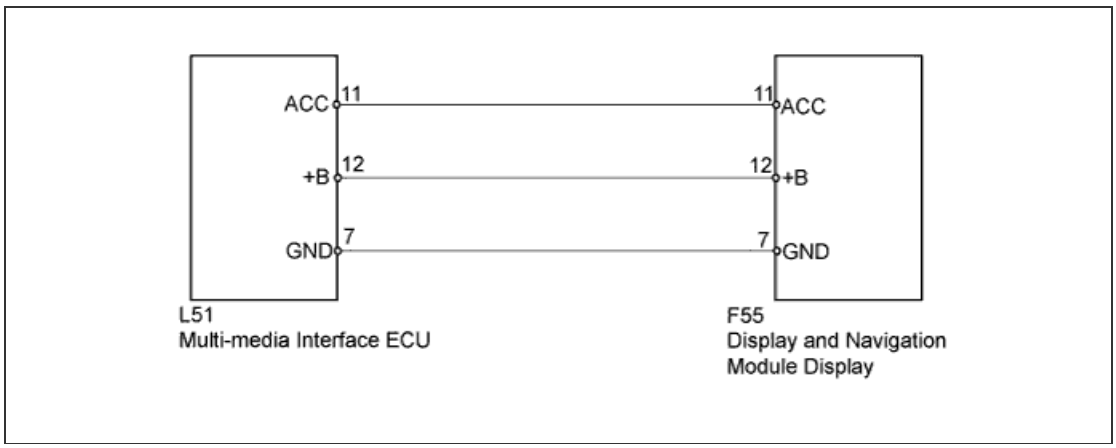
REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit provides power to the multi-media interface ECU.

## WIRING DIAGRAM

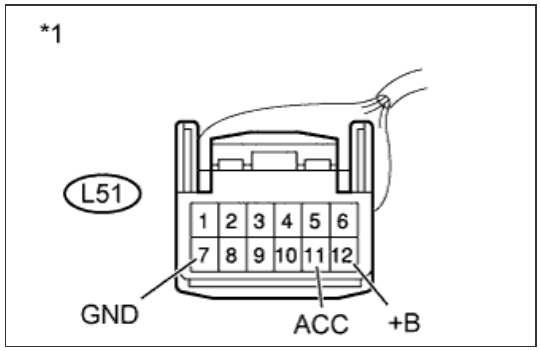



## INSPECTION PROCEDURE

### 1.INSPECT MULTI-MEDIA INTERFACE ECU

a. Disconnect the L51 multi-media interface ECU connector.

b. Measure the voltage according to the value(s) in the table below.




**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| L51-12 (+B) - L51-7 (GND) | Always | 11 to 14 V |
| L51-11 (ACC) - L51-7 (GND) | Engine switch on (ACC) | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Multi-media Interface ECU) |

NG → Go to step 2

OK →

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

### 2.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - MULTI-MEDIA INTERFACE ECU)

a. Disconnect the F55 display and navigation module display connector.

b. Disconnect the L51 multi-media interface ECU connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-11 (ACC) - F55-11 (ACC) | Always | Below 1 Ω |

| | | |
|---|---|---|
| L51-12 (+B) - F55-12 (+B) | Always | Below 1 Ω |
| L51-7 (GND) - F55-7 (GND) | Always | Below 1 Ω |
| L51-11 (ACC) - Body ground | Always | 10 kΩ or higher |
| L51-12 (+B) - Body ground | Always | 10 kΩ or higher |
| L51-7 (GND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## 1.PRECAUTION FOR DISCONNECTING CABLE FROM NEGATIVE BATTERY TERMINAL

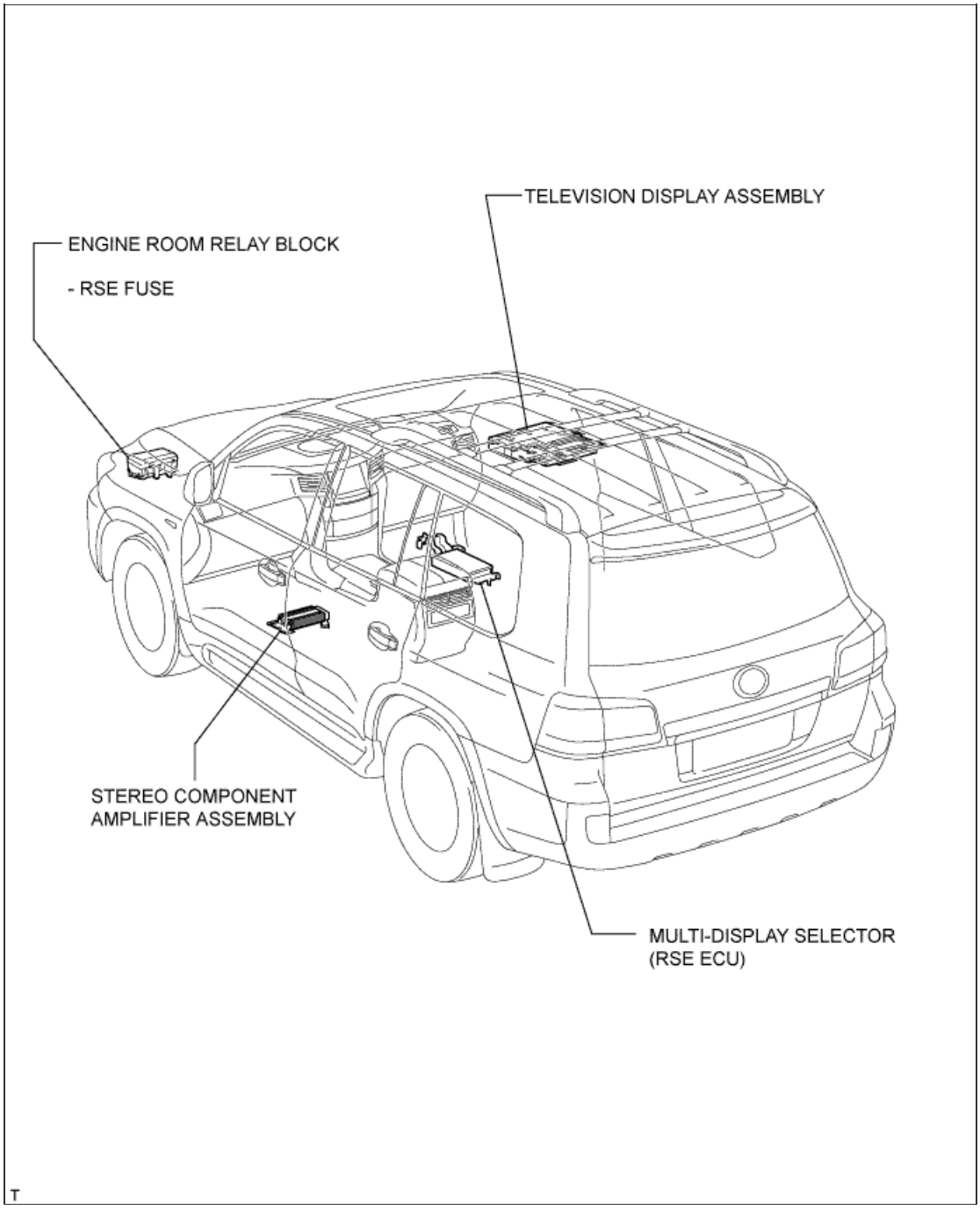
**NOTICE:**

- **After the engine switch is turned off, the display and navigation module display records various types of memory and settings. As a result, after turning the engine switch off, make sure to wait for the time specified in the following table before disconnecting the cable from the negative (-) battery terminal.**

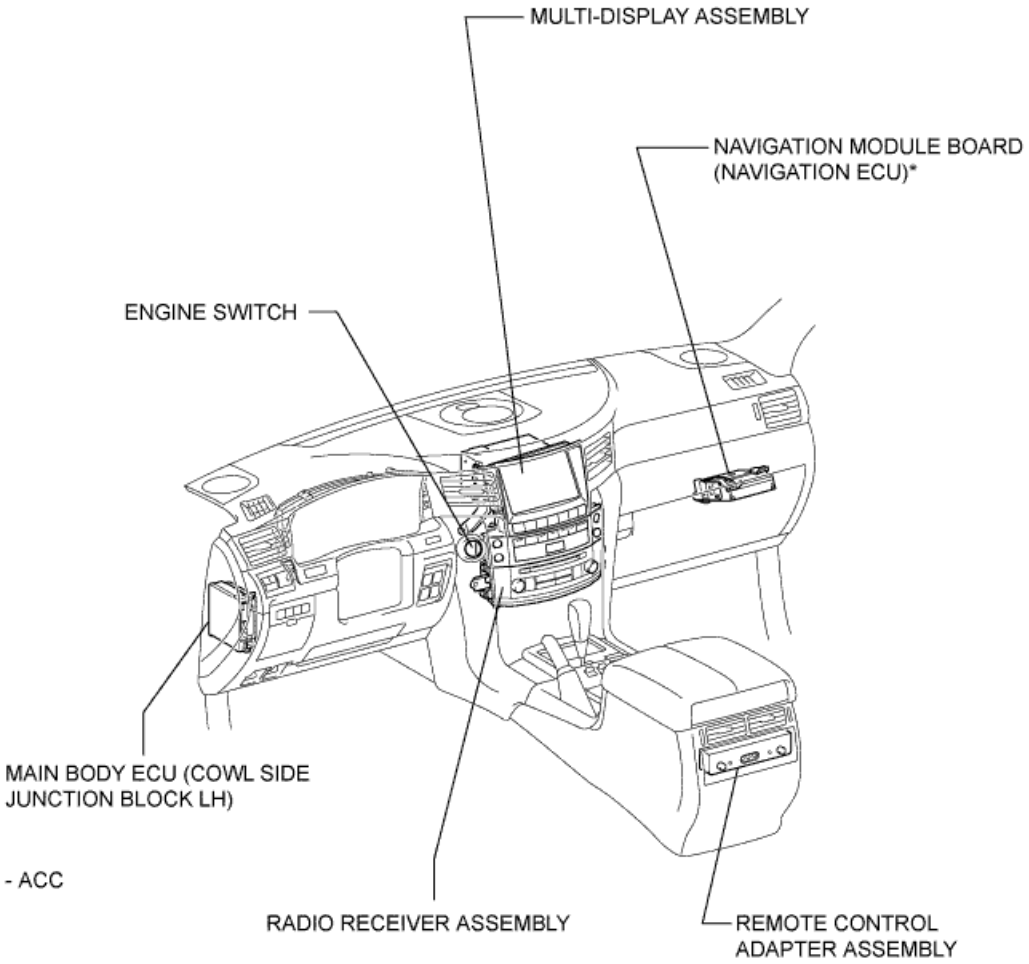
**Waiting Time before Disconnecting Cable from Negative (-) Battery Terminal**

| Specification | Waiting Time |
|---|---|
| w/o Telematics transceiver | 60 seconds |
| w/ Telematics transceiver | 120 seconds |

**for Preparation** Click here



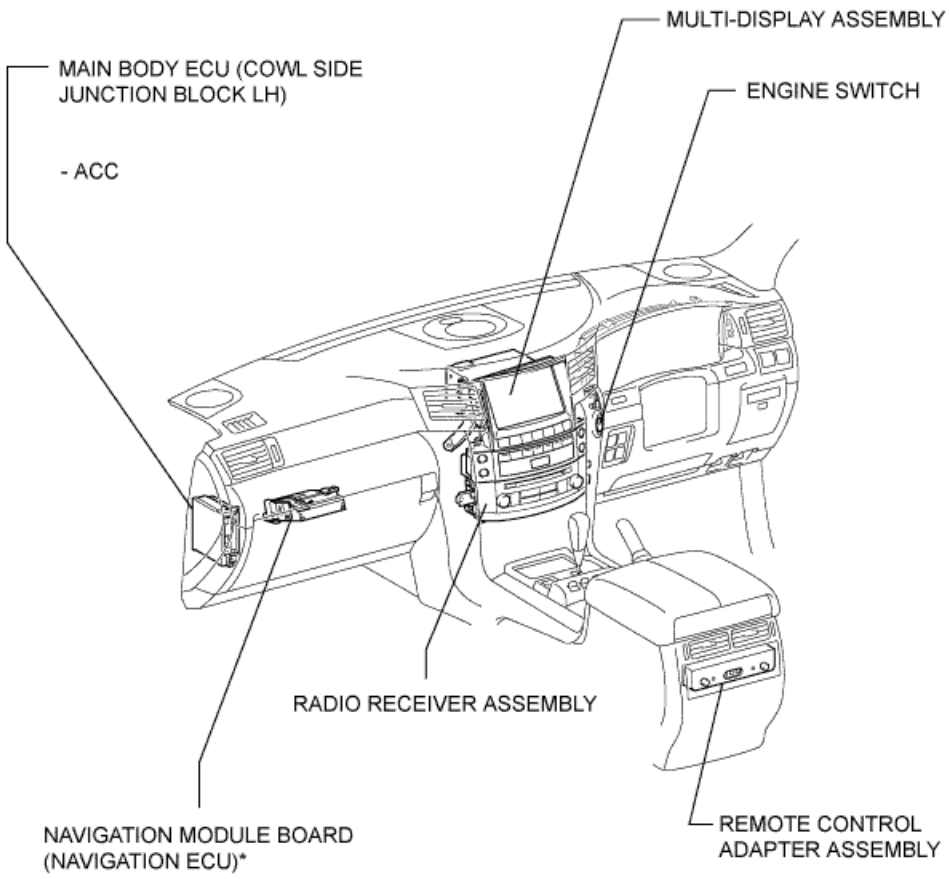
for LHD:




*: w/ Navigation System

T

for RHD:

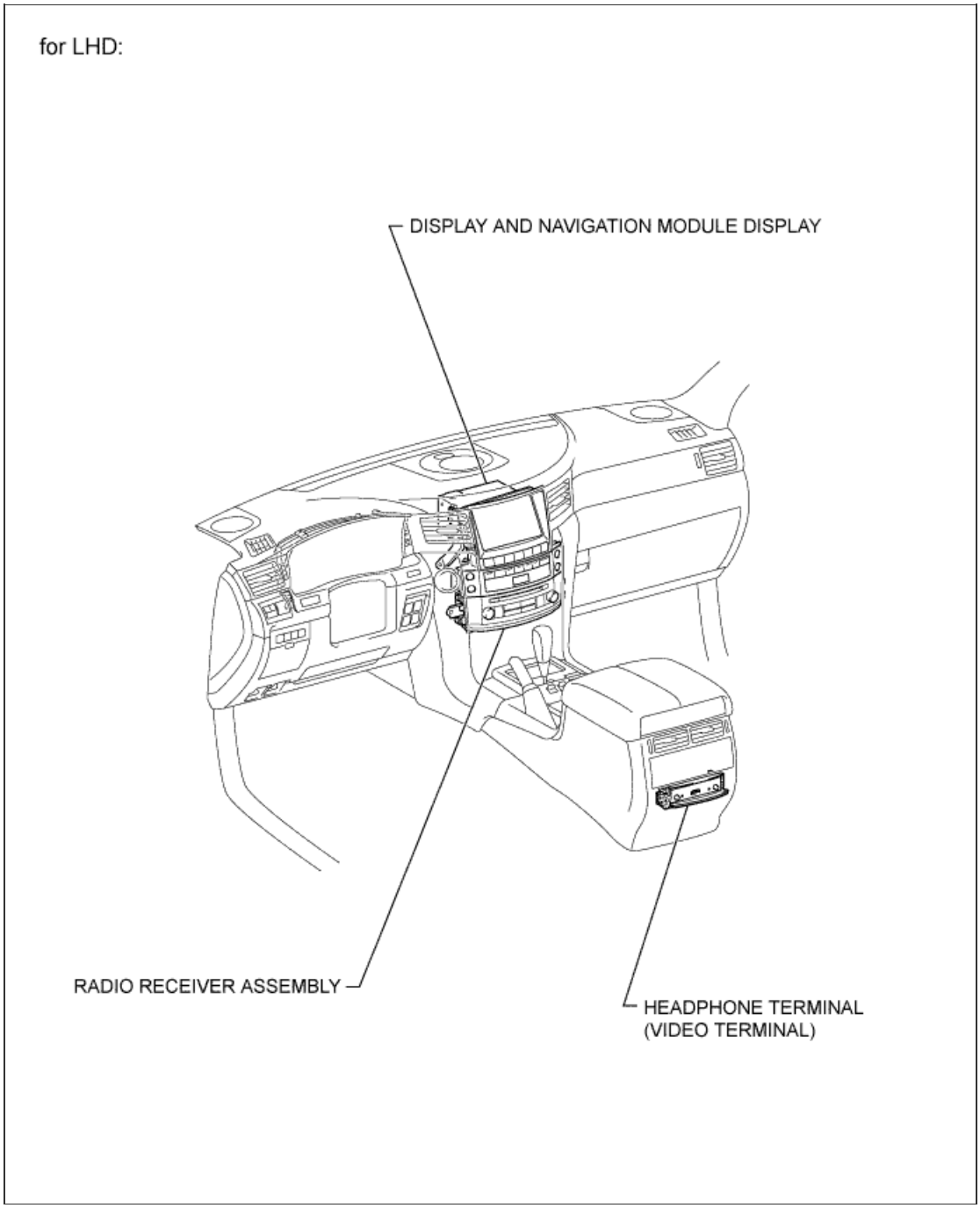



*: w/ Navigation System

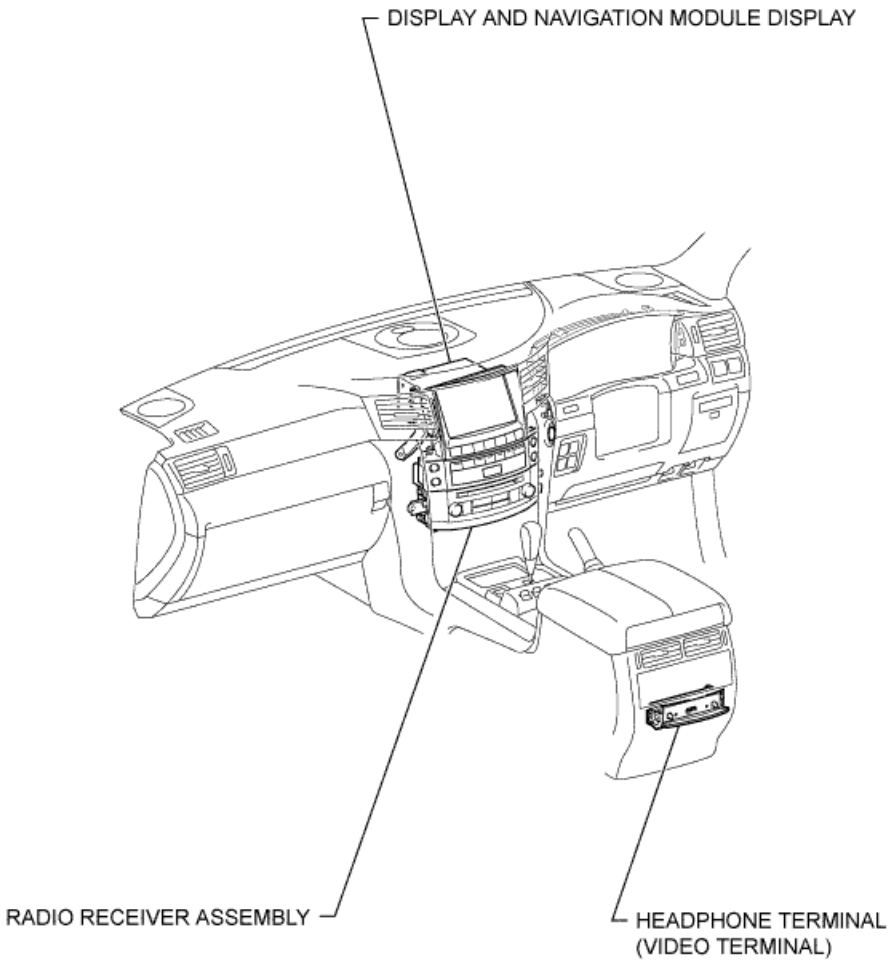
T

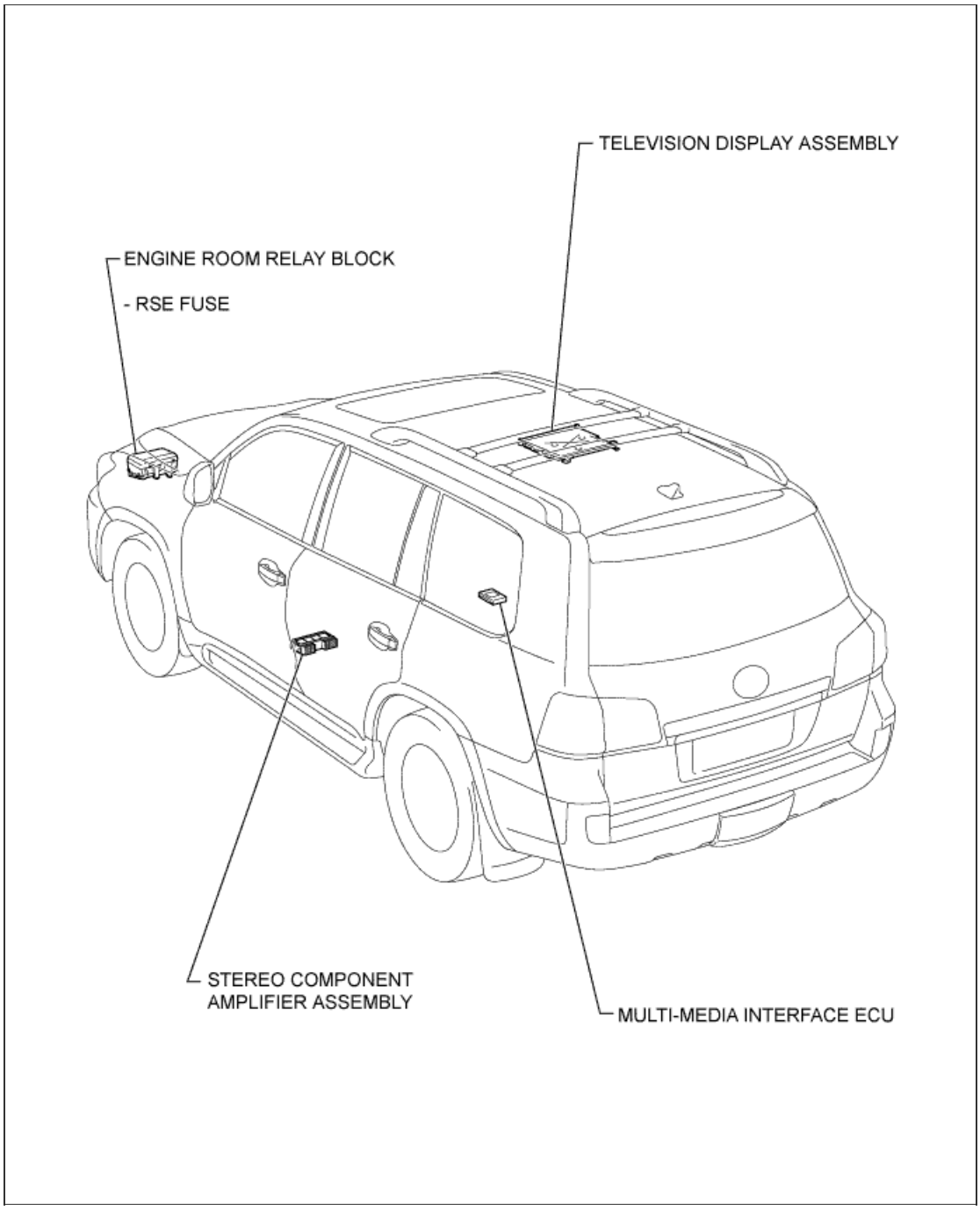
**for Preparation** Click here

for LHD:

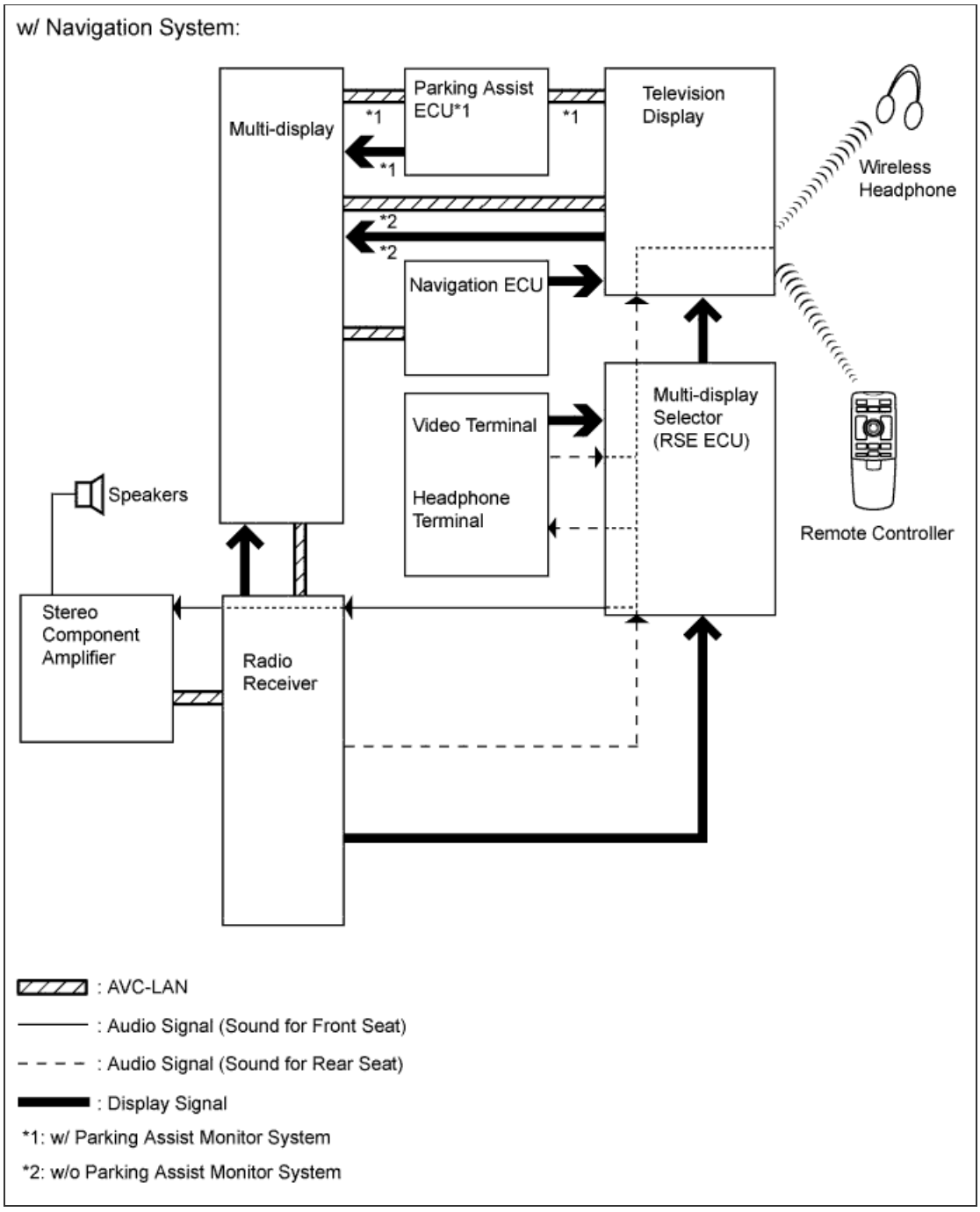


for RHD:

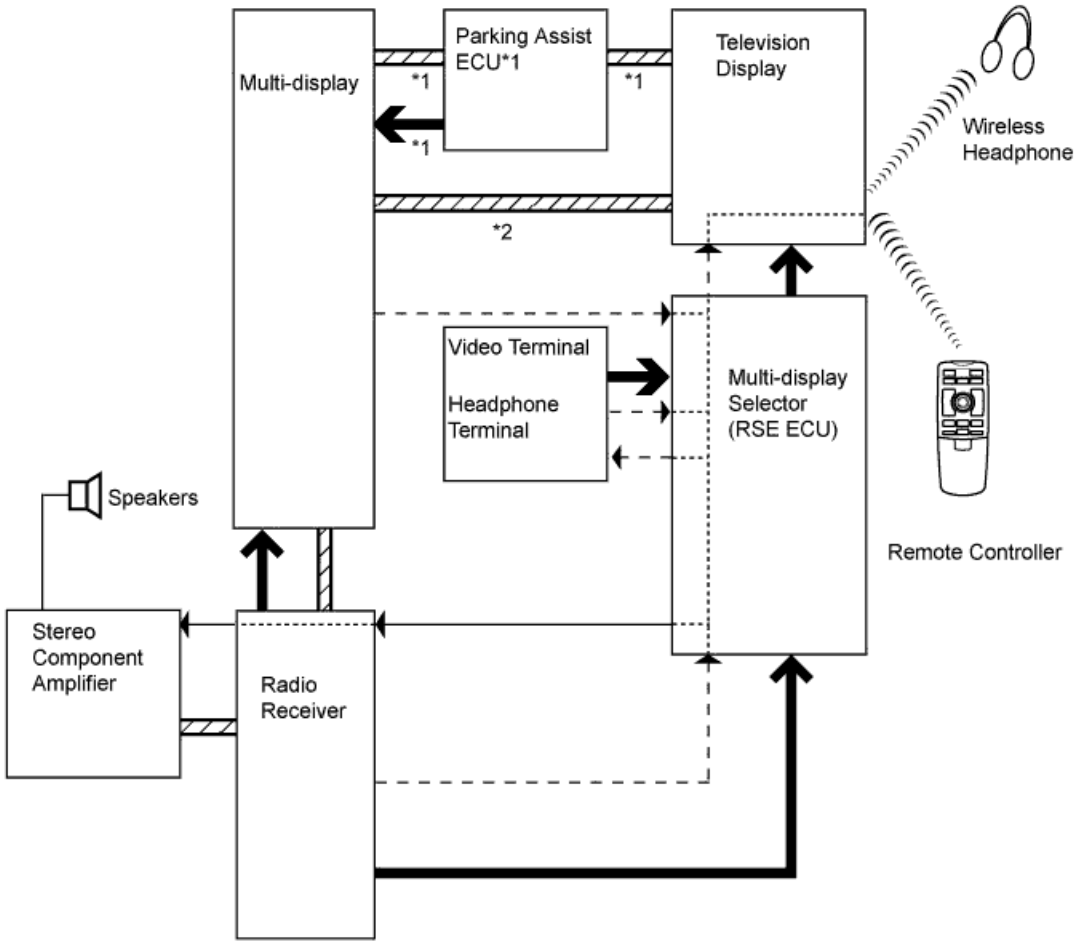

DISPLAY AND NAVIGATION MODULE DISPLAY
RADIO RECEIVER ASSEMBLY
HEADPHONE TERMINAL
(VIDEO TERMINAL)


TELEVISION DISPLAY ASSEMBLY
ENGINE ROOM RELAY BLOCK
- RSE FUSE
STEREO COMPONENT AMPLIFIER ASSEMBLY
MULTI-MEDIA INTERFACE ECU

**for Preparation** Click here



w/o Navigation System:




: AVC-LAN

: Audio Signal (Sound for Front Seat)

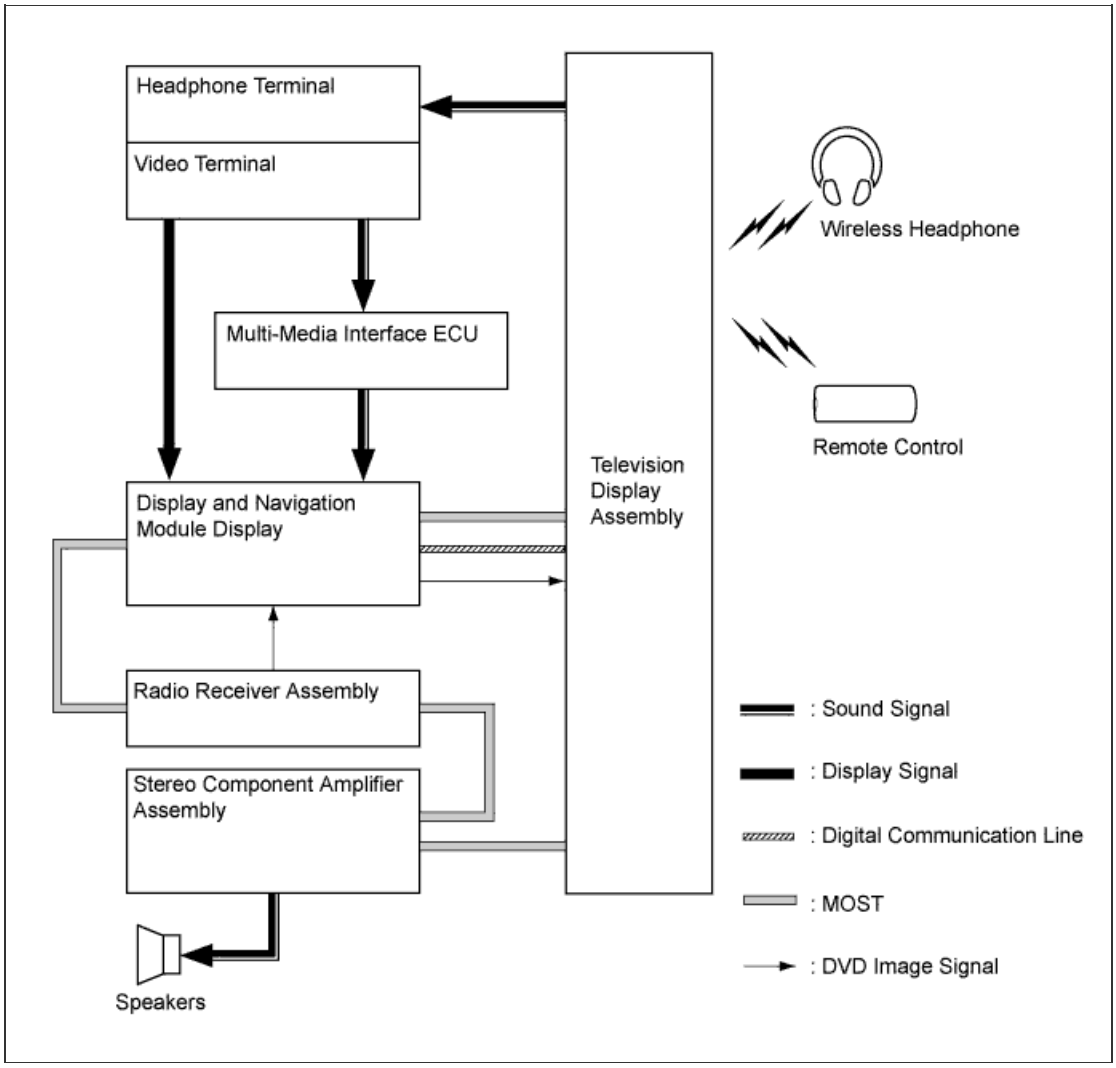
: Audio Signal (Sound for Rear Seat)

: Display Signal

*1: w/ Parking Assist Monitor System

*2: w/o Parking Assist Monitor System

**for Preparation** Click here



**for Preparation** Click here

## OUTLINE

- As a unique feature of the Rear Seat Entertainment (RSE) system, the rear seat occupants can enjoy different audio-visual modes at the same time.
- The rear seat occupants can control the audio-visual modes with the remote controller, and listen to audio by using wired or wireless headphones.

## FUNCTION OF MAIN COMPONENT

| Component | Function |
|---|---|
| Television Display | • Displays DVD and video images in accordance with video signals from the multi-display selector.<br>• Receives signals from the remote controller and outputs them to the multi-display selector.<br>• Outputs audio signals to the wireless headphones in the form of infrared signals.<br>• Displays the audio-visual control screen.<br>• Displays the adjustment screen.<br>• Displays the diagnosis screen. The diagnosis screen appears when the diagnosis mode is started on the multi-display.<br>• Displays when open, but does not display when closed.<br>• Even if the engine switch is turned from on (ACC) to off to on (ACC), the display condition continues. |
| Audio Head Unit:<br>Radio Receiver | • Outputs audio signals to the multi-display selector and the stereo component amplifier.<br>• Outputs a request to the multi-display to start the diagnosis mode.<br>• Receives RSE sound signals from the multi-display selector and outputs them to the stereo component amplifier. |
| Multi-display Selector (RSE ECU) | • Processes video and audio signals from the disc player and video player and audio signals from the audio head unit, and outputs them to the television display and headphone terminals.<br>• Controls the distribution of the audio-visual mode to the front (audio head unit) and the rear (RSE). |
| Remote Controller | Outputs various control signals of the RSE system to the television display in the form of infrared signals. |
| Wireless Headphone | • Receives the audio signals from the television display in the form of infrared signals.<br>• Volume adjustment of the wireless headphone can be performed by using the volume adjuster on the wireless headphone. |
| Headphone Terminal | • Outputs audio signals to the wired headphones that are connected.<br>• Adjusts the volume of the wired headphones in accordance with the volume control. |
| VTR Terminal | This terminal is for connecting the video player video and audio output terminals. |

## DIAGNOSIS FUNCTION

a. When the radio receiver or navigation system changes to the diagnosis screen, the television display shows an RSE diagnosis screen.

## DVD (Digital Versatile Disc) PLAYER OUTLINE (for TELEVISION DISPLAY)

a. The DVD player can only play DVD videos that have one of the following marks:




H

i. Precaution for use of discs

**NOTICE:**

- **Keep the discs away from dirt. Be careful not to damage the discs or leave your fingerprints on them.**
- **Hold discs by the outer edge and center hole with the label side up.**
- **Leaving the disc exposed halfway out of the slot for a long time after pressing the disc eject button may cause deformation of the disc, making the disc unusable.**
- **Do not use uniquely-shaped CDs because these may cause player malfunctions.**
- **Do not use discs whose recording portion is transparent or translucent because they may not be able to be inserted, ejected, or played normally.**

**for Preparation** Click here

## OUTLINE

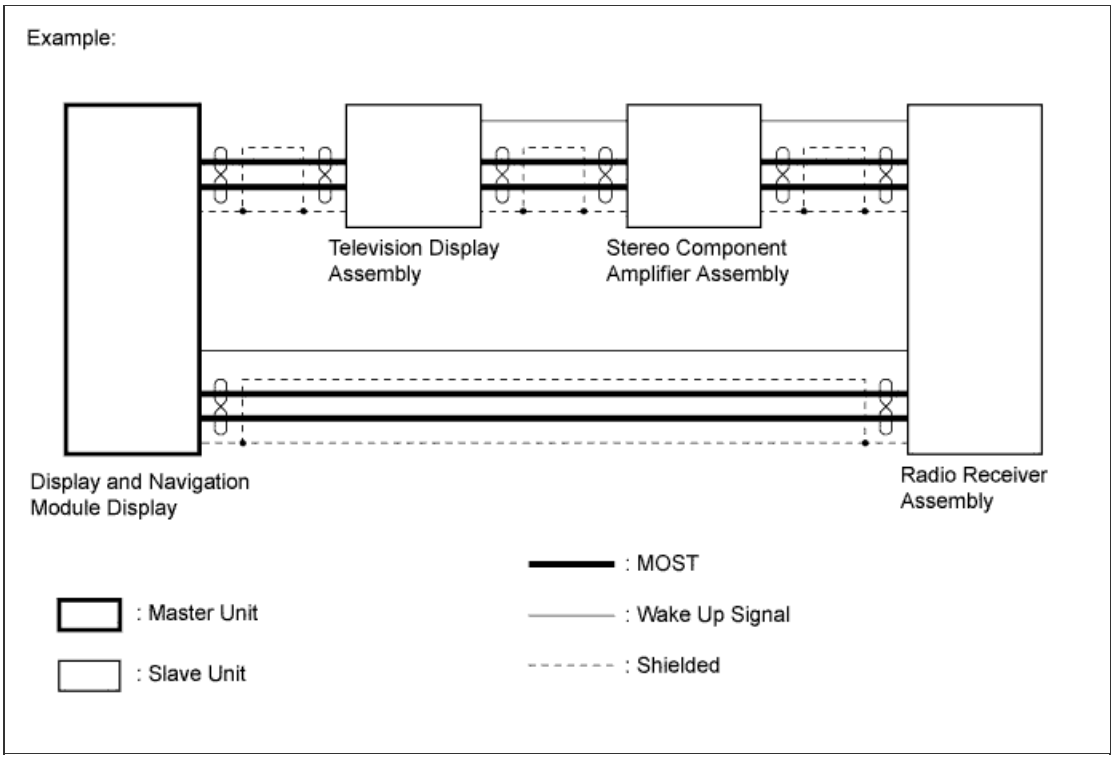
- As a unique feature of the Rear Seat Entertainment (RSE) system, the rear seat occupants can enjoy different audio-visual modes at the same time.
- The rear seat occupants can control the audio-visual modes with the remote control, and listen to audio by using wired or wireless headphones.
- The television display assembly receives image and sound signals from the display and navigation module display.
- The rear seat occupants can enjoy watching video by connecting an external device.
- MOST communication is used between the display and navigation module display and the television display assembly.
- Occupants in the front seats and rear seats can enjoy different content at the same time.

## FUNCTION OF MAIN COMPONENTS

| Component | Function |
|---|---|
| Television Display Assembly | • Displays DVD and video images in accordance with video signals from the display and navigation module display.<br>• Receives signals from the remote control and outputs them to the display and navigation module display.<br>• Outputs audio signals to the wireless headphones in the form of infrared signals.<br>• Displays the audio-visual control screen.<br>• Displays the adjustment screen.<br>• Displays the diagnosis screen. The diagnosis screen appears when diagnosis mode is started on the display and navigation module display.<br>• Even if the engine switch is turned from on (ACC) to off to on (ACC), display condition continues (image adjustments maintained, sources continue playing on the left and right sides).<br>• Processes video and audio signals from the video terminal and DVD image and audio signals from the radio receiver, and outputs them to the television display and headphone terminals. |
| Radio Receiver Assembly | Outputs DVD image signals to the display and navigation module display. |
| Remote Control | Outputs various control signals of the RSE system to the television display assembly in the form of infrared signals. |
| Wireless Headphone | • Receives audio signals from the television display assembly in the form of infrared signals.<br>• Volume adjustment of the wireless headphone can be done by using the volume adjuster on the wireless headphone. |
| Headphone Terminal | • Outputs audio signals to the wired headphones that are connected.<br>• Adjusts the volume of the wired headphones in accordance with volume control. |
| Video Terminal | This terminal is for connecting the video player's video and audio output terminals. |
| Display and Navigation Module Display | Receives DVD image signals from the radio receiver assembly and sends the signals to the television display assembly. |

## COMMUNICATION SYSTEM

a. MOST NETWORK OUTLINE




i. Navigation system components communicate with each other via the MOST network.

ii. The MOST network uses a shielded twisted pair of wires for its communication lines.

iii. The master unit of the MOST network is the display and navigation module display.

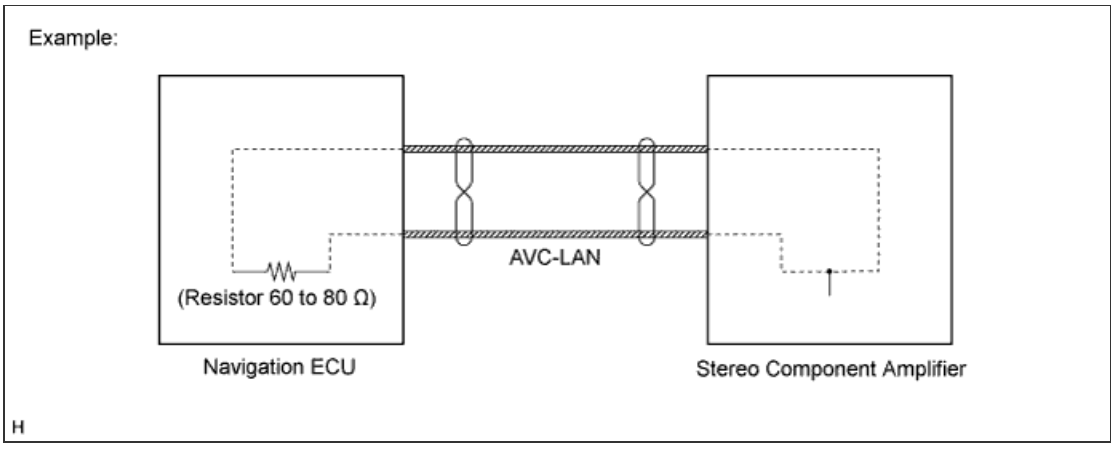
iv. MOST communication lines connect each slave unit centering around the master unit to form a MOST network ring.

v. The master unit sends a wake-up signal to activate each slave unit connected to the MOST network.

**HINT:**

If a short or open circuit occurs in the MOST circuit, communication will be interrupted and the system will not operate normally.

b. AVC-LAN OUTLINE




i. Components of the navigation system communicate with each other via the AVC-LAN.

ii. The AVC-LAN uses a twisted pair of wires for its communication lines.

iii. The master unit of the AVC-LAN is the display and navigation module display.

**HINT:**

- **The display and navigation module display has enough resistance (60 to 80 Ω) necessary for communication.**
- **If a short or open circuit occurs in the AVC-LAN circuit, communication is interrupted and system will not operate normally.**

## DIAGNOSIS FUNCTION

a. When the navigation system changes to the diagnosis screen, the television display assembly shows the "RSE Check" screen.

## Digital Versatile Disc (DVD) PLAYER OUTLINE

a. The DVD player can only play DVD videos that have one of the following marks:



H

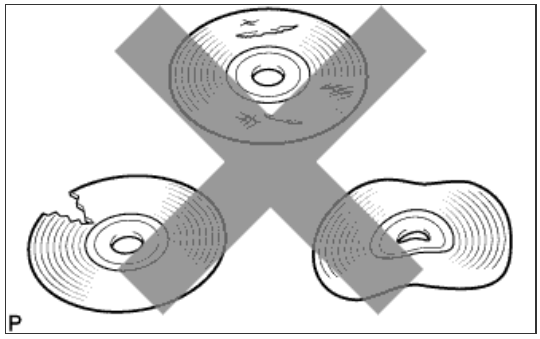
i. Precaution for use of discs

**NOTICE:**

- **Keep the discs away from dirt. Be careful not to damage the discs or leave your fingerprints on them.**
- **Hold discs by the outer edge and center hole with the label side up.**
- **Leaving the disc exposed halfway out of the slot for a long time after pressing the disc eject button may cause deformation of the disc, making the disc unusable.**
- **Do not use uniquely-shaped CDs because these may cause player malfunctions.**
- **Do not use discs whose recording portion is transparent or translucent because they may not be able to be inserted, ejected or played normally.**

b. Check disc

i. Check that the disc is not deformed or cracked.


P

c. Disc cleaning

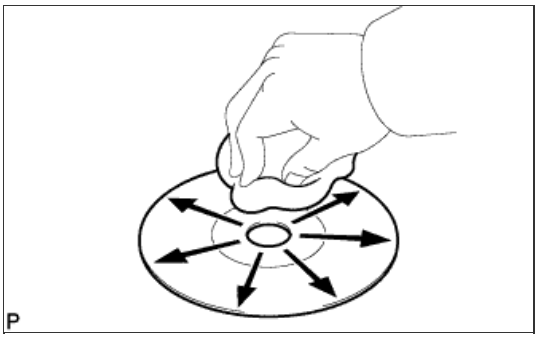
**NOTICE:**

Do not use a lens cleaner because it may cause a malfunction in the pickup portion of the player.

i. If dirt is on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

**NOTICE:**

- **Pressing on the disc by hand or rubbing the disc with a hard cloth may scratch the disc surface.**
- **Use of solvent such as a record spray, antistatic agent, alcohol, benzine, and thinner or a chemical cloth may cause damage to the disc, making the disc unusable.**



**for Preparation** Click here

**HINT:**

Use these procedures to troubleshoot the rear seat entertainment system.

## 1.VEHICLE BROUGHT TO WORKSHOP

**NEXT**

## 2.INSPECT BATTERY VOLTAGE

**Standard voltage:**
**11 to 14 V**

If the voltage is below 11 V, recharge or replace the battery before proceeding.

**NEXT**

## 3.BASIC INSPECTION

a. Turn the engine switch on (ACC).

b. Check whether or not the display appears on the multi-display.

**Result**

| Result | Proceed to |
|---|---|
| Display appears | A |
| Display does not appear | B |

**B.** → **Go to step 6**

**A**

## 4.CHECK FOR DTC

a. Check for DTCs and note any codes that are output.

b. Clear the DTCs.

c. Recheck for DTCs. Based on the DTC output in the first step, try to force output of the audio system DTC by simulating the conditions indicated by the DTC.

**HINT:**

- **If the system cannot enter the diagnosis mode, inspect each AVC-LAN communication signal and repair or replace problem parts.**
- **Even if the malfunction symptom is not confirmed, check for DTCs, as the system stores past DTCs.**
- **Refer to the detailed description on the diagnostic screen as necessary ( Click here).**
- **Check and clear past diagnostic trouble codes. Check the diagnostic trouble code and inspect the area the code indicates.**

**Result**

| Result | Proceed to |
|---|---|
| DTC is not output | A |
| DTC is output | B |

B. Go to step 7

A

## 5.PROBLEM SYMPTOMS TABLE

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in problem symptoms table | A |
| Fault is listed in problem symptoms table | B |

B. Go to step 7

A

## 6.OVERALL ANALYSIS AND TROUBLESHOOTING

a. Terminals of ECU (Click here).

b. Inspect the front No. 1 speaker (Click here).

c. Inspect the front No. 2 speaker (Click here).

d. Inspect the front No. 3 speaker (Click here).

e. Inspect the front No. 4 speaker (Click here).

f. Inspect the No. 1 woofer box speaker (Click here).

g. Inspect the rear speaker set (Click here).

h. Inspect the rear No. 2 speaker (Click here).

i. Inspect the rear No. 3 speaker (Click here).

j. Inspect the rear header speaker (Click here).

NEXT

## 7.ADJUST, REPAIR OR REPLACE

NEXT

END

**for Preparation** Click here

**HINT:**

- **Use the following procedure to troubleshoot the rear seat entertainment system.**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

**NEXT**

## 2.INSPECT BATTERY VOLTAGE

a. Inspect the battery voltage.

**Standard Voltage:**
**11 to 14 V**

If the voltage is below 11 V, recharge or replace the battery before proceeding to next step.

**NEXT**

## 3.CHECK FOR DTC*

a. Refer to DTC Check / Clear ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is output. | A |
| DTC is not output. | B |

**HINT:**

If more information is needed, perform a recheck using the "System Check Mode" screen after rechecking for DTCs using the intelligent tester (Click here).

**B.** → **Go to step 7**

**A**

## 4.DTC CLEAR*

a. Clear the DTCs and finish diagnostic mode.

**HINT:**

The current DTCs may not indicate actual malfunctions depending on the vehicle operating conditions.

**NEXT**

## 5.RECHECK FOR DTC*

a. Recheck for DTCs.

**Result**

| Result | Proceed to |
|---|---|
| DTC is output. | A |

| | |
|---|---|
| DTC is not output. | B |

**HINT:**

- **Even if the malfunction symptom cannot be confirmed, check for DTCs. This is because the system stores history DTCs.**
- **If more information is needed, perform a recheck using the "System Check Mode" screen after rechecking for DTCs using the intelligent tester (Click here).**
- **Check the DTC and inspect the area the code indicates.**

**B.** → Go to step 7

**A**

## 6.DIAGNOSTIC TROUBLE CODE CHART

a. Find the output code in the diagnostic trouble code chart ( Click here).

**NEXT.** → Go to step 9

## 7.PROBLEM SYMPTOMS TABLE

a. Refer to Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in Problem Symptoms Table. | A |
| Fault is listed in Problem Symptoms Table. | B |

**HINT:**

If the symptom does not recur and no DTC is output, perform the symptom simulation method ( Click here).

**B.** → Go to step 9

**A**

## 8.CHECK ECU TERMINAL ARRANGEMENT BASED ON MALFUNCTION SYMPTOM

a. Refer to Terminals of ECU ( Click here).

**NEXT**

## 9.CHECK CIRCUIT

a. Adjust, repair or replace as necessary.

**NEXT**

## 10.RECHECK FOR DIAGNOSTIC TROUBLE CODE*

**HINT:**

After clearing the DTCs, recheck for DTCs.

**NEXT**

## 11.PERFORM CONFIRMATION TEST


NEXT
END

**for Preparation** Click here

**HINT:**

- **Use the following procedure to troubleshoot the rear seat entertainment system.**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

**NEXT**

## 2.INSPECT BATTERY VOLTAGE

a. Inspect the battery voltage.

**Standard Voltage:**
**11 to 14 V**

If the voltage is below 11 V, recharge or replace the battery before proceeding to next step.

**NEXT**

## 3.CHECK FOR DTC*

a. Refer to DTC Check / Clear ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is output. | A |
| DTC is not output. | B |

**HINT:**

If more information is needed, perform a recheck using the "System Check Mode" screen after rechecking for DTCs using the intelligent tester (Click here).

**B.** → **Go to step 7**

**A**

## 4.DTC CLEAR*

a. Clear the DTCs and finish diagnostic mode.

**HINT:**

The current DTCs may not indicate actual malfunctions depending on the vehicle operating conditions.

**NEXT**

## 5.RECHECK FOR DTC*

a. Recheck for DTCs.

**Result**

| Result | Proceed to |
|---|---|
| DTC is output. | A |

| | |
|---|---|
| DTC is not output. | B |

**HINT:**

- **Even if the malfunction symptom cannot be confirmed, check for DTCs. This is because the system stores history DTCs.**
- **If more information is needed, perform a recheck using the "System Check Mode" screen after rechecking for DTCs using the intelligent tester (Click here).**
- **Check the DTC and inspect the area the code indicates.**

**B.** → Go to step 7

**A**

## 6.DIAGNOSTIC TROUBLE CODE CHART

a. Find the output code in the diagnostic trouble code chart ( Click here).

**NEXT.** → Go to step 9

## 7.PROBLEM SYMPTOMS TABLE

a. Refer to Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in Problem Symptoms Table. | A |
| Fault is listed in Problem Symptoms Table. | B |

**HINT:**

If the symptom does not recur and no DTC is output, perform the symptom simulation method ( Click here).

**B.** → Go to step 9

**A**

## 8.CHECK ECU TERMINAL ARRANGEMENT BASED ON MALFUNCTION SYMPTOM

a. Refer to Terminals of ECU ( Click here).

**NEXT**

## 9.CHECK CIRCUIT

a. Adjust, repair or replace as necessary.

**NEXT**

## 10.RECHECK FOR DIAGNOSTIC TROUBLE CODE*

**HINT:**

After clearing the DTCs, recheck for DTCs.

**NEXT**

## 11.PERFORM CONFIRMATION TEST


NEXT
END

**for Preparation** Click here

## ENTER DIAGNOSTIC MODE

a. Enter diagnostic mode (NAVIGATION SYSTEM for HDD) (Click here).

b. Enter diagnostic mode (NAVIGATION SYSTEM for DVD) (Click here).

c. Enter diagnostic mode (ELECTRO MULTI VISION SYSTEM) ( Click here).

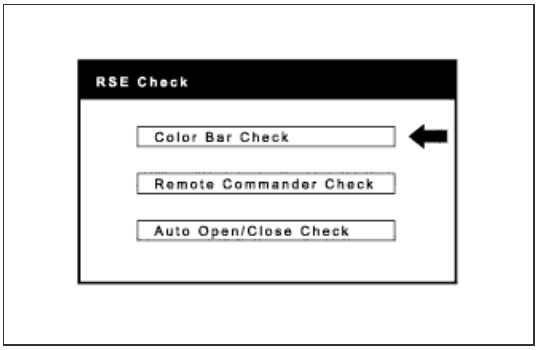
## RSE CHECK

**HINT:**

- **Use the remote control for each inspection.**
- **This mode checks the color display on the television display assembly.**
- **The television display assembly is not a touch panel type. Do not touch the screen.**

a. Color Bar Check

i. Select "Color Bar Check" from the "RSE Check" screen.

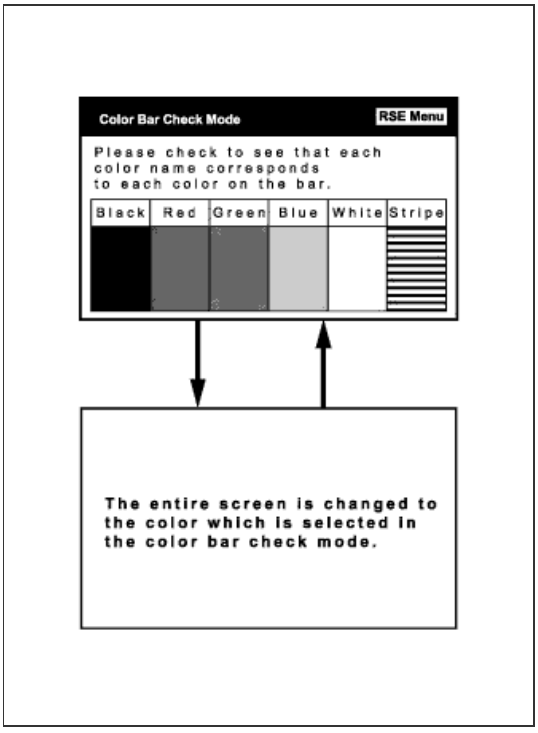



ii. Select a color bar from the "Color Bar Check Mode" screen.

iii. Check the display color.

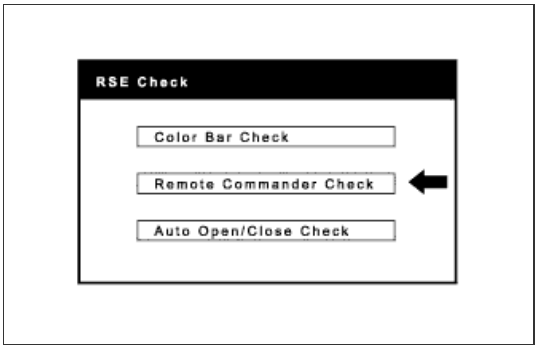
**HINT:**

- **The entire screen turns to the color or stripe which is selected.**
- **The screen returns to the "Color Bar Check" screen if the remote controller is operated again.**

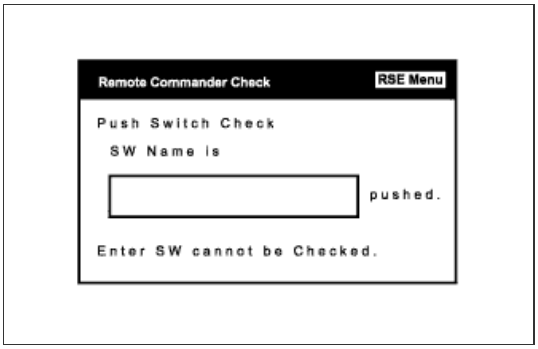


b. Remote Commander Check

i. Select "Remote Commander Check" from the "RSE Check" screen.

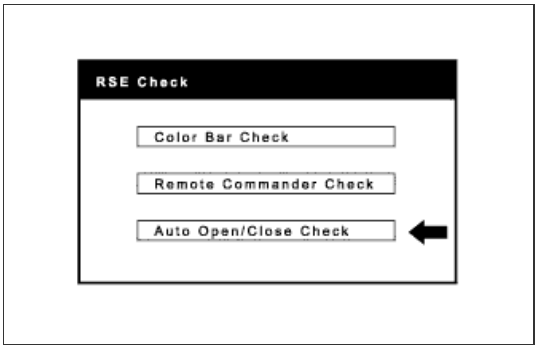



ii. Operate each switch and check that the switch name and condition are correctly displayed.




c. Auto Open/Close Check

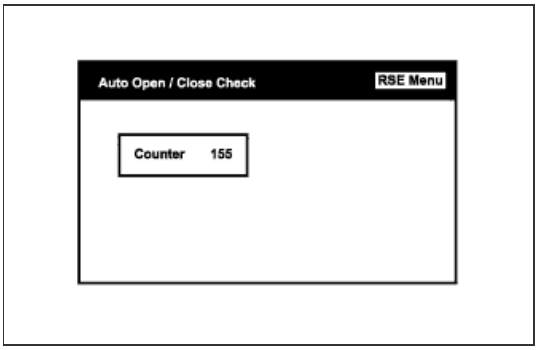
i. Select "Auto Open/Close Check" from the "RSE Check" screen.




ii. Confirm the number of open/close cycles of the television display assembly.

**HINT:**

The counter indicates the number of times the television display assembly has been opened to an angle of 90° or greater.



**for Preparation** Click here

## ENTER DIAGNOSTIC MODE

a. Enter diagnostic mode (NAVIGATION SYSTEM for HDD) (Click here).

b. Enter diagnostic mode (NAVIGATION SYSTEM for DVD) (Click here).

c. Enter diagnostic mode (ELECTRO MULTI VISION SYSTEM) ( Click here).

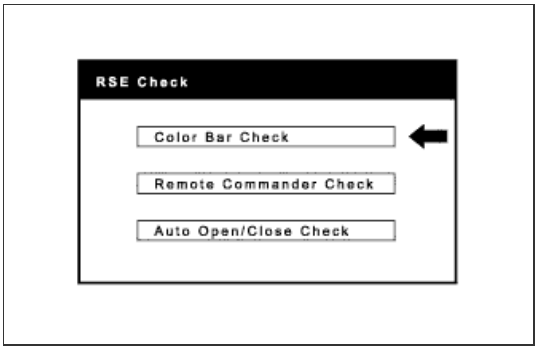
## RSE CHECK

**HINT:**

- **Use the remote control for each inspection.**
- **This mode checks the color display on the television display assembly.**
- **The television display assembly is not a touch panel type. Do not touch the screen.**

a. Color Bar Check

i. Select "Color Bar Check" from the "RSE Check" screen.

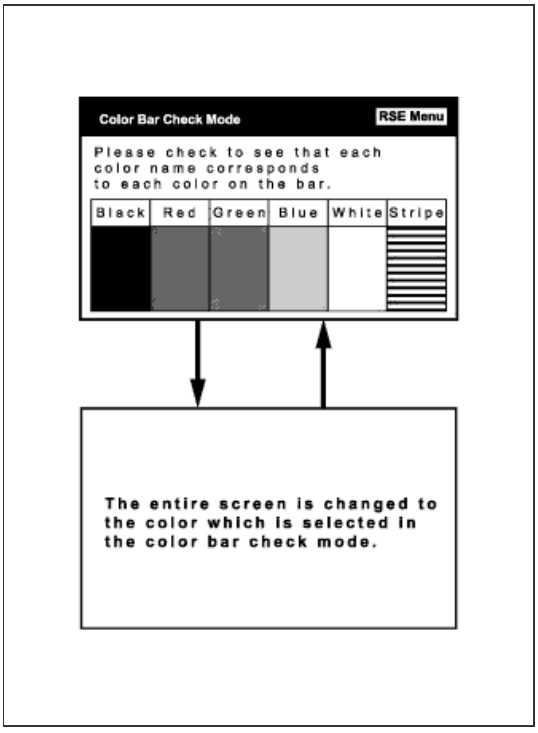



ii. Select a color bar from the "Color Bar Check Mode" screen.

iii. Check the display color.

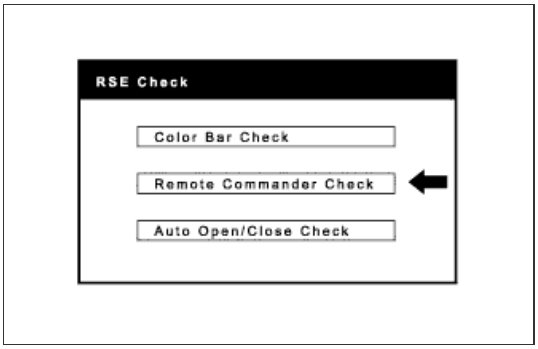
**HINT:**

- **The entire screen turns to the color or stripe which is selected.**
- **The screen returns to the "Color Bar Check" screen if the remote controller is operated again.**

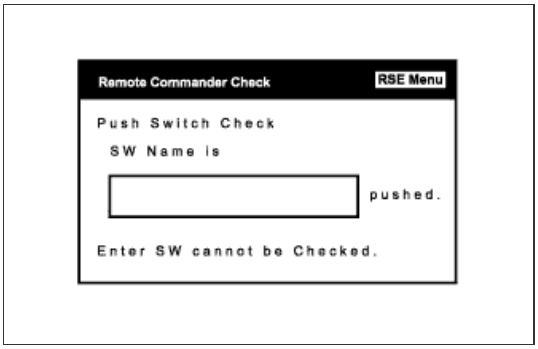


b. Remote Commander Check

i. Select "Remote Commander Check" from the "RSE Check" screen.

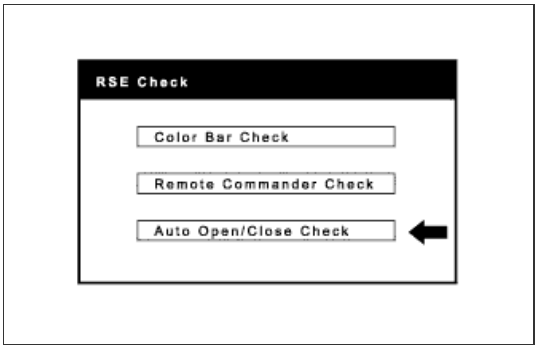



ii. Operate each switch and check that the switch name and condition are correctly displayed.




c. Auto Open/Close Check

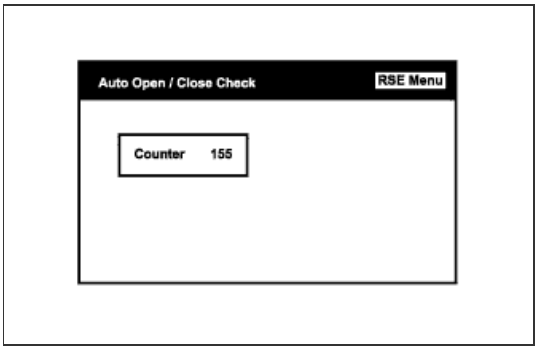
i. Select "Auto Open/Close Check" from the "RSE Check" screen.




ii. Confirm the number of open/close cycles of the television display assembly.

**HINT:**

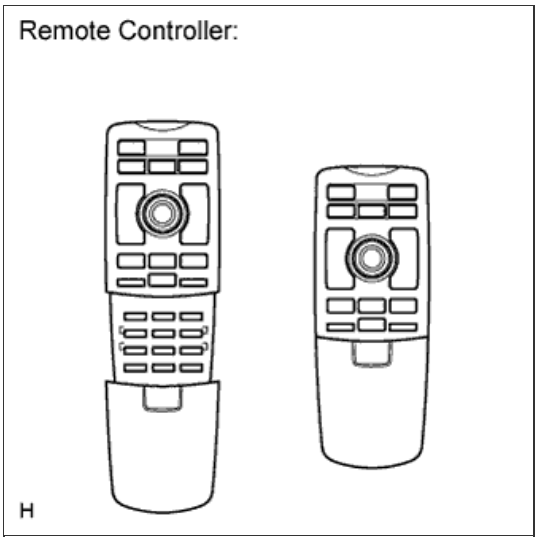
The counter indicates the number of times the television display assembly has been opened to an angle of 90° or greater.



**for Preparation** Click here

**HINT:**

- **This mode checks the color display on the television display.**
- **Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be exactly the same as on the actual vehicle.**
- **Use the remote controller for each inspection.**
- **The television display is not a touch panel type. Do not touch the screen.**



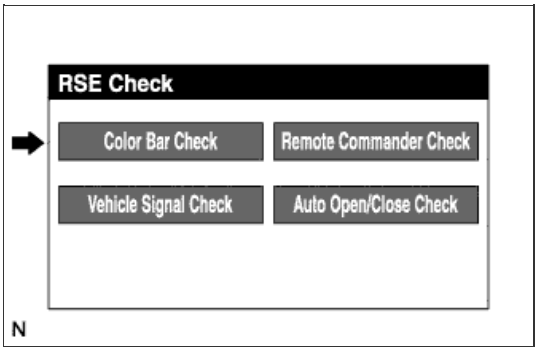

## ENTER DIAGNOSTIC MODE

a. w/ Navigation System: Enter the diagnostic mode (Click here).

b. w/o Navigation System: Enter the diagnostic mode (Click here).

## COLOR BAR CHECK

a. Select "Color Bar Check" from the "RSE Check" screen.

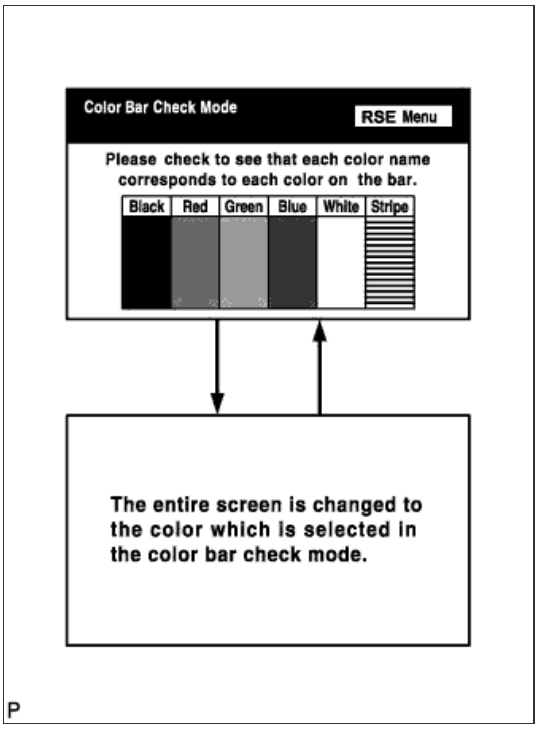



b. Select a color bar from the "Color Bar Check Mode" screen.

c. Check the display color.

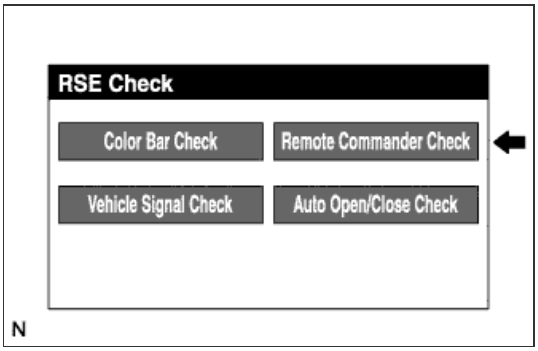
**HINT:**

- **The entire screen turns to the color or stripe selected.**
- **The screen returns to the "Color Bar Check" screen if the remote controller is operated again.**

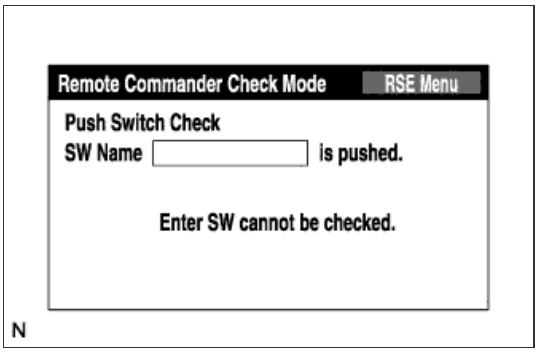



## REMOTE COMMANDER CHECK

a. Select "Remote Commander Check" from the "RSE Check" screen.

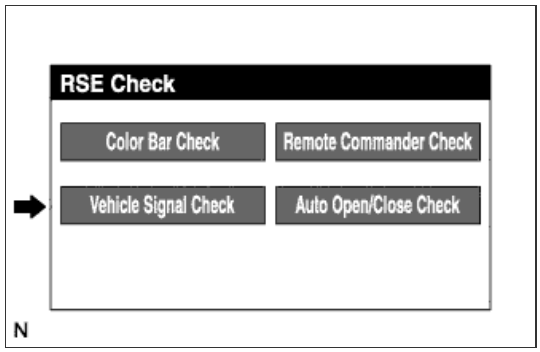



b. Operate each switch and check that the switch name and condition are correctly displayed.




## VEHICLE SIGNAL CHECK

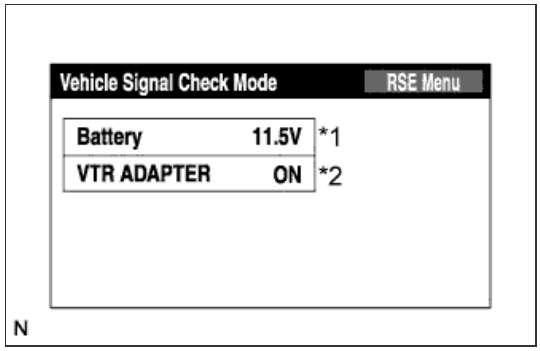
a. Select "Vehicle Signal Check" from the "RSE Check" screen.




b. When the "Vehicle Signal Check Mode" screen is displayed, check all the vehicle signal conditions.

**HINT:**

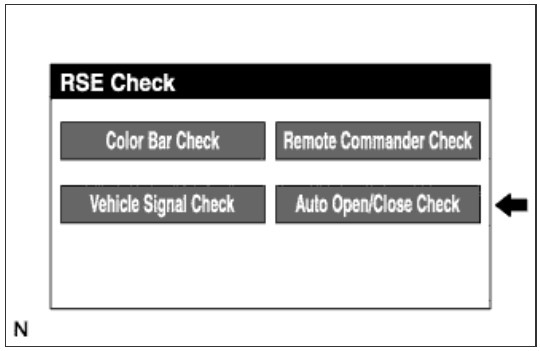
- **Only conditions having inputs are displayed.**
- **This screen is updated once per second when input signals to the vehicle are changed.**



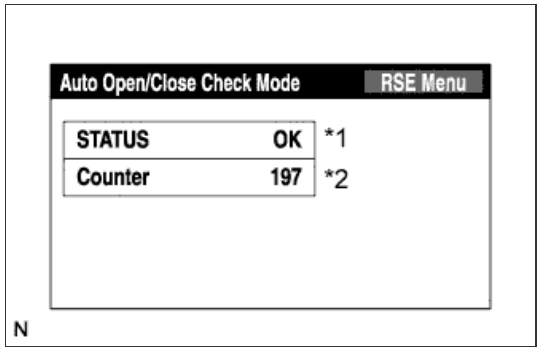

| Display | Contents |
|---|---|
| *1: Battery | Battery voltage is displayed. |
| *2: VTR ADAPTER | Displays if exterior input through VTR adapter is possible or not.<br>ON: Exterior input possible<br>OFF: Exterior input not possible<br><br>**HINT:**<br><br>Display only shows if there is a VTR adapter. Display does not show if exterior input device is connected. |

## AUTO OPEN/CLOSE CHECK

a. Select "Auto Open/Close Check" screen.




b. This is the screen for inspecting the electronic open and close function of the RSE.




| Display | Contents |
|---|---|

| | |
|---|---|
| *1: STATUS | Electronic open and close function status. |
| *2: Counter | Counts number of electronic open and close operations. 1 count occurs if display opens 90° or more.<br>Open and close counter can display up to 5 digits (limit: 99999). |

**for Preparation** Click here

Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

### Display

| Symptom | Suspected Area | See page |
|---|---|---|
| Black screen. | Black screen | Click here |
| | Multi-display controller power source circuit | Click here |
| | Television display power source circuit | Click here |
| | AVC-LAN circuit | Click here |
| | Replace multi-display selector | Click here |
| | Replace television display assembly | Click here |
| | Replace GVIF cable | - |
| Display screen is not stabilized. | Television display screen is not stabilized | Click here |
| | Multi-display controller power source circuit | Click here |
| | Television display power source circuit | Click here |
| | Display signal circuit between multi-display controller and television display | Click here |
| | Replace television display assembly | Click here |
| | Replace multi-display selector | Click here |
| Color on display screen is unusual. | Color on television display screen is unusual | Click here |
| | Television display remote commander check in display check mode | Click here |
| | Display signal circuit between multi-display controller and television display | Click here |
| | Replace GVIF cable between multi-display and television display assembly | - |
| | Display signal circuit between radio receiver and television display assembly | Click here |
| | Display signal circuit between video terminal and television display | Click here |
| | Replace multi-display selector | Click here |
| Navigation display appears on the multi-display, but does not appear on the television display. | Navigation display appears on multi-display, but does not appear or is not stabilized on television display | Click here |
| | Television display remote commander check in display check mode | Click here |
| | Display signal circuit between radio receiver and television display assembly | Click here |
| | Replace GVIF cable between multi-display and television display assembly | - |
| | Display signal circuit between video terminal and television display | Click here |
| | Remote controller battery | - |
| | Replace television display assembly | Click here |

| | | |
|---|---|---|
| | Replace multi-display selector | - |
| Only DVD or VTR screen is not displayed or not stabilized. | Only DVD or VTR screen does not appear or is not stabilized | Click here |
| | Multi-display controller power source circuit | Click here |
| | Replace multi-display selector | Click here |
| Only display screen input from the external device is not displayed or not stabilized. | Only display screen of external device does not appear or is not stabilized | Click here |
| | Multi-display controller power source circuit | Click here |
| | Display signal circuit between video terminal and television display | Click here |
| | Replace video terminal | - |
| | Replace multi-display selector | Click here |
| Television display does not turn on. | Television display does not turn on | Click here |
| | Television display power source circuit | Click here |
| | Replace television display assembly | Click here |
| Television display image has lines. | Television display image has lines | Click here |
| | Display signal circuit between radio receiver and television display assembly | Click here |
| | Display signal circuit between video terminal and television display | Click here |
| | Replace disc | - |
| | Replace television display assembly | Click here |
| | Check NTSC/PAL setting on RSE image quality adjustment screen | - |
| Television display screen is white. | Television display screen is white | Click here |
| | Display signal circuit between radio receiver and television display assembly | Click here |
| | Display signal circuit between video terminal and television display | Click here |
| | Replace disc | - |
| | Replace television display assembly | Click here |
| | Adjust contrast | - |

### Sound

| Symptom | Suspected Area | See page |
|---|---|---|
| Quality of sound from wireless headphone is poor or no sound can be heard. | Sound from wireless headphones is difficult to hear, cannot be heard, or quality is poor | Click here |
| | Multi-display controller power source circuit | Click here |
| | Television display power source circuit | Click here |
| | Sound signal circuit between multi-display controller and television display (Wireless headphone) | Click here |
| | Mute signal circuit between radio receiver and multi-display controller | Click here |
| | Replace television display assembly | Click here |
| | Replace multi-display selector | Click here |
| | Sound from wired headphones is difficult to hear, cannot be heard, or quality is poor | Click here |
| | Multi-display controller power source circuit | Click here |

| | | |
|---|---|---|
| Quality of sound from headphone connected to headphone terminal is poor or no sound can be heard. | Sound signal circuit between multi-display controller and headphone terminal | Click here |
| | Mute signal circuit between radio receiver and multi-display controller | Click here |
| | Replace multi-display selector | Click here |
| Only sound quality input from the external device is poor or no sound can be heard. | Only sound from external device is difficult to hear, cannot be heard, or quality is poor | Click here |
| | Sound signal circuit between video terminal and multi-display controller | Click here |
| | Replace video terminal | - |
| | Replace multi-display selector | Click here |

### Remote Control

| Symptom | Suspected Area | See page |
|---|---|---|
| A remote control system does not operate. | A remote control system does not operate | Click here |
| | Multi-display controller power source circuit | Click here |
| | Television display power source circuit | Click here |
| | AVC-LAN circuit | Click here |
| | Replace television display assembly | Click here |
| | Replace multi-display selector | - |

### Mechanical

| Symptom | Suspected Area | See page |
|---|---|---|
| Television display cannot open, close and tilt. | Television display cannot open, close and tilt | Click here |
| | Check remote controller battery | - |
| | Replace television display assembly | Click here |
| During television display open, close and tilt operation, operation sound is loud or abnormal sound occurs. | During television display open, close and tilt operation, operation sound is loud or abnormal sound occurs | Click here |
| | Replace television display assembly | Click here |

**for Preparation** Click here

**HINT:**

- **Use the table below to help determine the cause of the problem symptom. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**
- **Inspect the fuses and relays related to this system before inspecting the suspected areas below.**

**Display**

| Symptom | Suspected Area | See page |
|---|---|---|
| Black screen | Proceed to "Visual Mute Signal Circuit between Navigation ECU and Television Display" | Click here |
| | Proceed to "Display Signal Circuit between Television Display Assembly and Navigation Receiver Assembly" | Click here |
| | Television display assembly | Click here |
| | Display and Navigation Module Display | Click here |
| Color on display screen is not usual. | Adjust the settings for contrast, tint, color and brightness | - |
| | Proceed to "Operation Check (Color Bar Check)" | Click here |
| | Television display assembly | Click here |
| | Display and Navigation Module Display | Click here |
| Only DVD screen is not displayed or not stabilized. | Check and clean disc | Click here |
| | Proceed to "Visual Mute Signal Circuit between Navigation ECU and Television Display" | Click here |
| | Proceed to "DVD Image Signal Circuit between Radio Receiver and Navigation ECU" | Click here |
| | Proceed to "Display Signal Circuit between Television Display Assembly and Navigation Receiver Assembly" | Click here |
| | Television display assembly | Click here |
| | Radio receiver assembly | Click here |
| | Display and navigation module display | Click here |
| Only display screen of external device does not appear or is not stabilized. | Check if the external device is normal | - |
| | Proceed to "Display Signal Circuit between Navigation ECU and Video Terminal" | Click here |
| | Proceed to "Display Signal Circuit between Television Display Assembly and Navigation Receiver Assembly" | Click here |
| | Headphone terminal (Video terminal) | Click here |
| | Television display assembly | Click here |
| | Display and navigation module display | Click here |
| Television display does not turn on. | Television display power source circuit | Click here |
| | Proceed to "Television Display does not Turn ON" | Click here |

**Sound**

| Symptom | Suspected Area | See page |
|---|---|---|
| | | |

| | | |
|---|---|---|
| Quality of sound from wireless headphone is poor or no sound can be heard. | Proceed to "Sound from Wireless Headphones is Difficult to Hear, cannot be Heard, or Quality is Poor" | Click here |
| | MOST communication line | - |
| | Television display assembly | Click here |
| Quality of sound from headphone connected to headphone terminal is poor or no sound can be heard. | Proceed to "Sound from Wired Headphones is Difficult to Hear, cannot be Heard, or Quality is Poor" | Click here |
| | Proceed to "Sound Signal Circuit between Headphone Terminal and Television Display" | Click here |
| | MOST communication line | - |
| | Headphone terminal (Video terminal) | Click here |
| | Television display assembly | Click here |
| Only sound quality input from the external device is poor or no sound can be heard. | Proceed to "Sound Signal Circuit between Multi-Media Interface ECU and Video Terminal" | Click here |
| | Proceed to "Sound Signal Circuit between Navigation ECU and Multi-Media Interface ECU" | Click here |
| | MOST communication line | - |
| | Headphone terminal (Video terminal) | Click here |
| | Multi-media interface ECU | Click here |
| | Display and navigation module display | Click here |

### Remote Control

| Symptom | Suspected Area | See page |
|---|---|---|
| A remote control system does not operate. | Proceed to "A Remote Control System does not Operate" | Click here |
| | Television display assembly | Click here |

**for Preparation** Click here

**HINT:**

- **Use the table below to help determine the cause of the problem symptom. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**
- **Inspect the fuses and relays related to this system before inspecting the suspected areas below.**

**Display**

| Symptom | Suspected Area | See page |
|---|---|---|
| Black screen | Proceed to "Visual Mute Signal Circuit between Navigation ECU and Television Display" | Click here |
| | Proceed to "Display Signal Circuit between Television Display Assembly and Navigation Receiver Assembly" | Click here |
| | Television display assembly | Click here |
| | Display and Navigation Module Display | Click here |
| Color on display screen is not usual. | Adjust the settings for contrast, tint, color and brightness | - |
| | Proceed to "Operation Check (Color Bar Check)" | Click here |
| | Television display assembly | Click here |
| | Display and Navigation Module Display | Click here |
| Only DVD screen is not displayed or not stabilized. | Check and clean disc | Click here |
| | Proceed to "Visual Mute Signal Circuit between Navigation ECU and Television Display" | Click here |
| | Proceed to "DVD Image Signal Circuit between Radio Receiver and Navigation ECU" | Click here |
| | Proceed to "Display Signal Circuit between Television Display Assembly and Navigation Receiver Assembly" | Click here |
| | Television display assembly | Click here |
| | Radio receiver assembly | Click here |
| | Display and navigation module display | Click here |
| Only display screen of external device does not appear or is not stabilized. | Check if the external device is normal | - |
| | Proceed to "Display Signal Circuit between Navigation ECU and Video Terminal" | Click here |
| | Proceed to "Display Signal Circuit between Television Display Assembly and Navigation Receiver Assembly" | Click here |
| | Headphone terminal (Video terminal) | Click here |
| | Television display assembly | Click here |
| | Display and navigation module display | Click here |
| Television display does not turn on. | Television display power source circuit | Click here |
| | Proceed to "Television Display does not Turn ON" | Click here |

**Sound**

| Symptom | Suspected Area | See page |
|---|---|---|
| | | |

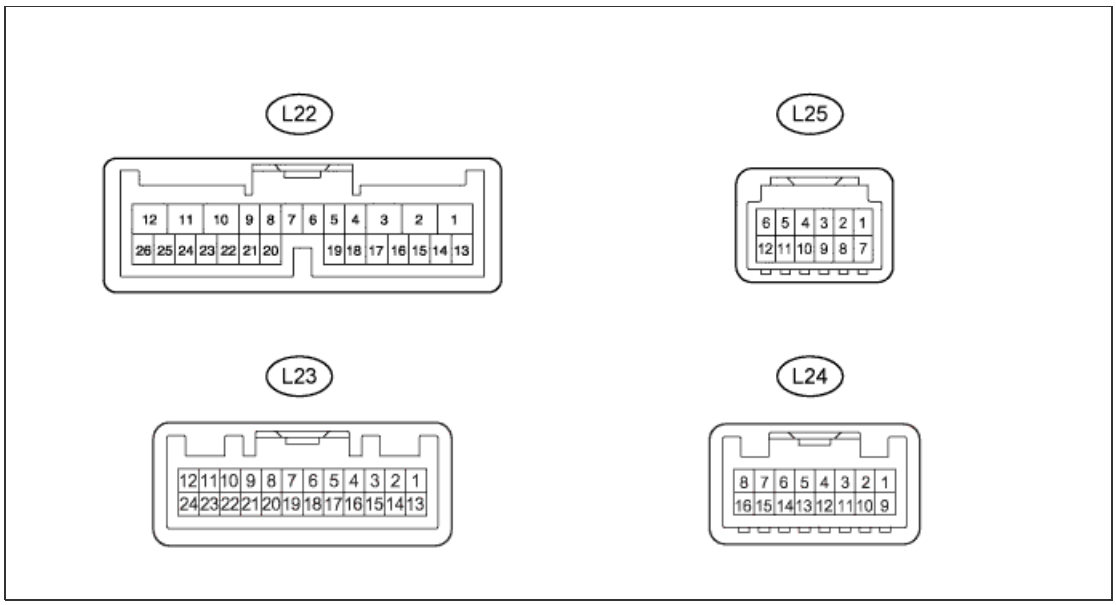
| | | |
|---|---|---|
| Quality of sound from wireless headphone is poor or no sound can be heard. | Proceed to "Sound from Wireless Headphones is Difficult to Hear, cannot be Heard, or Quality is Poor" | Click here |
| | MOST communication line | - |
| | Television display assembly | Click here |
| Quality of sound from headphone connected to headphone terminal is poor or no sound can be heard. | Proceed to "Sound from Wired Headphones is Difficult to Hear, cannot be Heard, or Quality is Poor" | Click here |
| | Proceed to "Sound Signal Circuit between Headphone Terminal and Television Display" | Click here |
| | MOST communication line | - |
| | Headphone terminal (Video terminal) | Click here |
| | Television display assembly | Click here |
| Only sound quality input from the external device is poor or no sound can be heard. | Proceed to "Sound Signal Circuit between Multi-Media Interface ECU and Video Terminal" | Click here |
| | Proceed to "Sound Signal Circuit between Navigation ECU and Multi-Media Interface ECU" | Click here |
| | MOST communication line | - |
| | Headphone terminal (Video terminal) | Click here |
| | Multi-media interface ECU | Click here |
| | Display and navigation module display | Click here |

### Remote Control

| Symptom | Suspected Area | See page |
|---|---|---|
| A remote control system does not operate. | Proceed to "A Remote Control System does not Operate" | Click here |
| | Television display assembly | Click here |

**for Preparation** Click here

## CHECK MULTI-DISPLAY SELECTOR (RSE ECU)




| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| L22-1 (+B) - L22-12 (GND) | L - W-B | Battery | Always | 11 to 14 V |
| L22-6 (ACC) - L22-12 (GND) | GR - W-B | Ignition (ACC) | Engine switch on (ACC) | 11 to 14 V |
| L25-6 (ADPI) - L22-12 (GND) | R - W-B | Ground | Always | Below 1 Ω |
| L22-11 (GND1) - Body ground | W - Body ground | Ground | Always | Below 1 Ω |
| L22-15 (SG1) - Body ground | Shielded - Body ground | Ground | Always | Below 1 Ω |
| L22-14 (HP1L) - L22-12 (GND) | W - W-B | Sound signal (Output) | RSE system playing (Headphone) | A waveform synchronized with sound is output |
| L22-13 (HP1R) - L22-12 (GND) | B - W-B | Sound signal (Output) | RSE system playing (Headphone) | A waveform synchronized with sound is output |
| L25-11 (SLDE) - Body ground | Shielded - Body ground | Ground | Always | Below 1 Ω |
| L25-9 (TVL+) - L22-12 (GND) | W - W-B | Sound signal | External device system playing (At time of VTR jack use) | A waveform synchronized with sound is output |
| L25-7 (TVR+) - L22-12 (GND) | B - W-B | Sound signal | External device system playing (At time of VTR jack use) | A waveform synchronized with sound is output |
| L22-5 (NTS3) - L22-12 (GND) | B - W-B | Display signal | Display on (Television display assembly) | Pulse generation (see waveform 1) |
| L22-4 (SGN3) - Body ground | W - Body ground | Ground | Always | Below 1 Ω |
| L22-19 (SLDC) - Body ground | Shielded - Body ground | Ground | Always | Below 1 Ω |
| L22-18 (SG2) - Body ground | Shielded - Body ground | Ground | Always | Below 1 Ω |
| L22-17 (HP2L) - L22-12 (GND) | W - W-B | Sound signal (Output) | RSE system playing (Headphone) | A waveform synchronized with sound is output |
| L22-16 (HP2R) - L22-12 (GND) | B - W-B | Sound signal (Output) | RSE system playing (Headphone) | A waveform synchronized with sound is output |
| L25-4 (SGN4) - Body ground | W - Body ground | Ground | Always | Below 1 Ω |
| L25-3 (NTS4) - L22-12 (GND) | B - W-B | Display signal | External device system displayed (At time of VTR jack use) | Pulse generation (see waveform 1) |
| L25-5 (SLDD) - Body ground | Shielded - Body ground | Ground | Always | Below 1 Ω |

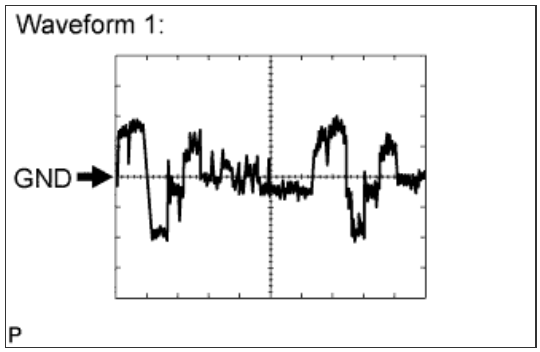
| | | | | |
|---|---|---|---|---|
| L23-13 (L6-) - L22-12 (GND) | R - W-B | Sound signal (Output) | DVD system playing | A waveform synchronized with sound is output |
| L23-14 (L6+) - L22-12 (GND) | G - W-B | Sound signal (Output) | DVD system playing | A waveform synchronized with sound is output |
| L23-15 (R6-) - L22-12 (GND) | W - W-B | Sound signal (Output) | DVD system playing | A waveform synchronized with sound is output |
| L23-16 (R6+) - L22-12 (GND) | B - W-B | Sound signal (Output) | DVD system playing | A waveform synchronized with sound is output |
| L23-17 (SLD6) - Body ground | Shielded - Body ground | Ground | Always | Below 1 Ω |
| L23-18 (MUT6) - L22-12 (GND) | G - W-B | Mute signal | RSE system playing → changing modes | 3.5 V or higher → Below 1 V |
| L22-2 (+B1) - L22-12 (GND) | L - W-B | Battery | Always | 11 to 14 V |
| L22-12 (GND) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| L22-7 (ACC1) - L22-12 (GND) | GR - W-B | Ignition (ACC) | Engine switch on (ACC) | 11 to 14 V |
| L23-19 (MUT4) - L22-12 (GND) | G - W-B | Mute signal | Disc player playing → changing modes | 3.5 V or higher → Below 1 V |
| L23-20 (L4-) - L22-12 (GND) | R - W-B | Sound signal (Input) | Disc player playing | A waveform synchronized with sound is output |
| L23-21 (L4+) - L22-12 (GND) | L - W-B | Sound signal (Input) | Disc player playing | A waveform synchronized with sound is output |
| L23-22 (R4-) - L22-12 (GND) | W - W-B | Sound signal (Input) | Disc player playing | A waveform synchronized with sound is output |
| L23-23 (R4+) - L22-12 (GND) | B - W-B | Sound signal (Input) | Disc player playing | A waveform synchronized with sound is output |
| L22-24 (NTS2) - L22-12 (GND) | B - W-B | DVD display signal | Disc player playing<br>DVD system displayed | Pulse generation<br>(see waveform 1) |
| L22-25 (SGN2) - Body ground | W - Body ground | Ground | Always | Below 1 Ω |
| L22-26 (SLDB) - L22 - 12 (GND) | Shielded - Body ground | Ground | Always | Below 1 Ω |
| L24-11 (CNT2) - L22-12 (GND) | V - W-B | Multi-display selector signal input 2 control signal | RSE system playing | 3.5 V or higher → Below 1 V |
| L24-12 (CNT3) - L22-12 (GND) | W - W-B | Multi-display selector signal input 3 control signal | RSE system playing | 3.5 V or higher → Below 1 V |
| L24-13 (CNT4) - L22-12 (GND) | R - W-B | Multi-display selector signal input 4 control signal | RSE system playing | 3.5 V or higher → Below 1 V |
| L24-14 (CNT5) - L22-12 (GND) | L - W-B | Multi-display selector signal input 5 control signal | RSE system playing | 3.5 V or higher → Below 1 V |
| L24-9 (ADPO) - L22-12 (GND) | B - W-B | Ground | Always | Below 1 Ω |
| L24-2 (L1-) - L22-12 (GND) | G - W-B | Sound signal (Output) | RSE system playing | A waveform synchronized with sound is output |
| L24-3 (L1+) - L22-12 (GND) | R - W-B | Sound signal (Output) | RSE system playing | A waveform synchronized with sound is output |
| L24-4 (R1-) - L22-12 (GND) | W - W-B | Sound signal (Output) | RSE system playing | A waveform synchronized with sound is output |
| L24-5 (R1+) - L22-12 (GND) | B - W-B | Sound signal (Output) | RSE system playing | A waveform synchronized with sound is output |
| L24-1 (SLD1) - Body ground | Shielded - Body ground | Ground | Always | Below 1 Ω |
| L24-6 (MUT1) - L22-12 (GND) | G - W-B | Mute signal | RSE system playing → changing modes | 3.5 V or higher → Below 1 V |

a. Using an oscilloscope, check the waveform.

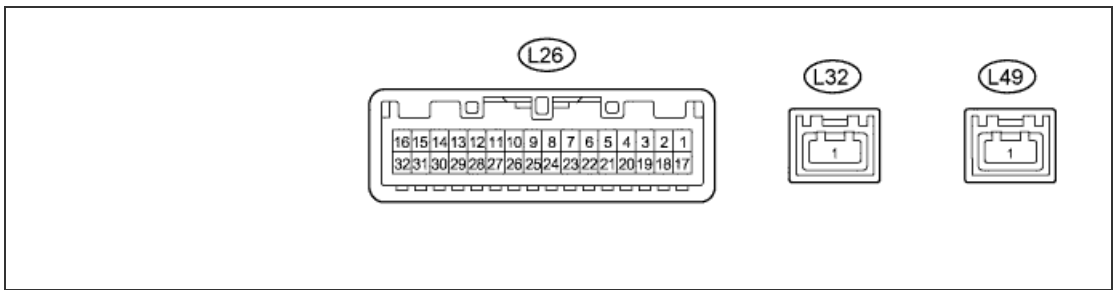
**Waveform 1 (reference)**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | • L22-5 (NTS3) - Body ground<br>• L22-24 (NTS2) - Body ground<br>• L25-3 (NTS4) - Body ground |

| | |
|---|---|
| Tool Setting | 200 mV/DIV., 10 µsec./DIV. |
| Condition | DVD displayed on television display |




## CHECK TELEVISION DISPLAY ASSEMBLY

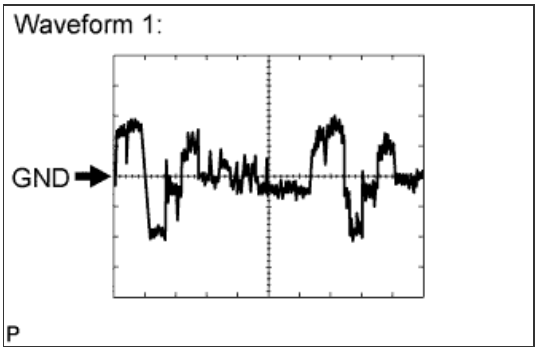



| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| L26-16 (GND) - Body ground | W - Body ground | Ground | Always | Below 1 Ω |
| L26-3 (R1+) - L26-16 (GND) | B - W | Sound signal (Input) | RSE system sounding (Headphone) | A waveform synchronized with sound is output |
| L26-4 (R1-) - L26-16 (GND) | W - W | Sound signal (Input) | RSE system sounding (Headphone) | A waveform synchronized with sound is output |
| L26-5 (L1+) - L26-16 (GND) | R - W | Sound signal (Input) | RSE system sounding (Headphone) | A waveform synchronized with sound is output |
| L26-6 (L1-) - L26-16 (GND) | G - W | Sound signal (Input) | RSE system sounding (Headphone) | A waveform synchronized with sound is output |
| L26-29 (ACC) - L26-16 (GND) | GR - W | Ignition (ACC) | Engine switch on (ACC) | 11 to 14 V |
| L26-14 (+B) - L26-16 (GND) | L - W | Battery | Always | 11 to 14 V |
| L26-19 (TX1+) - L26-16 (GND) | W - W | AVC-LAN communication signal | Engine switch on (ACC) | 2 to 3 V |
| L26-20 (TX1-) - L26-16 (GND) | L - W | AVC-LAN communication signal | Engine switch on (ACC) | 2 to 3 V |
| L26-8 (SLD) - Body ground | Shielded - Body ground | Ground | Always | Below 1 Ω |
| L26-10 (SGN1) - Body ground | W - Body ground | Ground | Always | Below 1 Ω |
| L26-9 (NTSC) - L26-16 (GND) | B - W | Display signal | Television display displayed | Pulse generation (see waveform 1) |
| L26-11 (ADPG) - L26-16 (GND) | B - W | Ground | Always | Below 1 Ω |
| L26-23 (MUT1) - L26-16 (GND) | G - W | Mute signal | RSE system playing → changing modes | 3.5 V or higher → Below 1 V |
| L26-25 (CNT2) - L26-16 (GND) | V - W | Multi-display selector signal input 2 control signal | RSE system playing | 3.5 V or higher → Below 1 V |
| L26-26 (CNT3) - L26-16 (GND) | W - W | Multi-display selector signal input 3 control signal | RSE system playing | 3.5 V or higher → Below 1 V |
| L26-27 (CNT4) - L26-16 (GND) | R - W | Multi-display selector signal input 4 control signal | RSE system playing | 3.5 V or higher → Below 1 V |
| L26-28 (CNT5) - L26-16 (GND) | L - W | Multi-display selector signal input 5 control signal | RSE system playing | 3.5 V or higher → Below 1 V |
| L32-1 (GVIF) - L26-16 (GND) | B - W | Display image signal | - | - |
| L49-1 (GVIF) - L26-16 (GND) | B - W | Display image signal | - | - |

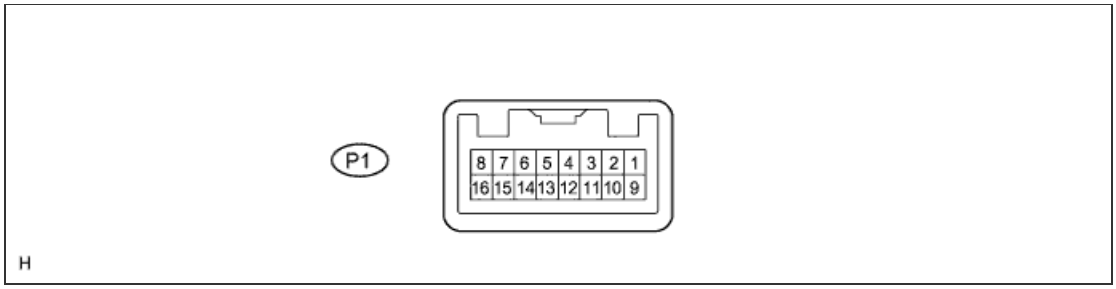
a. Using an oscilloscope, check the waveform.

**Waveform 1 (reference)**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | L26-9 (NTSC) - Body ground |
| Tool Setting | 200 mV/DIV., 10 µsec./DIV. |
| Condition | DVD displayed on television display |




**CHECK HEADPHONE TERMINAL**



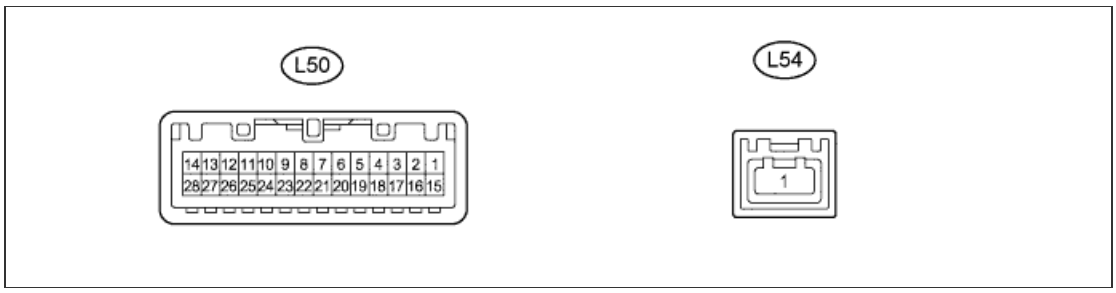

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| P1-9 (HP1R) - P1-11 (SGN1) | B - Shielded | Sound signal (Input) | External device system sounding (At time of VTR jack use) | A waveform synchronized with sound is output |
| P1-10 (HP1L) - P1-11 (SGN1) | W - Shielded | Sound signal (Input) | External device system sounding (At time of VTR jack use) | A waveform synchronized with sound is output |
| P1-11 (SGN1) - Body ground | Shielded - Body ground | Ground | Always | Below 1 Ω |
| P1-1 (HP2R) - P1-3 (SGN2) | B - Shielded | Sound signal (Input) | External device system sounding (At time of VTR jack use) | A waveform synchronized with sound is output |
| P1-2 (HP2L) - P1-3 (SGN2) | W - Shielded | Sound signal (Input) | External device system sounding (At time of VTR jack use) | A waveform synchronized with sound is output |
| P1-3 (SGN2) - Body ground | Shielded - Body ground | Ground | Always | Below 1 Ω |
| P1-5 (VAR+) - Body ground | B - Body ground | External audio right sound output signal | External device system sounding (At time of VTR jack use) | A waveform synchronized with sound is output |
| P1-6 (VAL+) - Body ground | W - Body ground | External audio left sound output signal | External device system sounding (At time of VTR jack use) | A waveform synchronized with sound is output |
| P1-7 (VA-) - Body ground | Shielded - Body ground | Ground | Always | Below 1 Ω |
| P1-8 (ADPG) - Body ground | R - Body ground | Ground | Always | Below 1 Ω |
| P1-13 (VV+) - Body ground | B - Body ground | Display signal | VTR displayed | Pulse generation |
| P1-14 (VV-) - Body ground | W - Body ground | Ground | Always | Below 1 Ω |
| P1-15 (SG) - Body ground | Shielded - Body ground | Ground | Always | Below 1 Ω |

**CHECK RADIO RECEIVER (Click here)**

**CHECK MULTI-DISPLAY (Click here)**

**for Preparation** Click here

## TELEVISION DISPLAY ASSEMBLY




| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| L50-1 (MI+) | W | MOST communication signal | - | - |
| L50-2 (MI-) | B | MOST communication signal | - | - |
| L50-3 (SLDI) - Body ground | BR - Body ground | Shield ground | Always | Below 1 V |
| L50-4 (SLDO) - Body ground | BR - Body ground | Shield ground | Always | Below 1 V |
| L50-5 (MO-) | B | MOST communication signal | - | - |
| L50-6 (MO+) | W | MOST communication signal | - | - |
| L50-7 (WUI) - L50-10 (GND) | P - W-B | MOST communication wake up signal (Input) | Engine switch on (ACC) | 4.5 V or higher |
| | | | Engine switch off | Below 1 V |
| L50-9 (VMTR) - L50-10 (GND) | G - W-B | Mute signal | RSE is playing → Source is changed | 4 V or higher → Below 0.7 V → 4 V or higher |
| L50-10 (GND) - Body ground | W-B - Body ground | Ground | Always | Below 1 V |
| L50-11 (GND2) - Body ground | W-B - Body ground | Ground | Always | Below 1 V |
| L50-14 (+B2) - L50-10 (GND) | L - W-B | Battery | Always | 11 to 14 V |
| L50-15 (HP1L) - L50-10 (GND) | W - W-B | RSE sound signal | RSE is playing | Waveform synchronized with sound is output. |
| L50-16 (SLD1) - L50-10 (GND) | BR - W-B | Shield ground | Always | Below 1 V |
| L50-17 (HP1R) - L50-10 (GND) | B - W-B | RSE sound signal | RSE is playing | Waveform synchronized with sound is output. |
| L50-18 (HP2L) - L50-10 (GND) | W - W-B | RSE sound signal | RSE is playing | Waveform synchronized with sound is output. |
| L50-19 (SLD2) - L50-10 (GND) | BR - W-B | Shield ground | Always | Below 1 V |
| L50-20 (HP2R) - L50-10 (GND) | B - W-B | RSE sound signal | RSE is playing | Waveform synchronized with sound is output. |
| L50-21 (SLD) - L50-10 (GND) | Shield - W-B | Shield ground | Always | Below 1 V |
| L50-22 (SGN1) - L50-10 (GND) | W - W-B | Display signal ground | Always | Below 1 V |
| L50-23 (NTSC) - L50-22 (SGN1) | B - W | Display signal | RSE is playing | Waveform synchronized with display signals is output |
| L50-28 (+B) - L50-10 (GND) | L - W-B | Battery | Always | 11 to 14 V |
| L54-1 (GVIF) | B | Digital communication signal | - | - |

## RADIO RECEIVER ASSEMBLY (Click here)

DISPLAY AND NAVIGATION MODULE DISPLAY (NAVIGATION SYSTEM for HDD) ( Click here)

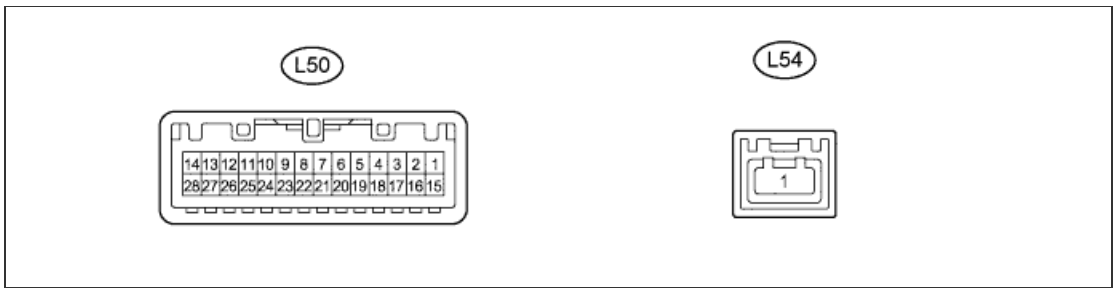
DISPLAY AND NAVIGATION MODULE DISPLAY (NAVIGATION SYSTEM for DVD) ( Click here)

DISPLAY AND NAVIGATION MODULE DISPLAY (ELECTRO MULTI VISION SYSTEM) ( Click here)

STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**for Preparation** Click here

## TELEVISION DISPLAY ASSEMBLY




| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| L50-1 (MI+) | W | MOST communication signal | - | - |
| L50-2 (MI-) | B | MOST communication signal | - | - |
| L50-3 (SLDI) - Body ground | BR - Body ground | Shield ground | Always | Below 1 V |
| L50-4 (SLDO) - Body ground | BR - Body ground | Shield ground | Always | Below 1 V |
| L50-5 (MO-) | B | MOST communication signal | - | - |
| L50-6 (MO+) | W | MOST communication signal | - | - |
| L50-7 (WUI) - L50-10 (GND) | P - W-B | MOST communication wake up signal (Input) | Engine switch on (ACC) | 4.5 V or higher |
| | | | Engine switch off | Below 1 V |
| L50-9 (VMTR) - L50-10 (GND) | G - W-B | Mute signal | RSE is playing → Source is changed | 4 V or higher → Below 0.7 V → 4 V or higher |
| L50-10 (GND) - Body ground | W-B - Body ground | Ground | Always | Below 1 V |
| L50-11 (GND2) - Body ground | W-B - Body ground | Ground | Always | Below 1 V |
| L50-14 (+B2) - L50-10 (GND) | L - W-B | Battery | Always | 11 to 14 V |
| L50-15 (HP1L) - L50-10 (GND) | W - W-B | RSE sound signal | RSE is playing | Waveform synchronized with sound is output. |
| L50-16 (SLD1) - L50-10 (GND) | BR - W-B | Shield ground | Always | Below 1 V |
| L50-17 (HP1R) - L50-10 (GND) | B - W-B | RSE sound signal | RSE is playing | Waveform synchronized with sound is output. |
| L50-18 (HP2L) - L50-10 (GND) | W - W-B | RSE sound signal | RSE is playing | Waveform synchronized with sound is output. |
| L50-19 (SLD2) - L50-10 (GND) | BR - W-B | Shield ground | Always | Below 1 V |
| L50-20 (HP2R) - L50-10 (GND) | B - W-B | RSE sound signal | RSE is playing | Waveform synchronized with sound is output. |
| L50-21 (SLD) - L50-10 (GND) | Shield - W-B | Shield ground | Always | Below 1 V |
| L50-22 (SGN1) - L50-10 (GND) | W - W-B | Display signal ground | Always | Below 1 V |
| L50-23 (NTSC) - L50-22 (SGN1) | B - W | Display signal | RSE is playing | Waveform synchronized with display signals is output |
| L50-28 (+B) - L50-10 (GND) | L - W-B | Battery | Always | 11 to 14 V |
| L54-1 (GVIF) | B | Digital communication signal | - | - |

## RADIO RECEIVER ASSEMBLY (Click here)

DISPLAY AND NAVIGATION MODULE DISPLAY (NAVIGATION SYSTEM for HDD) ( Click here)

DISPLAY AND NAVIGATION MODULE DISPLAY (NAVIGATION SYSTEM for DVD) ( Click here)

DISPLAY AND NAVIGATION MODULE DISPLAY (ELECTRO MULTI VISION SYSTEM) ( Click here)

STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**for Preparation** Click here

**HINT:**

Refer to Navigation System (for HDD) (Click here).

Refer to Navigation System (for DVD) (Click here).

Refer to Electro Multi Vision System (Click here).

**for Preparation** Click here

**HINT:**

Refer to Navigation System (for HDD) (Click here).

Refer to Navigation System (for DVD) (Click here).

Refer to Electro Multi Vision System (Click here).

**for Preparation** Click here

| DTC Code | Detection Item | Trouble Area | See page |
|---|---|---|---|
| B15A5 | Rear Seat Entertainment System Malfunction | Television Display Assembly | Click here |
| B15B0 | Display Screen Malfunction | 1. Television Display Assembly<br>2. Display and Navigation Module Display | Click here |

**for Preparation** Click here

### Rear Seat Entertainment System

| DTC Code | Detection Item | Trouble Area | See page |
|---|---|---|---|
| B15A5 | Rear Seat Entertainment System Malfunction | Television Display Assembly | Click here |
| B15B0 | Display Screen Malfunction | - Television Display Assembly<br>- Display and Navigation Module Display | Click here |

## DTC B15A5 Rear Seat Entertainment System Malfunction

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a malfunction occurs in the television display assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A5 | • Bus or sub-microprocessor malfunction<br>• RAM malfunction<br>• Internal hardware malfunction | Television display assembly |

### INSPECTION PROCEDURE

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

**2.RECHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC B15A5 is not output. | A |
| DTC B15A5 is output. | B |

B → REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

A

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC B15B0 Display Screen Malfunction

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a malfunction occurs in the television display assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15B0 | When either condition below is met:<br>• Picture circuit (TFT unit) malfunction<br>• Back light malfunction (excess current) | • Television display assembly<br>• Display and Navigation Module Display |

### INSPECTION PROCEDURE

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.RECHECK DTC**

a. Recheck for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC B15B0 is not output. | A |
| DTC B15B0 is output. | B |

**HINT:**

- **This DTC is output from the display and navigation module display or television display assembly.**
- **When the DTC is checked using the intelligent tester, whether the DTC is output from the display and navigation module display, or whether it is output from the television display assembly, cannot be distinguished. For this reason, recheck the DTC using the "System Check Mode" screen.**

i. Enter diagnostic mode and display the "Service Menu" screen ( Click here).

ii. Select "Failure Diagnosis Service Check" on the "Service Menu" screen to display the "Failure Diagnosis Service Check" screen.

iii. Select "Service Check Mode" on the "Failure Diagnosis Service Check" screen and perform the service check.

iv. Recheck for DTCs and proceed to the next step according to the table below ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is not output | A |
| DTC is output from the display and navigation module display. | B |
| DTC is output from a television display assembly. | C |

**B** → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

**C** → **REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)**

**A**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC B15A5 Rear Seat Entertainment System Malfunction

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a malfunction occurs in the television display assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A5 | • Bus or sub-microprocessor malfunction<br>• RAM malfunction<br>• Internal hardware malfunction | Television display assembly |

### INSPECTION PROCEDURE

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

**2.RECHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC B15A5 is not output. | A |
| DTC B15A5 is output. | B |

B → REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

A

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC B15B0 Display Screen Malfunction

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a malfunction occurs in the television display assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15B0 | When either condition below is met:<br>• Picture circuit (TFT unit) malfunction<br>• Back light malfunction (excess current) | • Television display assembly<br>• Display and Navigation Module Display |

### INSPECTION PROCEDURE

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.RECHECK DTC**

a. Recheck for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC B15B0 is not output. | A |
| DTC B15B0 is output. | B |

**HINT:**

- **This DTC is output from the display and navigation module display or television display assembly.**
- **When the DTC is checked using the intelligent tester, whether the DTC is output from the display and navigation module display, or whether it is output from the television display assembly, cannot be distinguished. For this reason, recheck the DTC using the "System Check Mode" screen.**

i. Enter diagnostic mode and display the "Service Menu" screen ( Click here).

ii. Select "Failure Diagnosis Service Check" on the "Service Menu" screen to display the "Failure Diagnosis Service Check" screen.

iii. Select "Service Check Mode" on the "Failure Diagnosis Service Check" screen and perform the service check.

iv. Recheck for DTCs and proceed to the next step according to the table below ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is not output | A |
| DTC is output from the display and navigation module display. | B |
| DTC is output from a television display assembly. | C |

**B** → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

**C** → **REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)**

**A**

**USE SIMULATION METHOD TO CHECK (Click here)**

**for Preparation** Click here

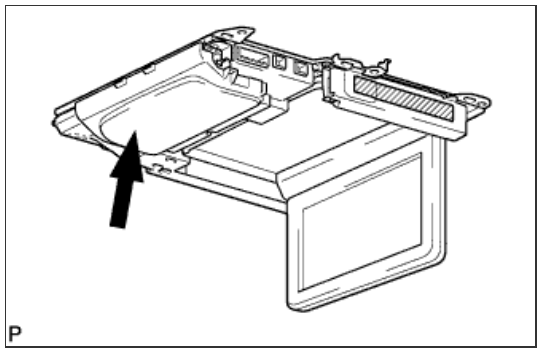
## INSPECTION PROCEDURE

### 1.CLEAN INFRARED RAY RECEIVING PORTION

a. Clean the infrared ray receiving portion on the television display.

b. Check whether the same malfunction occurs.

**OK:**
**The function returns to normal.**




NG → Go to step 2

OK →

### END

### 2.CHECK SYSTEM

a. Check that the remote control operation of the rear system is not locked by the radio receiver or the multi-display.

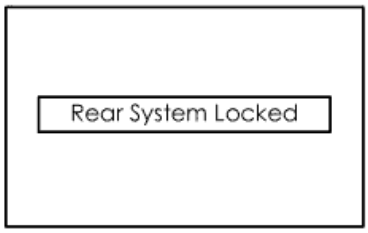
i. Check if "Rear System Locked" appears on the television display.

**OK:**
**The message does not appear.**

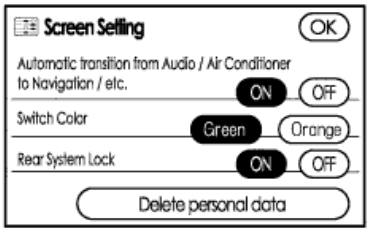
**HINT:**

If the rear system is locked and the remote controller is used in the rear seat area, an operation not possible message (for example, "Rear System Locked") is displayed. If the message is displayed, enter the multi-display screen setting, and change "Rear System Lock" to OFF.

for Television Display:




for Multi-display:




NG → RELEASE LOCK

OK →

### 3.CHECK REMOTE CONTROLLER (for BATTERY)

a. Check that the dry-cell battery of the remote controller is not depleted.

**OK:**

**Battery is not depleted.**

NG → REPLACE REMOTE CONTROLLER BATTERY

OK

## 4.CHECK TELEVISION DISPLAY ASSEMBLY

a. Check if the television display is open.

**OK:**
**Open.**

**HINT:**

When the television display is closed, some switches on the remote controller cannot be used.

NG → OPEN TELEVISION DISPLAY ASSEMBLY

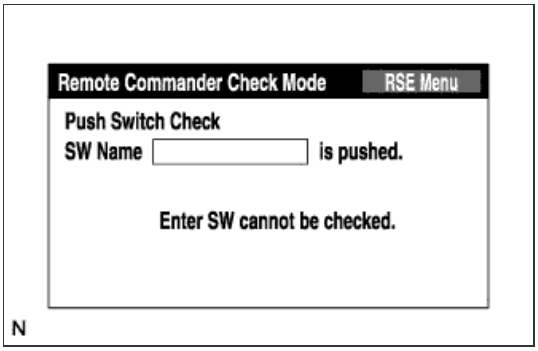
OK

## 5.CHECK REMOTE COMMANDER (DISPLAY CHECK MODE)

a. Enter the "Display Check" mode (Remote Commander Check Mode) (Click here).

b. Operate the abnormal switch and check if the switch name and status are correctly displayed.

**OK:**
**The switch name and status are correctly displayed as operated.**




NG → PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

REPLACE MULTI-DISPLAY SELECTOR (Click here)

**for Preparation** Click here

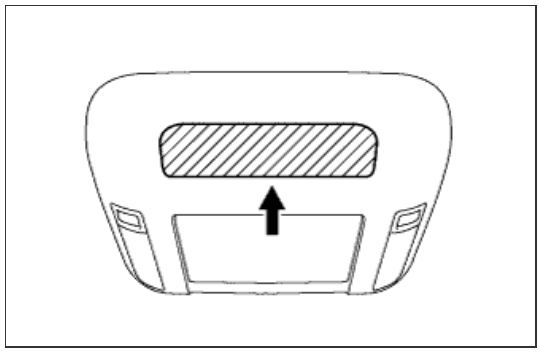
## INSPECTION PROCEDURE

### 1.CLEAN INFRARED RAY RECEIVING PORTION

a. Clean the infrared ray receiving portion on the television display assembly.

b. Check whether the same malfunction occurs.

**OK:**
**The function returns to normal.**



NG → Go to step 2

OK →

### END

### 2.CHECK SYSTEM

a. Check that the remote control operation of the rear system is not locked by the display and navigation module display.

i. Check if "Rear System Locked" appears on the television display.

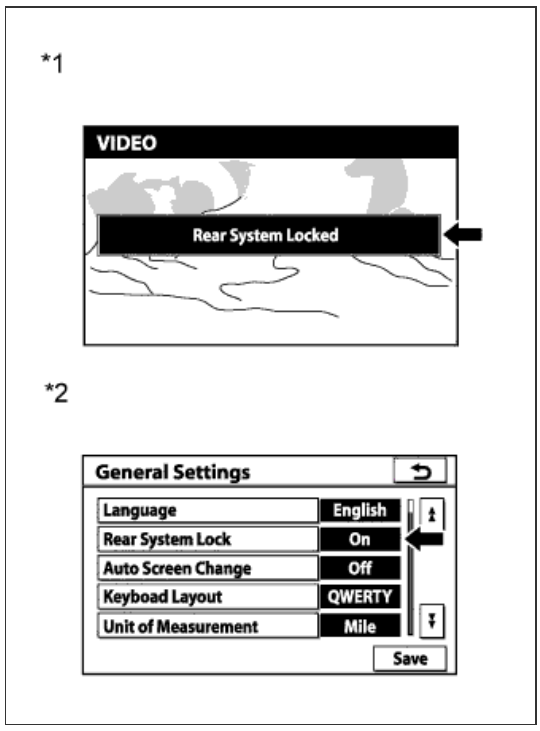
**OK:**
**The message does not appear.**

**HINT:**

If the rear system is locked and the remote control is used in the rear seat area, an operation not possible message (for example, "Rear System Locked") is displayed. If the message is displayed, enter the display and navigation module display screen setting, and change "Rear System Lock" to Off.

**Text in Illustration**

| | |
|---|---|
| *1 | Television Display Assembly |
| *2 | Display and Navigation Module Display |




NG → RELEASE LOCK

OK →

### 3.CHECK REMOTE CONTROL (BATTERY)

a. Check that the dry-cell battery of the remote control is not depleted.

**OK:**

**Battery is not depleted.**

NG → REPLACE REMOTE CONTROL BATTERY

OK

**4.REPLACE REMOTE CONTROL**

a. Replace the remote control with a new or known good one.

b. Check that the remote control system operates normally.

**OK:**
**The remote control system operates normally.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

**END (REMOTE CONTROL WAS DEFECTIVE)**

**for Preparation** Click here

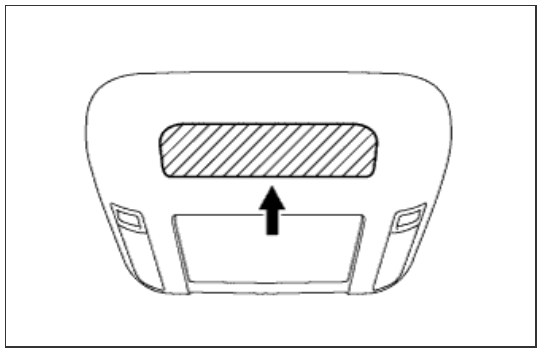
## INSPECTION PROCEDURE

### 1.CLEAN INFRARED RAY RECEIVING PORTION

a. Clean the infrared ray receiving portion on the television display assembly.

b. Check whether the same malfunction occurs.

**OK:**
**The function returns to normal.**



NG → Go to step 2

OK →

### END

### 2.CHECK SYSTEM

a. Check that the remote control operation of the rear system is not locked by the display and navigation module display.

i. Check if "Rear System Locked" appears on the television display.

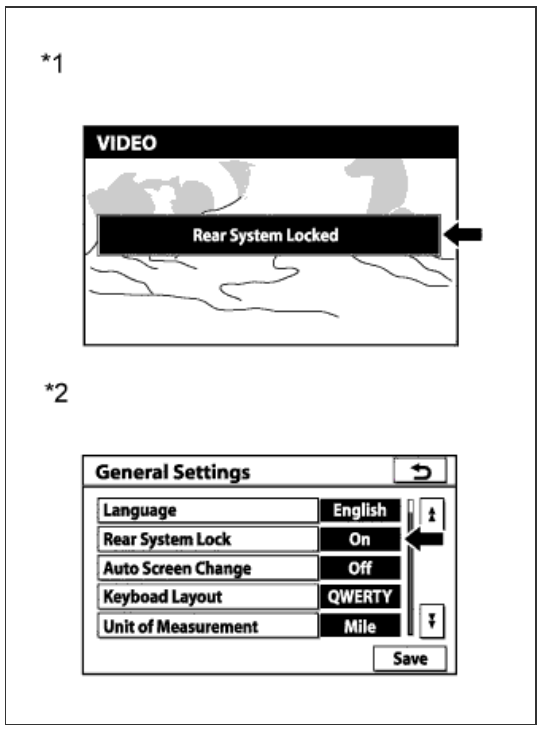
**OK:**
**The message does not appear.**

**HINT:**

If the rear system is locked and the remote control is used in the rear seat area, an operation not possible message (for example, "Rear System Locked") is displayed. If the message is displayed, enter the display and navigation module display screen setting, and change "Rear System Lock" to Off.

**Text in Illustration**

| | |
|---|---|
| *1 | Television Display Assembly |
| *2 | Display and Navigation Module Display |




NG → RELEASE LOCK

OK →

### 3.CHECK REMOTE CONTROL (BATTERY)

a. Check that the dry-cell battery of the remote control is not depleted.

**OK:**

**Battery is not depleted.**

NG → REPLACE REMOTE CONTROL BATTERY

OK

**4.REPLACE REMOTE CONTROL**

a. Replace the remote control with a new or known good one.

b. Check that the remote control system operates normally.

**OK:**
**The remote control system operates normally.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

**END (REMOTE CONTROL WAS DEFECTIVE)**

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK MODE IN WHICH COLOR BECAME UNUSUAL

a. Check the mode in which the color became unusual.

**Result**

| Result | Proceed to |
|---|---|
| Unusual in all modes | A |
| Only during DVD and DVD-P (rear seat only) image | B |
| During VTR, DVD and DVD-P (rear seat only) image | C |
| Only during VTR image | D |

B → Go to step 5

C → Go to step 7

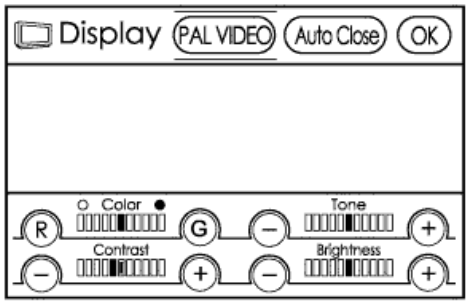
D → Go to step 8

A

### 2.CHECK DISPLAY (RSE IMAGE QUALITY ADJUSTMENT SCREEN)

a. Press the remote controller DISPLAY switch, and adjust the settings for contrast, tint, color and brightness.

**OK:**
**Returned to normal through image quality adjustment.**




NG → Go to step 3

OK

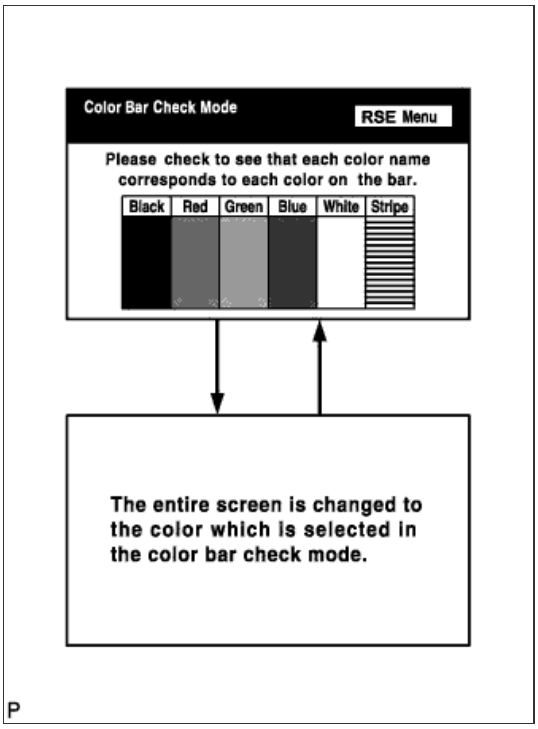
END

### 3.CHECK COLOR BAR (DISPLAY CHECK MODE)

a. Enter the "Display Check" mode (Color Bar Check) (Click here).

b. Check that the color bars match the displayed names.

**OK:**
**Color bars match the displayed names.**



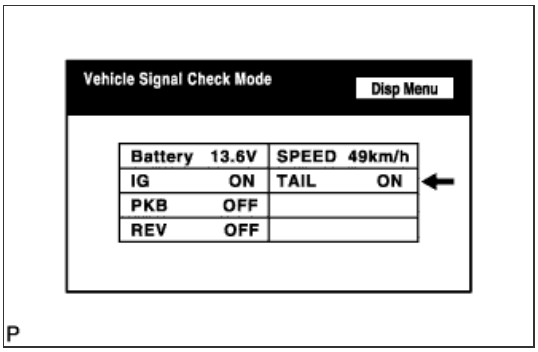

NG → REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

OK

## 4.CHECK VEHICLE SIGNAL (DISPLAY CHECK MODE)

a. Enter the "Display Check" mode (Vehicle Signal Check Mode) ( Click here).

b. Check that the display changes between ON and OFF according to the light control switch operation.




**OK:**

| Light Control Switch | Display |
|---|---|
| Tail or on | ON |
| Off | OFF |

**HINT:**

The display is updated once per second. As a result, it is normal for the display to lag behind the actual change in the switch.

NG → GO TO DISPLAY DOES NOT DIM WHEN LIGHT CONTROL SWITCH IS TURNED ON (Click here)

OK

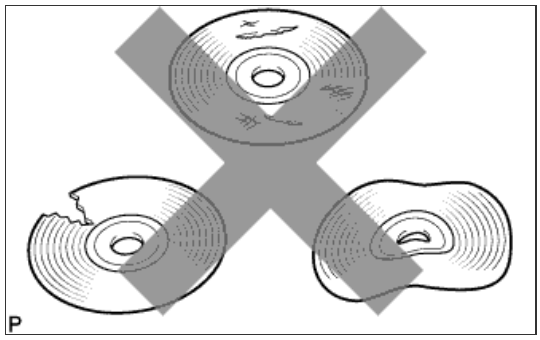
PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

## 5.CHECK DISC

a. Check that the disc is not deformed or cracked.

**OK:**

**No deformation or cracks on the disc.**



NG → CHANGE DISC

OK

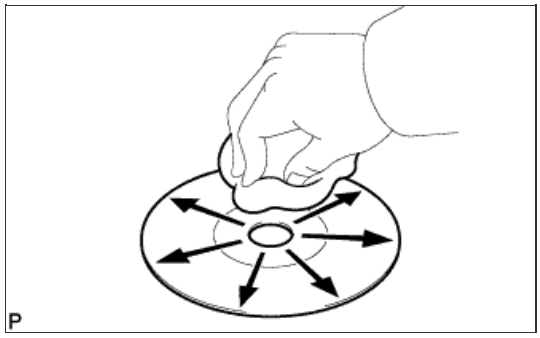
## 6.DISC CLEANING

a. Disc cleaning

i. If dirt is on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

**NOTICE:**

Do not use a conventional record cleaner or antistatic preservative.



NEXT

GO TO DISPLAY SIGNAL CIRCUIT BETWEEN RADIO RECEIVER AND TELEVISION DISPLAY ASSEMBLY ( **Click here**)

## 7.CHECK DISPLAY SIGNAL CIRCUIT

a. Inspect the display signal circuits below.

i. Inspect the display signal circuit between the radio receiver and television display ( Click here).

ii. Inspect the display signal circuit between the video terminal and television display ( Click here).

b. If the display signal circuit is operating normally, proceed to the next step.

NEXT

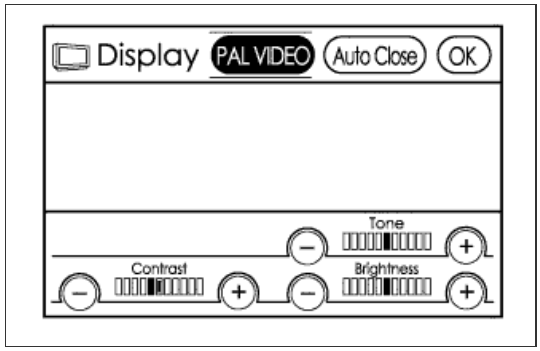
REPLACE TELEVISION DISPLAY ASSEMBLY (**Click here**)

## 8.CHECK NTSC/PAL SIGNAL (RSE IMAGE QUALITY ADJUSTMENT SCREEN)

a. During the VTR image, check if changing the NTSC/PAL signal by pressing the remote controller DISPLAY switch, entering the RSE image adjustment screen, and pressing the PAL VIDEO button returns the image to normal.

**OK:**

**Returned to normal after pressing image quality adjustment screen PAL VIDEO button.**




NG → Go to step 9

OK

END

9.REPLACE EXTERNAL DEVICE WITH NORMAL ONE AND CHECK

a. Replace the external device with a normal one and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

NG → GO TO DISPLAY SIGNAL CIRCUIT BETWEEN VIDEO TERMINAL AND TELEVISION DISPLAY (Click here)

OK

END (EXTERNAL DEVICE IS DEFECTIVE)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK TELEVISION DISPLAY ASSEMBLY (POWER)

a. Check if the power of the television display is on.

**OK:**
**Power is on.**

NG → TURN TELEVISION DISPLAY ASSEMBLY POWER ON

OK

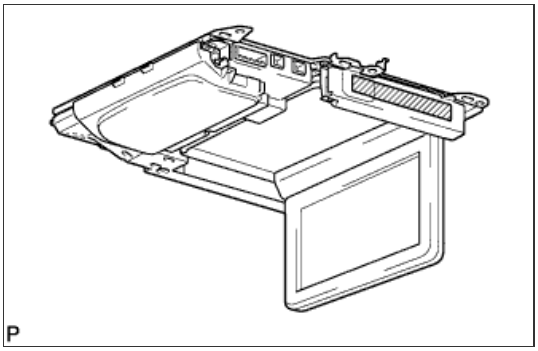
### 2.CHECK TELEVISION DISPLAY ASSEMBLY (OPENING ANGLE)

a. Check if the television display is open 90° or more.

**OK:**
**Open 90° or more.**

**HINT:**

The television display tilt can be adjusted to 4 positions: 90°, 100°, 110° and 120°.




NG → OPEN 90° OR MORE

OK

### 3.CHECK MODE IN WHICH BLACK SCREEN OCCURRED

a. Check the mode in which the black screen occurred.

**Result**

| Result | Proceed to |
|---|---|
| During navigation image, screen turned black | A |
| During DVD image, screen turned black | B |
| During VTR image, screen turned black | C |

B → Go to step 6

C → Go to step 9

A

### 4.CHECK DISPLAY SIGNAL CIRCUIT BETWEEN MULTI-DISPLAY AND TELEVISION DISPLAY ASSEMBLY

a. Refer to the Display Signal Circuit between Multi-display and Television Display ( Click here). If the display signal circuit is operating normally, proceed to the next step.

NEXT

5.CHECK AVC-LAN CIRCUIT

a. Refer to the AVC-LAN Circuit (Click here). If the AVC-LAN circuit is operating normally, proceed to the next step.

NEXT

REPLACE TELEVISION DISPLAY ASSEMBLY (**Click here**)

6.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY - BODY GROUND)

a. Disconnect the L26 display connector.

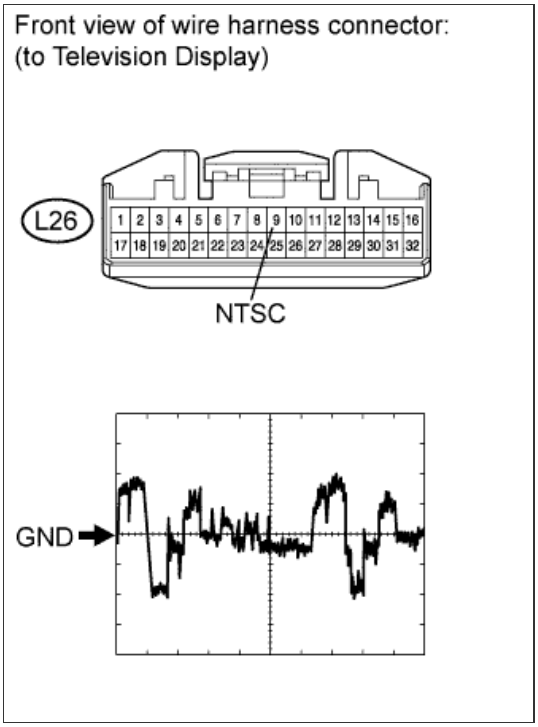
b. Check the waveform of the television display using an oscilloscope.

**Measurement Condition**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | L26-9 (NTSC) - Body ground |
| Tool Setting | 200 mV/DIV., 10 µsec./DIV. |
| Condition | DVD displayed on television display |

**OK:**

**Waveform is as shown in the illustration.**




NG → Go to step 7

OK

REPLACE TELEVISION DISPLAY ASSEMBLY (**Click here**)

7.DISPLAY SIGNAL CIRCUIT BETWEEN RADIO RECEIVER AND TELEVISION DISPLAY ASSEMBLY

a. Refer to the Display Signal Circuit between Radio Receiver and Television Display ( Click here). If the display signal circuit is operating normally, proceed to the next step.

NEXT

8.CHECK AVC-LAN CIRCUIT

a. Refer to the AVC-LAN Circuit (Click here). If the AVC-LAN circuit is operating normally, proceed to the next step.

NEXT

REPLACE TELEVISION DISPLAY ASSEMBLY (**Click here**)

9.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY - BODY GROUND)

a. Disconnect the L26 display connector.

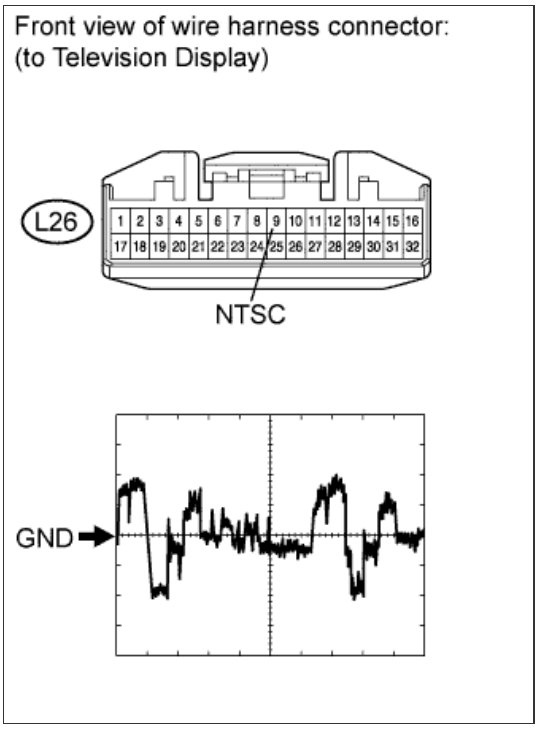
b. Check the waveform of the television display using an oscilloscope.

**Measurement Condition**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | L26-9 (NTSC) - Body ground |
| Tool Setting | 200 mV/DIV., 10 µsec./DIV. |
| Condition | DVD displayed on television display |

**OK:**

**Waveform is as shown in the illustration.**




NG → Go to step 10

OK

REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

## 10.CHECK DISPLAY SIGNAL CIRCUIT BETWEEN VIDEO TERMINAL AND TELEVISION DISPLAY

a. Refer to the Display Signal Circuit between Video Terminal and Television Display ( Click here). If the display signal circuit is operating normally, proceed to the next step.

NEXT

## 11.CHECK AVC-LAN CIRCUIT

a. Refer to the AVC-LAN Circuit (Click here). If the AVC-LAN circuit is operating normally, proceed to the next step.

NEXT

REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK MODE IN WHICH WHITE SCREEN OCCURRED

a. Check the mode in which the white screen occurred.

**Result**

| Result | Proceed to |
|---|---|
| Occurs in all modes | A |
| Only during DVD and DVD-P (rear seat only) image | B |

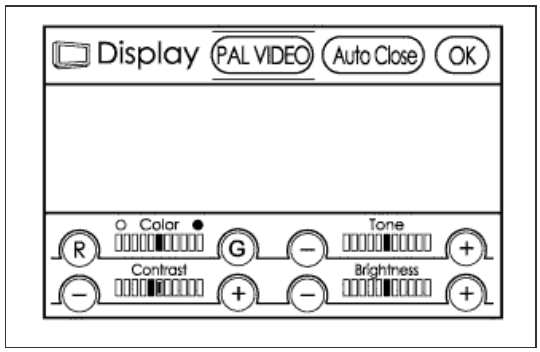
B → Go to step 3

A

### 2.CHECK DISPLAY (RSE IMAGE QUALITY ADJUSTMENT SCREEN)

a. Press the remote controller DISPLAY switch, and adjust the settings for contrast, tint and color.

**OK:**
**Returned to normal through image quality adjustment.**




NG → REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

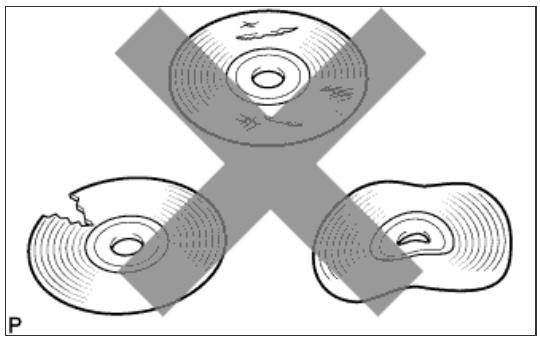
OK

### END

### 3.CHECK DISC

a. Check that the disc is not deformed or cracked.

**OK:**
**No deformation or cracks on the disc.**



NG → CHANGE DISC

OK

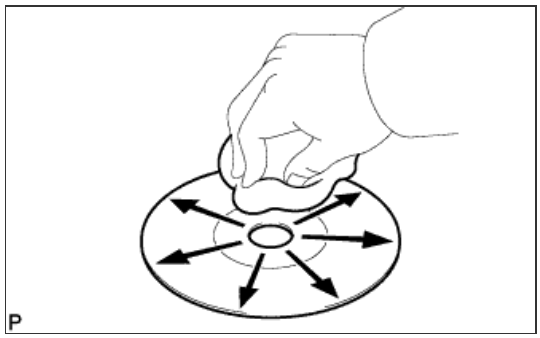
### 4.DISC CLEANING

a. Disc cleaning

i. If dirt is on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

**NOTICE:**

Do not use a conventional record cleaner or antistatic preservative.




NEXT

## 5.CHECK DISPLAY SIGNAL CIRCUIT

a. Inspect the display signal circuits below.

i. Inspect the display signal circuit between the radio receiver and television display ( Click here).

ii. Inspect the display signal circuit between the video terminal and television display ( Click here).

b. If the display signal circuit is operating normally, proceed to the next step.

NEXT

## REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK MODE IN WHICH IMAGE HAS LINES

a. Check the mode in which the image has lines.

**Result**

| Result | Proceed to |
|---|---|
| During VTR, DVD and DVD-P (rear seat only) image | A |
| During DVD and DVD-P (rear seat only) image | B |
| Only during VTR image | C |

B → Go to step 3

C → Go to step 5

A

### 2.CHECK DISPLAY SIGNAL CIRCUIT

a. Inspect the display signal circuits below.

i. Inspect the display signal circuit between the radio receiver and television display ( Click here).

ii. Inspect the display signal circuit between the video terminal and television display ( Click here).

b. If the display signal circuit is operating normally, proceed to the next step.

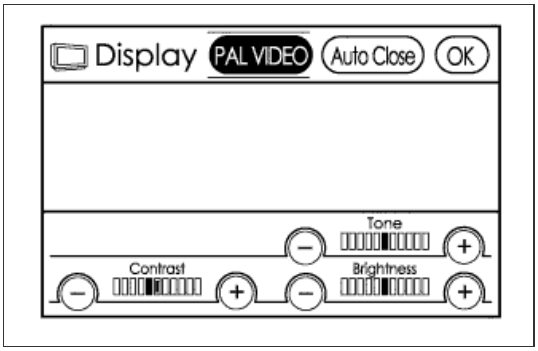
NEXT

### REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

### 3.CHECK NTSC/PAL SIGNAL (RSE IMAGE QUALITY ADJUSTMENT SCREEN)

a. During the VTR image, check if changing the NTSC/PAL signal by pressing the remote controller DISPLAY switch, entering the RSE image adjustment screen, and pressing the PAL VIDEO button returns the image to normal.

**OK:**
**Returned to normal after pressing image quality adjustment screen PAL VIDEO button.**




NG → Go to step 4

OK

### END

### 4.REPLACE EXTERNAL DEVICE WITH NORMAL ONE AND CHECK

a. Replace the external device with a normal one and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

NG

GO TO DISPLAY SIGNAL CIRCUIT BETWEEN VIDEO TERMINAL AND TELEVISION DISPLAY (Click here)

OK

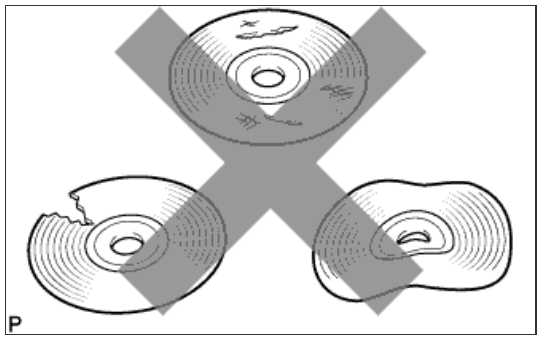
END (EXTERNAL DEVICE IS DEFECTIVE)

## 5.CHECK DISC

a. Check that the disc is not deformed or cracked.

**OK:**

**No deformation or cracks on the disc.**




NG

CHANGE DISC

OK

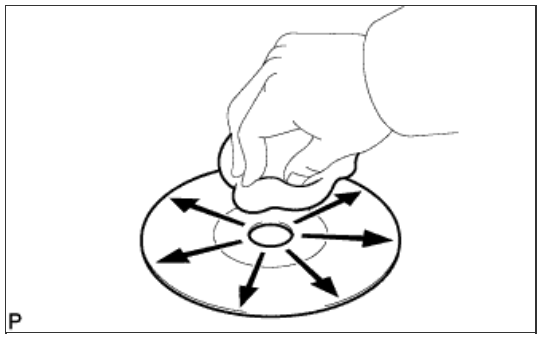
## 6.DISC CLEANING

a. Disc cleaning

i. If dirt is on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

**NOTICE:**

Do not use a conventional record cleaner or antistatic preservative.




NEXT

GO TO DISPLAY SIGNAL CIRCUIT BETWEEN RADIO RECEIVER AND TELEVISION DISPLAY ASSEMBLY ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK MODE IN WHICH SCREEN IS NOT STABILIZED

a. Check the mode in which the screen is not stabilized.

**Result**

| Result | Proceed to |
|---|---|
| Only during VTR image | A |
| Not stabilized in all modes | B |
| Multi-display also is not stabilized during DVD image only | C |
| Navigation image is displayed on multi-display, but television display has no image or image is not stabilized | D |

B → Go to step 3

C → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

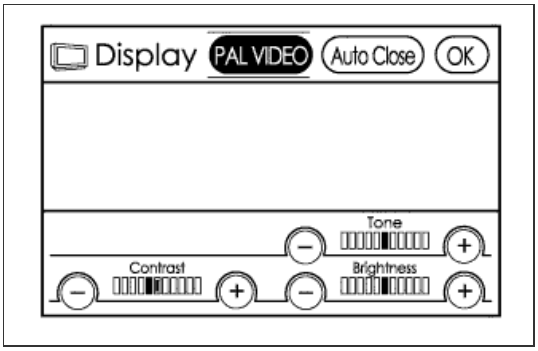
D → GO TO NAVIGATION DISPLAY APPEARS ON THE MULTI-DISPLAY, BUT DOES NOT APPEAR ON THE TELEVISION DISPLAY ASSEMBLY (Click here)

A

### 2.CHECK NTSC/PAL SIGNAL (RSE IMAGE QUALITY ADJUSTMENT SCREEN)

a. During the VTR image, check if changing the NTSC/PAL signal by pressing the remote controller DISPLAY switch, entering the RSE image adjustment screen, and pressing the PAL VIDEO button returns the image to normal.

**OK:**
**Returned to normal after pressing PAL VIDEO button.**




NG → Go to step 3

OK

END

### 3.CHECK VEHICLE SIGNAL (DISPLAY CHECK MODE)

a. Enter the "Display Check" mode (Vehicle Signal Check Mode) ( Click here).

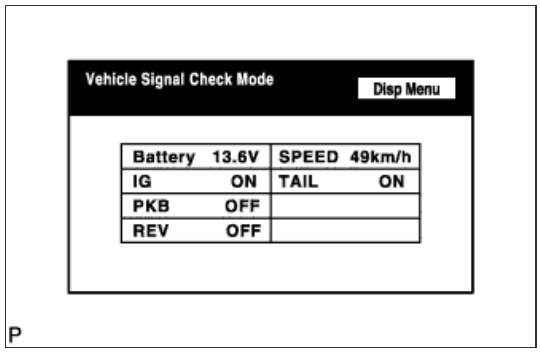
b. Check that the display changes between ON and OFF according to the light control switch operation.

**OK:**

| Light Control Switch | Display |
|---|---|
| Tail or on | ON |
| Off | OFF |

**HINT:**

The display is updated once per second. As a result, it is normal for the display to lag behind the actual change in the switch.




NG → GO TO DISPLAY DOES NOT DIM WHEN LIGHT CONTROL SWITCH IS TURNED ON (Click here)

OK → PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

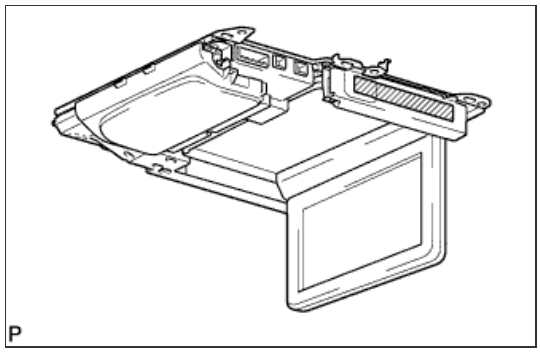
**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK TELEVISION DISPLAY ASSEMBLY

a. Check for foreign matter or obstructions caught in the moving parts of the panel.

**OK:**
**No obstruction or foreign matter found.**




NG → REMOVE ANY OBSTRUCTION OR FOREIGN MATTER FOUND

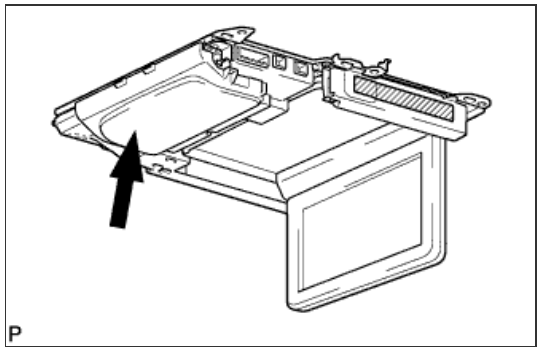
OK

### 2.CLEAN INFRARED RAY RECEIVING PORTION

a. Clean the infrared ray receiving portion on the rear display.

b. Check whether the same malfunction occurs.

**OK:**
**The function returns to normal.**




NG → Go to step 3

OK

END

### 3.CHECK REMOTE CONTROLLER (for BATTERY)

a. Check that the dry-cell battery of the remote controller is not depleted.

**OK:**
**Battery is not depleted.**

NG → REPLACE REMOTE CONTROLLER BATTERY

OK

### 4.CHECK SYSTEM

a. Check that the remote control operation of the rear system is not locked by the radio receiver or the multi-display.

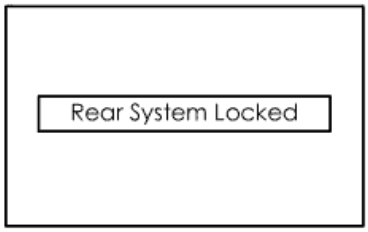
i. Check if "Rear System Locked" appears on the television display.

**OK:**
**The message does not appear.**

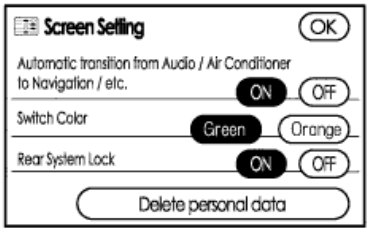
**HINT:**

If the rear system is locked and the remote controller is used in the rear seat area, an operation not possible message (for example, "Rear System Locked") is displayed. If the message is displayed, enter the multi-display screen setting, and change "Rear System Lock" to OFF.

for Television Display:




for Multi-display:




NG → RELEASE LOCK

OK ↓

## 5.CHECK TELEVISION DISPLAY ASSEMBLY

a. Check if the television display is open.

**OK:**
**Open.**

**HINT:**

When the television display is closed, some switches on the remote controller cannot be used.

NG → OPEN TELEVISION DISPLAY ASSEMBLY

OK ↓

## 6.CHECK TELEVISION DISPLAY ASSEMBLY (POWER)

a. Check if the power of the television display is on.

**OK:**
**Power is on.**

NG → TURN TELEVISION DISPLAY ASSEMBLY POWER ON

OK ↓

REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

**for Preparation** Click here

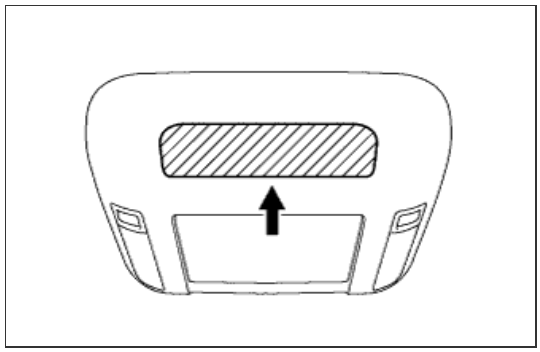
## INSPECTION PROCEDURE

### 1.CLEAN INFRARED RAY RECEIVING PORTION

a. Clean the infrared ray receiving portion on the television display assembly.

b. Check whether the same malfunction occurs.

**OK:**
**The function returns to normal.**



NG → Go to step 2

OK →

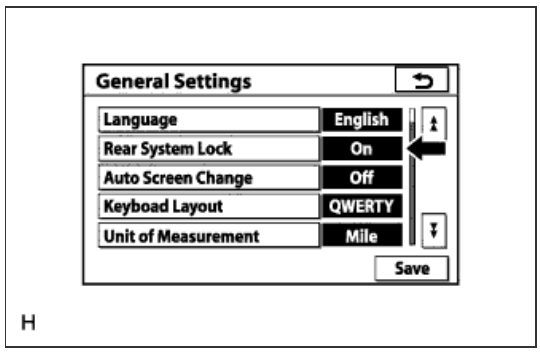
### END

### 2.CHECK SYSTEM

a. Check that the remote control operation of the rear system is not locked by the display and navigation module display.

i. Check that "Rear System Lock" is Off on the "General Settings" screen.

**OK:**
**"Rear System Lock" is Off.**




NG → RELEASE LOCK

OK →

### 3.CHECK REMOTE CONTROL (BATTERY)

a. Check that the dry-cell battery of the remote control is not depleted.

**OK:**
**Battery is not depleted.**

NG → REPLACE REMOTE CONTROL BATTERY

OK →

### 4.REPLACE REMOTE CONTROL

a. Replace the remote control with a new or known good one.

b. Check that the television display assembly turns on.

**OK:**

**The television display assembly turns on.**

| | | |
|---|---|---|
| | NG | REPLACE TELEVISION DISPLAY ASSEMBLY (Click here) |
| OK | | |
| END (REMOTE CONTROL WAS DEFECTIVE) | | |

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

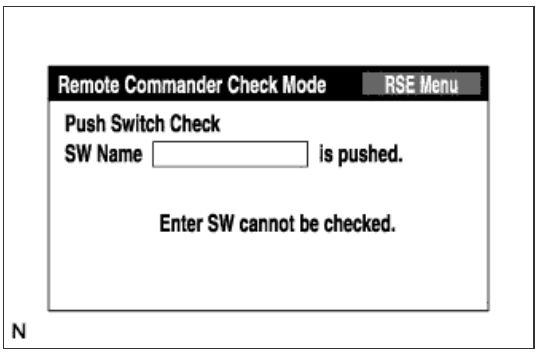
When the navigation image is displayed on the television display, if the image of the multi-display changes to the camera image or parking assist image, the television display will change to the image displayed before changing to the navigation image.

**1.CHECK REMOTE COMMANDER (DISPLAY CHECK MODE)**

a. Enter the "Display Check" mode (Remote Commander Check Mode) ( Click here).

b. Operate the abnormal switch and check if the switch name and status are correctly displayed.

**OK:**
**The switch name and status are correctly displayed as operated.**




NG → Go to step 2

OK →

REPLACE MULTI-DISPLAY SELECTOR (Click here)

**2.CHECK REMOTE CONTROLLER (for BATTERY)**

a. Check that the dry-cell battery of the remote controller is not depleted.

**OK:**
**Battery is not depleted.**

NG → REPLACE REMOTE CONTROLLER BATTERY

OK →

GO TO DISPLAY SIGNAL CIRCUIT BETWEEN MULTI-DISPLAY AND TELEVISION DISPLAY ASSEMBLY ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK MODE IN WHICH SCREEN DOES NOT APPEAR OR IS NOT STABILIZED

a. Check the mode in which the screen does not appear or is not stabilized.

**Result**

| Result | Proceed to |
|---|---|
| Only during DVD and DVD-P (rear seat only) image, or multi-display also is not stabilized during DVD image only | A |
| Only during VTR image | B |
| During VTR, DVD and DVD-P (rear seat only) image | C |

B → Go to step 4

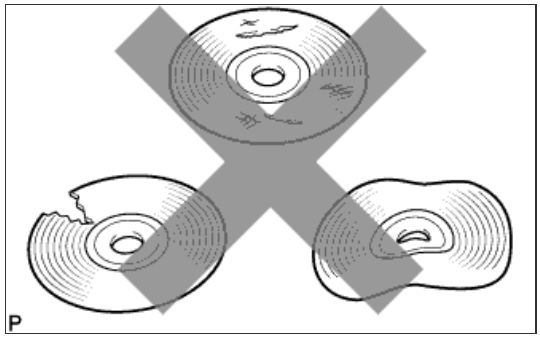
C → Go to step 6

A

### 2.CHECK DISC

a. Check that the disc is not deformed or cracked.

**OK:**
**No deformation or cracks on the disc.**




NG → CHANGE DISC

OK

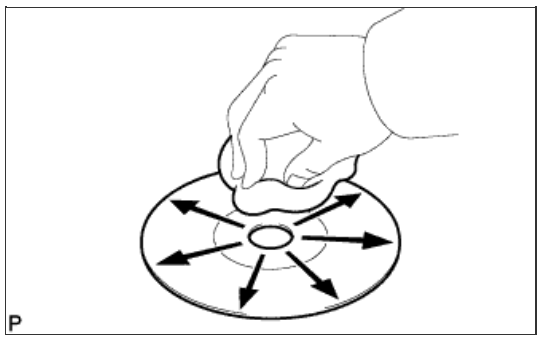
### 3.DISC CLEANING

a. Disc cleaning

i. If dirt is on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

**NOTICE:**

Do not use a conventional record cleaner or antistatic preservative.



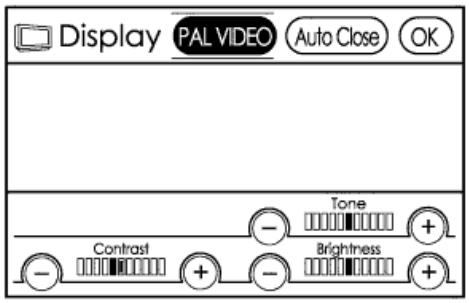

NEXT

GO TO DISPLAY SIGNAL CIRCUIT BETWEEN RADIO RECEIVER AND TELEVISION DISPLAY ASSEMBLY ( Click here)

## 4.CHECK NTSC/PAL SIGNAL (RSE IMAGE QUALITY ADJUSTMENT SCREEN)

a. During the VTR image, check if changing the NTSC/PAL signal by pressing the remote controller DISPLAY switch, entering the RSE image adjustment screen, and pressing the PAL VIDEO button returns the image to normal.

**OK:**
**Returned to normal after pressing image quality adjustment screen PAL VIDEO button.**




NG → Go to step 5

OK →

END

## 5.REPLACE EXTERNAL DEVICE WITH NORMAL ONE AND CHECK

a. Replace the external device with a normal one and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

NG → GO TO DISPLAY SIGNAL CIRCUIT BETWEEN VIDEO TERMINAL AND TELEVISION DISPLAY ASSEMBLY (Click here)

OK →

END (EXTERNAL DEVICE IS DEFECTIVE)

## 6.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY - BODY GROUND)

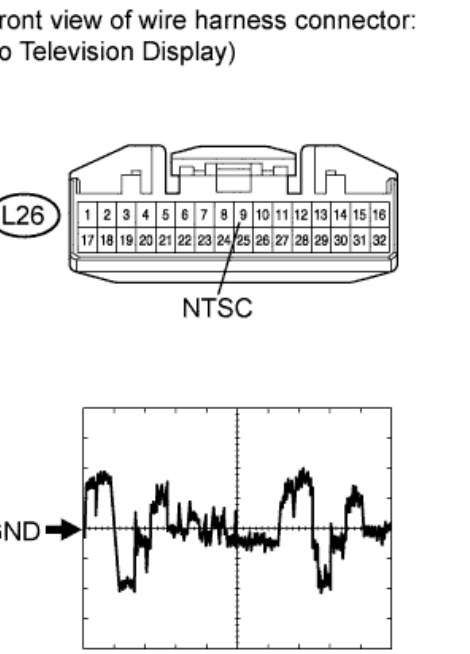
a. Disconnect the L26 display connector.

b. Check the waveform of the television display using an oscilloscope.

**Measurement Condition**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | L26-9 (NTSC) - Body ground |
| Tool Setting | 200 mV/DIV., 10 µsec./DIV. |
| Condition | DVD displayed on television display |

**OK:**
**Waveform is as shown in the illustration.**




NG → GO TO DISPLAY SIGNAL CIRCUIT BETWEEN RADIO RECEIVER AND TELEVISION DISPLAY ASSEMBLY (Click here)

OK

REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

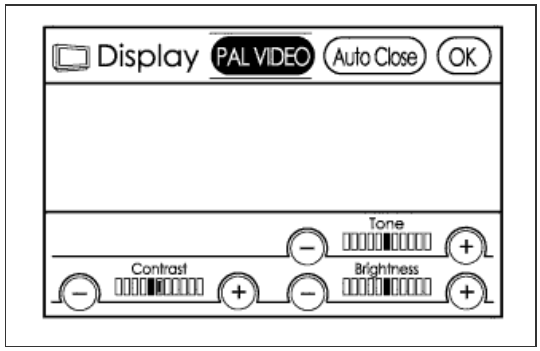
**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK NTSC/PAL SIGNAL (RSE IMAGE QUALITY ADJUSTMENT SCREEN)

a. During the VTR image, check if changing the NTSC/PAL signal by pressing the remote controller DISPLAY switch, entering the RSE image adjustment screen, and pressing the PAL VIDEO button returns the image to normal.

**OK:**
**Returned to normal after pressing image quality adjustment screen PAL VIDEO button.**




NG → Go to step 2

OK →

END

### 2.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY SELECTOR - BODY GROUND)

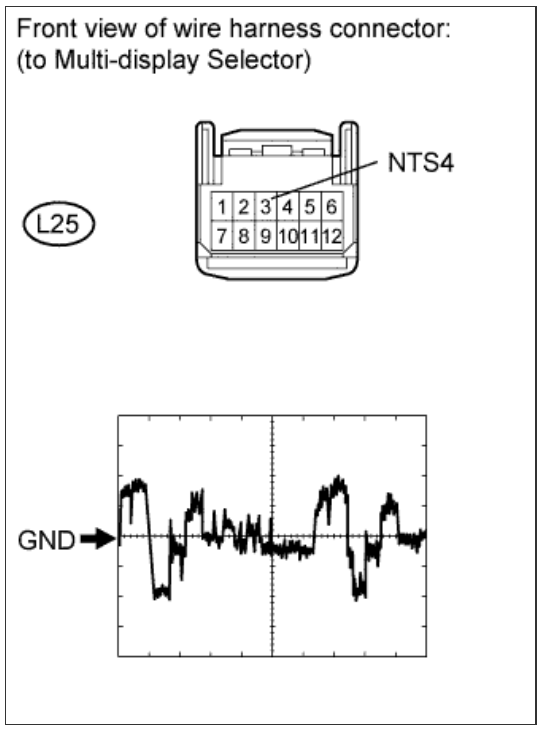
a. Disconnect the L25 selector connector.

b. Check the waveform of the television display using an oscilloscope.

**Measurement Condition**

| Item | Content |
|---|---|
| Tester Connection | L25-3 (NTS4) - Body ground |
| Tool Setting | 200 mV/DIV., 10 µsec./DIV. |
| Condition | DVD displayed on television display |

**OK:**
**Waveform is as shown in the illustration.**




NG → GO TO DISPLAY SIGNAL CIRCUIT BETWEEN VIDEO TERMINAL AND TELEVISION DISPLAY (Click here)

OK →

REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CLEAN INFRARED RAY RECEIVING PORTION

a. Check if the infrared ray receiving portion or the wireless headphone light emitting area is covered.

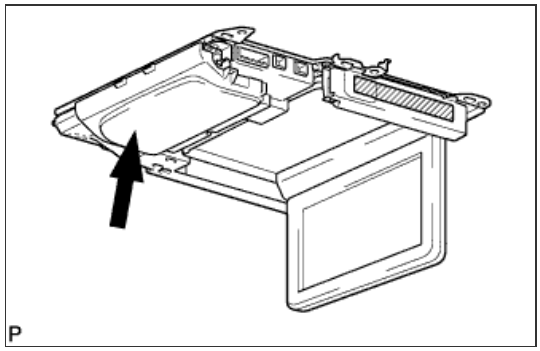
**HINT:**

If necessary, perform the following step. Otherwise, proceed to the "Check Wireless Headphone" procedure.

b. Clean the infrared ray receiving portion on the television display.

c. Check whether the same malfunction occurs.

**OK:**
**The function returns to normal.**




NG → Go to step 2

OK →

### END

### 2.CHECK WIRELESS HEADPHONE

a. Check the wireless headphone setting.

i. Check that the volume is not set to "0".

ii. Check that "MUTE" is off.

**OK:**
**The volume is not set to "0" and "MUTE" is off.**

NG → SYSTEM NORMAL (SET VOLUME TO HIGH OR SET MUTE OFF)

OK →

### 3.CHECK WIRELESS HEADPHONE

a. Change the location of the wireless headphone and check the sound condition.

**OK:**
**Sound is heard.**

**HINT:**

The distance between the infrared ray receiving portion and wireless headphone light emitting area, or the angle of the two parts may be the cause.

NG → Go to step 4

OK →

### END

### 4.CHECK WIRELESS HEADPHONE (for BATTERY)

a. Check that the dry-cell battery of the wireless headphone is not depleted.

**OK:**
**Battery is not depleted.**

NG → REPLACE WIRELESS HEADPHONE BATTERY

OK ↓

**5.REPLACE WIRELESS HEADPHONE WITH NORMAL ONE AND CHECK**

a. Replace the wireless headphone with a normal one and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

NG → REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

OK ↓

**END (WIRELESS HEADPHONE IS DEFECTIVE)**

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK WIRELESS HEADPHONE (BATTERY)

a. Check that the dry-cell battery of the wireless headphone is not depleted.

**OK:**
**Battery is not depleted.**

NG → REPLACE WIRELESS HEADPHONE BATTERY

OK

### 2.CHECK WIRELESS HEADPHONE SETTING

a. Check the wireless headphone settings.

i. Check that the volume is not set to "0".

ii. Check that "MUTE" is off.

**OK:**
**The volume is not set to "0" and "MUTE" is off.**

NG → SET VOLUME TO HIGH AND TURN MUTE OFF

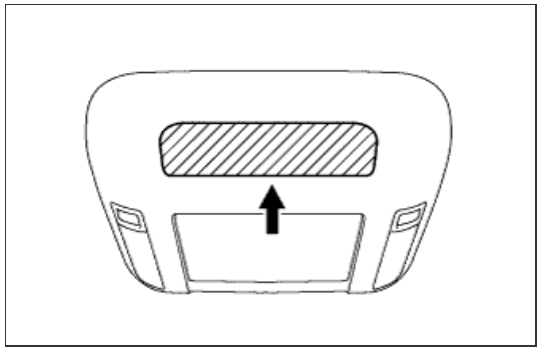
OK

### 3.CLEAN INFRARED RAY RECEIVING PORTION

a. Clean the infrared ray receiving portion on the television display assembly.

b. Check whether the same malfunction occurs.

**OK:**
**The function returns to normal.**



NG → Go to step 4

OK

END

### 4.REPLACE WIRELESS HEADPHONE

a. Replace the wireless headphone with a known good or new one and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

END (WIRELESS HEADPHONE WAS DEFECTIVE)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK WIRELESS HEADPHONE (BATTERY)

a. Check that the dry-cell battery of the wireless headphone is not depleted.

**OK:**
**Battery is not depleted.**

NG → REPLACE WIRELESS HEADPHONE BATTERY

OK

### 2.CHECK WIRELESS HEADPHONE SETTING

a. Check the wireless headphone settings.

i. Check that the volume is not set to "0".

ii. Check that "MUTE" is off.

**OK:**
**The volume is not set to "0" and "MUTE" is off.**

NG → SET VOLUME TO HIGH AND TURN MUTE OFF

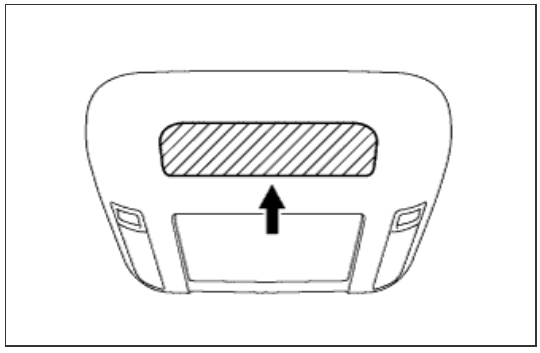
OK

### 3.CLEAN INFRARED RAY RECEIVING PORTION

a. Clean the infrared ray receiving portion on the television display assembly.

b. Check whether the same malfunction occurs.

**OK:**
**The function returns to normal.**



NG → Go to step 4

OK

END

### 4.REPLACE WIRELESS HEADPHONE

a. Replace the wireless headphone with a known good or new one and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

END (WIRELESS HEADPHONE WAS DEFECTIVE)

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.CHECK HEADPHONE**

a. Check if the jack of the wired headphone is securely connected.

**OK:**
**Jack of wired headphone is securely connected.**

NG → SECURELY CONNECT JACK OF WIRED HEADPHONES

OK

**2.REPLACE HEADPHONE WITH NORMAL ONE AND CHECK**

a. Replace the headphone with a normal one and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

NG → REPLACE REMOTE CONTROL ADAPTER ASSEMBLY (Click here)

OK

END (HEADPHONE IS DEFECTIVE)

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.CHECK HEADPHONE**

a. Check if the wired headphone jack is securely connected.

**OK:**
**Wired headphone jack is securely connected.**

NG → SECURELY CONNECT JACK OF WIRED HEADPHONES

OK

**2.REPLACE HEADPHONE**

a. Replace the headphone with a known good or new one and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

END (HEADPHONE WAS DEFECTIVE)

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.CHECK HEADPHONE**

a. Check if the wired headphone jack is securely connected.

**OK:**
**Wired headphone jack is securely connected.**

NG → SECURELY CONNECT JACK OF WIRED HEADPHONES

OK

**2.REPLACE HEADPHONE**

a. Replace the headphone with a known good or new one and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

END (HEADPHONE WAS DEFECTIVE)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK IF SOUND MALFUNCTION OCCURS ONLY WITH EXTERNAL DEVICE

a. Check if the sound malfunction occurs only with the external device.

**Result**

| Result | Proceed to |
|---|---|
| Only during VTR | A |
| All modes | B |

B → GO TO SOUND SIGNAL CIRCUIT BETWEEN RADIO RECEIVER AND MULTI-DISPLAY SELECTOR (Click here)

A

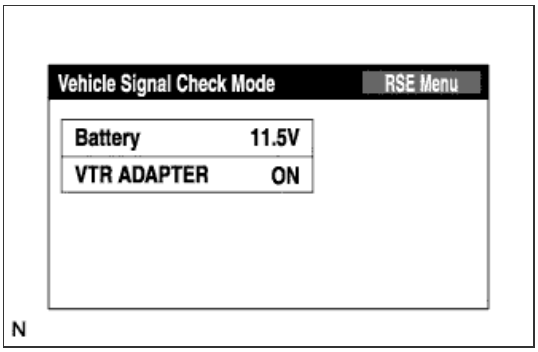
### 2.CHECK VEHICLE SIGNAL (DISPLAY CHECK MODE)

a. Enter the "Display Check" mode (Vehicle Signal Check Mode) ( Click here).

b. Check if the VTR adapter is set to ON.

**OK:**

| Vehicle Signal Check Mode | Display |
|---|---|
| VTR ADAPTER | ON |




NG → GO TO SOUND SIGNAL CIRCUIT BETWEEN VIDEO TERMINAL AND MULTI-DISPLAY SELECTOR (Click here)

OK

### 3.CHECK EXTERNAL DEVICE

a. Check if the external device is normal by installing it in another vehicle, etc.

**OK:**

**Same problem does not occur.**

NG → END (EXTERNAL DEVICE IS DEFECTIVE)

OK

REPLACE REMOTE CONTROL ADAPTER ASSEMBLY ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK TELEVISION DISPLAY ASSEMBLY

a. Using the remote controller, check if the television display can be opened and closed.

**OK:**
**Can be opened and closed.**

**HINT:**

When the television display is closed, some switches on the remote controller cannot be used.

NG → Go to step 2

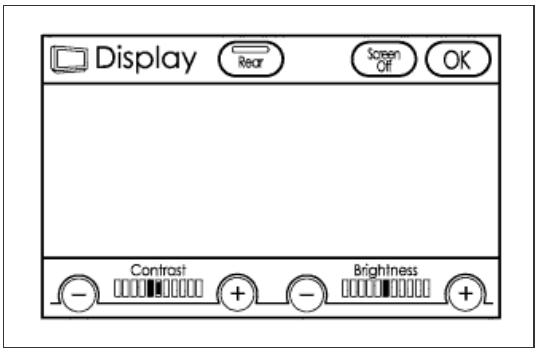
OK →

### END

### 2.CHECK DISPLAY

a. When the "Rear" button of the multi-display "Display" screen is pressed, check if the television display can be opened and closed.

**OK:**
**Can be opened and closed.**




NG → Go to step 4

OK →

### 3.CHECK SYSTEM

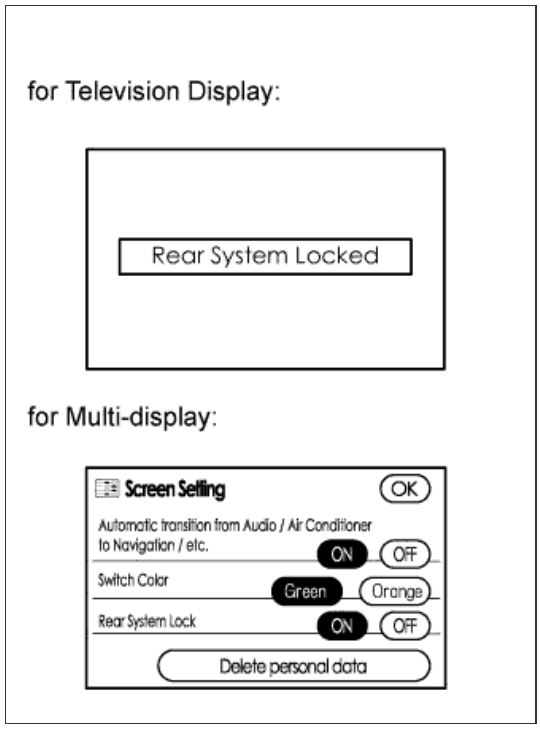
a. Check that the remote control operation of the rear system is not locked by the radio receiver or the multi-display.

i. Check if "Rear System Locked" appears on the television display.

**OK:**
**The message does not appear.**

**HINT:**

If the rear system is locked and the remote controller is used in the rear seat area, an operation not possible message (for example, "Rear System Locked") is displayed. If the message is displayed, enter the multi-display screen setting, and change "Rear System Lock" to OFF.




NG → RELEASE LOCK

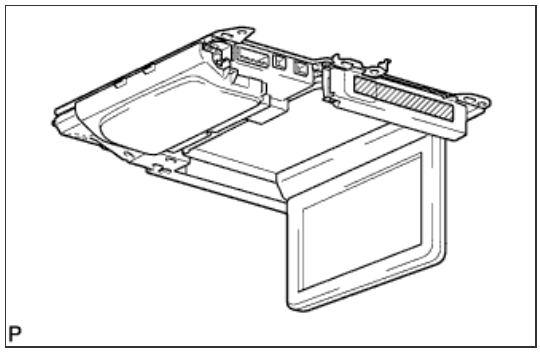
OK

GO TO A REMOTE CONTROL SYSTEM DOES NOT OPERATE ( Click here)

4.CHECK TELEVISION DISPLAY ASSEMBLY

a. Check for foreign matter or obstructions caught in the moving parts of the panel.

**OK:**
**No obstruction or foreign matter found.**




NG → REMOVE ANY OBSTRUCTION OR FOREIGN MATTER FOUND

OK

5.VISUALLY CHECK FOR CRACKS AND DEFORMATION

a. Visually check if the television display has cracks or deformation.

**OK:**
**There are cracks and deformation.**

NG → REPLACE MULTI-DISPLAY SELECTOR (Click here)

OK

END (CAUSE IS CRACKS AND DEFORMATION)

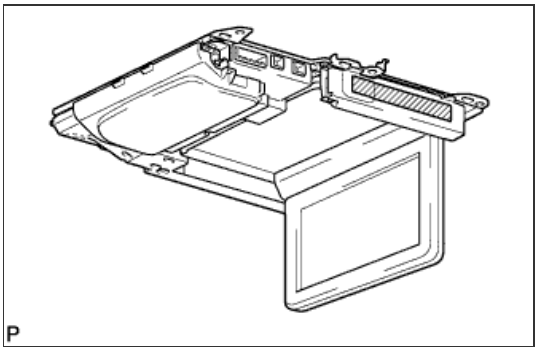
**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK TELEVISION DISPLAY ASSEMBLY

a. Check for foreign matter or obstructions caught in the moving parts of the panel.

**OK:**
**No obstruction or foreign matter found.**




NG → REMOVE ANY OBSTRUCTION OR FOREIGN MATTER FOUND

OK

### 2.VISUALLY CHECK FOR CRACKS AND DEFORMATION

a. Visually check if the television display has cracks or deformation.

**OK:**
**There are cracks and deformation.**

NG → REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

OK

END (CAUSE IS CRACKS AND DEFORMATION)

**for Preparation** Click here

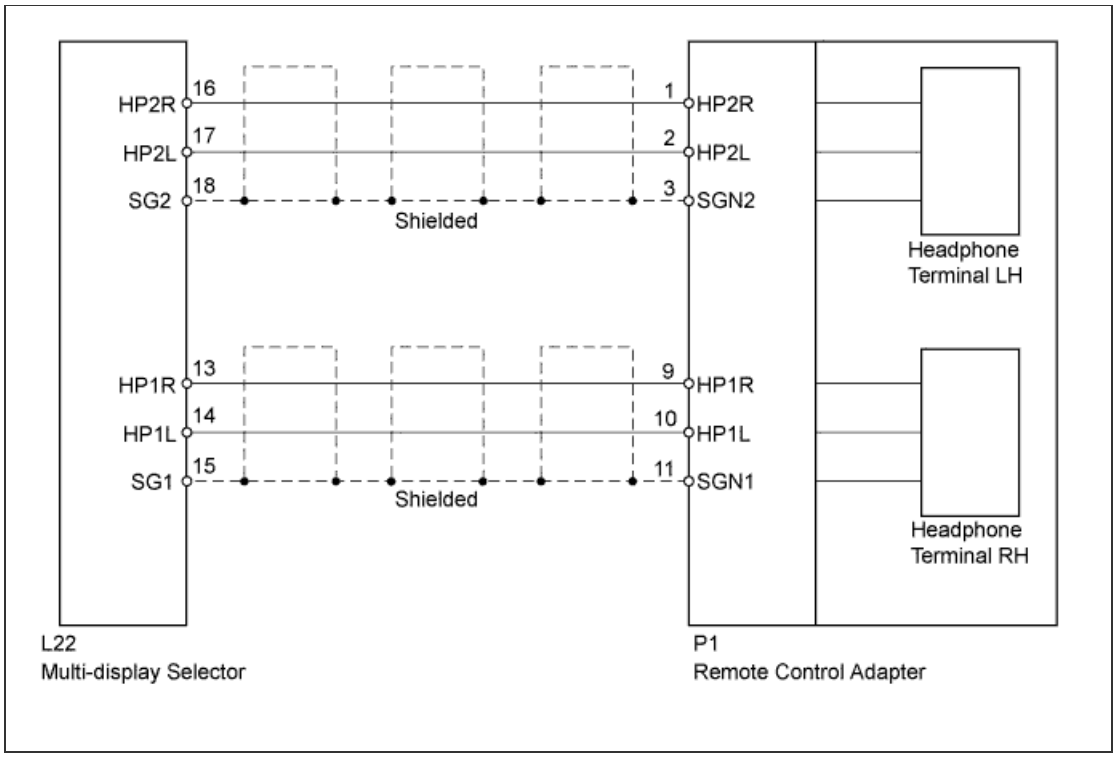
## DESCRIPTION

This is the sound signal circuit from the multi-display selector to the headphone terminal.

**HINT:**

"Multi-display Controller" refers to the multi-display selector.

## WIRING DIAGRAM

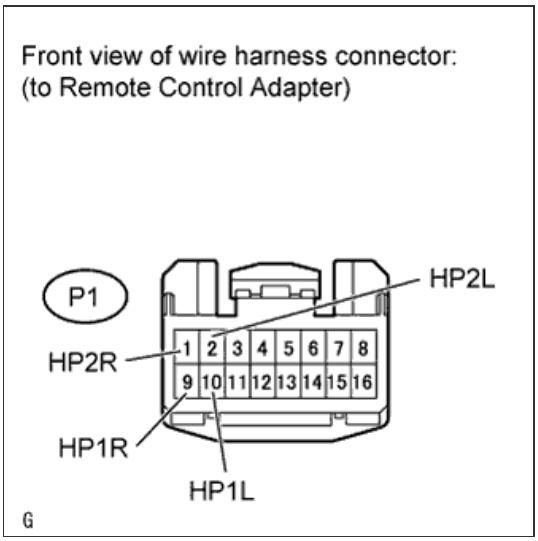



## INSPECTION PROCEDURE

### 1.CHECK REMOTE CONTROL ADAPTER ASSEMBLY (HEADPHONE TERMINAL)

a. Disconnect the P1 adapter connector.

b. Using an oscilloscope, check the signal waveform between each terminal and the body ground according to the conditions shown in the chart below.




**OK:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P1-1 (HP2R) - Body ground | Audio sound is being produced | A waveform synchronized with sound is output |
| P1-2 (HP2L) - Body ground | | |
| P1-9 (HP1R) - Body ground | | |
| P1-10 (HP1L) - Body ground | | |

NG → Go to step 2

OK

REPLACE REMOTE CONTROL ADAPTER ASSEMBLY (Click here)

2.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY SELECTOR - REMOTE CONTROL ADAPTER)

a. Disconnect the L22 selector connector.

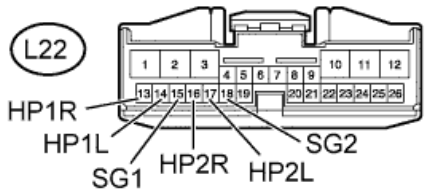
b. Disconnect the P1 adapter connector.

c. Measure the resistance according to the value(s) in the table below.

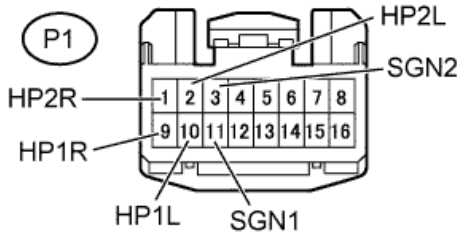
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L22-16 (HP2R) - P1-1 (HP2R) | Always | Below 1 Ω |
| L22-17 (HP2L) - P1-2 (HP2L) | | |
| L22-18 (SG2) - P1-3 (SGN2) | | |
| L22-13 (HP1R) - P1-9 (HP1R) | | |
| L22-14 (HP1L) - P1-10 (HP1L) | | |
| L22-15 (SG1) - P1-11 (SGN1) | | |
| P1-1 (HP2R) - Body ground | Always | 10 kΩ or higher |
| P1-2 (HP2L) - Body ground | | |
| P1-9 (HP1R) - Body ground | | |
| P1-10 (HP1L) - Body ground | | |

Front view of wire harness connector:
(to Multi-display Selector)




Front view of wire harness connector:
(to Remote Control Adapter)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE MULTI-DISPLAY SELECTOR (Click here)

**for Preparation** Click here

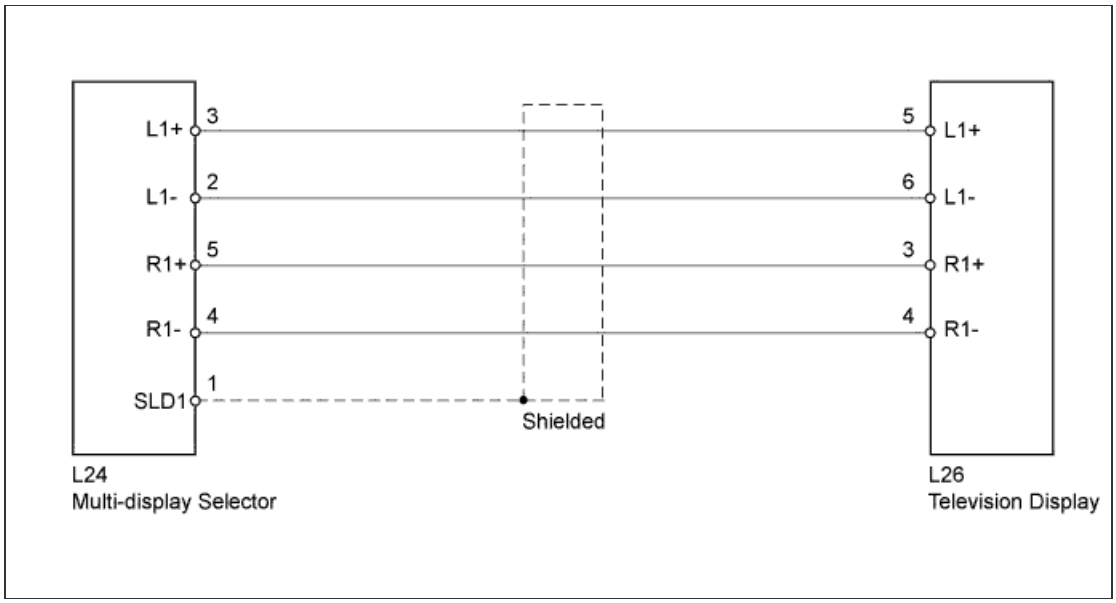
## DESCRIPTION

This is the sound signal circuit from the multi-display selector to the television display.

**HINT:**

"Multi-display Controller" refers to the multi-display selector.

## WIRING DIAGRAM

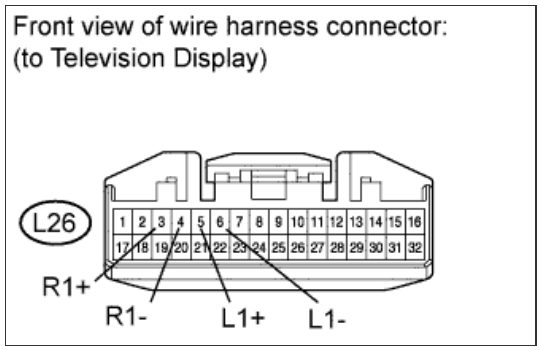



## INSPECTION PROCEDURE

### 1.CHECK TELEVISION DISPLAY ASSEMBLY

a. Disconnect the L26 display connector.

b. Using an oscilloscope, check the signal waveform between each terminal and the body ground according to the conditions shown in the chart below.




**OK:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L26-5 (L1+) - Body ground | Audio sound is being produced | A waveform synchronized with sound is output |
| L26-6 (L1-) - Body ground | Audio sound is being produced | A waveform synchronized with sound is output |
| L26-3 (R1+) - Body ground | Audio sound is being produced | A waveform synchronized with sound is output |
| L26-4 (R1-) - Body ground | Audio sound is being produced | A waveform synchronized with sound is output |

NG → Go to step 2

OK

REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

2.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY SELECTOR - TELEVISION DISPLAY ASSEMBLY)

a. Disconnect the L24 selector connector.

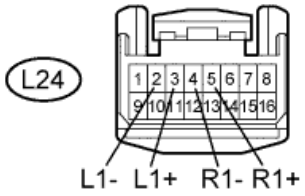
b. Disconnect the L26 display connector.

c. Measure the resistance according to the value(s) in the table below.

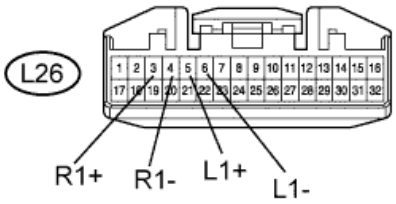
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L24-3 (L1+) - L26-5 (L1+) | Always | Below 1 Ω |
| L24-2 (L1-) - L26-6 (L1-) | | |
| L24-5 (R1+) - L26-3 (R1+) | | |
| L24-4 (R1-) - L26-4 (R1-) | | |
| L24-3 (L1+) - Body ground | Always | 10 kΩ or higher |
| L24-2 (L1-) - Body ground | | |
| L24-5 (R1+) - Body ground | | |
| L24-4 (R1-) - Body ground | | |

Front view of wire harness connector:
(to Multi-display Selector)




Front view of wire harness connector:
(to Television Display)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE MULTI-DISPLAY SELECTOR (Click here)

**for Preparation** Click here

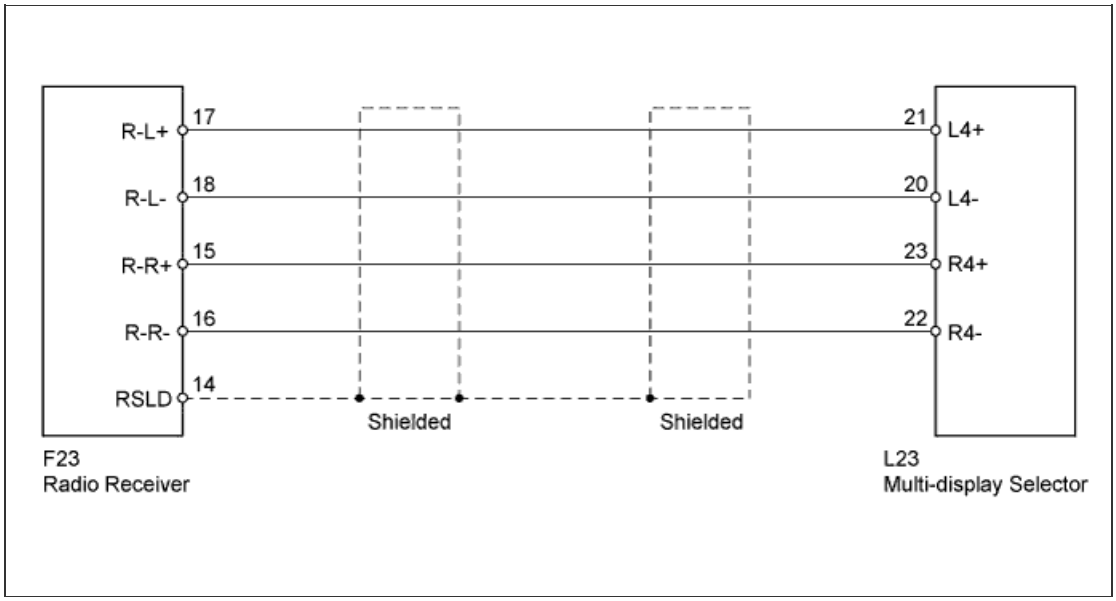
## DESCRIPTION

This is the sound signal circuit from the radio receiver to the multi-display selector.

**HINT:**

"Multi-display Controller" refers to the multi-display selector.

## WIRING DIAGRAM

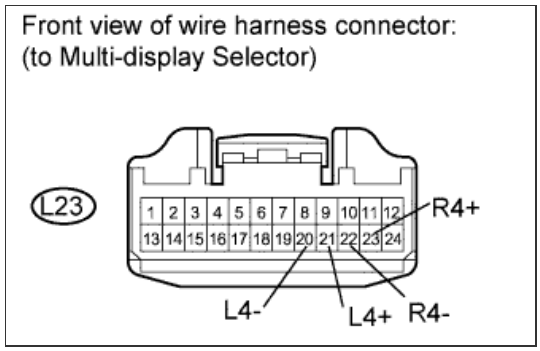



## INSPECTION PROCEDURE

### 1.CHECK MULTI-DISPLAY SELECTOR

a. Disconnect the L23 selector connector.

b. Using an oscilloscope, check the signal waveform between each terminal and the body ground according to the conditions shown in the chart below.




**OK:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L23-20 (L4-) - Body ground | Audio sound is being produced | A waveform synchronized with sound is output |
| L23-21 (L4+) - Body ground | Audio sound is being produced | A waveform synchronized with sound is output |
| L23-22 (R4-) - Body ground | Audio sound is being produced | A waveform synchronized with sound is output |
| L23-23 (R4+) - Body ground | Audio sound is being produced | A waveform synchronized with sound is output |

NG → Go to step 2

OK

REPLACE MULTI-DISPLAY SELECTOR (Click here)

2.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - MULTI-DISPLAY SELECTOR)

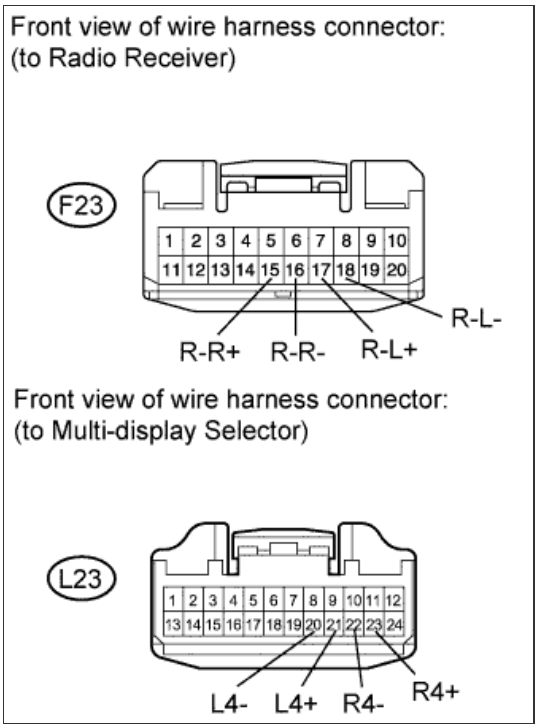
a. Disconnect the F23 receiver connector.

b. Disconnect the L23 selector connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F23-15 (R-R+) - L23-23 (R4+) | Always | Below 1 Ω |
| F23-16 (R-R-) - L23-22 (R4-) | | |
| F23-17 (R-L+) - L23-21 (L4+) | | |
| F23-18 (R-L-) - L23-20 (L4-) | | |
| L23-23 (R4+) - Body ground | Always | 10 kΩ or higher |
| L23-22 (R4-) - Body ground | | |
| L23-21 (L4+) - Body ground | | |
| L23-20 (L4-) - Body ground | | |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

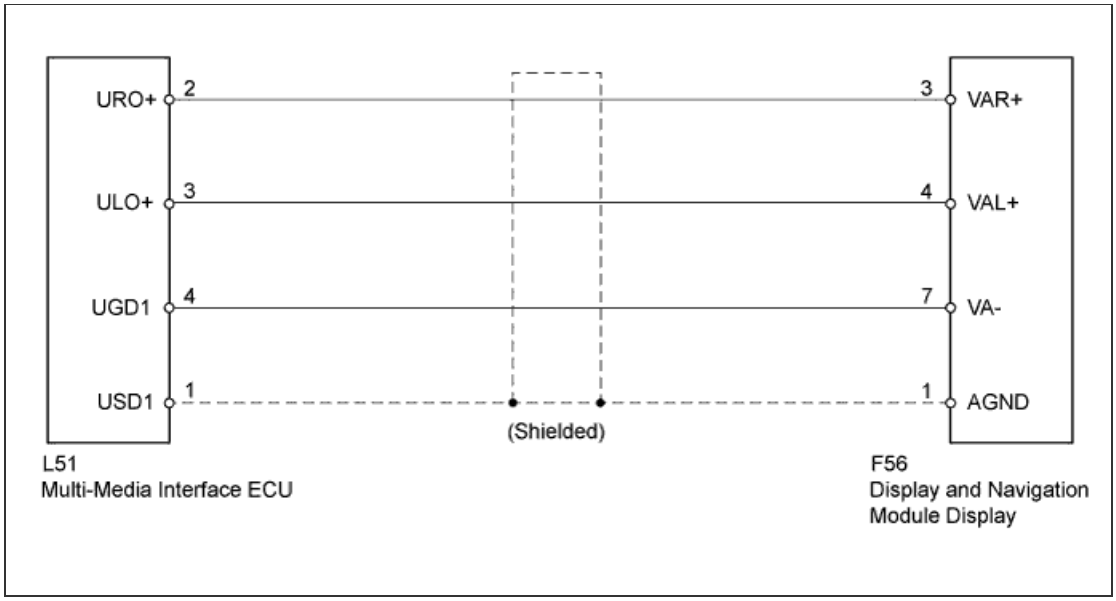
REPLACE RADIO RECEIVER ASSEMBLY (Click here)

**for Preparation** Click here

## DESCRIPTION

This is the sound signal circuit from the multi-media interface ECU to the display and navigation module display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU - NAVIGATION ECU)

a. Disconnect the L51 multi-media interface ECU connector.

b. Disconnect the F56 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-2 (URO+) - F56-3 (VAR+) | Always | Below 1 Ω |
| L51-3 (ULO+) - F56-4 (VAL+) | | |
| L51-4 (UGD1) - F56-7 (VA-) | | |
| L51-1 (USD1) - F56-1 (AGND) | | |
| L51-2 (URO+) - Body ground | Always | 10 kΩ or higher |
| L51-3 (ULO+) - Body ground | | |
| L51-4 (UGD1) - Body ground | | |
| L51-1 (USD1) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

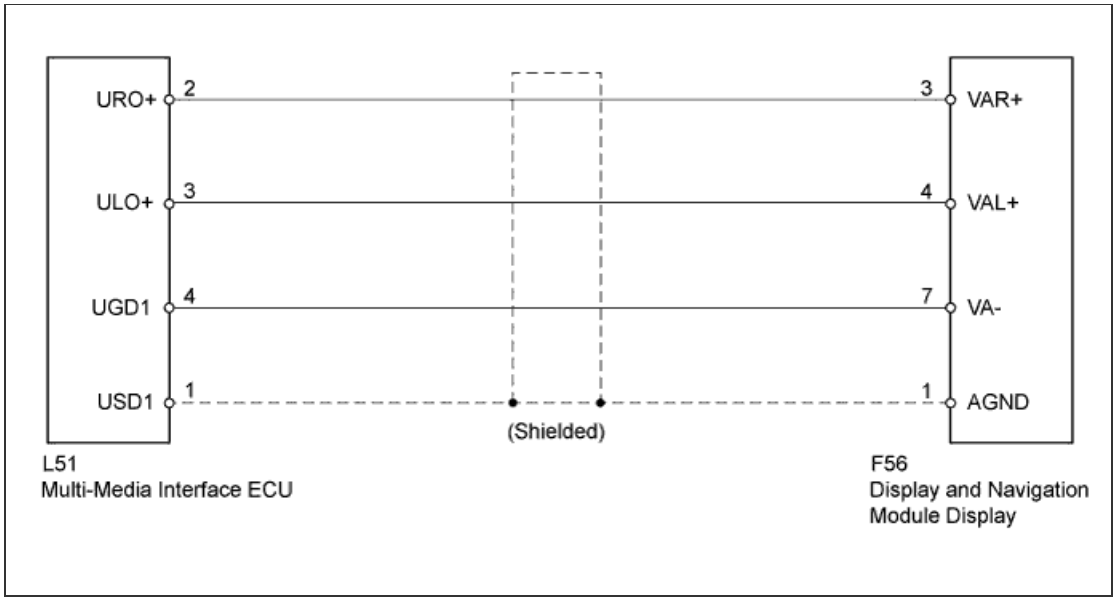
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This is the sound signal circuit from the multi-media interface ECU to the display and navigation module display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU - NAVIGATION ECU)

a. Disconnect the L51 multi-media interface ECU connector.

b. Disconnect the F56 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-2 (URO+) - F56-3 (VAR+) | Always | Below 1 Ω |
| L51-3 (ULO+) - F56-4 (VAL+) | | |
| L51-4 (UGD1) - F56-7 (VA-) | | |
| L51-1 (USD1) - F56-1 (AGND) | | |
| L51-2 (URO+) - Body ground | Always | 10 kΩ or higher |
| L51-3 (ULO+) - Body ground | | |
| L51-4 (UGD1) - Body ground | | |
| L51-1 (USD1) - Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

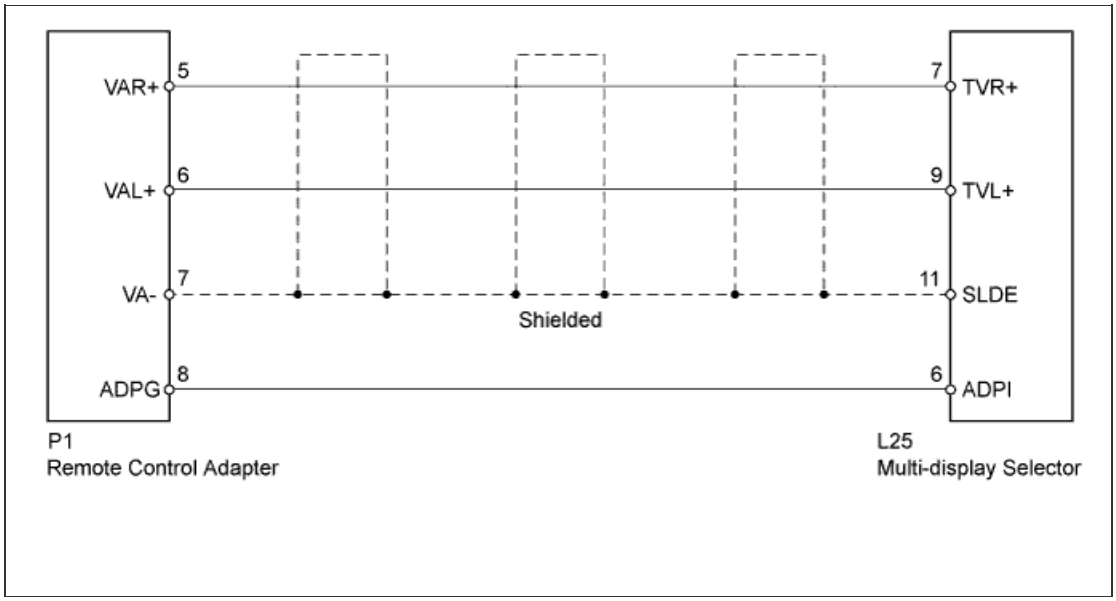
## DESCRIPTION

This is the sound signal circuit from the video (video adapter) terminal to the multi-display selector.

**HINT:**

"Multi-display Controller" refers to the multi-display selector.

## WIRING DIAGRAM

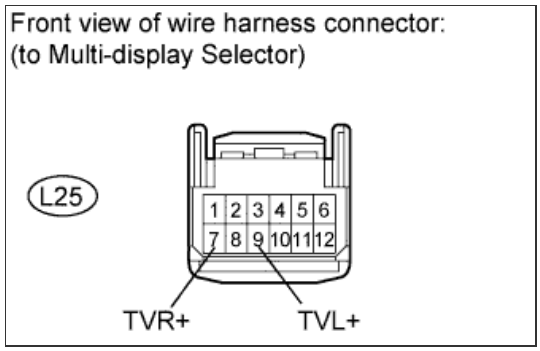



## INSPECTION PROCEDURE

### 1.CHECK MULTI-DISPLAY SELECTOR

a. Disconnect the L25 selector connector.

b. Using an oscilloscope, check the signal waveform between each terminal and the body ground according to the conditions shown in the chart below.




**OK:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L25-9 (TVL+) - Body ground | Audio sound is being produced | A waveform synchronized with sound is output |
| L25-7 (TVR+) - Body ground | | |

NG → Go to step 2

OK

REPLACE MULTI-DISPLAY SELECTOR (Click here)

## 2.CHECK HARNESS AND CONNECTOR (REMOTE CONTROL ADAPTER - MULTI-DISPLAY SELECTOR)

a. Disconnect the P1 adapter connector.

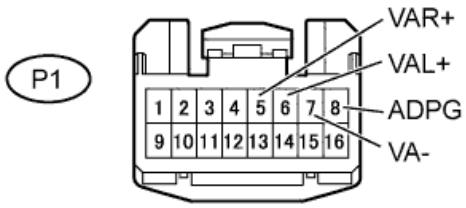
b. Disconnect the L25 selector connector.

c. Measure the resistance according to the value(s) in the table below.

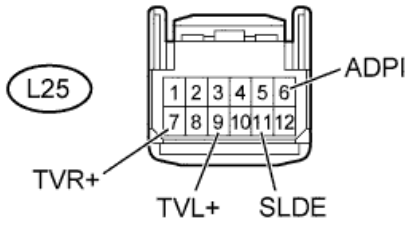
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P1-5 (VAR+) - L25-7 (TVR+) | Always | Below 1 Ω |
| P1-6 (VAL+) - L25-9 (TVL+) | | |
| P1-7 (VA-) - L25-11 (SLDE) | | |
| P1-8 (ADPG) - L25-6 (ADPI) | | |
| L25-7 (TVR+) - Body ground | Always | 10 kΩ or higher |
| L25-9 (TVL+) - Body ground | | |
| L25-11 (SLDE) - Body ground | | |
| L25-6 (APDI) - Body ground | | |

Front view of wire harness connector:
(to Remote Control Adapter)




Front view of wire harness connector:
(to Multi-display Selector)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

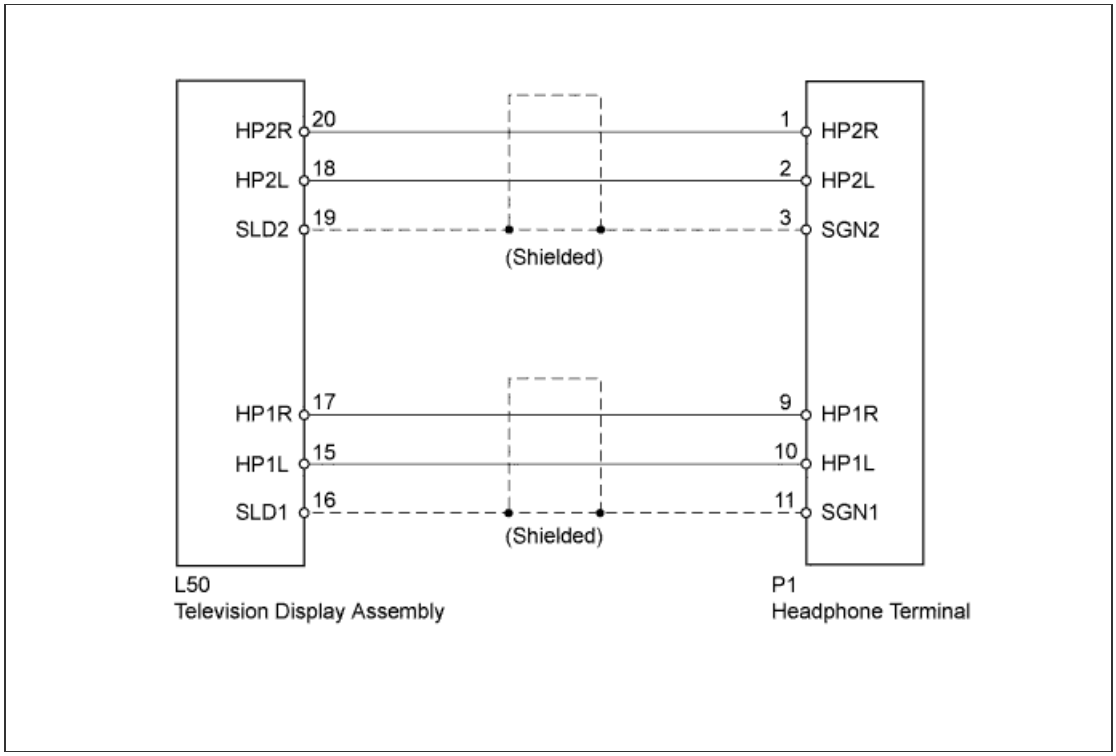
REPLACE REMOTE CONTROL ADAPTER ASSEMBLY (Click here)

**for Preparation** Click here

## DESCRIPTION

This is the sound signal circuit from the television display assembly to the headphone terminal.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - HEADPHONE TERMINAL)

a. Disconnect the L50 television display assembly connector.

b. Disconnect the P1 headphone terminal connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-20 (HP2R) - P1-1 (HP2R) | Always | Below 1 Ω |
| L50-18 (HP2L) - P1-2 (HP2L) | Always | Below 1 Ω |
| L50-19 (SLD2) - P1-3 (SGN2) | Always | Below 1 Ω |
| L50-17 (HP1R) - P1-9 (HP1R) | Always | Below 1 Ω |
| L50-15 (HP1L) - P1-10 (HP1L) | Always | Below 1 Ω |
| L50-16 (SLD1) - P1-11 (SGN1) | Always | Below 1 Ω |
| L50-20 (HP2R) - Body ground | Always | 10 kΩ or higher |
| L50-18 (HP2L) - Body ground | Always | 10 kΩ or higher |
| L50-19 (SLD2) - Body ground | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| L50-17 (HP1R) - Body ground | Always | 10 kΩ or higher |
| L50-15 (HP1L) - Body ground | Always | 10 kΩ or higher |
| L50-16 (SLD1) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

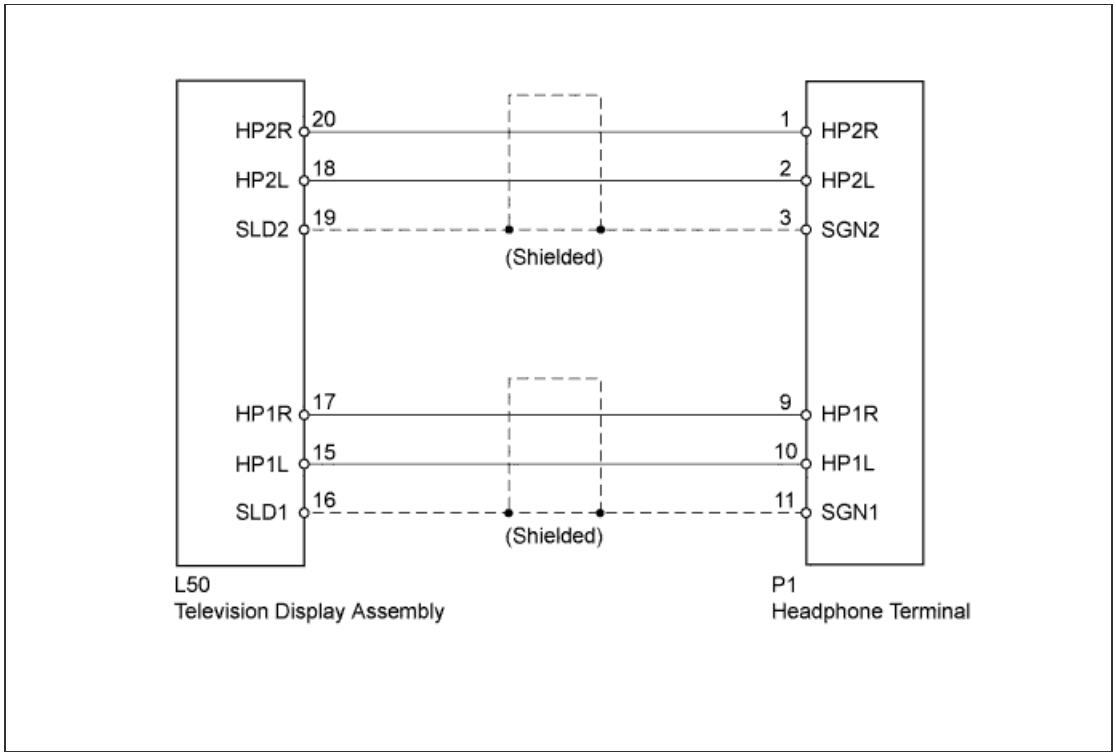
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This is the sound signal circuit from the television display assembly to the headphone terminal.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - HEADPHONE TERMINAL)

a. Disconnect the L50 television display assembly connector.

b. Disconnect the P1 headphone terminal connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-20 (HP2R) - P1-1 (HP2R) | Always | Below 1 Ω |
| L50-18 (HP2L) - P1-2 (HP2L) | Always | Below 1 Ω |
| L50-19 (SLD2) - P1-3 (SGN2) | Always | Below 1 Ω |
| L50-17 (HP1R) - P1-9 (HP1R) | Always | Below 1 Ω |
| L50-15 (HP1L) - P1-10 (HP1L) | Always | Below 1 Ω |
| L50-16 (SLD1) - P1-11 (SGN1) | Always | Below 1 Ω |
| L50-20 (HP2R) - Body ground | Always | 10 kΩ or higher |
| L50-18 (HP2L) - Body ground | Always | 10 kΩ or higher |
| L50-19 (SLD2) - Body ground | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| L50-17 (HP1R) - Body ground | Always | 10 kΩ or higher |
| L50-15 (HP1L) - Body ground | Always | 10 kΩ or higher |
| L50-16 (SLD1) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

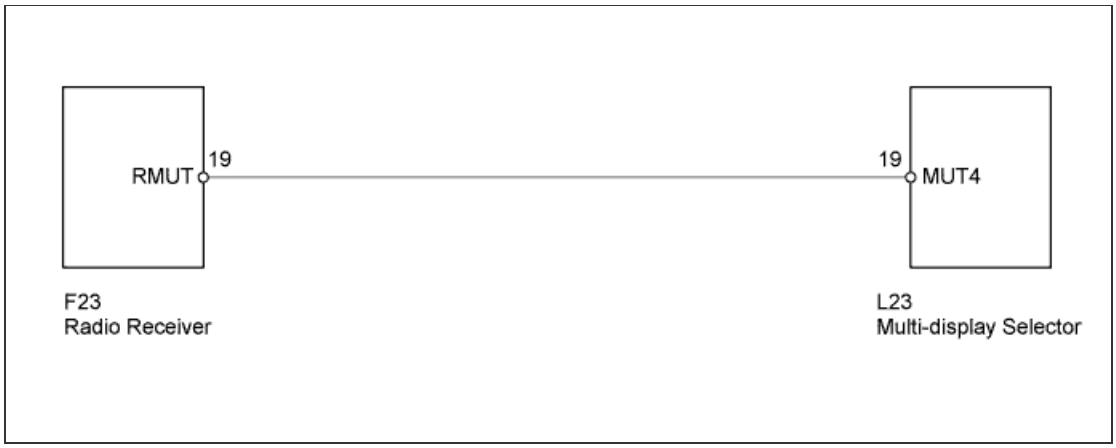
## DESCRIPTION

The multi-display selector controls the volume according to the mute signal from the radio receiver.
The mute signal is sent to reduce noise and a popping sound generated when switching the mode, etc.

**HINT:**

"Multi-display Controller" refers to the multi-display selector.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

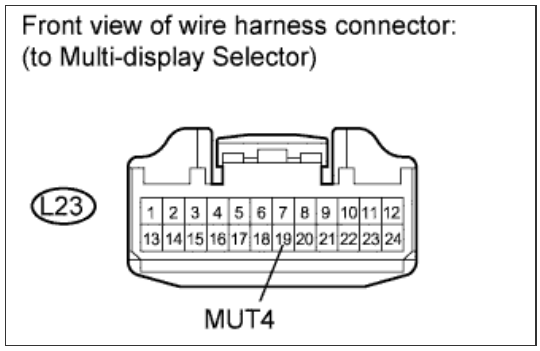
### 1.CHECK MULTI-DISPLAY SELECTOR

a. Disconnect the L23 selector connector.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L23-19 (MUT4) - Body ground | Engine switch on (ACC), RSE system playing → changing modes | 3.5 V or higher → Below 1 V |




NG → Go to step 2

OK →

REPLACE MULTI-DISPLAY SELECTOR (Click here)

### 2.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - MULTI-DISPLAY SELECTOR)

a. Disconnect the F23 receiver connector.

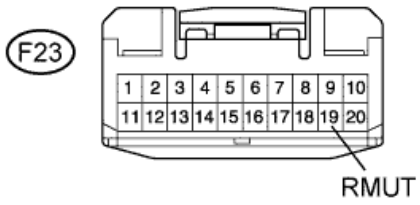
b. Disconnect the L23 selector connector.

c. Measure the resistance according to the value(s) in the table below.

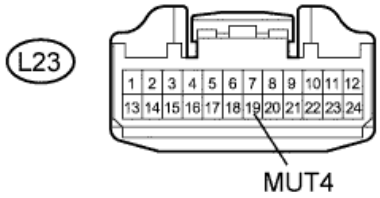
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F23-19 (RMUT) - L23-19 (MUT4) | Always | Below 1 Ω |
| L23-19 (MUT4) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to Radio Receiver)




Front view of wire harness connector:
(to Multi-display Selector)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

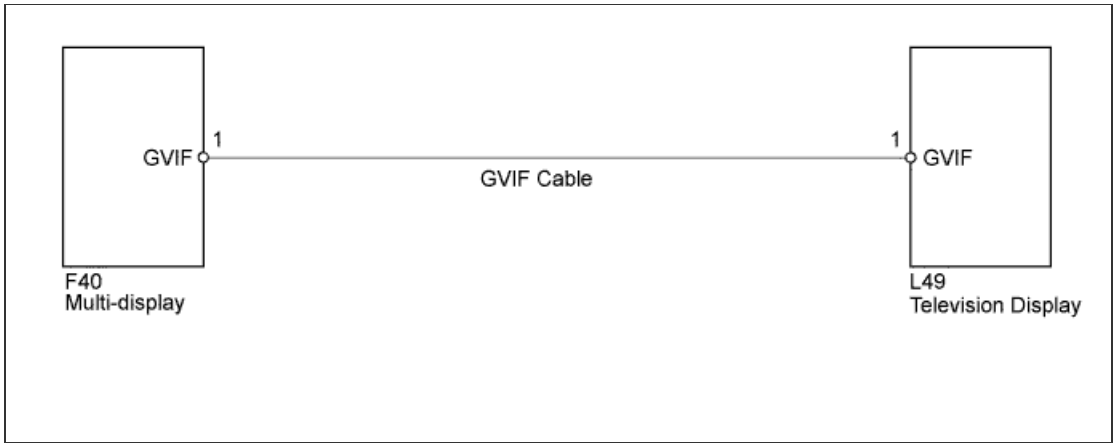
REPLACE RADIO RECEIVER ASSEMBLY (Click here)

**for Preparation** Click here

## DESCRIPTION

This is the display signal circuit from the multi-display to the television display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**1.REPLACE GVIF CABLE WITH NORMAL ONE AND CHECK**

a. Replace the GVIF cable with a normal one and check if the same problem occurs again.

**OK:**

**Same problem does not occur.**

**NG** → Go to step 2

**OK**

**END (GVIF CABLE IS DEFECTIVE)**

**2.REPLACE TELEVISION DISPLAY ASSEMBLY WITH NORMAL ONE AND CHECK**

a. Replace the television display with a normal one and check if the same problem occurs again ( Click here).

**OK:**

**Same problem does not occur.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (w/ Navigation System) | B |
| NG (w/o Navigation System) | C |

**B** → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

**C** → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

**A**

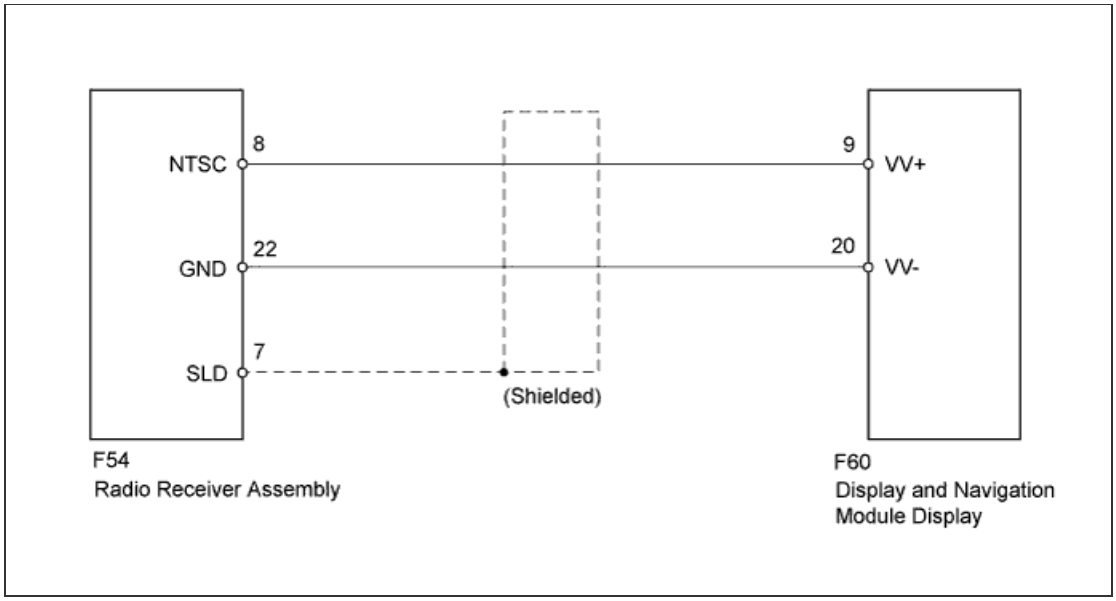
**END (TELEVISION DISPLAY ASSEMBLY IS DEFECTIVE)**

**for Preparation** Click here

## DESCRIPTION

This is the DVD image signal circuit from the radio receiver assembly to the display and navigation module display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**1.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - DISPLAY AND NAVIGATION MODULE DISPLAY)**

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F60 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-8 (NTSC) - F60-9 (VV+) | Always | Below 1 Ω |
| F54-22 (GND) - F60-20 (VV-) | Always | Below 1 Ω |
| F54-8 (NTSC) - Body ground | Always | 10 kΩ or higher |
| F54-22 (GND) - Body ground | Always | 10 kΩ or higher |
| F54-7 (SLD) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

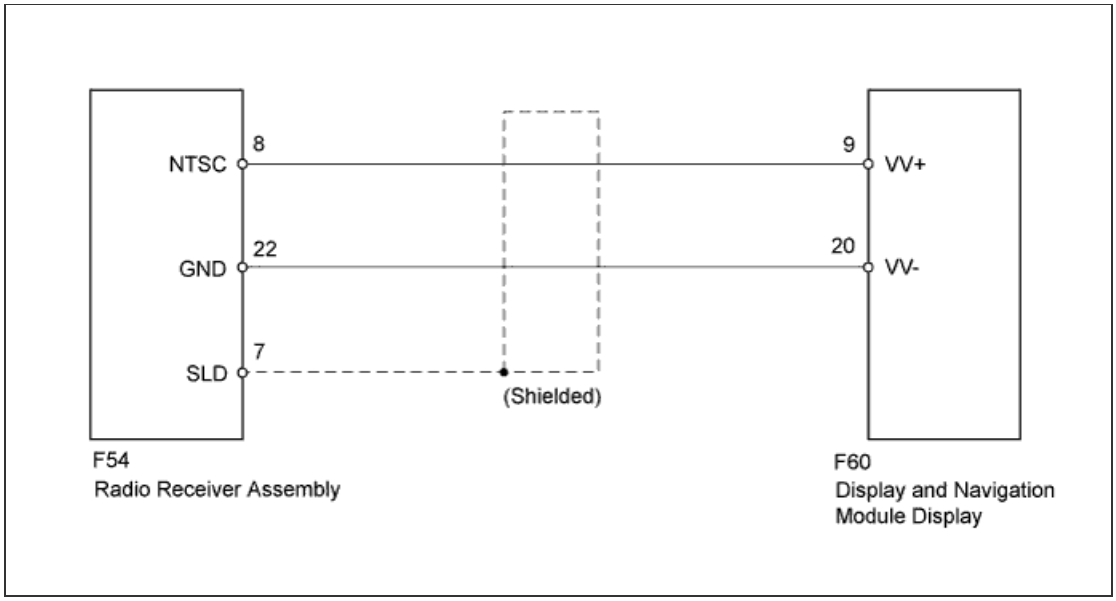
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This is the DVD image signal circuit from the radio receiver assembly to the display and navigation module display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**1.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - DISPLAY AND NAVIGATION MODULE DISPLAY)**

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F60 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-8 (NTSC) - F60-9 (VV+) | Always | Below 1 Ω |
| F54-22 (GND) - F60-20 (VV-) | Always | Below 1 Ω |
| F54-8 (NTSC) - Body ground | Always | 10 kΩ or higher |
| F54-22 (GND) - Body ground | Always | 10 kΩ or higher |
| F54-7 (SLD) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

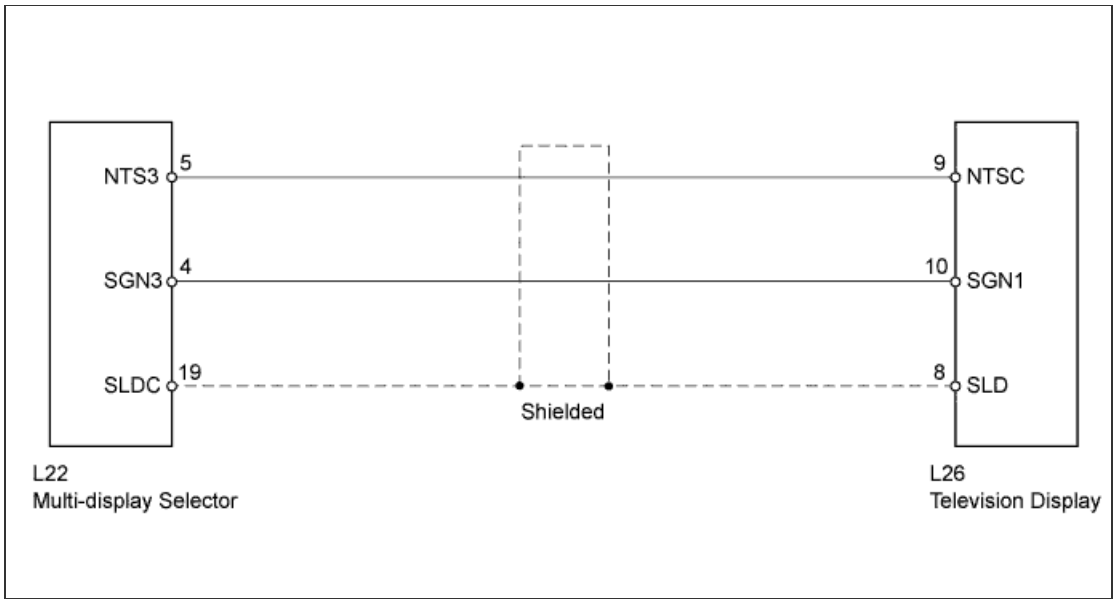
## DESCRIPTION

This is the display signal circuit from the multi-display selector to the television display.

**HINT:**

"Multi-display Controller" refers to the multi-display selector.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK TELEVISION DISPLAY ASSEMBLY

a. Disconnect the L26 display connector.

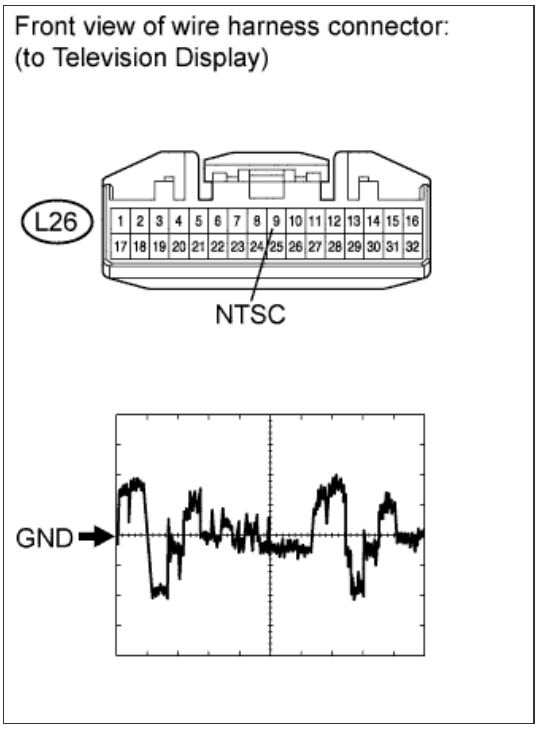
b. Using an oscilloscope, check the signal waveform between each terminal and the body ground according to the conditions shown in the chart below.

**Measurement Condition**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | L26-9 (NTSC) - Body ground |
| Tool Setting | 200 mV/DIV., 10 µsec./DIV. |
| Condition | DVD displayed on television display |

**OK:**

**Waveform is as shown in the illustration.**



NG → Go to step 2

OK

REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

2.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY SELECTOR - TELEVISION DISPLAY ASSEMBLY)

a. Disconnect the L22 selector connector.

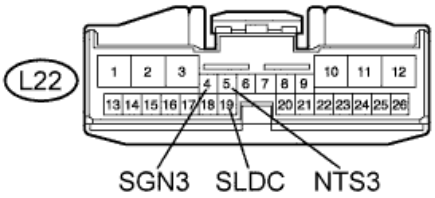
b. Disconnect the L26 display connector.

c. Measure the resistance according to the value(s) in the table below.

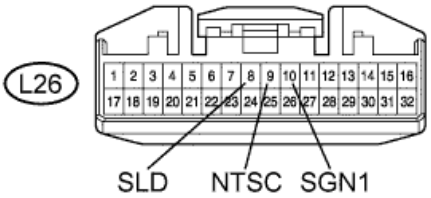
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L22-5 (NTS3) - L26-9 (NTSC) | Always | Below 1 Ω |
| L22-4 (SGN3) - L26-10 (SGN1) | | |
| L22-19 (SLDC) - L26-8 (SLD) | | |
| L22-5 (NTS3) - Body ground | Always | 10 kΩ or higher |
| L22-4 (SGN3) - Body ground | | |
| L22-19 (SLDC) - Body ground | | |

Front view of wire harness connector:
(to Multi-display Selector)




Front view of wire harness connector:
(to Television Display)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

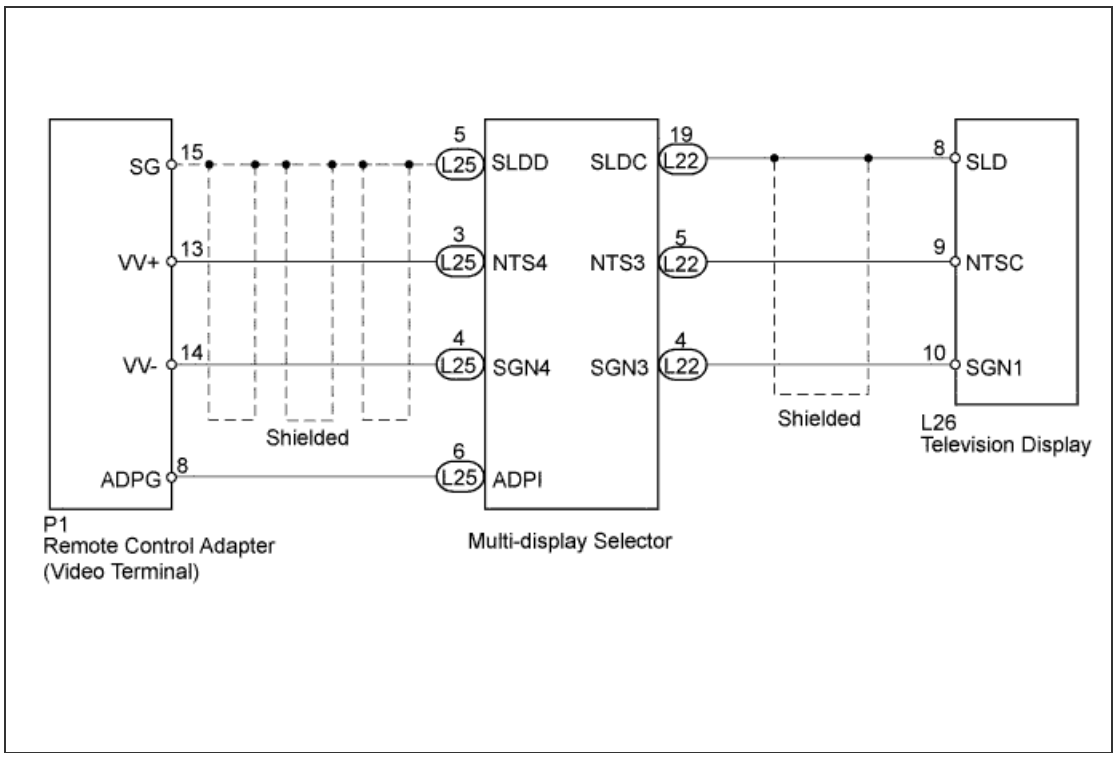
REPLACE MULTI-DISPLAY SELECTOR (Click here)

**for Preparation** Click here

## DESCRIPTION

This is the display signal circuit from the video terminal to the television display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK TELEVISION DISPLAY ASSEMBLY

a. Disconnect the L26 display connector.

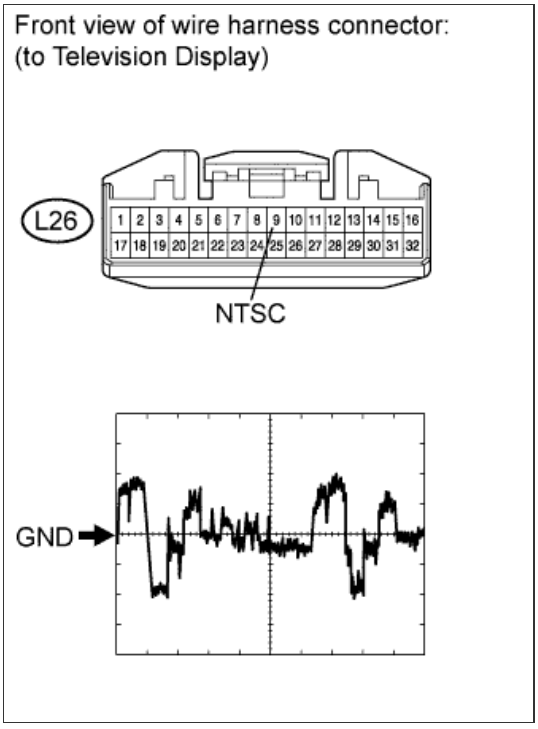
b. Using an oscilloscope, check the signal waveform between each terminal and the body ground according to the conditions shown in the chart below.

**Measurement Condition**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | L26-9 (NTSC) - Body ground |
| Tool Setting | 200 mV/DIV., 10 µsec./DIV. |
| Condition | DVD displayed on television display |

**OK:**

**Waveform is as shown in the illustration.**



NG → Go to step 2

OK

REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

2.CHECK HARNESS AND CONNECTOR (REMOTE CONTROL ADAPTER - MULTI-DISPLAY SELECTOR)

a. Disconnect the P1 adapter connector.

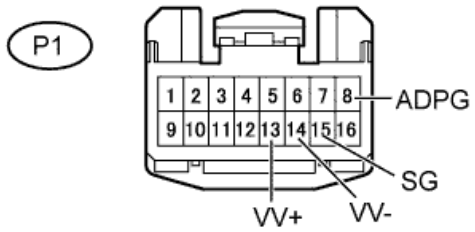
b. Disconnect the L25 selector connector.

c. Measure the resistance according to the value(s) in the table below.

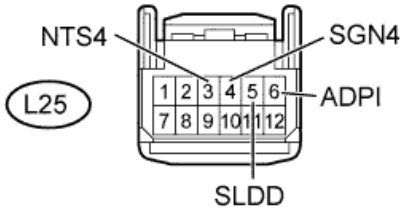
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P1-13 (VV+) - L25-3 (NTS4) | Always | Below 1 Ω |
| P1-14 (VV-) - L25-4 (SGN4) | | |
| P1-8 (ADPG) - L25-6 (ADPI) | | |
| P1-15 (SG) - L25-5 (SLDD) | | |
| L25-3 (NTS4) - Body ground | Always | 10 kΩ or higher |
| L25-4 (SGN4) - Body ground | | |
| L25-6 (ADPI) - Body ground | | |
| L25-5 (SLDD) - Body ground | | |

Front view of wire harness connector:
(to Remote Control Adapter)




Front view of wire harness connector:
(to Multi-display Selector)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY SELECTOR - TELEVISION DISPLAY ASSEMBLY)

a. Disconnect the L22 selector connector.

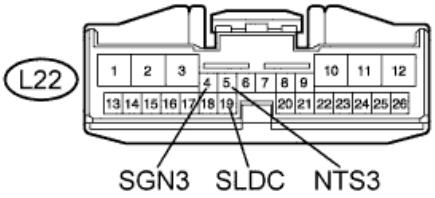
b. Disconnect the L26 display connector.

c. Measure the resistance according to the value(s) in the table below.

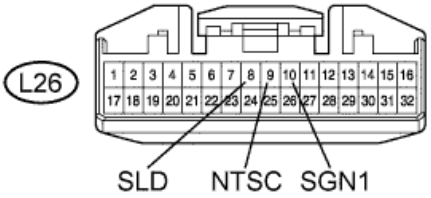
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L22-5 (NTS3) - L26-9 (NTSC) | Always | Below 1 Ω |
| L22-4 (SGN3) - L26-10 (SGN1) | | |
| L22-19 (SLDC) - L26-8 (SLD) | | |
| L22-5 (NTS3) - Body ground | Always | 10 kΩ or higher |
| L22-4 (SGN3) - Body ground | | |

Front view of wire harness connector:
(to Multi-display Selector)




Front view of wire harness connector:
(to Television Display)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**4.REPLACE REMOTE CONTROL ADAPTER WITH NORMAL ONE AND CHECK**

a. Replace the remote control adapter (Click here) with a normal one and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

NG → REPLACE MULTI-DISPLAY SELECTOR (**Click here**)

OK

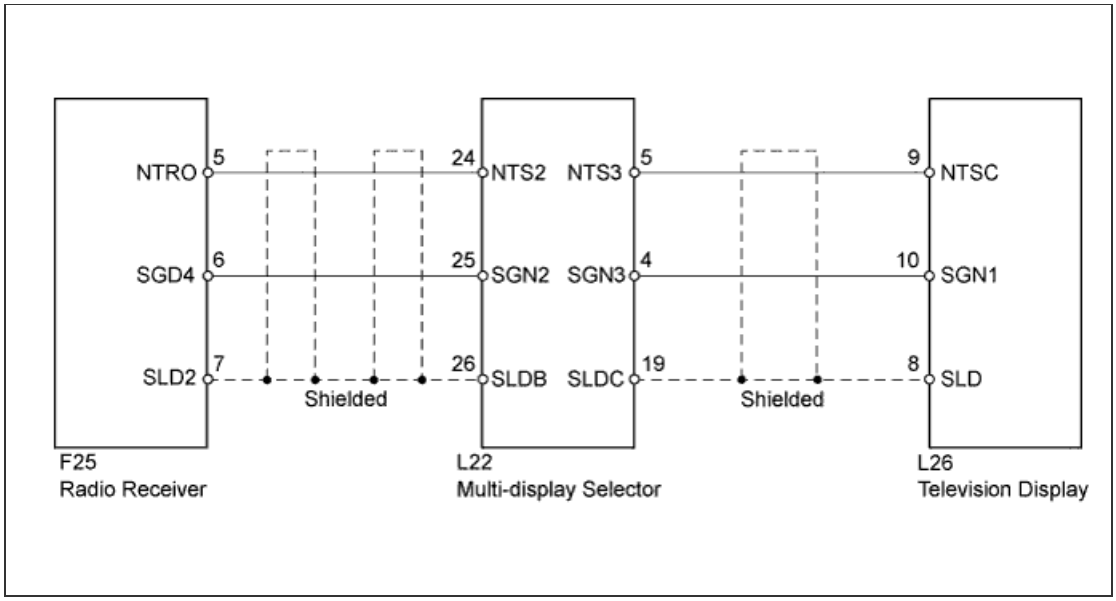
**END (HEADPHONE TERMINAL IS DEFECTIVE)**

**for Preparation** Click here

## DESCRIPTION

This is the display signal circuit from the radio receiver to the television display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK TELEVISION DISPLAY ASSEMBLY

a. Disconnect the L26 display connector.

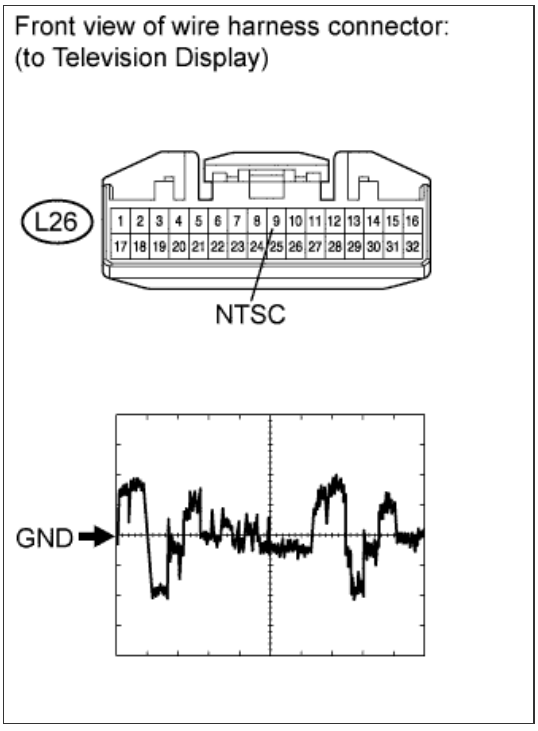
b. Using an oscilloscope, check the signal waveform between each terminal and the body ground according to the conditions shown in the chart below.

**Measurement Condition**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | L26-9 (NTSC) - Body ground |
| Tool Setting | 200 mV/DIV., 10 µsec./DIV. |
| Condition | DVD displayed on television display |

**OK:**

**Waveform is as shown in the illustration.**




NG → Go to step 2

OK

REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

2.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - MULTI-DISPLAY SELECTOR)

a. Disconnect the F25 receiver connector.

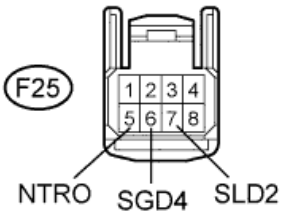
b. Disconnect the L22 selector connector.

c. Measure the resistance according to the value(s) in the table below.

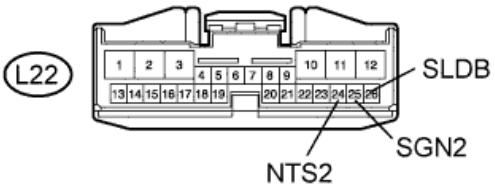
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F25-5 (NTRO) - L22-24 (NTS2) | Always | Below 1 Ω |
| F25-6 (SGD4) - L22-25 (SGN2) | | |
| F25-7 (SLD2) - L22-26 (SLDB) | | |
| L22-24 (NTS2) - Body ground | Always | 10 kΩ or higher |
| L22-25 (SGN2) - Body ground | | |
| L22-26 (SLDB) - Body ground | | |

Front view of wire harness connector:
(to Radio Receiver)




Front view of wire harness connector:
(to Multi-display Selector)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY SELECTOR - TELEVISION DISPLAY ASSEMBLY)

a. Disconnect the L22 selector connector.

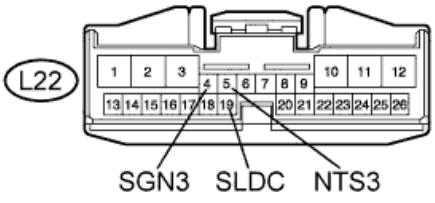
b. Disconnect the L26 display connector.

c. Measure the resistance according to the value(s) in the table below.

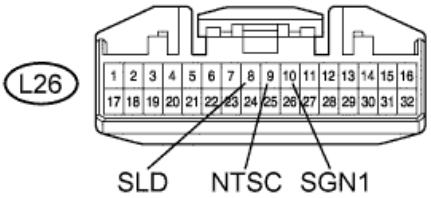
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L22-5 (NTS3) - L26-9 (NTSC) | Always | Below 1 Ω |
| L22-4 (SGN3) - L26-10 (SGN1) | | |
| L22-19 (SLDC) - L26-8 (SLD) | | |
| L22-5 (NTS3) - Body ground | Always | 10 kΩ or higher |
| L22-4 (SGN3) - Body ground | | |
| L22-19 (SLDC) - Body ground | | |

Front view of wire harness connector:
(to Multi-display Selector)




Front view of wire harness connector:
(to Television Display)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.REPLACE MULTI-DISPLAY SELECTOR WITH NORMAL ONE AND CHECK

a. Replace the multi-display selector with a normal one and check if the same problem occurs again ( Click here).

**OK:**
**Same problem does not occur.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (**Click here**)

OK

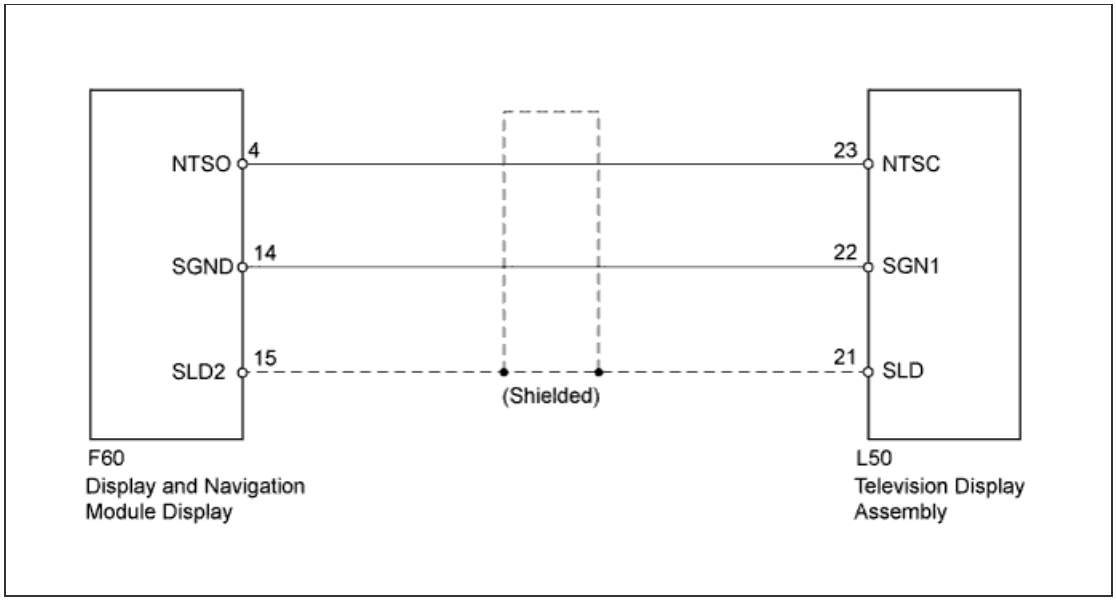
END (MULTI-DISPLAY SELECTOR IS DEFECTIVE)

**for Preparation** Click here

## DESCRIPTION

This is the display signal circuit from the display and navigation module display to the television display assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**1.CHECK HARNESS AND CONNECTOR (NAVIGATION ECU - TELEVISION DISPLAY)**

a. Disconnect the F60 display and navigation module display connector.

b. Disconnect the L50 television display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F60-4 (NTSO) - L50-23 (NTSC) | Always | Below 1 Ω |
| F60-14 (SGND) - L50-22 (SGN1) | Always | Below 1 Ω |
| F60-15 (SLD2) - L50-21 (SLD) | Always | Below 1 Ω |
| F60-4 (NTSO) - Body ground | Always | 10 kΩ or higher |
| F60-14 (SGND) - Body ground | Always | 10 kΩ or higher |
| F60-15 (SLD2) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

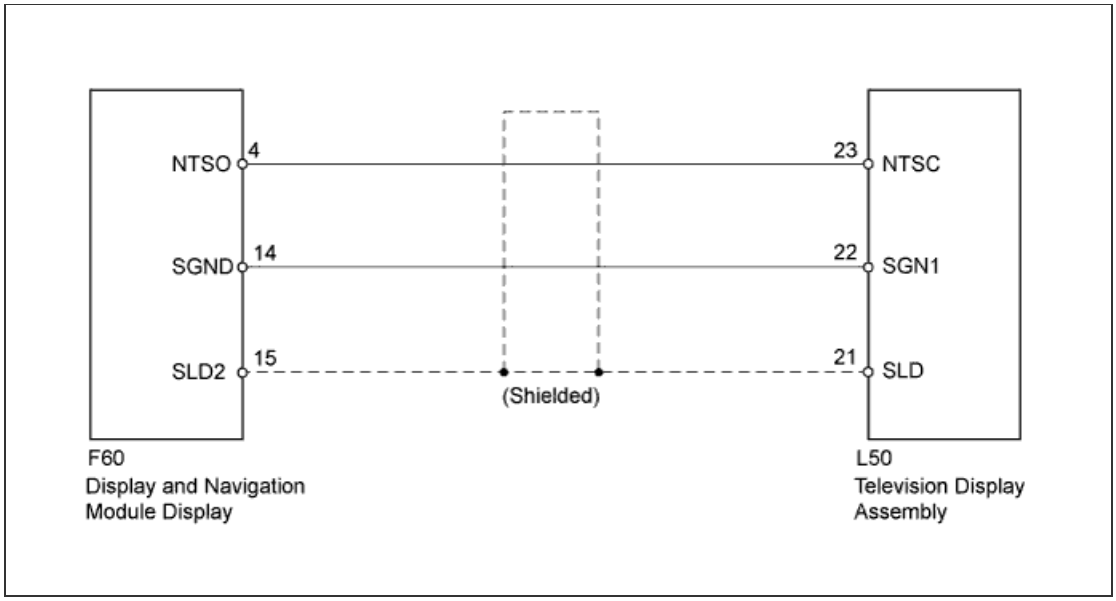
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This is the display signal circuit from the display and navigation module display to the television display assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**1.CHECK HARNESS AND CONNECTOR (NAVIGATION ECU - TELEVISION DISPLAY)**

a. Disconnect the F60 display and navigation module display connector.

b. Disconnect the L50 television display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F60-4 (NTSO) - L50-23 (NTSC) | Always | Below 1 Ω |
| F60-14 (SGND) - L50-22 (SGN1) | Always | Below 1 Ω |
| F60-15 (SLD2) - L50-21 (SLD) | Always | Below 1 Ω |
| F60-4 (NTSO) - Body ground | Always | 10 kΩ or higher |
| F60-14 (SGND) - Body ground | Always | 10 kΩ or higher |
| F60-15 (SLD2) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

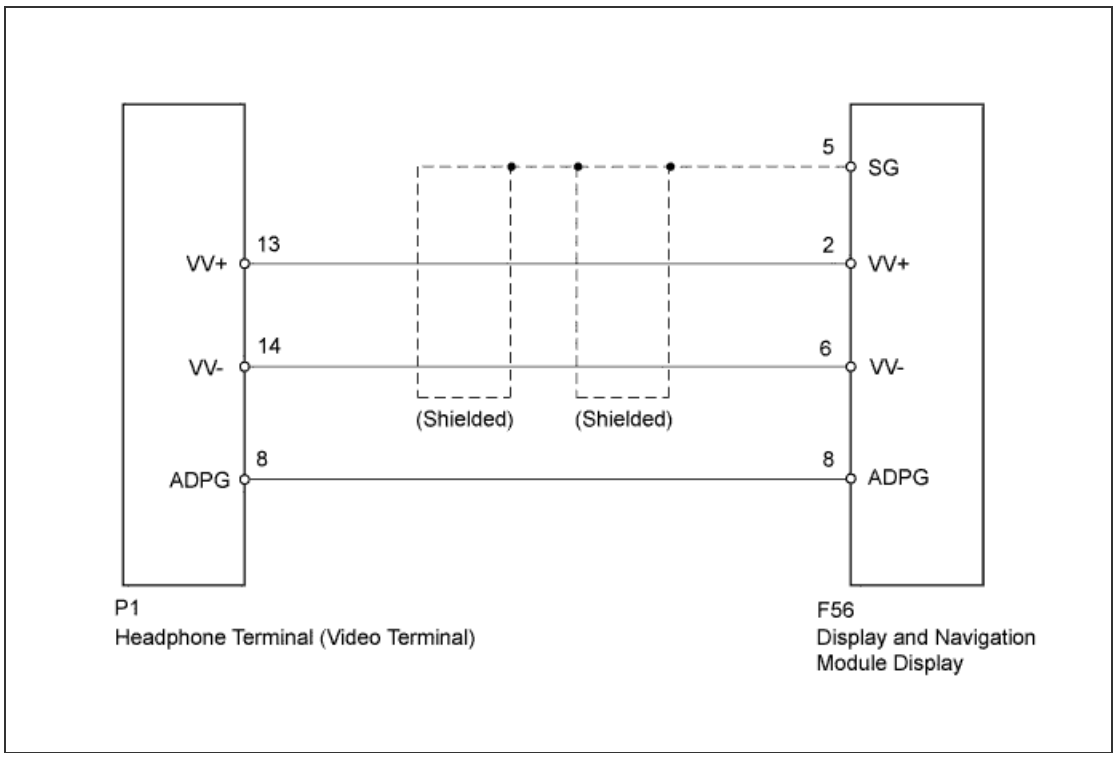
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This is the display signal circuit from the video terminal to the display and navigation module display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (VIDEO TERMINAL - NAVIGATION ECU)

a. Disconnect the P1 headphone terminal connector.

b. Disconnect the F56 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P1-13 (VV+) - F56-2 (VV+) | Always | Below 1 Ω |
| P1-14 (VV-) - F56-6 (VV-) | Always | Below 1 Ω |
| P1-8 (ADPG) - F56-8 (ADPG) | Always | Below 1 Ω |
| F56-2 (VV+) - Body ground | Always | 10 kΩ or higher |
| F56-6 (VV-) - Body ground | Always | 10 kΩ or higher |
| F56-5 (SG) - Body ground | Always | 10 kΩ or higher |
| F56-8 (ADPG) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

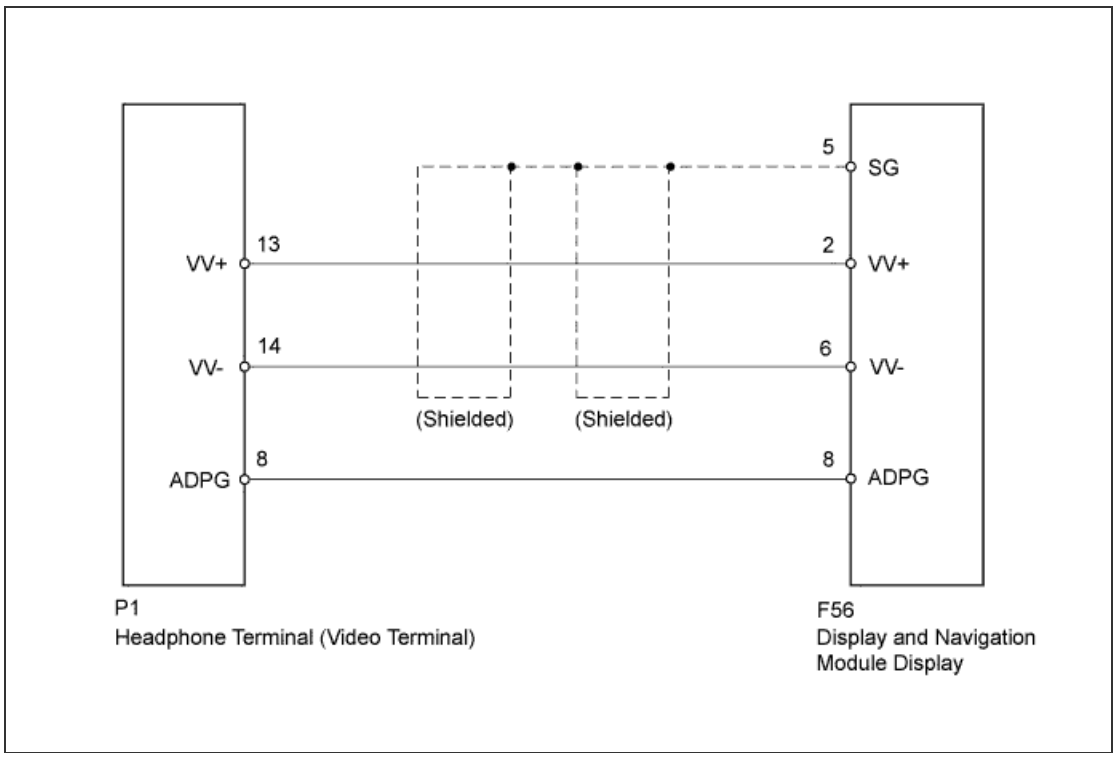
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This is the display signal circuit from the video terminal to the display and navigation module display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (VIDEO TERMINAL - NAVIGATION ECU)

a. Disconnect the P1 headphone terminal connector.

b. Disconnect the F56 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P1-13 (VV+) - F56-2 (VV+) | Always | Below 1 Ω |
| P1-14 (VV-) - F56-6 (VV-) | Always | Below 1 Ω |
| P1-8 (ADPG) - F56-8 (ADPG) | Always | Below 1 Ω |
| F56-2 (VV+) - Body ground | Always | 10 kΩ or higher |
| F56-6 (VV-) - Body ground | Always | 10 kΩ or higher |
| F56-5 (SG) - Body ground | Always | 10 kΩ or higher |
| F56-8 (ADPG) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

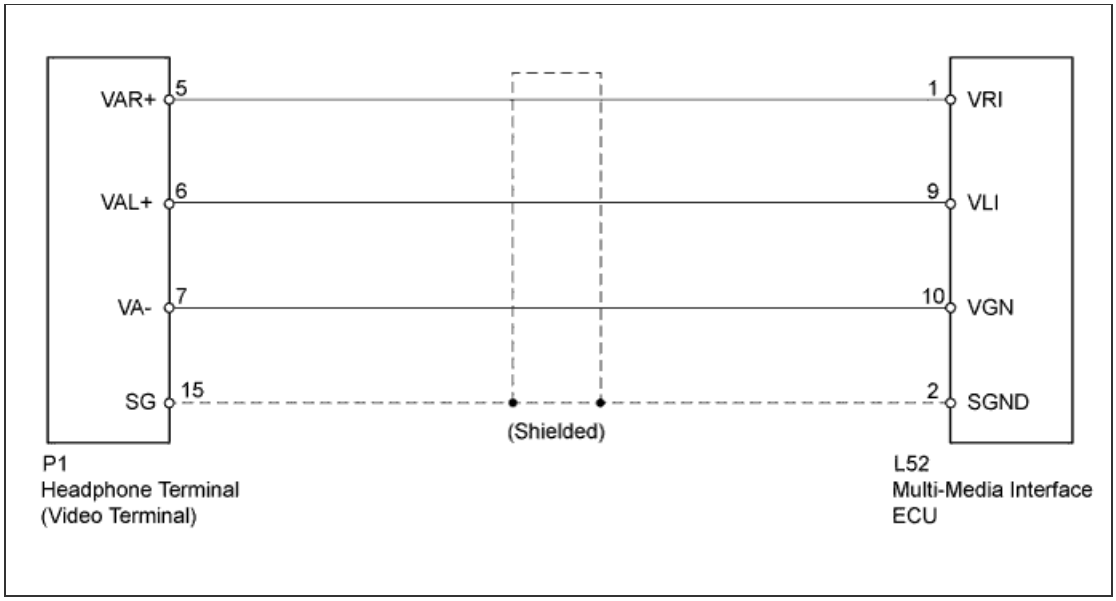
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This is the sound signal circuit from the video terminal to the multi-media interface ECU.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**1.CHECK HARNESS AND CONNECTOR (VIDEO TERMINAL - MULTI-MEDIA INTERFACE ECU)**

a. Disconnect the P1 video terminal connector.

b. Disconnect the L52 multi-media interface ECU connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P1-5 (VAR+) - L52-1 (VRI) | Always | Below 1 Ω |
| P1-6 (VAL+) - L52-9 (VLI) | Always | Below 1 Ω |
| P1-7 (VA-) - L52-10 (VGN) | Always | Below 1 Ω |
| P1-15 (SG) - L52-2 (SGND) | Always | Below 1 Ω |
| P1-5 (VAR+) - Body ground | Always | 10 kΩ or higher |
| P1-6 (VAL+) - Body ground | Always | 10 kΩ or higher |
| P1-7 (VA-) - Body ground | Always | 10 kΩ or higher |
| P1-15 (SG) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

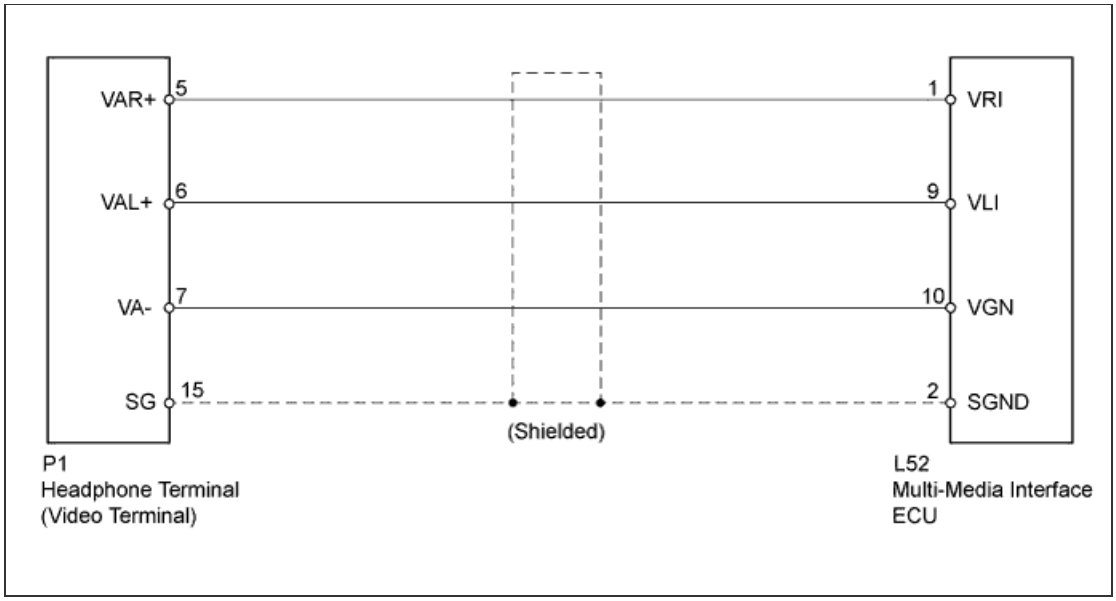
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This is the sound signal circuit from the video terminal to the multi-media interface ECU.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**1.CHECK HARNESS AND CONNECTOR (VIDEO TERMINAL - MULTI-MEDIA INTERFACE ECU)**

a. Disconnect the P1 video terminal connector.

b. Disconnect the L52 multi-media interface ECU connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P1-5 (VAR+) - L52-1 (VRI) | Always | Below 1 Ω |
| P1-6 (VAL+) - L52-9 (VLI) | Always | Below 1 Ω |
| P1-7 (VA-) - L52-10 (VGN) | Always | Below 1 Ω |
| P1-15 (SG) - L52-2 (SGND) | Always | Below 1 Ω |
| P1-5 (VAR+) - Body ground | Always | 10 kΩ or higher |
| P1-6 (VAL+) - Body ground | Always | 10 kΩ or higher |
| P1-7 (VA-) - Body ground | Always | 10 kΩ or higher |
| P1-15 (SG) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

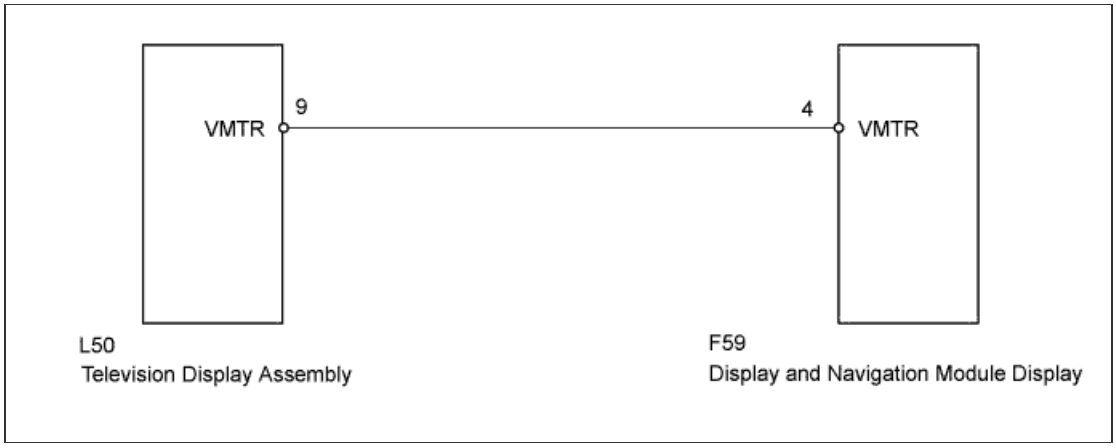
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This is the visual mute signal circuit from the display and navigation module display to the television display assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

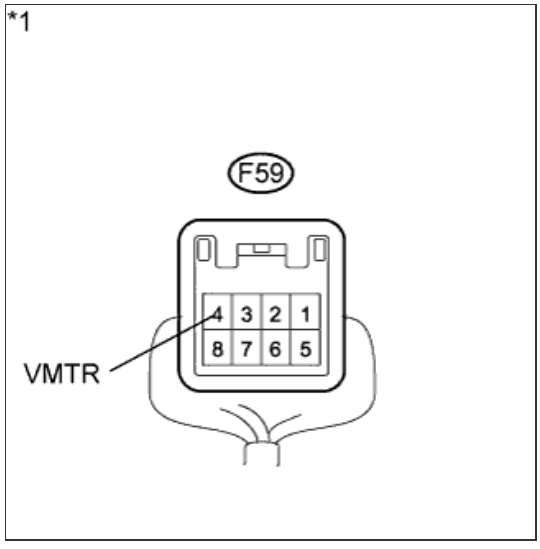
a. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F59-4 (VMTR) - Body ground | RSE is playing → Source is changed | 4 V or higher → Below 0.7 V → 4 V or higher |

**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Display and Navigation Module Display) |




NG → Go to step 2

OK →

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

### 2.CHECK HARNESS AND CONNECTOR (NAVIGATION ECU - TELEVISION DISPLAY)

a. Disconnect the F59 display and navigation module display connector.

b. Disconnect the L50 television display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| | | Specified |
|---|---|---|

| Tester Connection | Condition | Condition |
|---|---|---|
| F59-4 (VMTR) - L50-9 (VMTR) | Always | Below 1 Ω |
| F59-4 (VMTR) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**3.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY**

a. Reconnect the F59 display and navigation module display connector.

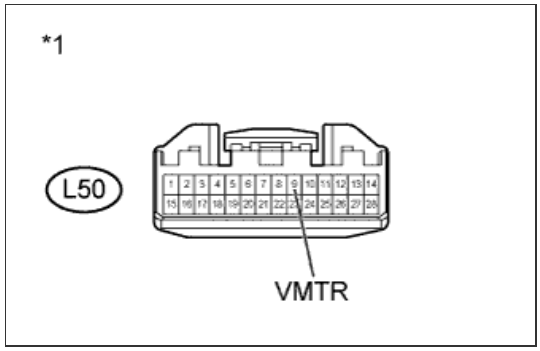
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-9 (VMTR) - Body ground | Display is operating | 4 V or higher |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Television Display Assembly)) |




NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

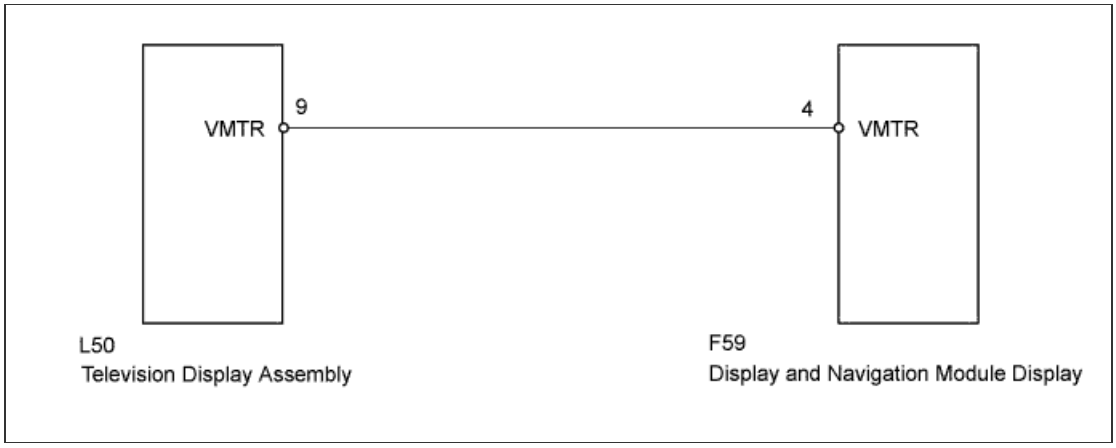
REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

**for Preparation** Click here

## DESCRIPTION

This is the visual mute signal circuit from the display and navigation module display to the television display assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

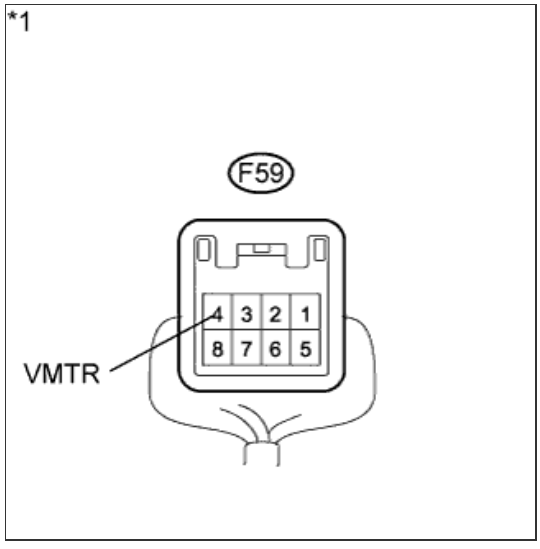
a. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F59-4 (VMTR) - Body ground | RSE is playing → Source is changed | 4 V or higher → Below 0.7 V → 4 V or higher |

**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Display and Navigation Module Display) |




NG → Go to step 2

OK →

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

### 2.CHECK HARNESS AND CONNECTOR (NAVIGATION ECU - TELEVISION DISPLAY)

a. Disconnect the F59 display and navigation module display connector.

b. Disconnect the L50 television display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| | | Specified |
|---|---|---|

| Tester Connection | Condition | Condition |
|---|---|---|
| F59-4 (VMTR) - L50-9 (VMTR) | Always | Below 1 Ω |
| F59-4 (VMTR) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**3.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY**

a. Reconnect the F59 display and navigation module display connector.

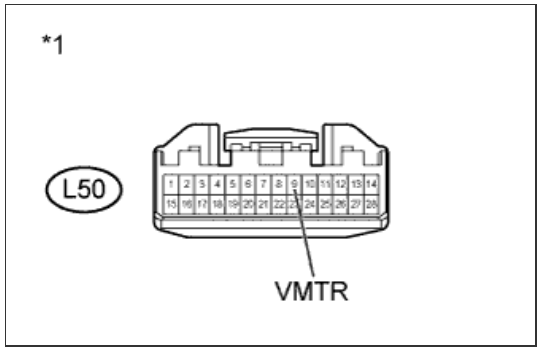
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-9 (VMTR) - Body ground | Display is operating | 4 V or higher |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Television Display Assembly)) |




NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

**for Preparation** Click here

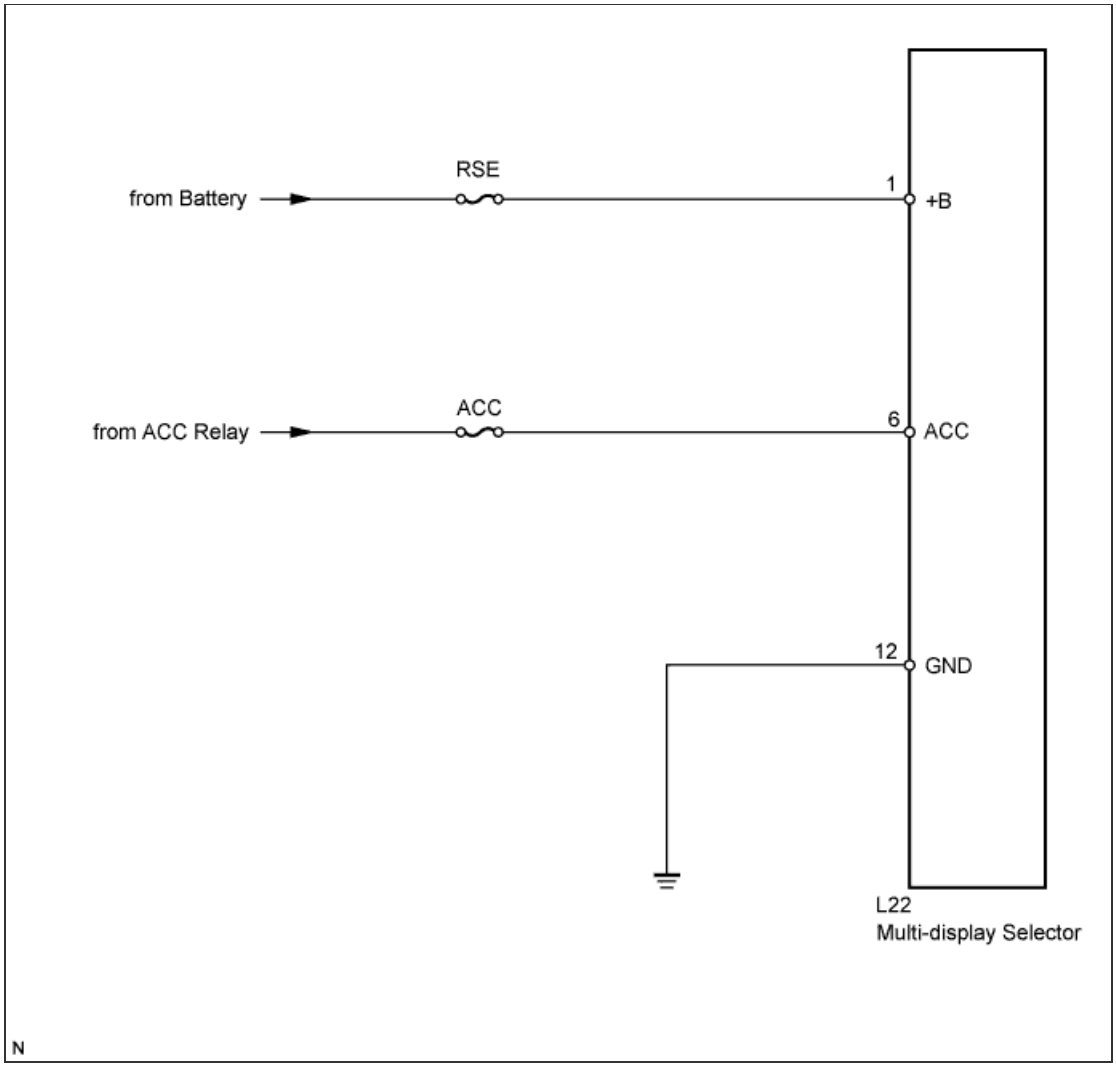
## DESCRIPTION

This circuit provides power to the multi-display selector.

**HINT:**

"Multi-display Controller" refers to the multi-display selector.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.INSPECT FUSE (RSE, ACC)

a. Disconnect the RSE fuse from the engine room relay block.

b. Disconnect the ACC fuse from the main body ECU.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| RSE fuse | Always | Below 1 Ω |
| ACC fuse | | |

NG → REPLACE FUSE

OK

2.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY SELECTOR - BATTERY AND BODY GROUND)

a. Disconnect the L22 selector connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

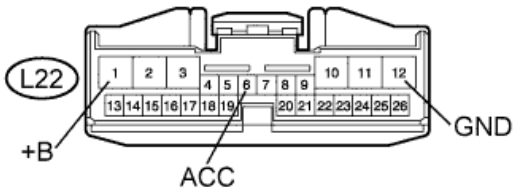
| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L22-12 (GND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| L22-1 (+B) - Body ground | Always | 11 to 14 V |
| L22-6 (ACC) - Body ground | Engine switch on (ACC) | 11 to 14 V |

Front view of wire harness connector:
(to Multi-display Selector)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

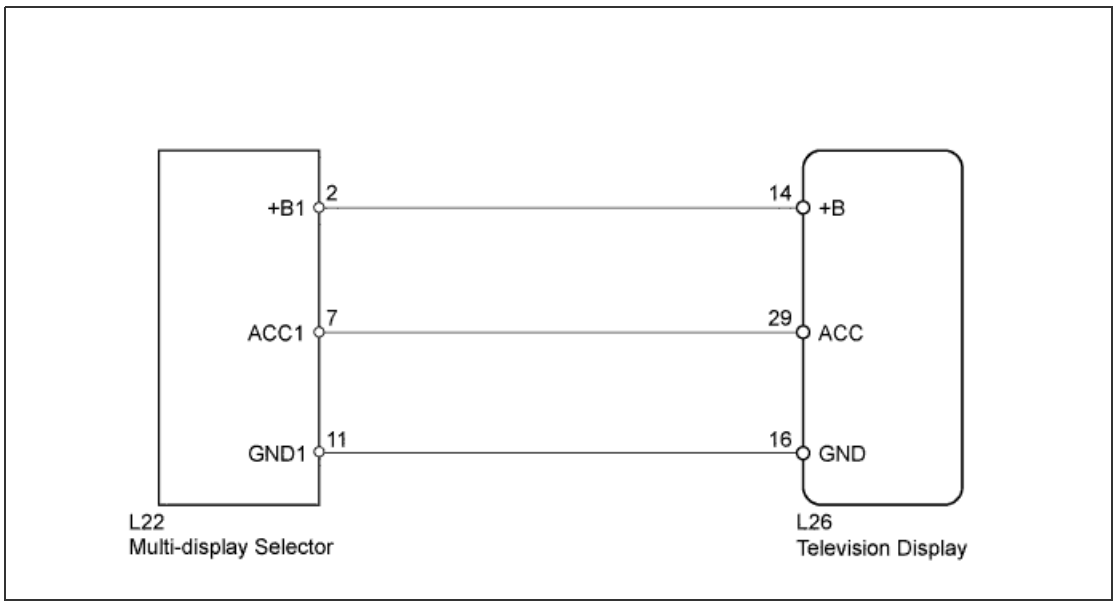
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit provides power to the television display. The power is sent from the battery to the television display through the multi-display selector.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK TELEVISION DISPLAY ASSEMBLY

a. Disconnect the L26 display connector.

b. Measure the resistance according to the value(s) in the table below.

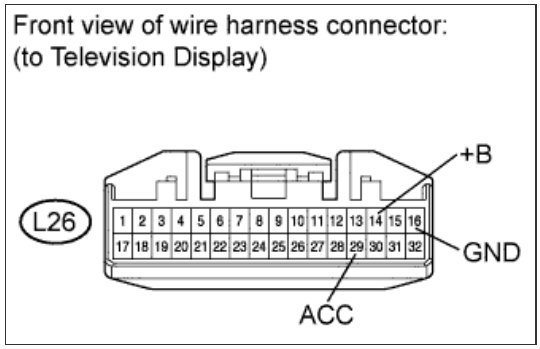
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L26-16 (GND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| L26-14 (+B) - Body ground | Always | 11 to 14 V |
| L26-29 (ACC) - Body ground | Engine switch on (ACC) | 11 to 14 V |




NG → Go to step 2

OK → PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

### 2.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY - MULTI-DISPLAY SELECTOR)

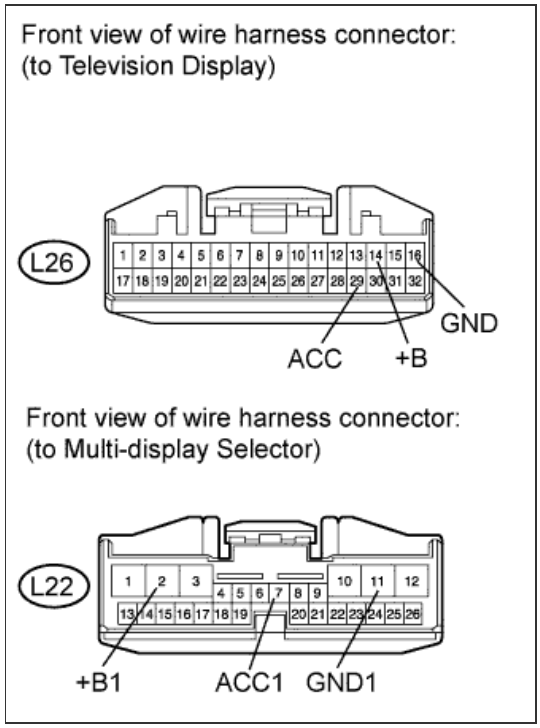
a. Disconnect the L26 display connector.

b. Disconnect the L22 selector connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L26-14 (+B) - L22-2 (+B1) | Always | Below 1 Ω |
| L26-29 (ACC) - L22-7 (ACC1) | | |
| L26-16 (GND) - L22-11 (GND1) | | |
| L26-14 (+B) - Body ground | Always | 10 kΩ or higher |
| L26-29 (ACC) - Body ground | | |
| L26-16 (GND) - Body ground | | |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

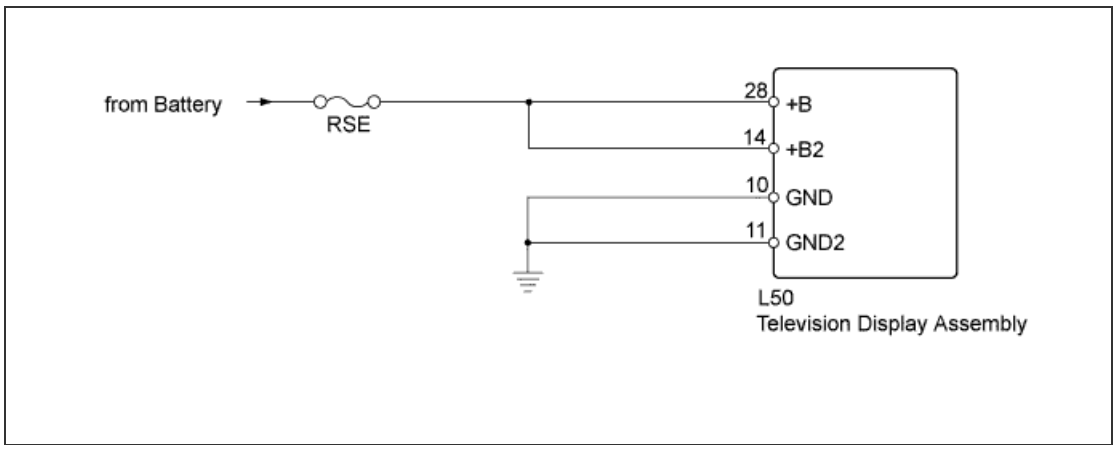
REPLACE MULTI-DISPLAY SELECTOR (Click here)

**for Preparation** Click here

## DESCRIPTION

This is the power source circuit of the television display assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

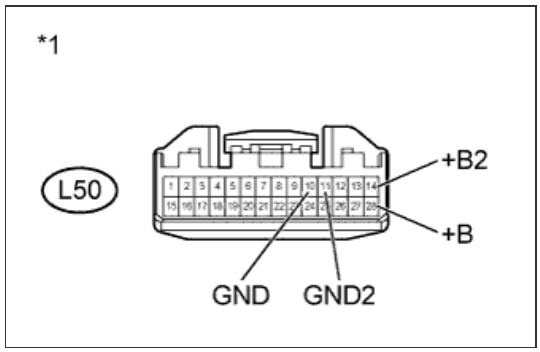
**1.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - BATTERY AND BODY GROUND)**

a. Disconnect the L50 television display assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-10 (GND) - Body ground | Always | Below 1 Ω |
| L50-11 (GND2) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-14 (+B2) - L50-10 (GND) | Always | 11 to 14 V |
| L50-28 (+B) - L50-10 (GND) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Television Display Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

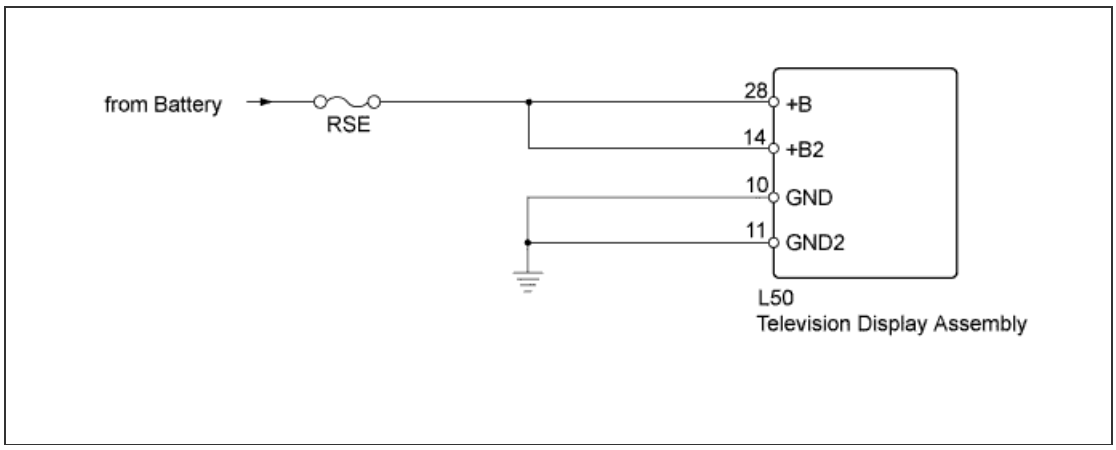
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This is the power source circuit of the television display assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

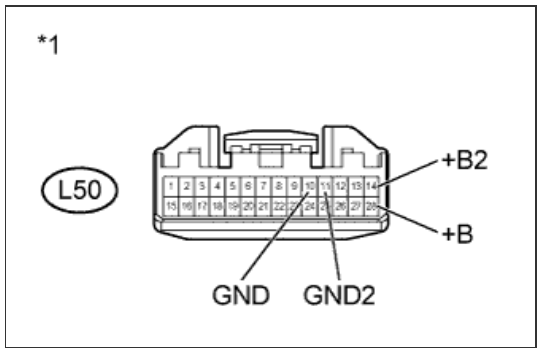
**1.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - BATTERY AND BODY GROUND)**

a. Disconnect the L50 television display assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-10 (GND) - Body ground | Always | Below 1 Ω |
| L50-11 (GND2) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-14 (+B2) - L50-10 (GND) | Always | 11 to 14 V |
| L50-28 (+B) - L50-10 (GND) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Television Display Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## 1.PRECAUTION FOR DISCONNECTING CABLE FROM NEGATIVE BATTERY TERMINAL

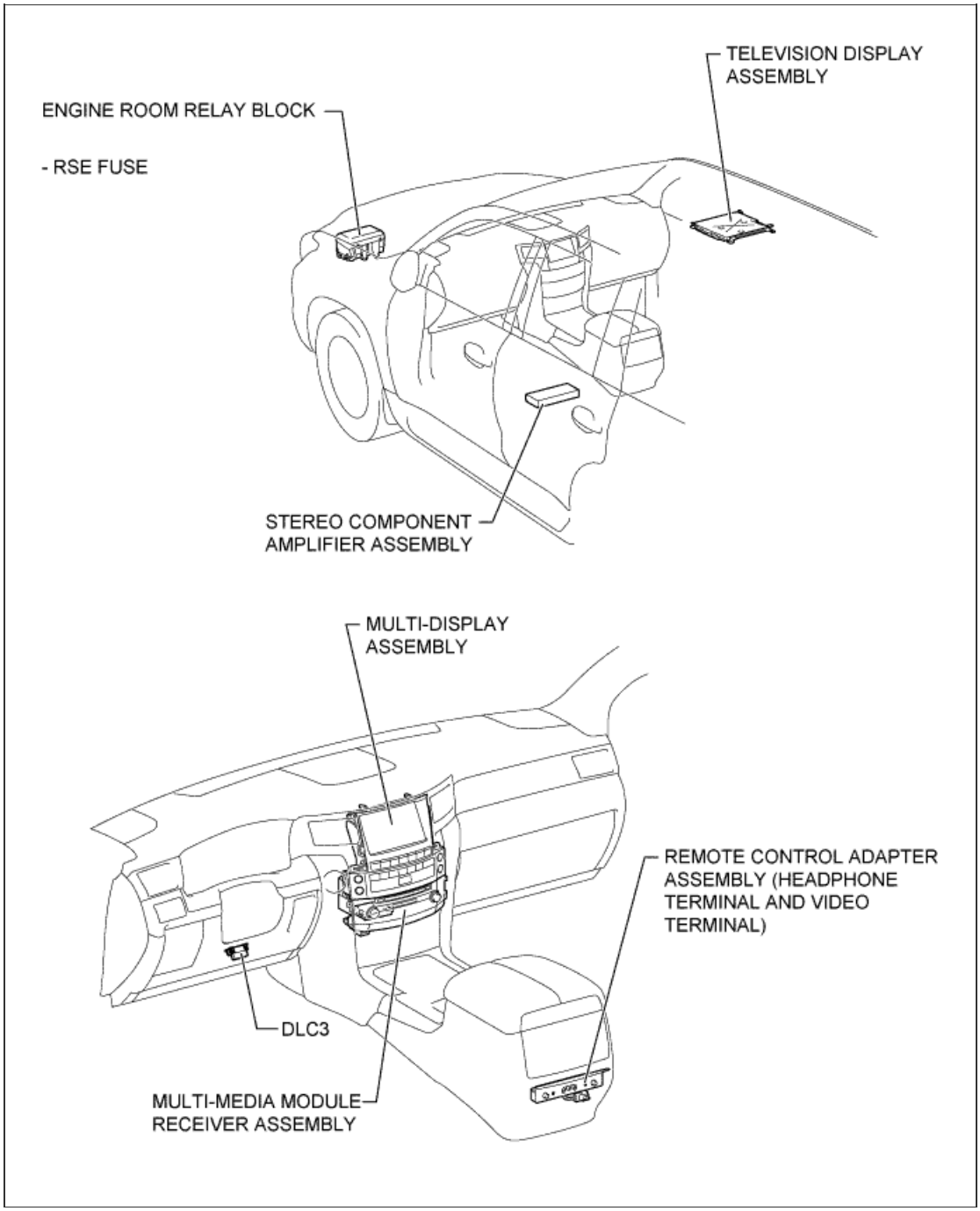
**NOTICE:**

After the engine switch is turned off, the multi-media module receiver assembly records various types of memory and settings. As a result, after turning the engine switch off, be sure to wait for the time specified in the following table before disconnecting the cable from the negative (-) battery terminal.

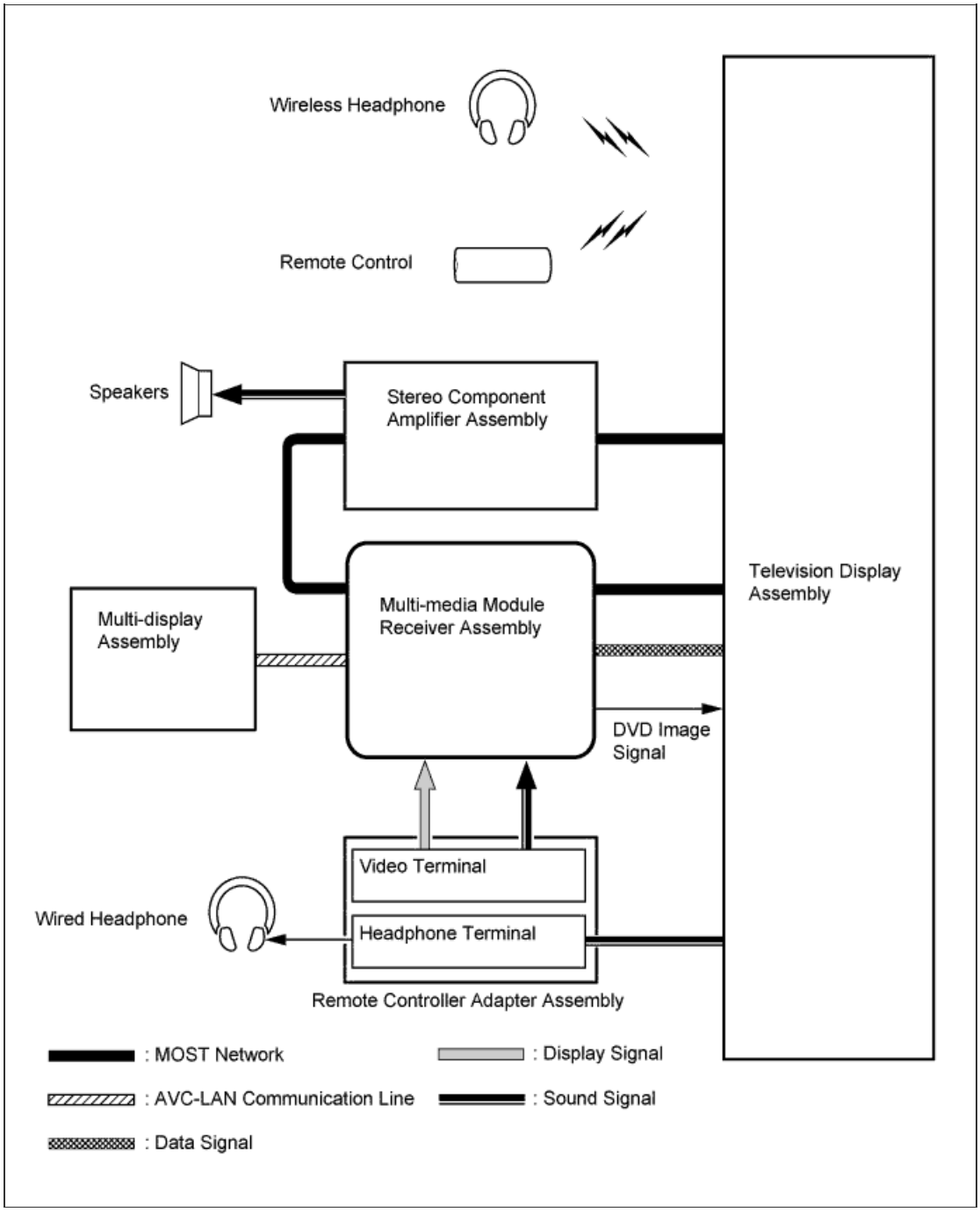
**Waiting Time before Disconnecting Cable from Negative (-) Battery Terminal**

| Condition | Waiting Time |
|---|---|
| Vehicle enrolled in G-BOOK system | 6 minutes |
| Vehicle not enrolled in G-BOOK system | 1 minute |

**for Preparation** Click here



**for Preparation** Click here



**for Preparation** Click here

## OUTLINE

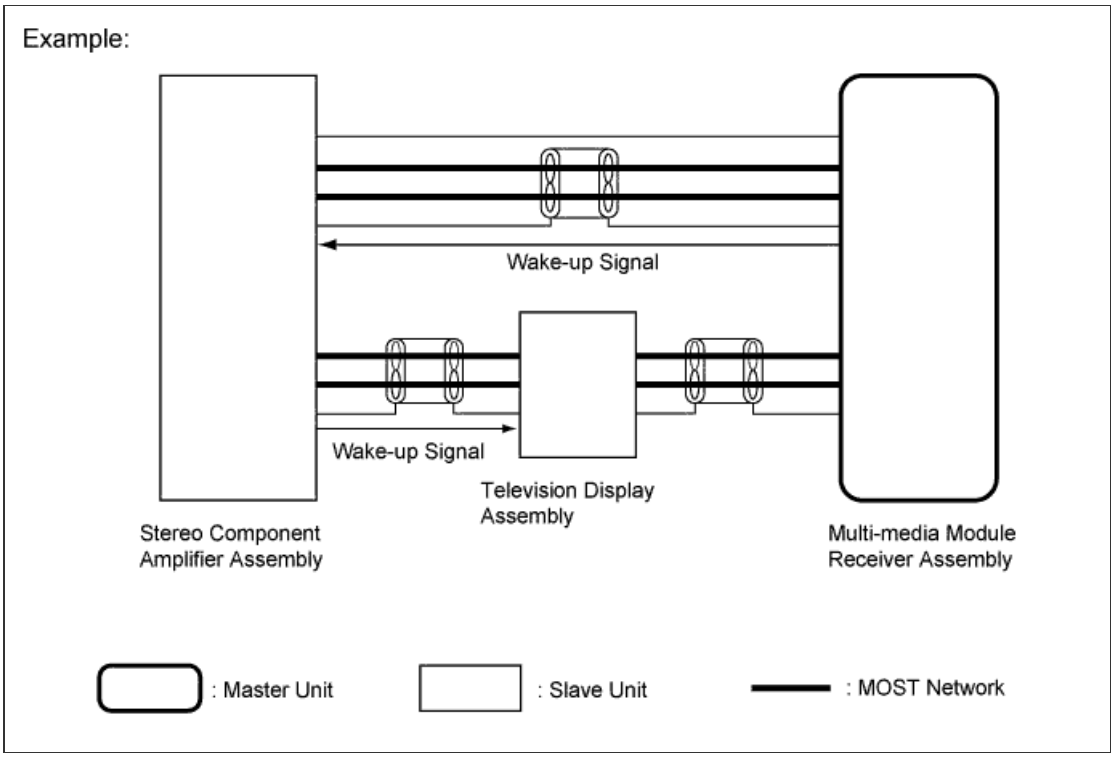
- As a unique feature of the Rear Seat Entertainment (RSE) system, the rear seat occupants can enjoy different audio-visual modes at the same time.
- The rear seat occupants can control the audio-visual modes with the remote control, and listen to audio by using wired or wireless headphones.
- The television display assembly receives image and sound signals from the multi-media module receiver assembly.
- The rear seat occupants can enjoy watching video by connecting an external device.
- MOST communication is used between the multi-media module receiver assembly and the television display assembly.
- Occupants in the front seats and rear seats can enjoy different content at the same time.

## FUNCTION OF MAIN COMPONENTS

| Component | Function |
|---|---|
| Television Display Assembly | • Displays DVD and video images in accordance with video signals from the multi-media module receiver assembly.<br>• Receives signals from the remote control and outputs them to the multi-media module receiver assembly.<br>• Outputs audio signals to the wireless headphones in the form of infrared signals.<br>• Displays the audio-visual control screen.<br>• Displays the adjustment screen.<br>• Displays the diagnosis screen. The diagnosis screen appears when diagnosis mode is started on the multi-display assembly.<br>• Even if the engine switch is turned from on (ACC) to off to on (ACC), display condition continues (image adjustments maintained, sources continue playing on the left and right sides).<br>• Processes video and audio signals from the video terminal and DVD image and audio signals from the multi-media module receiver assembly, and outputs them to the television display and headphone terminals. |
| Remote Control | Outputs various control signals of the RSE system to the television display assembly in the form of infrared signals. |
| Wireless Headphone | • Receives audio signals from the television display assembly in the form of infrared signals.<br>• Volume adjustment of the wireless headphone can be done by using the volume adjuster on the wireless headphone. |
| Headphone Terminal | • Outputs audio signals to the wired headphones that are connected.<br>• Adjusts the volume of the wired headphones in accordance with volume control. |
| Video Terminal | This terminal is for connecting the video player's video and audio output terminals. |
| Multi-media Module Receiver Assembly | Receives DVD image signals and sends the signals to the television display assembly and the multi-display assembly. |

## COMMUNICATION SYSTEM

a. MOST NETWORK OUTLINE




i. Audio and visual system components communicate with each other via the MOST network.

ii. The MOST network uses a shielded twisted pair of wires for its communication lines.

iii. The master unit of the MOST network is the multi-media module receiver assembly.

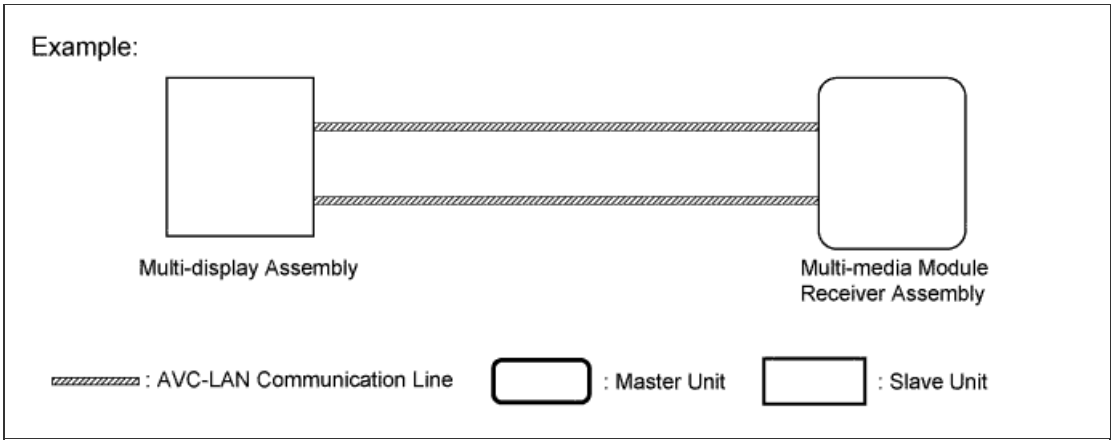
iv. MOST communication lines connect each slave unit centering around the master unit to form a MOST network ring.

v. The master unit sends a wake-up signal to activate each slave unit connected to the MOST network.

**HINT:**

If a short or open circuit occurs in the MOST circuit, communication will be interrupted and the system will not operate normally.

b. AVC-LAN OUTLINE




i. Components of the audio and visual system communicate with each other via the AVC-LAN.

ii. The AVC-LAN uses a twisted pair of wires for its communication lines.

iii. The master unit of the AVC-LAN is the multi-media module receiver assembly.

**HINT:**

- **The multi-media module receiver assembly has enough resistance (60 to 80 Ω) necessary for communication.**
- **If a short or open circuit occurs in the AVC-LAN circuit, communication is interrupted and system will not operate normally.**

## DIAGNOSIS FUNCTION

a. When the navigation system changes to the diagnosis screen, the television display assembly shows the "REAR Check" screen.

## Digital Versatile Disc (DVD) PLAYER OUTLINE

a. The DVD player can only play DVD videos that have one of the following marks:



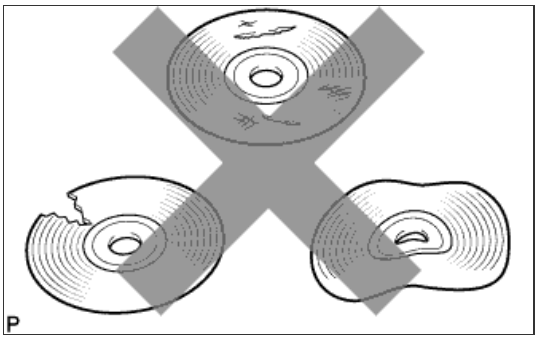

i. Precaution for use of discs

**NOTICE:**

- **Keep the discs away from dirt. Be careful not to damage the discs or leave your fingerprints on them.**
- **Hold discs by the outer edge and center hole with the label side up.**
- **Leaving the disc exposed halfway out of the slot for a long time after pressing the disc eject button may cause deformation of the disc, making the disc unusable.**
- **Do not use uniquely-shaped CDs because these may cause player malfunctions.**
- **Do not use discs whose recording portion is transparent or translucent because they may not be able to be inserted, ejected or played normally.**

b. Check disc

i. Check that the disc is not deformed or cracked.



c. Disc cleaning

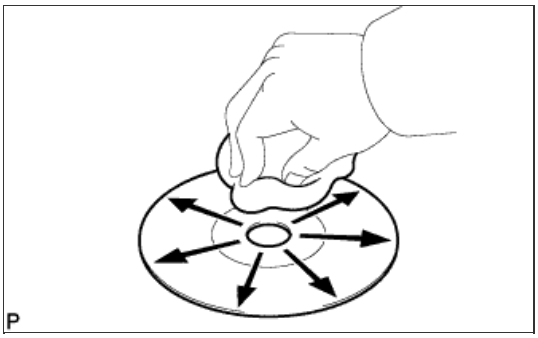
**NOTICE:**

Do not use a lens cleaner because it may cause a malfunction in the pickup portion of the player.

i. If dirt is on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

**NOTICE:**

- **Pressing on the disc by hand or rubbing the disc with a hard cloth may scratch the disc surface.**
- **Use of solvent such as a record spray, antistatic agent, alcohol, benzine, and thinner or a chemical cloth may cause damage to the disc, making the disc unusable.**



**for Preparation** Click here

**HINT:**

- **Use the following procedure to troubleshoot the rear seat entertainment system.**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

NEXT

## 2.INSPECT BATTERY VOLTAGE

a. Inspect the battery voltage.

**Standard voltage:**
**11 to 14 V**

If the voltage is below 11 V, recharge or replace the battery before proceeding to next step.

NEXT

## 3.CHECK FOR DTC*

a. Refer to DTC Check / Clear ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is output. | A |
| DTC is not output. | B |

**HINT:**

If more information is needed, perform a recheck using the "System Check Mode" screen after rechecking for DTCs using the intelligent tester (Click here).

B. → Go to step 7

A

## 4.CLEAR DTC*

a. Clear the DTCs and finish diagnostic mode.

**HINT:**

The current DTCs may not indicate actual malfunctions depending on the vehicle operating conditions.

NEXT

## 5.RECHECK FOR DTC*

a. Recheck for DTCs.

**Result**

| Result | Proceed to |
|---|---|
| DTC is output. | A |

| | |
|---|---|
| DTC is not output. | B |

**HINT:**

- **Even if the malfunction symptom cannot be confirmed, check for DTCs. This is because the system stores history DTCs.**
- **If more information is needed, perform a recheck using the "System Check Mode" screen after rechecking for DTCs using the intelligent tester (Click here).**
- **Check the DTC and inspect the area the code indicates.**

| | |
|---|---|
| B. | Go to step 7 |

A

## 6.DIAGNOSTIC TROUBLE CODE CHART

a. Find the output code in the diagnostic trouble code chart ( Click here).

**NOTICE:**

- **The rear seat entertainment system outputs DTCs for the following system.**
- **When DTCs other than those in Diagnostic Trouble Code Chart for the rear seat entertainment system are output, refer to Diagnostic Trouble Code Chart for the relevant system.**
- **Refer to Navigation System (Click here)**
- **Refer to Audio and Visual System (Click here)**

**Result**

| Result | Proceed to |
|---|---|
| DTCs for the rear seat entertainment system are output. | A |
| DTCs for the navigation system are output. | B |
| DTCs for the audio and visual system are output. | C |

| | |
|---|---|
| A. | Go to step 9 |
| B. | GO TO NAVIGATION SYSTEM (Click here) |
| C. | GO TO AUDIO AND VISUAL SYSTEM (Click here) |

## 7.PROBLEM SYMPTOMS TABLE

a. Refer to Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in Problem Symptoms Table. | A |
| Fault is listed in Problem Symptoms Table. | B |

**HINT:**

If the symptom does not recur and no DTC is output, perform the symptom simulation method ( Click here).

| | |
|---|---|
| B. | ADJUST, REPAIR OR REPLACE IN ACCORDANCE WITH PROBLEM SYMPTOMS TABLE |

A

## 8.CHECK ECU TERMINAL ARRANGEMENT BASED ON MALFUNCTION SYMPTOM

a. Refer to Terminals of ECU (Click here).

NEXT

**9.CHECK CIRCUIT**

a. Adjust, repair or replace as necessary.

NEXT

**10.RECHECK FOR DIAGNOSTIC TROUBLE CODE***

**HINT:**

After clearing the DTCs, recheck for DTCs.

NEXT

**11.PERFORM CONFIRMATION TEST**

NEXT

END

**for Preparation** Click here

## ENTER DIAGNOSTIC MODE

a. Enter diagnostic mode (Click here).

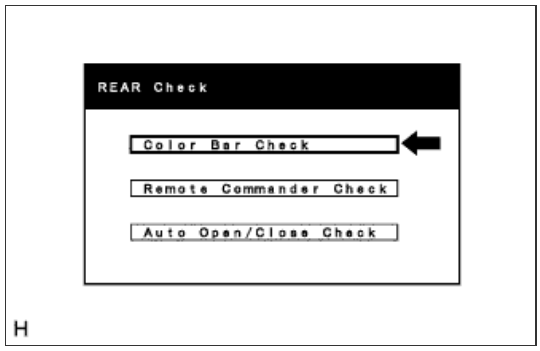
## REAR CHECK

**HINT:**

- **Use the remote control for each inspection.**
- **This mode checks the color display on the television display assembly.**
- **The television display assembly is not a touch panel type. Do not touch the screen.**

a. Color Bar Check

i. Select "Color Bar Check" from the "REAR Check" screen.

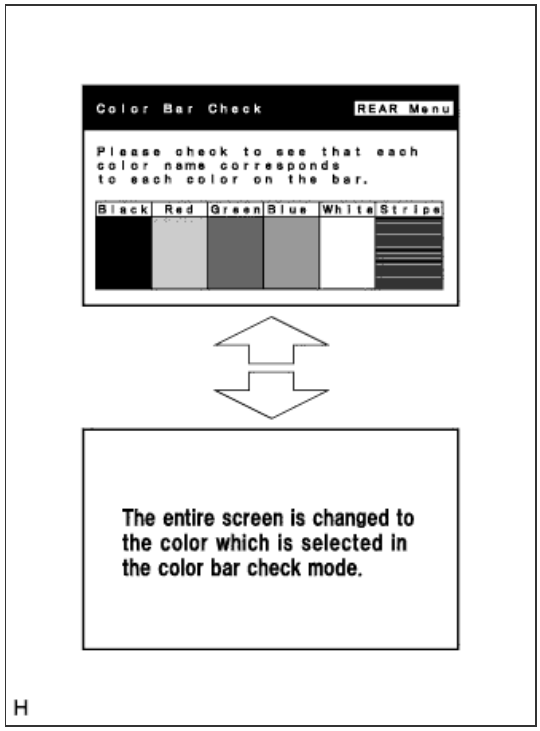



ii. Select a color bar from the "Color Bar Check" screen.

iii. Check the display color.

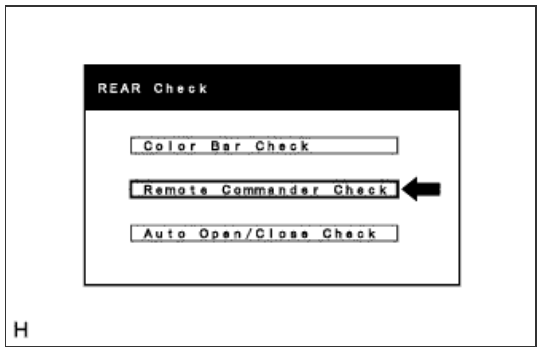
**HINT:**

- **The entire screen turns to the color or stripe which is selected.**
- **The screen returns to the "Color Bar Check" screen if the remote controller is operated again.**

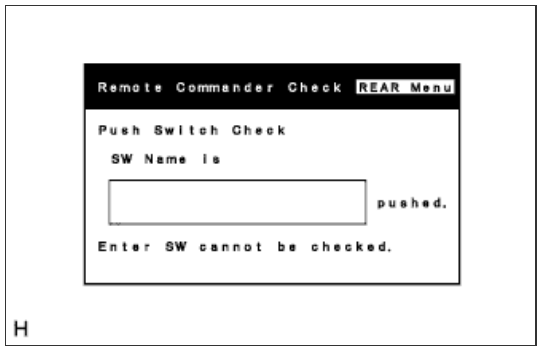



b. Remote Commander Check

i. Select "Remote Commander Check" from the "REAR Check" screen.

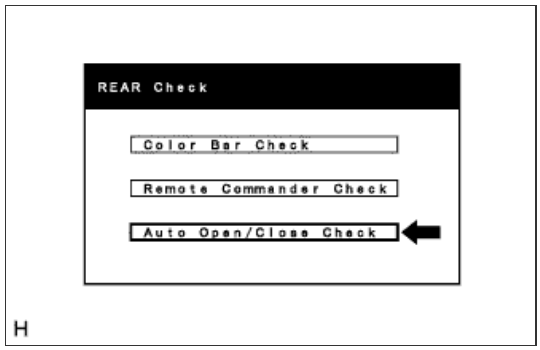



ii. Operate each switch and check that the switch name and condition are correctly displayed.




c. Auto Open/Close Check

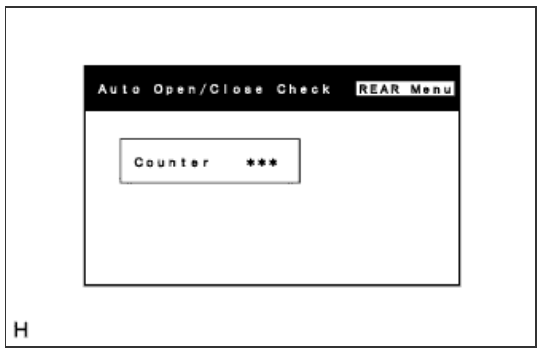
i. Select "Auto Open/Close Check" from the "REAR Check" screen.




ii. Confirm the number of open/close cycles of the television display assembly.

**HINT:**

The counter indicates the number of times the television display assembly has been opened to an angle of 90° or greater.



**for Preparation** Click here

**HINT:**

- **Use the table below to help determine the cause of the problem symptom. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**
- **Inspect the fuses and relays related to this system before inspecting the suspected areas below.**

**Display**

| Symptom | Suspected Area | See page |
|---|---|---|
| Black screen | Proceed to "Visual Mute Signal Circuit between Radio Receiver and Television Display" | Click here |
| | Proceed to "Display Signal Circuit between Radio Receiver and Television Display Assembly" | Click here |
| | Television display assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| Color on display screen is not usual. | Adjust the settings for contrast, tint, color and brightness | - |
| | Proceed to "Operation Check (Color Bar Check)" | Click here |
| | Television display assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| Only DVD screen is not displayed or not stabilized. | Check and clean disc | Click here |
| | Proceed to "Visual Mute Signal Circuit between Radio Receiver and Television Display" | Click here |
| | Proceed to "Display Signal Circuit between Radio Receiver and Television Display Assembly" | Click here |
| | Television display assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| Only display screen of external device does not appear or is not stabilized. | Check if the external device is normal | - |
| | Proceed to "Display Signal Circuit between Radio Receiver and Video Terminal" | Click here |
| | Proceed to "Display Signal Circuit between Radio Receiver and Television Display Assembly" | Click here |
| | Remote control adapter assembly (video terminal) | Click here |
| | Television display assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| Television display does not turn on. | Proceed to "Television display power source circuit" | Click here |
| | Proceed to "Television Display does not Turn ON" | Click here |

**Sound**

| Symptom | Suspected Area | See page |
|---|---|---|
| Quality of sound from wireless headphone is poor or no sound can be heard. | Proceed to "Sound from Wireless Headphones is Difficult to Hear, cannot be Heard, or Quality is Poor" | Click here |
| | MOST communication line | - |
| | | Click |

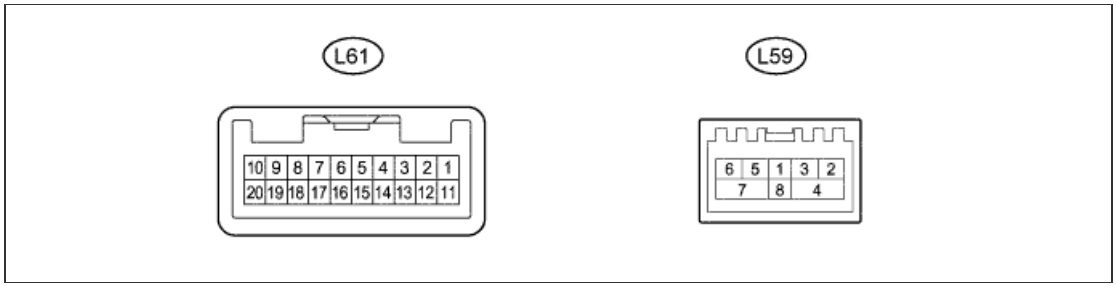
| | | |
|---|---|---|
| | Television display assembly | here |
| Quality of sound from headphone connected to headphone terminal is poor or no sound can be heard. | Proceed to "Sound from Wired Headphones is Difficult to Hear, cannot be Heard, or Quality is Poor" | Click here |
| | Proceed to "Sound Signal Circuit between Headphone Terminal and Television Display" | Click here |
| | MOST communication line | - |
| | Remote control adapter assembly (headphone terminal) | Click here |
| | Television display assembly | Click here |
| Only sound quality input from the external device is poor or no sound can be heard. | Proceed to "Sound Signal Circuit between Radio Receiver and Video Terminal" | Click here |
| | MOST communication line | - |
| | Remote control adapter assembly (video terminal) | Click here |
| | Multi-media module receiver assembly | Click here |

### Remote Control

| Symptom | Suspected Area | See page |
|---|---|---|
| A remote control system does not operate. | Proceed to "A Remote Control System does not Operate" | Click here |
| | Television display assembly | Click here |

**for Preparation** Click here

## TELEVISION DISPLAY ASSEMBLY




| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| L61-1 (+B) - L61-3 (GND) | L - W-B | Battery | Always | 11 to 14 V |
| L61-3 (GND) - Body ground | W-B - Body ground | Ground | Always | Below 1 V |
| L61-4 (GND2) - Body ground | W-B - Body ground | Ground | Always | Below 1 V |
| L61-5 (HP2L) - L61-3 (GND) | W - W-B | RSE sound signal | RSE is playing | Waveform synchronized with sound is output. |
| L61-6 (SLD6) - L61-3 (GND) | Shielded - W-B | Shield ground | Always | Below 1 V |
| L61-7 (HP2R) - L61-3 (GND) | B - W-B | RSE sound signal | RSE is playing | Waveform synchronized with sound is output. |
| L61-8 (HP1L) - L61-3 (GND) | W - W-B | RSE sound signal | RSE is playing | Waveform synchronized with sound is output. |
| L61-9 (SLD5) - L61-3 (GND) | Shielded - W-B | Shield ground | Always | Below 1 V |
| L61-10 (HP1R) - L61-3 (GND) | B - W-B | RSE sound signal | RSE is playing | Waveform synchronized with sound is output. |
| L61-11 (+B2) - L61-3 (GND) | L - W-B | Battery | Always | 11 to 14 V |
| L61-17 (VMTR) - L61-3 (GND) | G - W-B | Mute signal | RSE is playing → Source is changed | 4 V or higher → Below 0.7 V → 4 V or higher |
| L61-18 (SLD4) - L61-3 (GND) | Shielded - W-B | Shield ground | Always | Below 1 V |
| L61-19 (SGN4) - L61-3 (GND) | W - W-B | Display signal ground | Always | Below 1 V |
| L61-20 (NTS4) - L61-19 (SGN4) | B - W | Display signal | RSE is playing | Waveform synchronized with display signals is output |
| L59-2 (MI+) | B | MOST communication signal | - | - |
| L59-3 (MI-) | B | MOST communication signal | - | - |
| L59-4 (SLDI) - Body ground | Shielded - Body ground | Shield ground | Always | Below 1 V |
| L59-5 (MO+) | B | MOST communication signal | - | - |
| L59-6 (MO-) | B | MOST communication signal | - | - |
| L59-7 (SLDO) - Body ground | Shielded - Body ground | Shield ground | Always | Below 1 V |
| L59-8 (WUI) - L61-3 (GND) | W - W-B | MOST communication wake up signal (Input) | Engine switch on (ACC) | 4.5 V or higher |
| | | | Engine switch off | Below 1 V |

## MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

## STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

**for Preparation** Click here

**HINT:**

Refer to Audio and Visual System (Click here).

**for Preparation** Click here

### Rear Seat Entertainment System

| DTC Code | Detection Item | See page |
|---|---|---|
| B15A5 | Rear Seat Entertainment System Malfunction | Click here |
| B15B0 | Display Screen Malfunction | Click here |
| B15D5 | Rear Seat Entertainment System Disconnected | Click here |

## DTC B15A5 Rear Seat Entertainment System Malfunction

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a malfunction occurs in the television display assembly.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A5 | • Bus or sub-microprocessor malfunction<br>• RAM malfunction<br>• Internal hardware malfunction | Television display assembly |

### INSPECTION PROCEDURE

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

**2.RECHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC B15A5 is not output. | A |
| DTC B15A5 is output. | B |

B → REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

A

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC B15D5 Rear Seat Entertainment System Disconnected

**for Preparation** Click here

### DESCRIPTION

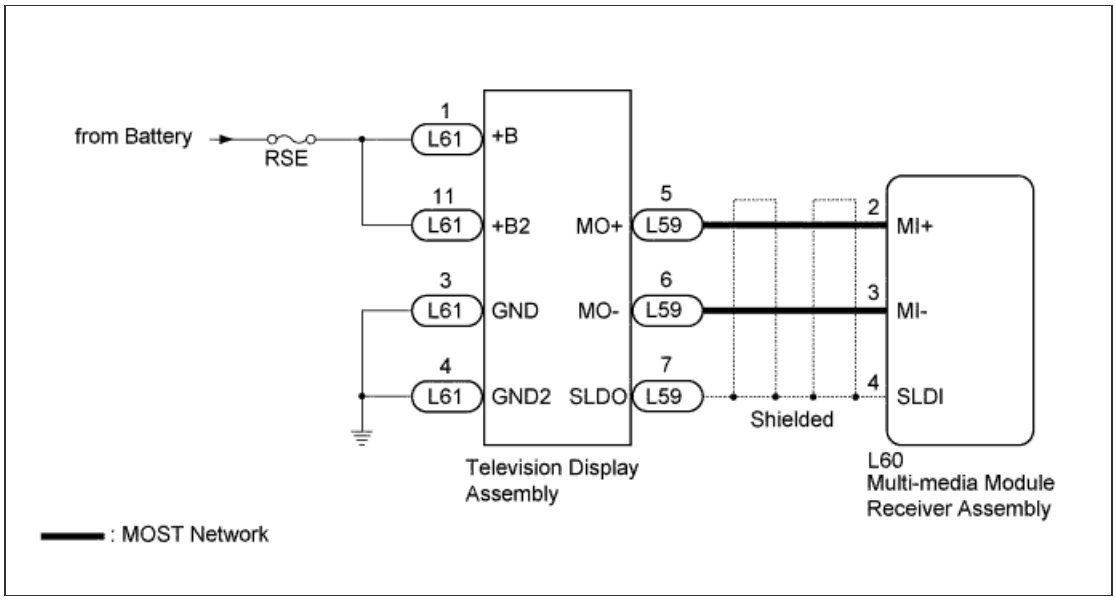
The television display assembly and multi-media module receiver assembly are connected by a MOST network.
When a MOST network error occurs between the display module board and multi-display assembly, these DTCs will be stored.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15D5* | A device that is listed in the MOST network connected device record of the master unit is missing. | • Television display assembly power source circuit<br>• MOST network<br>• Multi-display assembly<br>• Multi-media module receiver assembly |

**HINT:**

- ***: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The multi-media module receiver assembly is the master unit.**

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

NG → Go to step 3

OK

USE SIMULATION METHOD TO CHECK (Click here)

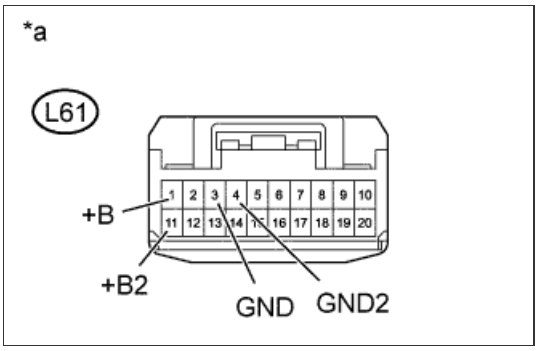
### 3.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY - BATTERY AND BODY GROUND)

a. Disconnect the television display assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L61-3 (GND) - Body ground | Always | Below 1 Ω |
| L61-4 (GND2) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L61-1 (+B) - Body ground | Always | 11 to 14 V |
| L61-11 (+B2) - Body ground | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Television Display Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 4.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - TELEVISION DISPLAY ASSEMBLY)

a. Disconnect the F87 multi-media module receiver assembly connector.

b. Disconnect the L59 television display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F87-2 (MI+) - L59-5 (MO+) | Always | Below 1 Ω |
| F87-3 (MI-) - L59-6 (MO-) | Always | Below 1 Ω |
| F87-4 (SLDI) - L59-7 (SLDO) | Always | Below 1 Ω |
| F87-2 (MI+) - Body ground | Always | 10 kΩ or higher |
| F87-3 (MI-) - Body ground | Always | 10 kΩ or higher |
| F87-4 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

5.REPLACE TELEVISION DISPLAY ASSEMBLY

a. Replace the television display assembly with a new or normally functioning one ( Click here).

NEXT

6.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

7.CHECK DTC

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (**Click here**)

OK

END (TELEVISION DISPLAY ASSEMBLY IS DEFECTIVE)

# DTC B15B0 Display Screen Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when a malfunction occurs in the television display assembly.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15B0 | When either condition below is met:<br>• Picture circuit (TFT unit) malfunction<br>• Back light malfunction (excess current) | • Television display assembly<br>• Multi-display assembly |

## INSPECTION PROCEDURE

### 1.CLEAR DTC

a. Clear the DTCs (Click here).

**NEXT**

### 2.RECHECK DTC

a. Recheck for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC B15B0 is not output. | A |
| DTC B15B0 is output. | B |

**HINT:**

- **This DTC is output from the multi-media module receiver assembly or television display assembly.**
- **When the DTC is checked using the intelligent tester, whether the DTC is output from the multi-media module receiver assembly, or whether it is output from the television display assembly, cannot be distinguished. For this reason, recheck the DTC using the "System Check Mode" screen.**

i. Enter diagnostic mode and display the "Service Menu" screen ( Click here).

ii. Select "Failure Diagnosis Service Check" on the "Service Menu" screen to display the "Failure Diagnosis Service Check" screen.

iii. Select "Service Check Mode" on the "Failure Diagnosis Service Check" screen and perform the service check.

iv. Recheck for DTCs and proceed to the next step according to the table below ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is not output | A |
| DTC is output from the multi-media module receiver assembly. | B |
| DTC is output from a television display assembly. | C |

**B** → REPLACE MULTI-DISPLAY ASSEMBLY (**Click here**)

**C** → REPLACE TELEVISION DISPLAY ASSEMBLY (**Click here**)

**A**

USE SIMULATION METHOD TO CHECK (**Click here**)

**for Preparation** Click here

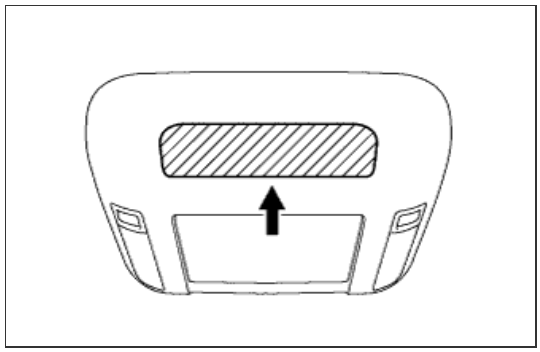
## INSPECTION PROCEDURE

### 1.CLEAN INFRARED RAY RECEIVING PORTION

a. Clean the infrared ray receiving portion on the television display assembly.

b. Check whether the same malfunction occurs.

**OK:**
**The function returns to normal.**



NG → Go to step 2

OK →

### END

### 2.CHECK SYSTEM

a. Check that the remote control operation of the rear system is not locked by the multi-media module receiver assembly.

i. Check if "Rear System Locked" appears on the television display.

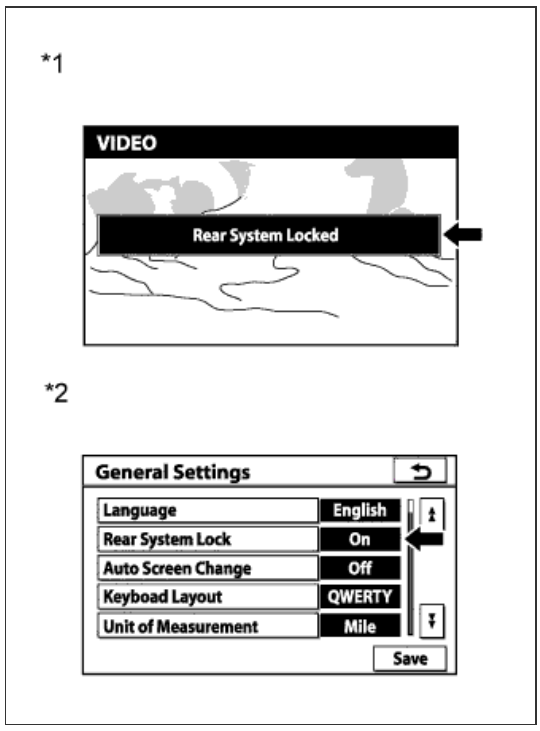
**OK:**
**The message does not appear.**

**HINT:**

If the rear system is locked and the remote control is used in the rear seat area, an operation not possible message (for example, "Rear System Locked") is displayed. If the message is displayed, enter the multi-display assembly screen setting, and change "Rear System Lock" to Off.

**Text in Illustration**

| | |
|---|---|
| *1 | Television Display Assembly |
| *2 | Multi-display Assembly |




NG → RELEASE LOCK

OK →

### 3.CHECK REMOTE CONTROL (BATTERY)

a. Check that the dry-cell battery of the remote control is not depleted.

**OK:**

**Battery is not depleted.**

NG → REPLACE REMOTE CONTROL BATTERY

OK

**4.CHECK REMOTE CONTROL**

a. Replace the remote control with a new or known good one.

b. Check that the remote control system operates normally.

**OK:**
**The remote control system operates normally.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

**END (REMOTE CONTROL WAS DEFECTIVE)**

**for Preparation** Click here

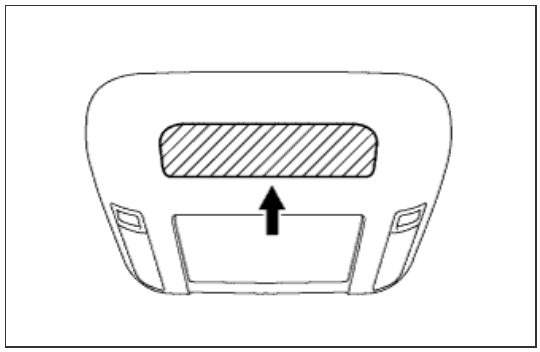
## INSPECTION PROCEDURE

### 1.CLEAN INFRARED RAY RECEIVING PORTION

a. Clean the infrared ray receiving portion on the television display assembly.

b. Check whether the same malfunction occurs.

**OK:**
**The function returns to normal.**



NG → Go to step 2

OK →

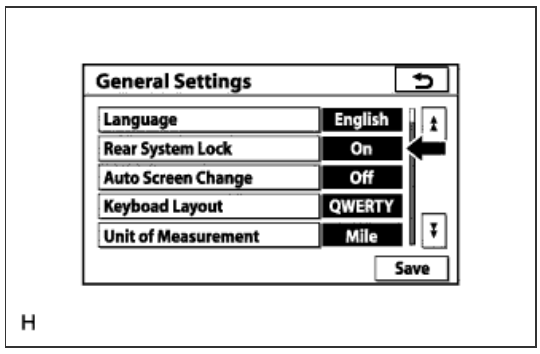
### END

### 2.CHECK SYSTEM

a. Check that the remote control operation of the rear system is not locked by the multi-display assembly.

i. Check that "Rear System Lock" is Off on the "General Settings" screen.

**OK:**
**"Rear System Lock" is Off.**




NG → RELEASE LOCK

OK →

### 3.CHECK REMOTE CONTROL (BATTERY)

a. Check that the dry-cell battery of the remote control is not depleted.

**OK:**
**Battery is not depleted.**

NG → REPLACE REMOTE CONTROL BATTERY

OK →

### 4.REPLACE REMOTE CONTROL

a. Replace the remote control with a new or known good one.

b. Check that the television display assembly turns on.

**OK:**

**The television display assembly turns on.**

| | | |
|---|---|---|
| | NG | REPLACE TELEVISION DISPLAY ASSEMBLY (Click here) |
| OK | | |
| END (REMOTE CONTROL WAS DEFECTIVE) | | |

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK WIRELESS HEADPHONE (BATTERY)

a. Check that the dry-cell battery of the wireless headphone is not depleted.

**OK:**
**Battery is not depleted.**

NG → REPLACE WIRELESS HEADPHONE BATTERY

OK ↓

### 2.CHECK WIRELESS HEADPHONE SETTING

a. Check the wireless headphone settings.

i. Check that the volume is not set to "0".

ii. Check that "MUTE" is off.

**OK:**
**The volume is not set to "0" and "MUTE" is off.**

NG → SET VOLUME TO HIGH AND TURN MUTE OFF

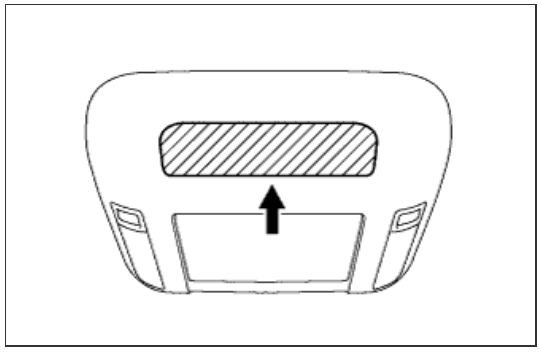
OK ↓

### 3.CLEAN INFRARED RAY RECEIVING PORTION

a. Clean the infrared ray receiving portion on the television display assembly.

b. Check whether the same malfunction occurs.

**OK:**
**The function returns to normal.**



NG → Go to step 4

OK ↓

END

### 4.CHECK WIRELESS HEADPHONE

a. Replace the wireless headphone with a known good or new one and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

END (WIRELESS HEADPHONE WAS DEFECTIVE)

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.CHECK HEADPHONE**

a. Check if the wired headphone jack is securely connected.

**OK:**
**Wired headphone jack is securely connected.**

NG → SECURELY CONNECT JACK OF WIRED HEADPHONES

OK

**2.CHECK HEADPHONE**

a. Replace the headphone with a known good or new one and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

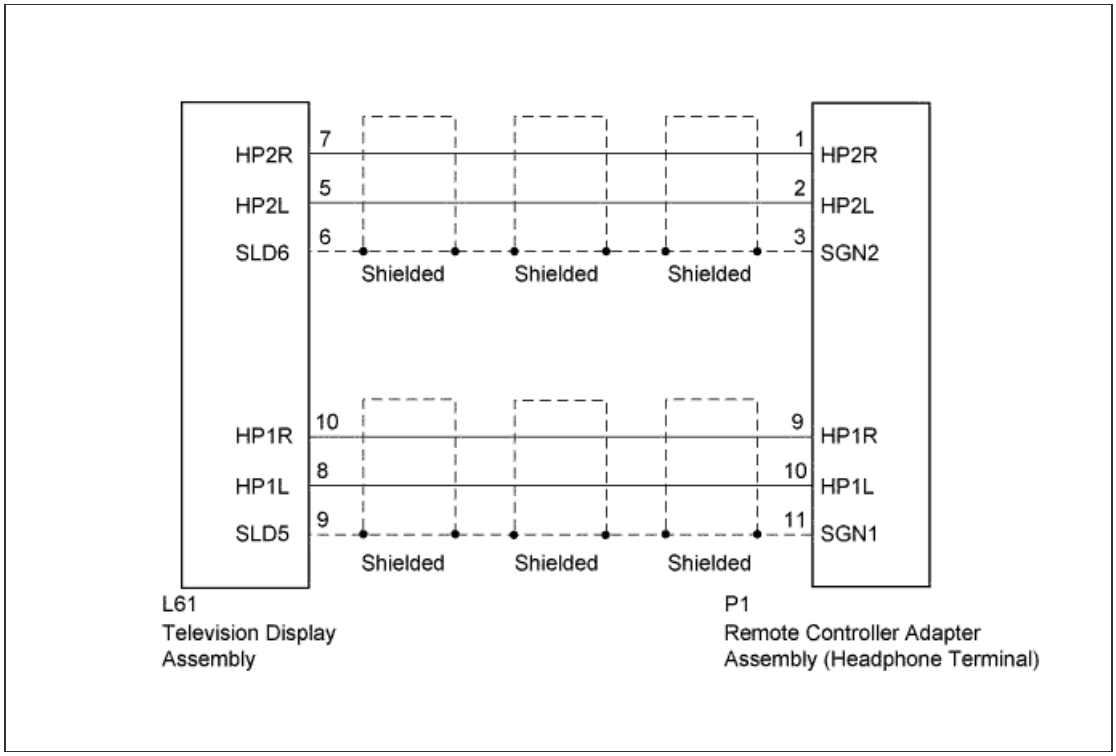
END (HEADPHONE WAS DEFECTIVE)

**for Preparation** Click here

## DESCRIPTION

This is the sound signal circuit from the television display assembly to the headphone terminal.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY - HEADPHONE TERMINAL)

a. Disconnect the L61 television display assembly connector.

b. Disconnect the P1 remote control adapter assembly (headphone terminal) connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L61-7 (HP2R) - P1-1 (HP2R) | Always | Below 1 Ω |
| L61-5 (HP2L) - P1-2 (HP2L) | Always | Below 1 Ω |
| L61-6 (SLD6) - P1-3 (SGN2) | Always | Below 1 Ω |
| L61-10 (HP1R) - P1-9 (HP1R) | Always | Below 1 Ω |
| L61-8 (HP1L) - P1-10 (HP1L) | Always | Below 1 Ω |
| L61-9 (SLD5) - P1-11 (SGN1) | Always | Below 1 Ω |
| L61-7 (HP2R) - Body ground | Always | 10 kΩ or higher |
| L61-5 (HP2L) - Body ground | Always | 10 kΩ or higher |
| L61-6 (SLD6) - Body ground | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| L61-10 (HP1R) - Body ground | Always | 10 kΩ or higher |
| L61-8 (HP1L) - Body ground | Always | 10 kΩ or higher |
| L61-9 (SLD5) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

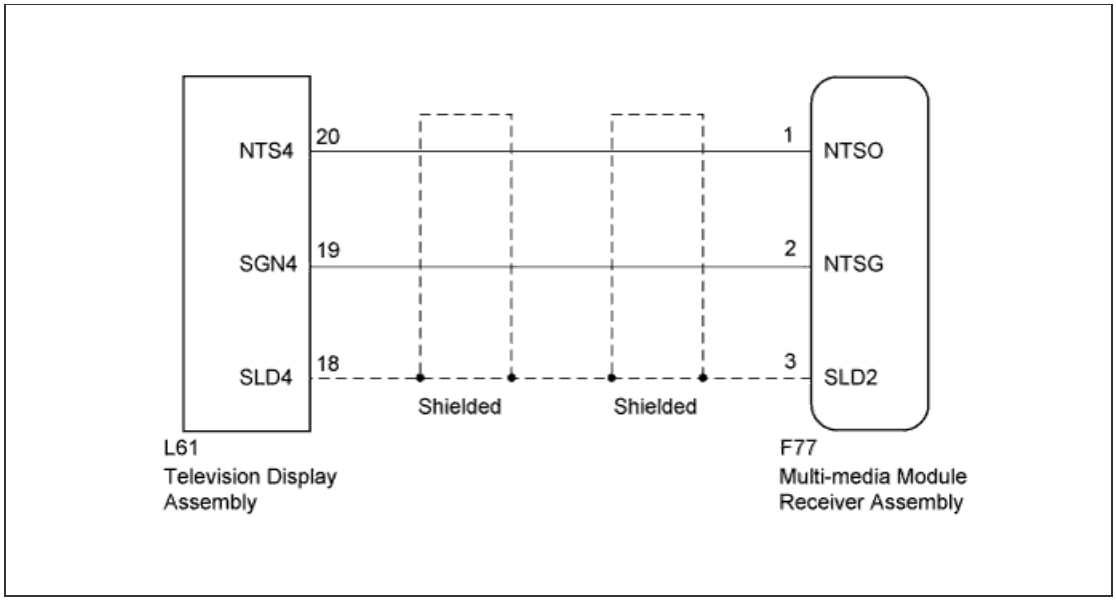
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This is the display signal circuit from the multi-media module receiver assembly to the television display assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

1.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - TELEVISION DISPLAY ASSEMBLY)

a. Disconnect the F77 multi-media module receiver assembly connector.

b. Disconnect the L61 television display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F77-1 (NTSO) - L61-20 (NTS4) | Always | Below 1 Ω |
| F77-2 (NTSG) - L61-19 (SGN4) | Always | Below 1 Ω |
| F77-3 (SLD2) - L61-18 (SLD4) | Always | Below 1 Ω |
| F77-1 (NTSO) - Body ground | Always | 10 kΩ or higher |
| F77-2 (NTSG) - Body ground | Always | 10 kΩ or higher |
| F77-3 (SLD2) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

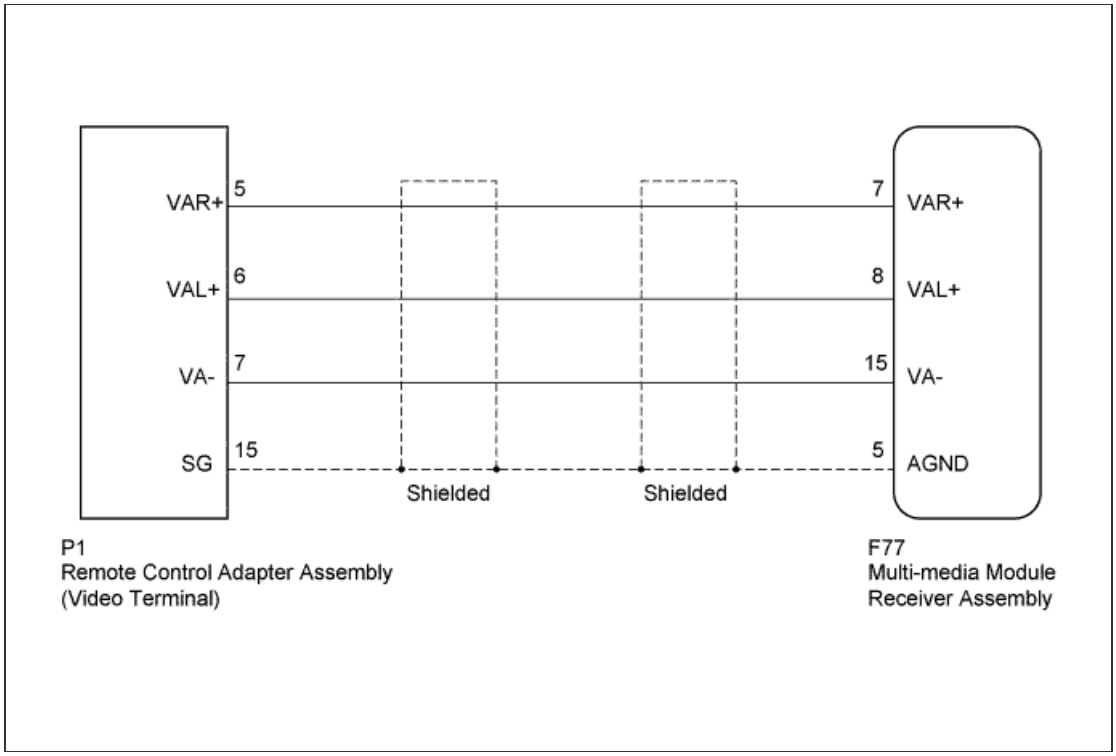
OK → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This is the sound signal circuit from the video terminal to the multi-media module receiver assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - VIDEO TERMINAL)

a. Disconnect the F77 multi-media module receiver assembly connector.

b. Disconnect the P1 remote control adapter assembly (video terminal) connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F77-7 (VAR+) - P1-5 (VAR+) | Always | Below 1 Ω |
| F77-8 (VAL+) - P1-6 (VAL+) | Always | Below 1 Ω |
| F77-15 (VA-) - P1-7 (VA-) | Always | Below 1 Ω |
| F77-5 (AGND) - P1-15 (SG) | Always | Below 1 Ω |
| F77-7 (VAR+) - Body ground | Always | 10 kΩ or higher |
| F77-8 (VAL+) - Body ground | Always | 10 kΩ or higher |
| F77-15 (VA-) - Body ground | Always | 10 kΩ or higher |
| F77-5 (AGND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

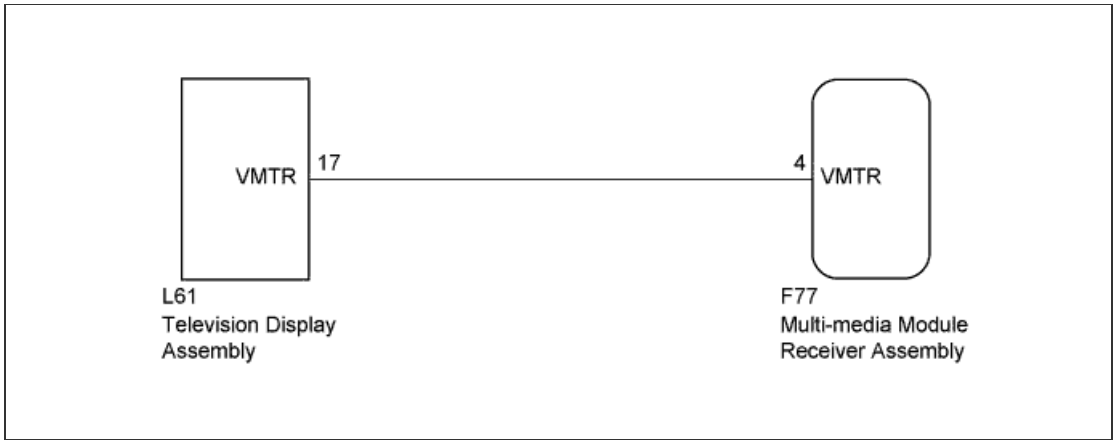
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This is the visual mute signal circuit from the multi-media module receiver assembly to the television display assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY

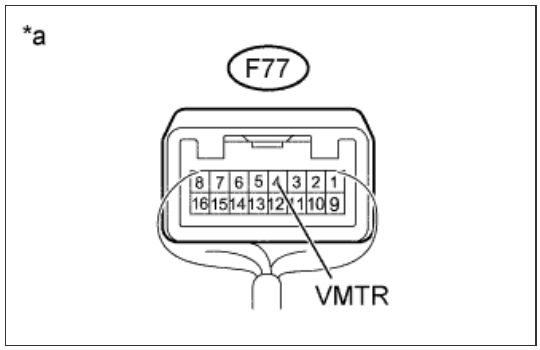
a. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F77-4 (VMTR) - Body ground | RSE is playing → Source is changed | 4 V or higher → Below 0.7 V → 4 V or higher |

**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Multi-media Module Receiver Assembly) |




NG → Go to step 2

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

### 2.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - TELEVISION DISPLAY ASSEMBLY)

a. Disconnect the F77 multi-media module receiver assembly connector.

b. Disconnect the L61 television display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F77-4 (VMTR) - L61-17 (VMTR) | Always | Below 1 Ω |
| F77-4 (VMTR) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 3.CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY

a. Disconnect the L61 television display assembly connector.

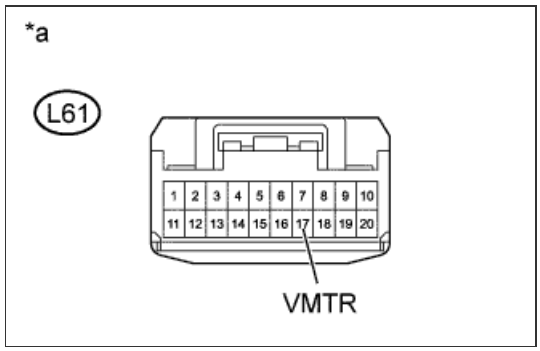
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L61-17 (VMTR) - Body ground | Display is operating | 4 V or higher |

**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Television Display Assembly) |




NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

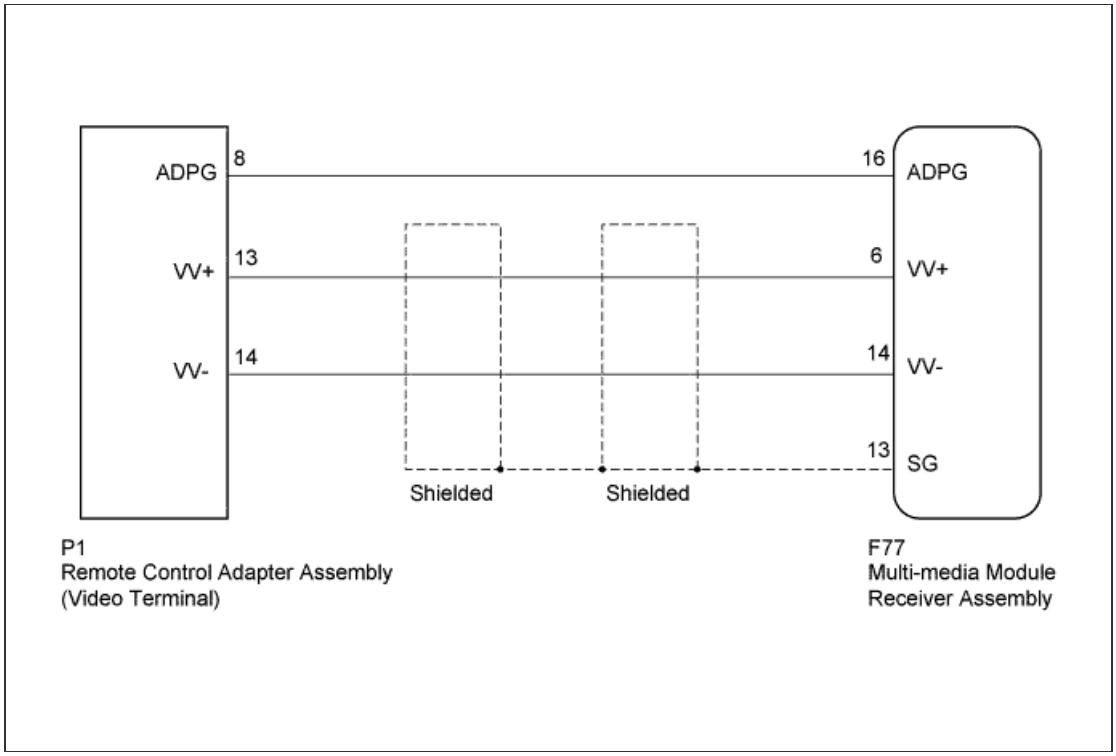
REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

**for Preparation** Click here

## DESCRIPTION

This is the display signal circuit from the video terminal to the multi-media module receiver assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - VIDEO TERMINAL)

a. Disconnect the F77 multi-media module receiver assembly connector.

b. Disconnect the P1 remote control adapter assembly (video terminal) connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F77-6 (VV+) - P1-13 (VV+) | Always | Below 1 Ω |
| F77-14 (VV-) - P1-14 (VV-) | Always | Below 1 Ω |
| F77-16 (ADPG) - P1-8 (ADPG) | Always | Below 1 Ω |
| F77-6 (VV+) - Body ground | Always | 10 kΩ or higher |
| F77-14 (VV-) - Body ground | Always | 10 kΩ or higher |
| F77-13 (SG) - Body ground | Always | 10 kΩ or higher |
| F77-16 (ADPG) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

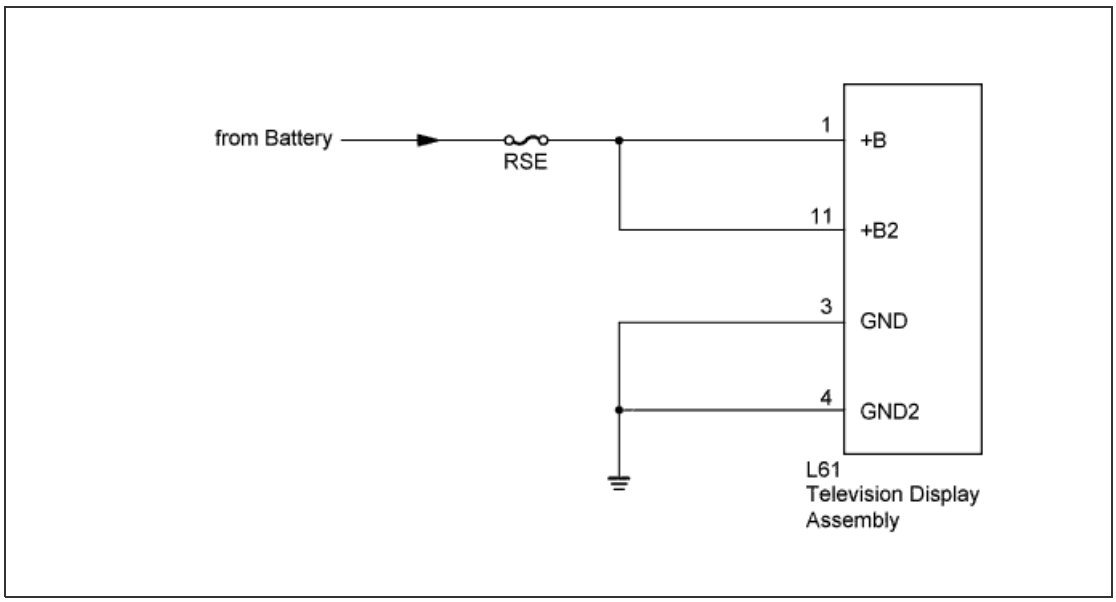
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This is the power source circuit of the television display assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

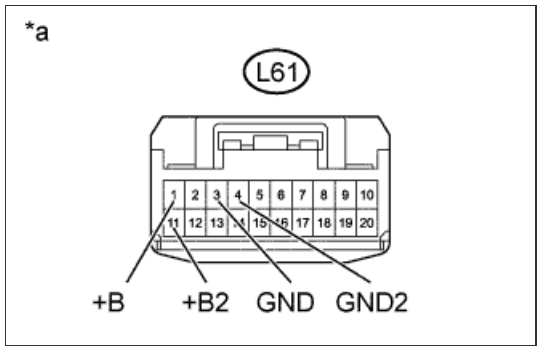
### 1.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY - BATTERY AND BODY GROUND)

a. Disconnect the L61 television display assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L61-3 (GND) - Body ground | Always | Below 1 Ω |
| L61-4 (GND2) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L61-11 (+B2) - Body ground | Always | 11 to 14 V |
| L61-1 (+B) - Body ground | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Television Display Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## 1.PRECAUTION FOR DISCONNECTING CABLE FROM NEGATIVE BATTERY TERMINAL

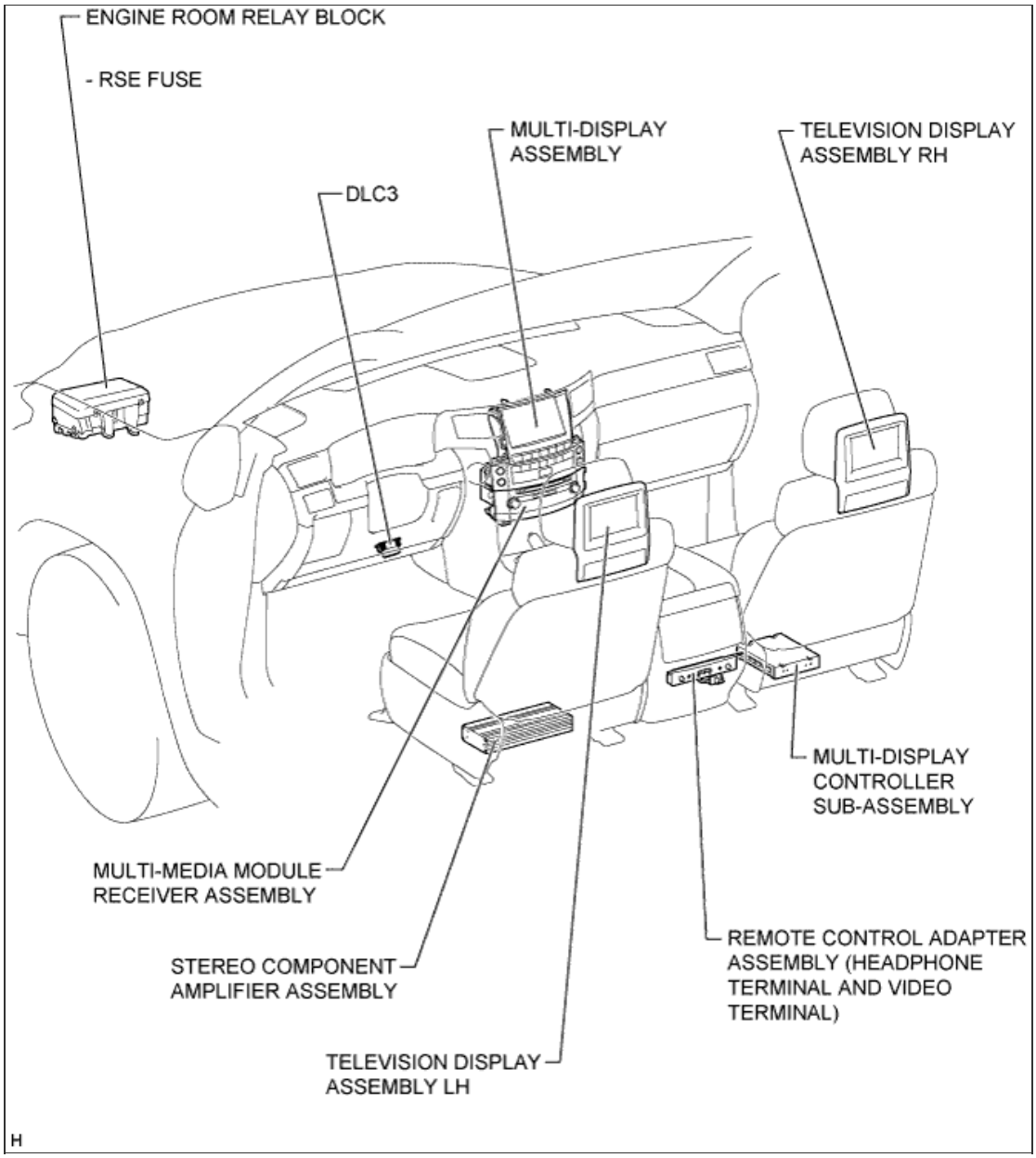
**NOTICE:**

After the engine switch is turned off, the multi-media module receiver assembly records various types of memory and settings. As a result, after turning the engine switch off, be sure to wait for the time specified in the following table before disconnecting the cable from the negative (-) battery terminal.

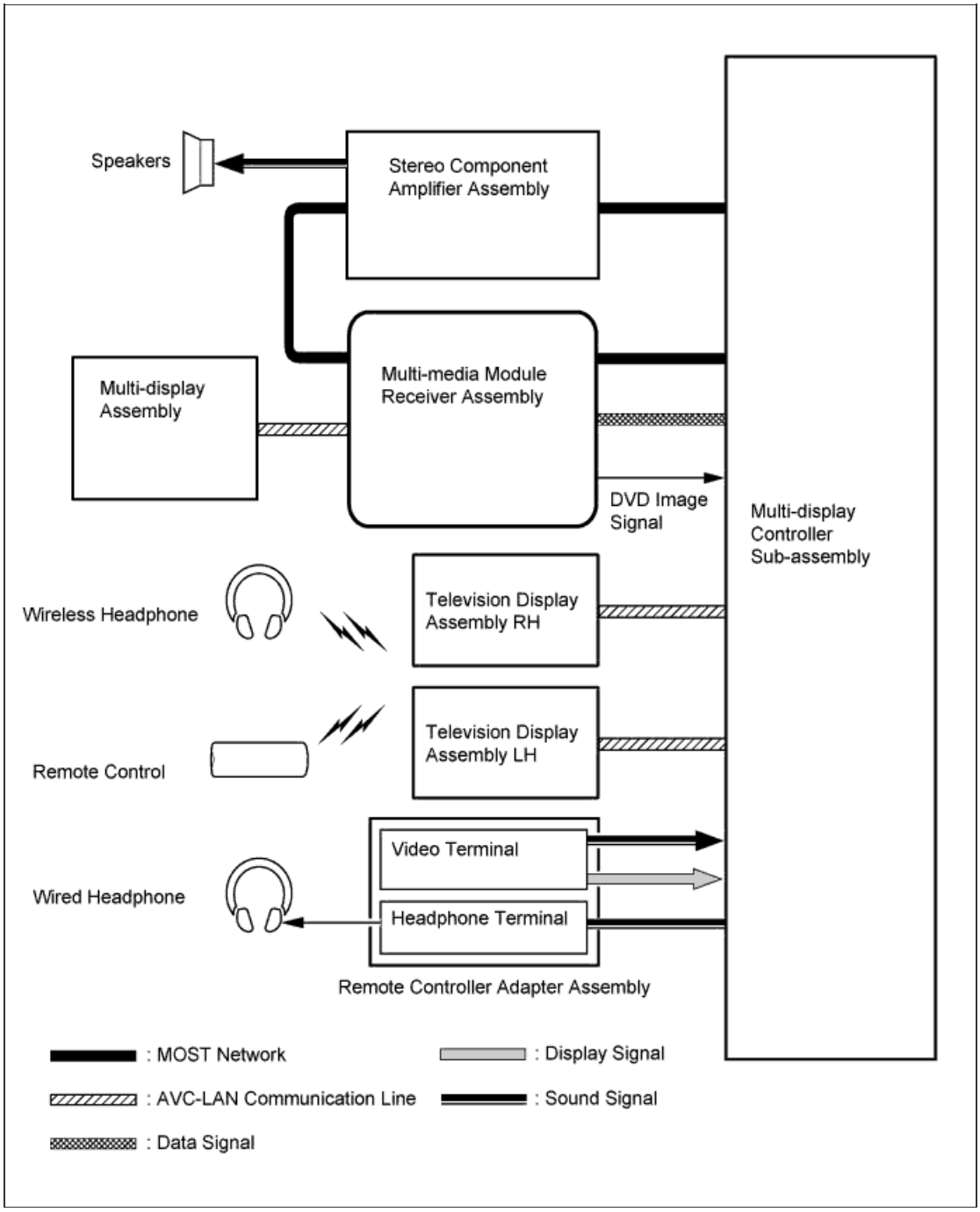
**Waiting Time before Disconnecting Cable from Negative (-) Battery Terminal**

| Condition | Waiting Time |
|---|---|
| Vehicle enrolled in G-BOOK system | 6 minutes |
| Vehicle not enrolled in G-BOOK system | 1 minute |

**for Preparation** Click here



**for Preparation** Click here



**for Preparation** Click here

## OUTLINE

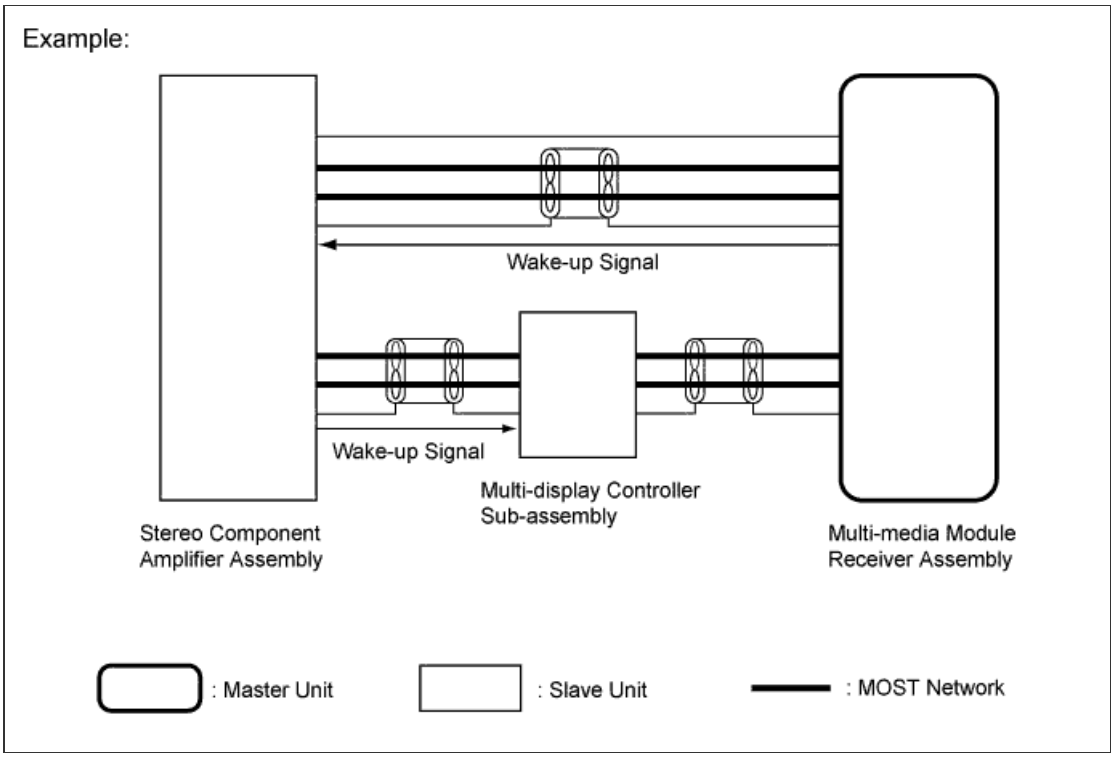
- As a unique feature of the Rear Seat Entertainment (RSE) system, the rear seat occupants can enjoy different audio-visual modes at the same time.
- The rear seat occupants can control the audio-visual modes with the remote control, and listen to audio by using wired or wireless headphones.
- The multi-display controller sub-assembly receives image and sound signals from the multi-media module receiver assembly and distributes the signals to each television display assembly.
- A television display assembly is installed on the back of each front seat.
- The rear seat occupants can enjoy watching video by connecting an external device.
- MOST communication is used between the multi-media module receiver assembly and the multi-display controller sub-assembly. AVC-LAN communication is used between the multi-display controller sub-assembly and each television display assembly.
- Occupants in the front seats, rear left seat and rear right seat can enjoy different content at the same time. However, this is possible for the rear left and rear right seats only when VIDEO is selected for either the left or right seat and another source is selected for the other seat.

## FUNCTION OF MAIN COMPONENT

| Component | Function |
|---|---|
| Television Display Assembly | • Displays DVD and video images in accordance with video signals from the multi-display controller sub-assembly.<br>• Receives signals from the remote control and outputs them to the multi-display controller sub-assembly.<br>• Outputs audio signals to the wireless headphones in the form of infrared signals.<br>• Displays the audio-visual control screen.<br>• Displays the adjustment screen.<br>• Displays the diagnosis screen. The diagnosis screen appears when diagnosis mode is started on the multi-display assembly.<br>• Even if the engine switch is turned from on (ACC) to off to on (ACC), display condition continues (image adjustments maintained, sources continue playing on the left and right sides). |
| Multi-display Controller Sub-assembly | • Processes video and audio signals from the video terminal and DVD image and audio signals from the radio receiver, and outputs them to the television display and headphone terminals.<br>• Controls the distribution of the audio-visual content to the rear left and rear right seats.<br>• Outputs audio signals for the video to the front seats. |
| Remote Controller | Outputs various control signals of the RSE system to the television display assembly in the form of infrared signals. |
| Wireless Headphones | • Receive audio signals from the television display assembly in the form of infrared signals.<br>• Volume adjustment of the wireless headphones can be performed using the volume adjuster on the wireless headphones. |
| Headphone Terminal | • Outputs audio signals to the wired headphones that are connected.<br>• Adjusts the volume of the wired headphones in accordance with volume control. |
| Video Terminal | This terminal is for connecting the video player's video and audio output terminals. |
| Multi-media Module Receiver Assembly | Receives DVD image signals and sends the signals to the multi-display controller sub-assembly and the multi-display assembly. |

## COMMUNICATION SYSTEM

a. MOST NETWORK OUTLINE




i. Audio and visual system components communicate with each other via the MOST network.

ii. The MOST network uses a shielded twisted pair of wires for its communication lines.

iii. The master unit of the MOST network is the multi-media module receiver assembly.

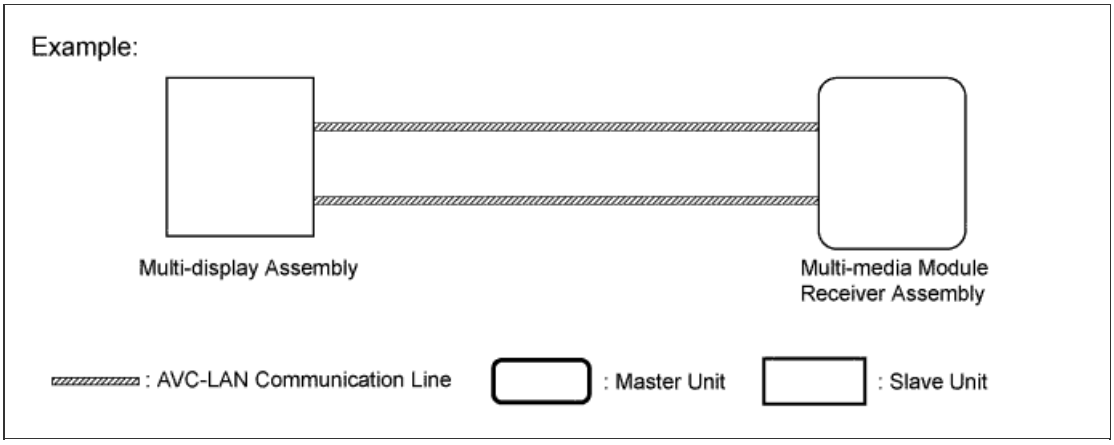
iv. MOST communication lines connect each slave unit centering around the master unit to form a MOST network ring.

v. The master unit sends a wake-up signal to activate each slave unit connected to the MOST network.

**HINT:**

If a short or open circuit occurs in the MOST circuit, communication will be interrupted and the system will not operate normally.

b. AVC-LAN OUTLINE




i. Components of the audio and visual system communicate with each other via the AVC-LAN.

ii. The AVC-LAN uses a twisted pair of wires for its communication lines.

iii. The master unit of the AVC-LAN is the multi-media module receiver assembly.

**HINT:**

- **The multi-media module receiver assembly has enough resistance (60 to 80 Ω) necessary for communication.**
- **If a short or open circuit occurs in the AVC-LAN circuit, communication is interrupted and system will not operate normally.**

## DIAGNOSIS FUNCTION

a. When the navigation system changes to the diagnosis screen, the television display assembly shows the "REAR Check" screen.

## DIGITAL VERSATILE DISC (DVD) PLAYER OUTLINE

a. The DVD player can only play DVD videos that have one of the following marks:



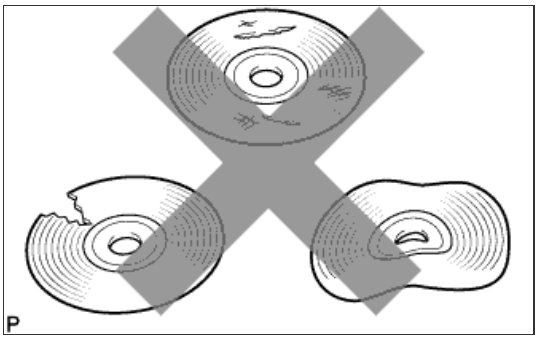

i. Precaution for use of discs

**NOTICE:**

- **Keep the discs away from dirt. Be careful not to damage the discs or leave your fingerprints on them.**
- **Hold discs by the outer edge and center hole with the label side up.**
- **Leaving the disc exposed halfway out of the slot for a long time after pressing the disc eject button may cause deformation of the disc, making the disc unusable.**
- **Do not use uniquely-shaped CDs because these may cause player malfunctions.**
- **Do not use discs whose recording portion is transparent or translucent because they may not be able to be inserted, ejected or played normally.**

b. Check disc

i. Check that the disc is not deformed or cracked.



c. Disc cleaning

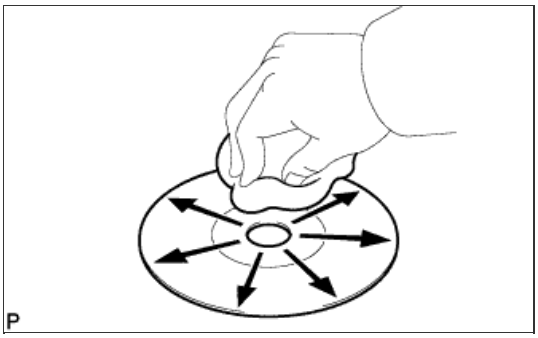
**NOTICE:**

Do not use a lens cleaner because it may cause a malfunction in the pickup portion of the player.

i. If dirt is on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

**NOTICE:**

- **Pressing on the disc by hand or rubbing the disc with a hard cloth may scratch the disc surface.**
- **Use of solvent such as a record spray, antistatic agent, alcohol, benzine, and thinner or a chemical cloth may cause damage to the disc, making the disc unusable.**



**for Preparation** Click here

**HINT:**

- **Use the following procedure to troubleshoot the rear seat entertainment system.**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

**NEXT**

## 2.INSPECT BATTERY VOLTAGE

a. Measure the battery voltage with the engine switch off.

**Standard voltage:**
**11 to 14 V**

If the voltage is below 11 V, recharge or replace the battery before proceeding to the next step.

**NEXT**

## 3.CHECK FOR DTC*

a. Refer to DTC Check / Clear ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is output | A |
| DTC is not output | B |

**HINT:**

If more information is needed, perform a recheck using the "System Check Mode" screen after checking for DTCs using the intelligent tester (Click here).

**B.** → Go to step 7

**A**

## 4.CLEAR DTC*

a. Clear the DTCs and finish diagnostic mode.

**HINT:**

The current DTCs may not indicate actual malfunctions depending on the vehicle operating conditions.

**NEXT**

## 5.RECHECK FOR DTC*

a. Recheck for DTCs.

**Result**

| Result | Proceed to |
|---|---|
| DTC is output | A |

| | |
|---|---|
| DTC is not output | B |

**HINT:**

- **Even if the malfunction symptom cannot be confirmed, check for DTCs. This is because the system stores past DTCs.**
- **If more information is needed, perform a recheck using the "System Check Mode" screen after rechecking for DTCs using the intelligent tester (Click here).**
- **Note the DTC and inspect the area the code indicates.**

| | |
|---|---|
| B. | Go to step 7 |

A

## 6.DIAGNOSTIC TROUBLE CODE CHART

a. Find the output code in the diagnostic trouble code chart ( Click here).

**NOTICE:**

- **The rear seat entertainment system outputs DTCs for the following system.**
- **When DTCs other than those in Diagnostic Trouble Code Chart for the rear seat entertainment system are output, refer to Diagnostic Trouble Code Chart for the relevant system.**
- **Refer to Navigation System (Click here)**
- **Refer to Audio and Visual System (Click here)**

**Result**

| Result | Proceed to |
|---|---|
| DTCs for the rear seat entertainment system are output. | A |
| DTCs for the navigation system are output. | B |
| DTCs for the audio and visual system are output. | C |

| | |
|---|---|
| A. | Go to step 9 |
| B. | GO TO NAVIGATION SYSTEM (Click here) |
| C. | GO TO AUDIO AND VISUAL SYSTEM (Click here) |

## 7.PROBLEM SYMPTOMS TABLE

a. Refer to Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in problem symptoms table | A |
| Fault is listed in problem symptoms table | B |

**HINT:**

If the symptom does not recur and no DTC is output, perform the symptom simulation method ( Click here).

| | |
|---|---|
| B. | ADJUST, REPAIR OR REPLACE IN ACCORDANCE WITH PROBLEM SYMPTOMS TABLE |

A

## 8.CHECK ECU TERMINAL BASED ON MALFUNCTION SYMPTOM

a. Refer to Terminals of ECU (Click here).

NEXT

**9.CHECK CIRCUIT**

a. Adjust, repair or replace parts as necessary.

**NEXT**

**10.RECHECK FOR DIAGNOSTIC TROUBLE CODE***

**HINT:**

After clearing the DTCs, recheck for DTCs.

**NEXT**

**11.PERFORM CONFIRMATION TEST**

**NEXT**

**END**

**for Preparation** Click here

## ENTER DIAGNOSTIC MODE

a. Enter diagnostic mode (Click here).

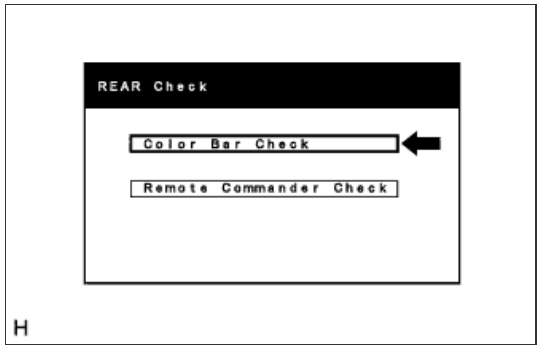
## REAR CHECK

**HINT:**

- **Use the remote control for each inspection.**
- **This mode checks the color display on the television display assembly.**
- **Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be exactly the same as on the actual vehicle.**
- **The television display assembly is not a touch panel type. Do not touch the screen.**

a. Color Bar Check

i. Select "Color Bar Check" from the "REAR Check" screen.

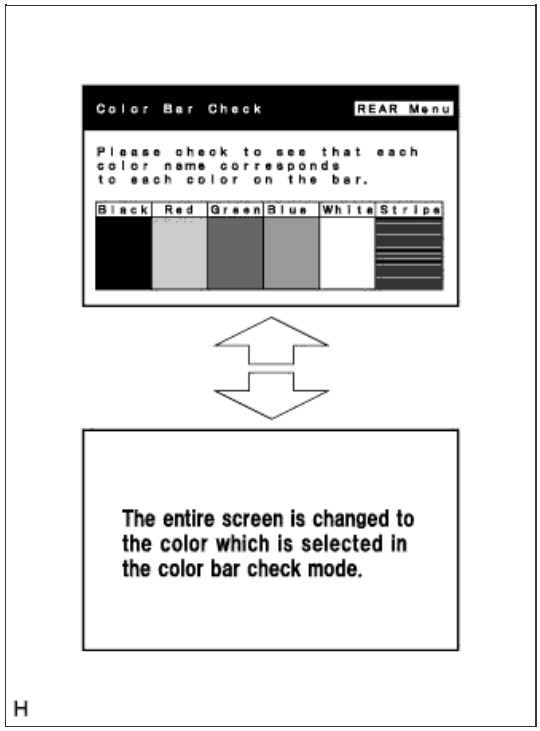



ii. Select a color bar from the "Color Bar Check" screen.

iii. Check the display color.

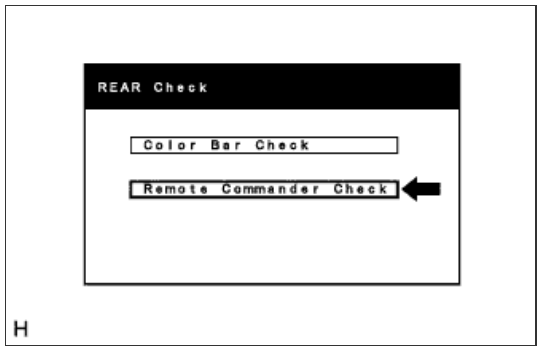
**HINT:**

- **The entire screen turns to the color or stripe which is selected.**
- **The screen returns to the "Color Bar Check" screen if the remote controller is operated again.**

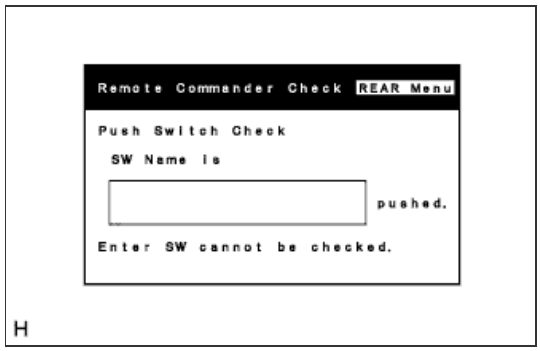



b. Remote Commander Check

i. Select "Remote Commander Check" from the "REAR Check" screen.




ii. Operate each switch and check that the switch name and condition are correctly displayed.



**for Preparation** Click here

**HINT:**

- **Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**
- **Inspect the fuses and relays related to this system before inspecting the suspected areas below.**

**General**

| Symptom | Suspected Area | See page |
|---|---|---|
| Different contents cannot be selected independently for each television display assembly* | Proceed to "Display Mode Signal Circuit between Multi-display Controller and Television Display Assembly" | Click here |
| | Replace television display assembly RH | Click here |
| | Replace television display assembly LH | Click here |
| | Replace multi-display controller sub-assembly | Click here |

**Display**

| Symptom | Suspected Area | See page |
|---|---|---|
| Black screen | Proceed to "Visual Mute Signal Circuit between Multi-display Controller and Television Display Assembly" | Click here |
| | Proceed to "Display Signal Circuit between Multi-display Controller and Television Display Assembly" | Click here |
| | Replace television display assembly RH | Click here |
| | Replace television display assembly LH | Click here |
| | Replace multi-display controller sub-assembly | Click here |
| Color on display screen is not usual | Adjust the settings for contrast, tint, color and brightness | - |
| | Proceed to "Operation Check (Color Bar Check)" | Click here |
| | Replace television display assembly RH | Click here |
| | Replace television display assembly LH | Click here |
| | Replace multi-display controller sub-assembly | Click here |
| Only DVD screen is not displayed or not stabilized | Check and clean disc | Click here |
| | Proceed to "Visual Mute Signal Circuit between Radio Receiver and Multi-display Controller" | Click here |
| | Proceed to "Visual Mute Signal Circuit between Multi-display Controller and Television Display Assembly" | Click here |
| | Proceed to "Display Signal Circuit between Radio Receiver and Multi-display Controller" | Click here |
| | Proceed to "Display Signal Circuit between Multi-display Controller and Television Display Assembly" | Click here |
| | Replace television display assembly RH | Click here |
| | Replace television display assembly LH | Click here |
| | Replace multi-display controller sub-assembly | Click here |
| | Replace multi-media module receiver assembly | Click here |

| | | |
|---|---|---|
| Only display screen of external device does not appear or is not stabilized | Check if the external device is normal | - |
| | Proceed to "Display Signal Circuit between Video Terminal and Multi-display Controller" | Click here |
| | Replace remote control adapter assembly (video terminal) | Click here |
| | Replace multi-display controller sub-assembly | Click here |
| Television display does not turn on | Proceed to "Multi-display controller power source circuit" | Click here |
| | Proceed to "Television Display does not Turn ON" | Click here |

### Sound

| Symptom | Suspected Area | See page |
|---|---|---|
| Quality of sound from wireless headphones is poor or no sound can be heard | Proceed to "Sound from Wireless Headphones is Difficult to Hear, cannot be Heard, or Quality is Poor" | Click here |
| | Proceed to "Sound Signal Circuit between Multi-display Controller and Television Display Assembly" | Click here |
| | Proceed to "Mute Signal Circuit between Multi-display Controller and Television Display Assembly" | Click here |
| | Replace television display assembly RH | Click here |
| | Replace television display assembly LH | Click here |
| | Replace multi-display controller sub-assembly | Click here |
| Quality of sound from headphones connected to headphone terminal is poor or no sound can be heard | Proceed to "Sound from Wired Headphones is Difficult to Hear, cannot be Heard, or Quality is Poor" | Click here |
| | Proceed to "Sound Signal Circuit between Multi-display controller and Head-phone Terminal" | Click here |
| | Replace remote control adapter assembly (headphone terminal) | Click here |
| | Replace multi-display controller sub-assembly | Click here |
| Only sound quality input from external device is poor or no sound can be heard | Proceed to "Sound Signal Circuit between Video Terminal and Multi-display Controller" | Click here |
| | Replace remote control adapter assembly (video terminal) | Click here |
| | Replace multi-display controller sub-assembly | Click here |

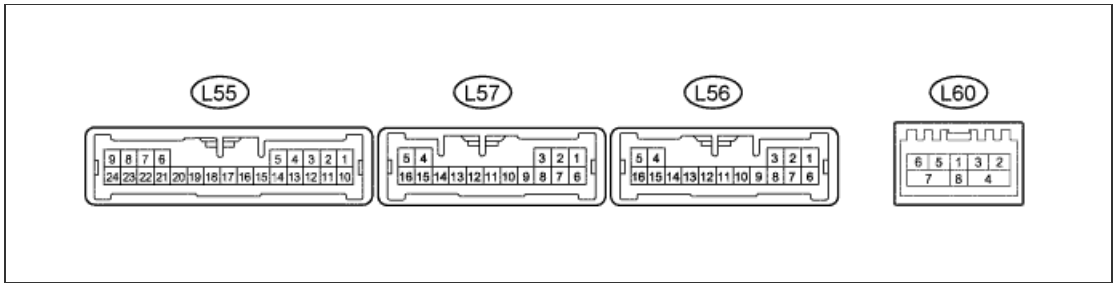
### Remote Control

| Symptom | Suspected Area | See page |
|---|---|---|
| Remote control system does not operate | Proceed to "A Remote Control System does not Operate" | Click here |
| | Replace television display assembly RH | Click here |
| | Replace television display assembly LH | Click here |
| | Replace multi-display controller sub-assembly | Click here |

*: However, this is possible for the rear left and rear right seats only when VIDEO is selected for either the left or right seat and another source is selected for the other seat.

**for Preparation** Click here

## CHECK MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY




**HINT:**

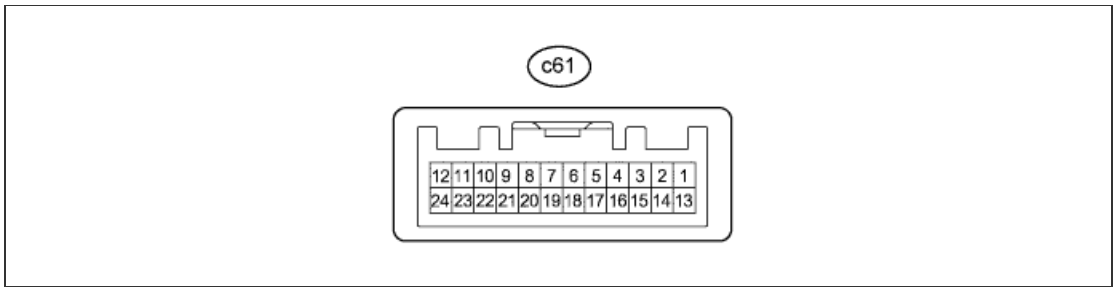
Perform the check from the rear of the connector while it is connected to the multi-display controller sub-assembly.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| L55-2 (MUT1) - L56-14 (GND) | B - W-B | Mute signal | RSE playing → Source changed | 3.5 V or higher → Below 1 V |
| L55-3 (HP1R) - L56-14 (GND) | B - W-B | RSE sound signal | RSE playing | Waveform synchronized with sound is output |
| L55-4 (SLD5) - L56-14 (GND) | Shielded - W-B | Shield ground | Always | Below 1 V |
| L55-5 (HP1L) - L56-14 (GND) | W - W-B | RSE sound signal | RSE playing | Waveform synchronized with sound is output |
| L55-6 (MUT2) - L56-14 (GND) | W - W-B | Mute signal | RSE playing → Source changed | 3.5 V or higher → Below 1 V |
| L55-7 (HP2R) - L56-14 (GND) | B - W-B | RSE sound signal | RSE playing | Waveform synchronized with sound is output |
| L55-8 (SLD6) - L56-14 (GND) | Shielded - W-B | Shield ground | Always | Below 1 V |
| L55-9 (HP2L) - L56-14 (GND) | W - W-B | RSE sound signal | RSE playing | Waveform synchronized with sound is output |
| L55-10 (TX1+) | G | AVC-LAN communication signal | - | - |
| L55-11 (TX1-) | L | AVC-LAN communication signal | - | - |
| L55-12 (TX2+) | G | AVC-LAN communication signal | - | - |
| L55-13 (TX2-) | L | AVC-LAN communication signal | - | - |
| L55-15 (SLD1) - Body ground | Shielded - Body ground | Shield ground | Always | Below 1 V |
| L55-16 (R1+) - L56-14 (GND) | B - W-B | Sound signal | RSE playing | Waveform synchronized with sound signal is output |
| L55-17 (R1-) - L56-14 (GND) | W - W-B | Sound signal | RSE playing | Waveform synchronized with sound signal is output |
| L55-18 (L1+) - L56-14 (GND) | G - W-B | Sound signal | RSE playing | Waveform synchronized with sound signal is output |
| L55-19 (L1-) - L56-14 (GND) | R - W-B | Sound signal | RSE playing | Waveform synchronized with sound signal is output |
| L55-20 (SLD2) - Body ground | Shielded - Body ground | Shield ground | Always | Below 1 V |
| L55-21 (R2+) - L56-14 (GND) | B - W-B | Sound signal | RSE playing | Waveform synchronized with sound signal is output |
| L55-22 (R2-) - L56-14 (GND) | W - W-B | Sound signal | RSE playing | Waveform synchronized with sound signal is output |
| L55-23 (L2+) - L56-14 | | | | Waveform synchronized |

| | | | | |
|---|---|---|---|---|
| (GND) | G - W-B | Sound signal | RSE playing | with sound signal is output |
| L55-24 (L2-) - L56-14 (GND) | R - W-B | Sound signal | RSE playing | Waveform synchronized with sound signal is output |
| L56-1 (+B) - L56-14 (GND) | L - W-B | Battery | Always | 11 to 14 V |
| L56-2 (PWR2) - L56-14 (GND) | P - W-B | Power supply for television display assembly LH | Engine switch on (IG) | 11 to 14 V |
| L56-3 (PWR1) - L56-14 (GND) | G - W-B | Power supply for television display assembly RH | Engine switch on (IG) | 11 to 14 V |
| L56-4 (NTS4) - L56-14 (GND) | B - W-B | DVD image signal | DVD playing | Waveform synchronized with display signal is output |
| L56-5 (SGN4) - Body ground | W - Body ground | DVD image signal ground | Always | Below 1 V |
| L56-6 (+B2) - L56-14 (GND) | L - W-B | Battery | Always | 11 to 14 V |
| L56-8 (VMTR) - L56-14 (GND) | G - W-B | Visual mute signal | RSE playing → Source changed | 3.5 V or higher → Below 1 V |
| L56-9 (MD0) - L56-14 (GND) | V - W-B | LH/RH display recognition signal | Always | Below 1 V |
| L56-10 (GND2) - L56-14 (GND) | GR - W-B | Ground | Always | Below 1 V |
| L56-11 (GND4) - Body ground | SB - Body ground | Ground | Always | Below 1 V |
| L56-12 (GND1) - L56-14 (GND) | R - W-B | Ground | Always | Below 1 V |
| L56-13 (GND3) - Body ground | L - Body ground | Ground | Always | Below 1 V |
| L56-14 (GND) - Body ground | W-B - Body ground | Ground | Always | Below 1 V |
| L56-15 (GND5) - Body ground | BR - Body ground | Ground | Always | Below 1 V |
| L56-16 (SLD4) - Body ground | Shielded - Body ground | Shield ground | Always | Below 1 V |
| L57-1 (SGN5) - Body ground | Shielded - Body ground | Shield ground | Always | Below 1 V |
| L57-2 (VD) - L56-14 (GND) | B - W-B | Video signal | External device playing (when video terminal used) | Waveform synchronized with sound signal is output |
| L57-3 (VG) - Body ground | W - Body ground | Video signal ground | Always | Below 1 V |
| L57-4 (VMT1) - L56-14 (GND) | LG -W-B | Visual mute signal | Display operating → Source changed | 3.5 V or higher → Below 1 V |
| L57-5 (VMT2) - L56-14 (GND) | G - W-B | Visual mute signal | Display operating → Source changed | 3.5 V or higher → Below 1 V |
| L57-6 (R+) - L56-14 (GND) | W - W-B | Sound signal | External device playing (when video terminal used) | Waveform synchronized with sound signal is output |
| L57-7 (L+) - L56-14 (GND) | B - W-B | Sound signal | External device playing (when video terminal used) | Waveform synchronized with sound signal is output |
| L57-8 (SGN3) - L56-14 (GND) | R - W-B | Sound signal ground | Always | Below 1 V |
| L57-9 (SGN6) - Body ground | Shielded - Body ground | Video terminal detection ground | Always | Below 1 V |
| L57-10 (ADPI) - L56-14 (GND) | R - W-B | Video terminal connection detection signal | External device connected | Below 1 V |
| L57-11 (NTS1) - L56-14 (GND) | B - W-B | Display signal | RSE playing | Waveform synchronized with display signal is output |
| L57-12 (SGN1) - L56-14 (GND) | W - W-B | Display signal ground | Always | Below 1 V |
| L57-13 (SLDA) - Body ground | Shielded - Body ground | Shield ground | Always | Below 1 V |
| L57-14 (NTS2) - L56-14 (GND) | B - W-B | Display signal | RSE playing | Waveform synchronized with display signal is output |
| L57-15 (SGN2) - Body ground | W - Body ground | Display signal ground | Always | Below 1 V |
| L57-16 (SLDB) - Body ground | Shielded - Body ground | Shield ground | Always | Below 1 V |
| L60-2 (MI+) | B | MOST communication signal | - | - |
| L60-3 (MI-) | B | MOST communication signal | - | - |
| L60-4 (SLDI) - Body ground | Shielded - Body ground | Shield ground | Always | Below 1 V |

| | | | | |
|---|---|---|---|---|
| L60-5 (MO+) | B | MOST communication signal | - | - |
| L60-6 (MO-) | B | MOST communication signal | - | - |
| L60-7 (SLDO) - Body ground | Shielded - Body ground | Shield ground | Always | Below 1 V |
| L60-8 (WUI) - L56-14 (GND) | W - W-B | MOST communication wake up signal | Engine switch on (ACC) | 4.5 V or higher |
| | | | Engine switch off | Below 1 V |

## CHECK TELEVISION DISPLAY ASSEMBLY LH

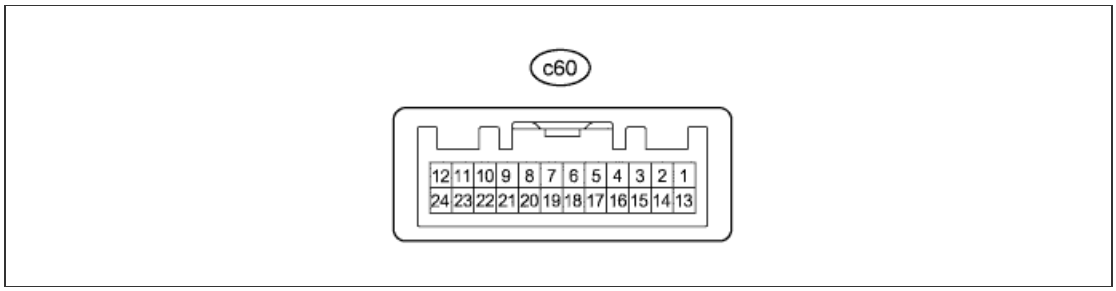



**HINT:**

Perform the check from the rear of the connector while it is connected to the television display assembly LH.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| c61-1 (R2+) - c61-20 (GND2) | B - SB | Sound signal | RSE playing | Waveform synchronized with sound signal is output |
| c61-2 (R2-) - c61-20 (GND2) | W - SB | Sound signal | RSE playing | Waveform synchronized with sound signal is output |
| c61-3 (L2+) - c61-20 (GND2) | G - SB | Sound signal | RSE playing | Waveform synchronized with sound signal is output |
| c61-4 (L2-) - c61-20 (GND2) | R - SB | Sound signal | RSE playing | Waveform synchronized with sound signal is output |
| c61-5 (MUT2) - c61-20 (GND2) | W - SB | Mute signal | RSE playing → Source changed | 3.5 V or higher → Below 1 V |
| c61-7 (MUT1) - c61-20 (GND2) | G - SB | Visual mute signal | RSE playing → Source changed | 3.5 V or higher → Below 1 V |
| c61-8 (TX2+) | G | AVC-LAN communication signal | - | - |
| c61-9 (TX2-) | L | AVC-LAN communication signal | - | - |
| c61-10 (NTSC) - c61-20 (GND2) | B - SB | Display signal | RSE playing | Waveform synchronized with display signal is output |
| c61-12 (PWR2) - c61-20 (GND2) | P - SB | Power supply for television display assembly LH | Display operating | 11 to 14 V |
| c61-13 (SLD2) - Body ground | Shielded - Body ground | Shield ground | Always | Below 1 V |
| c61-19 (GND) - Body ground | GR - Body ground | Ground | Always | Below 1 V |
| c61-20 (GND2) - Body ground | SB - Body ground | Ground | Always | Below 1 V |
| c61-21 (SLD) - Body ground | Shielded - Body ground | Shield ground | Always | Below 1 V |
| c61-22 (SGN2) - Body ground | W - Body ground | Display signal ground | Always | Below 1 V |

## CHECK TELEVISION DISPLAY ASSEMBLY RH




**HINT:**

Perform the check from the rear of the connector while it is connected to the television display assembly RH.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| c60-1 (R1+) - c60-20 (GND4) | B - L | Sound signal | RSE playing | Waveform synchronized with sound signal is output |
| c60-2 (R1-) - c60-20 (GND4) | W - L | Sound signal | RSE playing | Waveform synchronized with sound signal is output |
| c60-3 (L1+) - c60-20 (GND4) | G - L | Sound signal | RSE playing | Waveform synchronized with sound signal is output |
| c60-4 (L1-) - c60-20 (GND4) | R - L | Sound signal | RSE playing | Waveform synchronized with sound signal is output |
| c60-5 (MUTE) - c60-20 (GND4) | LG - L | Mute signal | RSE playing → Source changed | 3.5 V or higher → Below 1 V |
| c60-6 (MD0) - c60-20 (GND4) | GR - L | LH/RH display recognition signal | Always | Below 1 V |
| c60-7 (VMTR) - c60-20 (GND4) | SB - L | Visual mute signal | RSE playing → Source changed | 3.5 V or higher → Below 1 V |
| c60-8 (TX1+) | L | AVC-LAN communication signal | - | - |
| c60-9 (TX1-) | LG | AVC-LAN communication signal | - | - |
| c60-10 (VV1+) - c60-20 (GND4) | W - L | Display signal | RSE playing | Waveform synchronized with display signal is output |
| c60-12 (PWR1) - c60-20 (GND4) | V - L | Power supply for television display assembly RH | Display operating | 11 to 14 V |
| c60-13 (SLD1) - Body ground | Shielded - Body ground | Shield ground | Always | Below 1 V |
| c60-19 (GND6) - Body ground | P - Body ground | Ground | Always | Below 1 V |
| c60-20 (GND4) - Body ground | L - Body ground | Ground | Always | Below 1 V |
| c60-21 (VVG1) - Body ground | Shielded - Body ground | Shield ground | Always | Below 1 V |
| c60-22 (VV1-) - Body ground | B - Body ground | Display signal ground | Always | Below 1 V |

**CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)**

**CHECK STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)**

**for Preparation** Click here

**HINT:**

Refer to Audio and Visual System (Click here).

**for Preparation** Click here

**HINT:**

If a trouble code is output during the DTC check, inspect the trouble areas listed for that code. For details of the code, refer to the "See page" below. Inspect fuses and relays before investigating the trouble areas shown in the table below.

**Rear Seat Entertainment System**

| DTC Code | Detection Item | See page |
|---|---|---|
| B15A5 | Rear Seat Entertainment System Malfunction | Click here |
| B15CE | Seatback Display Disconnected | Click here |
| B15D5 | Rear Seat Entertainment System Disconnected | Click here |

# DTC B15A5 Rear Seat Entertainment System Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when a malfunction occurs in the multi-display controller sub-assembly.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A5 | • Bus or sub-microprocessor malfunction.<br>• RAM malfunction.<br>• Internal hardware malfunction. | Multi-display controller sub-assembly |

## INSPECTION PROCEDURE

### 1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

### 2.CHECK DTC

a. Check for DTCs and check if the same DTC is output again ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC B15A5 is not output | A |
| DTC B15A5 is output | B |

B → REPLACE MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY (Click here)

A

### USE SIMULATION METHOD TO CHECK (Click here)

## DTC B15D5 Rear Seat Entertainment System Disconnected

**for Preparation** Click here

### DESCRIPTION

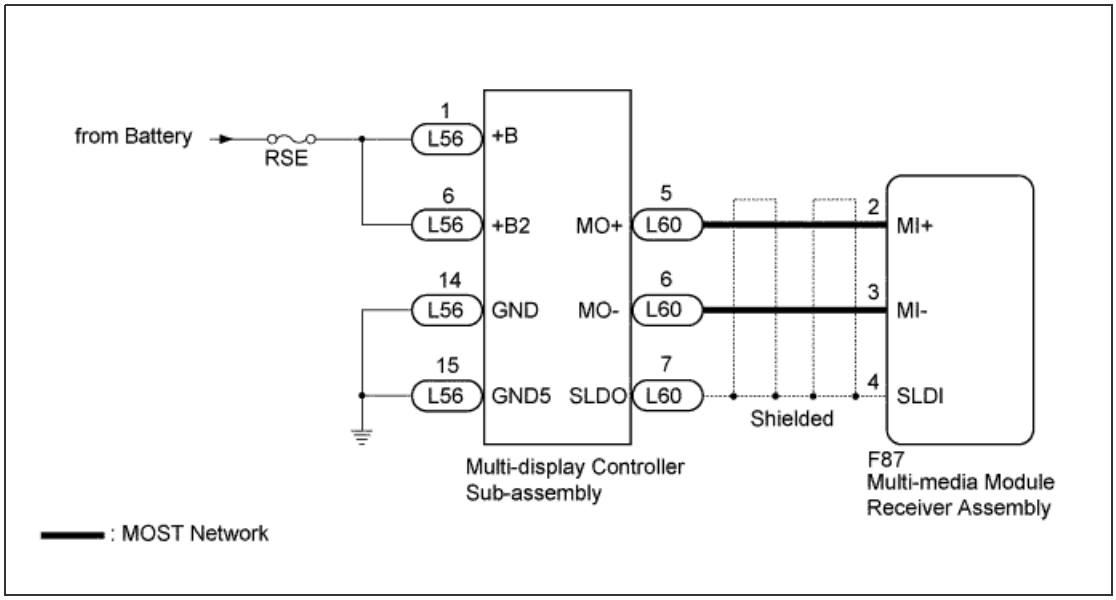
The multi-media module receiver assembly and multi-media module receiver assembly are connected by a MOST network.
When a MOST network error occurs between the display module board and multi-display assembly, these DTCs will be stored.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15D5* | A device that is listed in the MOST network connected device record of the master unit is missing. | • Multi-display controller sub-assembly power source circuit<br>• MOST network<br>• Multi-media module receiver assembly |

**HINT:**

- ***: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The multi-media module receiver assembly is the master unit.**

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

**NG** → **Go to step 3**

OK

USE SIMULATION METHOD TO CHECK (Click here)

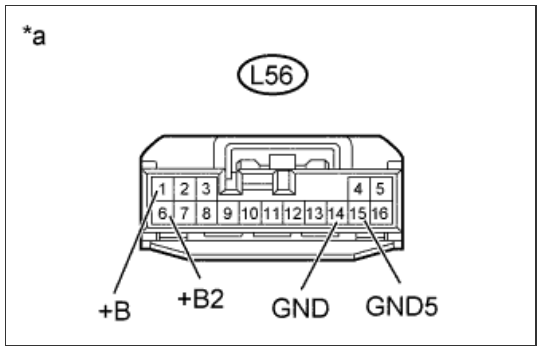
3.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - BATTERY AND BODY GROUND)

a. Disconnect the multi-media module receiver assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L56-14 (GND) - Body ground | Always | Below 1 Ω |
| L56-15 (GND5) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L56-1 (+B) - Body ground | Always | 11 to 14 V |
| L56-6 (+B2) - Body ground | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Multi-media Module Receiver Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY)

a. Disconnect the F87 multi-media module receiver assembly connector.

b. Disconnect the L56 multi-display controller sub-assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F87-2 (MI+) - L56-5 (MO+) | Always | Below 1 Ω |
| F87-3 (MI-) - L56-6 (MO-) | Always | Below 1 Ω |
| F87-4 (SLDI) - L56-7 (SLDO) | Always | Below 1 Ω |
| F87-2 (MI+) - Body ground | Always | 10 kΩ or higher |
| F87-3 (MI-) - Body ground | Always | 10 kΩ or higher |
| F87-4 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**5.REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY**

a. Replace the multi-media module receiver assembly with a new or normally functioning one ( Click here).

NEXT

**6.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

**7.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

NG → **REPLACE MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY (Click here)**

OK

**END (MULTI-MEDIA MODULE RECEIVER ASSEMBLY IS DEFECTIVE)**

## DTC B15CE Seatback Display Disconnected

**for Preparation** Click here

### DESCRIPTION

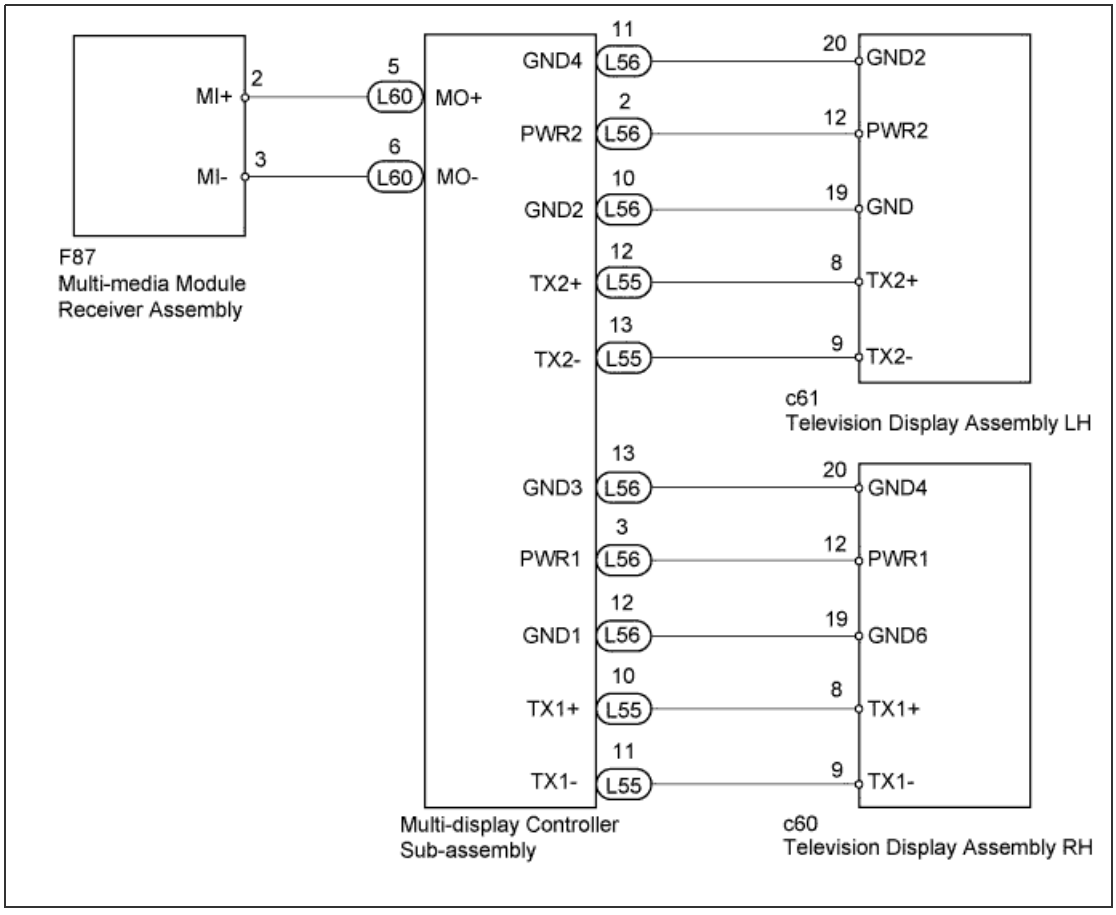
The television display assembly and multi-display controller sub-assembly are connected by an AVC-LAN communication line.
The multi-media module receiver assembly is connected to the multi-display controller sub-assembly by a MOST communication line.
This DTC will be stored when an AVC-LAN communication error occurs between the multi-display controller sub-assembly and television display assembly.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15CE | Either condition is met:<br>• The television display assembly is not connected while the engine switch is on (IG) or (ACC).<br>• Communication between the master unit and television display assembly is not possible when the engine is started. | • Television display assembly power source circuit<br>• AVC-LAN circuit between multi-display controller sub-assembly and television display assembly<br>• Multi-display controller sub-assembly<br>• Television display assembly LH<br>• Television display assembly RH |

**HINT:**

- **Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The multi-media module receiver assembly is the master unit.**

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

## 2.CHECK DTC

a. Check for DTCs and check if the same trouble occurs again ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC B15CE is output | A |
| No DTCs are output | B |

**B** → **USE SIMULATION METHOD TO CHECK (Click here)**

**A**

## 3.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed | A |
| Optional components (including associated wiring) are not installed | B |

**B** → **Go to step 5**

**A**

## 4.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 5.CLEAR DTC

a. Clear the DTCs (Click here).

**NEXT**

## 6.CHECK DTC

a. Check for DTCs and check if the same trouble occurs again ( Click here).

**OK:**
**No DTCs are output.**

**NG** → **Go to step 7**

**OK**

## END

## 7.CHECK OPERATION

a. Check which television display assembly does not operate.

**Result**

| Result | Proceed to |
|---|---|
| Television display assembly LH does not operate | A |
| Television display assembly RH does not operate | B |

B → Go to step 12

A

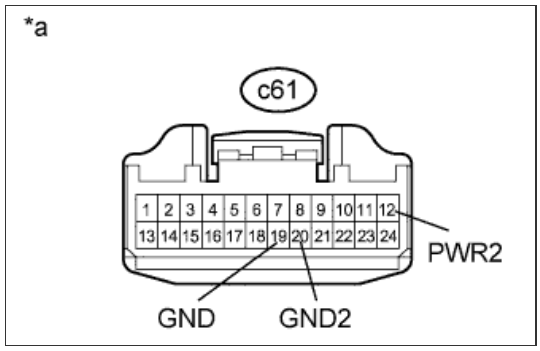
## 8.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY LH POWER SOURCE)

a. Disconnect the television display assembly LH connector.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| c61-12 (PWR2) - c61-19 (GND) | Engine switch on (IG) | 11 to 14 V |
| c61-12 (PWR2) - c61-20 (GND2) | Engine switch on (IG) | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Television Display Assembly LH) |

NG → Go to step 11

OK

## 9.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY - TELEVISION DISPLAY ASSEMBLY LH)

a. Disconnect the L55 multi-display controller sub-assembly connector.

b. Disconnect the c61 television display assembly LH connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L55-12 (TX2+) - c61-8 (TX2+) | Always | Below 1 Ω |
| L55-13 (TX2-) - c61-9 (TX2-) | Always | Below 1 Ω |
| L55-12 (TX2+) - Body ground | Always | 10 kΩ or higher |
| L55-13 (TX2-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 10.CHECK TELEVISION DISPLAY ASSEMBLY LH

a. Replace the television display assembly LH ( Click here).

b. Clear the DTCs (Click here).

c. Check for DTCs and check if the same trouble occurs again.

**OK:**

**No DTCs are output.**

NG → REPLACE MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY (Click here)

OK →

END (TELEVISION DISPLAY ASSEMBLY LH IS DEFECTIVE)

## 11.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY - TELEVISION DISPLAY ASSEMBLY LH)

a. Disconnect the L56 multi-display controller sub-assembly connector.

b. Disconnect the c61 television display assembly LH connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L56-2 (PWR2) - c61-12 (PWR2) | Always | Below 1 Ω |
| L56-10 (GND2) - c61-19 (GND) | Always | Below 1 Ω |
| L56-11 (GND4) - c61-20 (GND2) | Always | Below 1 Ω |
| L56-2 (PWR2) - Body ground | Always | 10 kΩ or higher |
| L56-10 (GND2) - Body ground | Always | 10 kΩ or higher |
| L56-11 (GND4) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK →

REPLACE MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY (Click here)

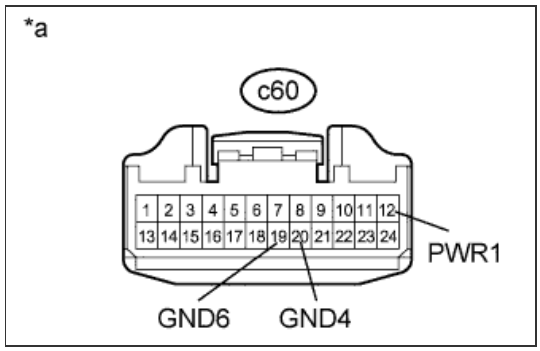
## 12.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY RH POWER SOURCE)

a. Disconnect the television display assembly RH connector.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| c60-12 (PWR1) - c60-19 (GND6) | Engine switch on (IG) | 11 to 14 V |
| c60-12 (PWR1) - c60-20 (GND4) | Engine switch on (IG) | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Television Display Assembly RH) |

NG → Go to step 15

OK →

13.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY - TELEVISION DISPLAY ASSEMBLY RH)

a. Disconnect the L55 multi-display controller sub-assembly connector.

b. Disconnect the c60 television display assembly RH connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L55-10 (TX1+) - c60-8 (TX1+) | Always | Below 1 Ω |
| L55-11 (TX1-) - c60-9 (TX1-) | Always | Below 1 Ω |
| L55-10 (TX1+) - Body ground | Always | 10 kΩ or higher |
| L55-11 (TX1-) - Body ground | Always | 10 kΩ or higher |

NG → CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY - TELEVISION DISPLAY ASSEMBLY LH)

OK

14.CHECK TELEVISION DISPLAY ASSEMBLY RH

a. Replace the television display assembly RH (Click here).

b. Clear the DTCs (Click here).

c. Check for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY (Click here)

OK

END (TELEVISION DISPLAY ASSEMBLY RH IS DEFECTIVE)

15.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY - TELEVISION DISPLAY ASSEMBLY RH)

a. Disconnect the L56 multi-display controller sub-assembly connector.

b. Disconnect the c60 television display assembly RH connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L56-3 (PWR1) - c60-12 (PWR1) | Always | Below 1 Ω |
| L56-12 (GND1) - c60-19 (GND6) | Always | Below 1 Ω |
| L56-13 (GND3) - c60-20 (GND4) | Always | Below 1 Ω |
| L56-3 (PWR1) - Body ground | Always | 10 kΩ or higher |
| L56-12 (GND1) - Body ground | Always | 10 kΩ or higher |
| L56-13 (GND3) - | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK REMOTE CONTROL SYSTEM

a. Check whether the remote control does not work for one of the television display assemblies, or does not work for both television display assemblies.

**Result**

| Result | Proceed to |
|---|---|
| The remote control does not work for one of the television display assemblies | A |
| The remote control does not work for both of the television display assemblies | B |

B → Go to step 3

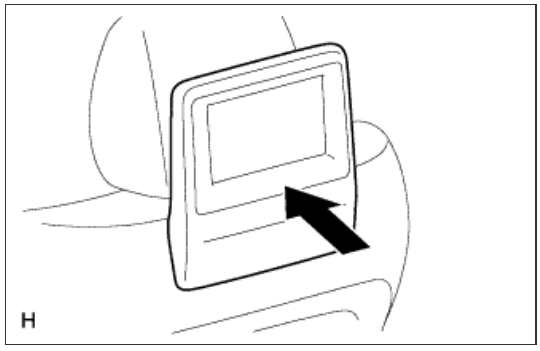
A

### 2.CLEAN INFRARED RAY RECEIVING PORTION

a. Clean the infrared ray receiving portion on the television display assembly.

b. Check whether the same malfunction occurs.

**OK:**
**The function returns to normal.**




NG → Go to step 5

OK

END

### 3.CHECK SYSTEM

a. Check that the remote control operation of the rear system is not locked by the multi-media module receiver assembly.

i. Check if "Rear System Locked" appears on the television display.

**OK:**
**The message does not appear.**

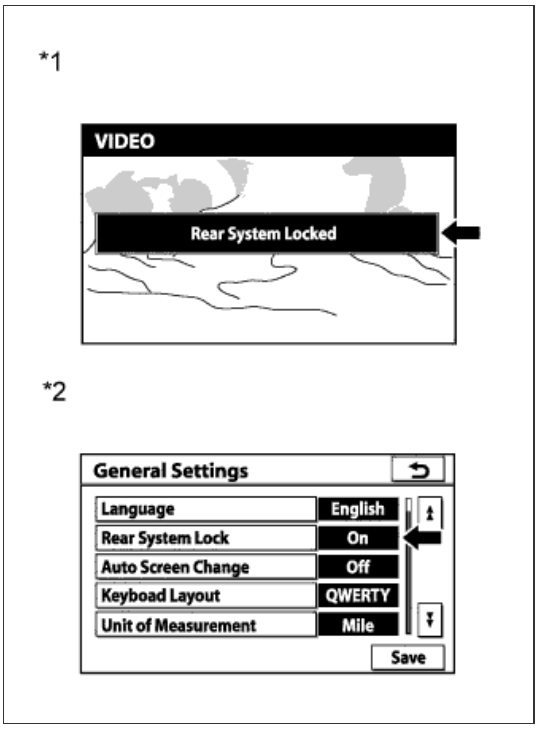
**HINT:**

If the rear system is locked and the remote control is used in the rear seat area, an operation not possible message (for example, "Rear System Locked") is displayed. If the message is displayed, enter the multi-display assembly settings screen and change "Rear System Lock" to Off.

**Text in Illustration**

| | |
|---|---|

| | |
|---|---|
| *1 | Television Display Assembly |
| *2 | Multi-display Assembly |




NG → RELEASE LOCK

OK

## 4.CHECK REMOTE CONTROLLER (BATTERY)

a. Check that the dry-cell battery of the remote controller is not depleted.

**OK:**
**Battery is not depleted.**

NG → REPLACE REMOTE CONTROLLER BATTERY

OK

## 5.REPLACE REMOTE CONTROLLER

a. Replace the remote controller with a new or normally functioning one.

b. Check that the remote controller operates normally.

**OK:**
**The remote controller operates normally.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

END (REMOTE CONTROLLER IS DEFECTIVE)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK TELEVISION DISPLAY ASSEMBLY

a. Check whether only one of the television display assemblies does not turn on, or whether both television display assemblies do not turn on.

**Result**

| Result | Proceed to |
|---|---|
| One of the television display assemblies does not turn on | A |
| Both television display assemblies do not turn on | B |

B → Go to step 3

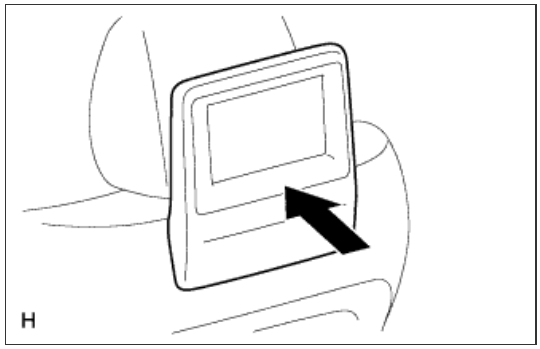
A

### 2.CLEAN INFRARED RAY RECEIVING PORTION

a. Clean the infrared ray receiving portion on the television display assembly.

b. Check whether the same malfunction occurs.

**OK:**
**The function returns to normal.**




NG → Go to step 5

OK

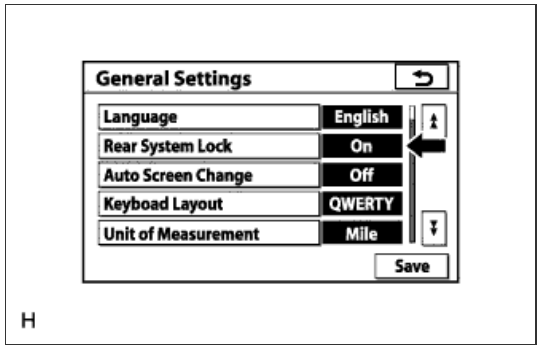
END

### 3.CHECK SYSTEM

a. Check that the remote control operation of the rear system is not locked by the multi-media module receiver assembly.

i. Check that "Rear System Lock" is Off on the "General Settings" screen.

**OK:**
**"Rear System Lock" is Off.**




NG → RELEASE LOCK

OK

### 4.CHECK REMOTE CONTROLLER (BATTERY)

a. Check that the dry-cell battery of the remote controller is not depleted.

**OK:**
**Battery is not depleted.**

NG → REPLACE REMOTE CONTROLLER BATTERY

OK

### 5.CHECK REMOTE CONTROLLER

a. Replace the remote controller with a new or normally functioning one.

b. Check that the television display assembly turns on.

**OK:**
**The television display assembly turns on.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for RH) | B |
| NG (for LH) | C |

B → REPLACE TELEVISION DISPLAY ASSEMBLY RH (Click here)

C → REPLACE TELEVISION DISPLAY ASSEMBLY LH (Click here)

A

### END (REMOTE CONTROLLER IS DEFECTIVE)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK WIRELESS HEADPHONE OPERATION

a. Check whether only one of the wireless headphones does not operate, or whether both wireless headphones do not operate.

**HINT:**

Check the frequency of the wireless headphones.

**Result**

| Result | Proceed to |
|---|---|
| Sound is abnormal from the wireless headphones of either the television display assembly RH or LH | A |
| Sound is abnormal from the wireless headphones of both the television display assembly RH and LH | B |

B → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

A

### 2.CHECK WIRELESS HEADPHONES (BATTERY)

a. Check that the dry-cell battery of the wireless headphones is not depleted.

**OK:**
**Battery is not depleted.**

NG → REPLACE WIRELESS HEADPHONE BATTERY

OK

### 3.CHECK WIRELESS HEADPHONE SETTING

a. Check the wireless headphone settings.

i. Check that the volume is not set to "0".

ii. Check that "MUTE" is off.

**OK:**
**The volume is not set to "0" and "MUTE" is off.**

NG → SET VOLUME TO HIGH AND TURN MUTE OFF

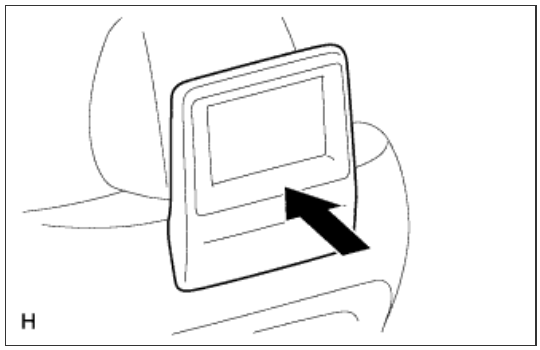
OK

### 4.CLEAN INFRARED RAY RECEIVING PORTION

a. Clean the infrared ray receiving portion on the television display assembly.

b. Check whether the same malfunction occurs.

**OK:**
**The function returns to normal.**




NG → Go to step 5

OK

END

5.CHECK WIRELESS HEADPHONES

a. Replace the wireless headphones with a new or normally functioning pair of headphones and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

END (WIRELESS HEADPHONES ARE DEFECTIVE)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK HEADPHONES

a. Check if the wired headphones are securely connected to the jack.

**OK:**
**The wired headphones are securely connected to the jack.**

NG → SECURELY CONNECT WIRED HEADPHONES TO JACK

OK ↓

### 2.CHECK HEADPHONES

a. Replace the headphones with a new or normally functioning pair of headphones and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK ↓

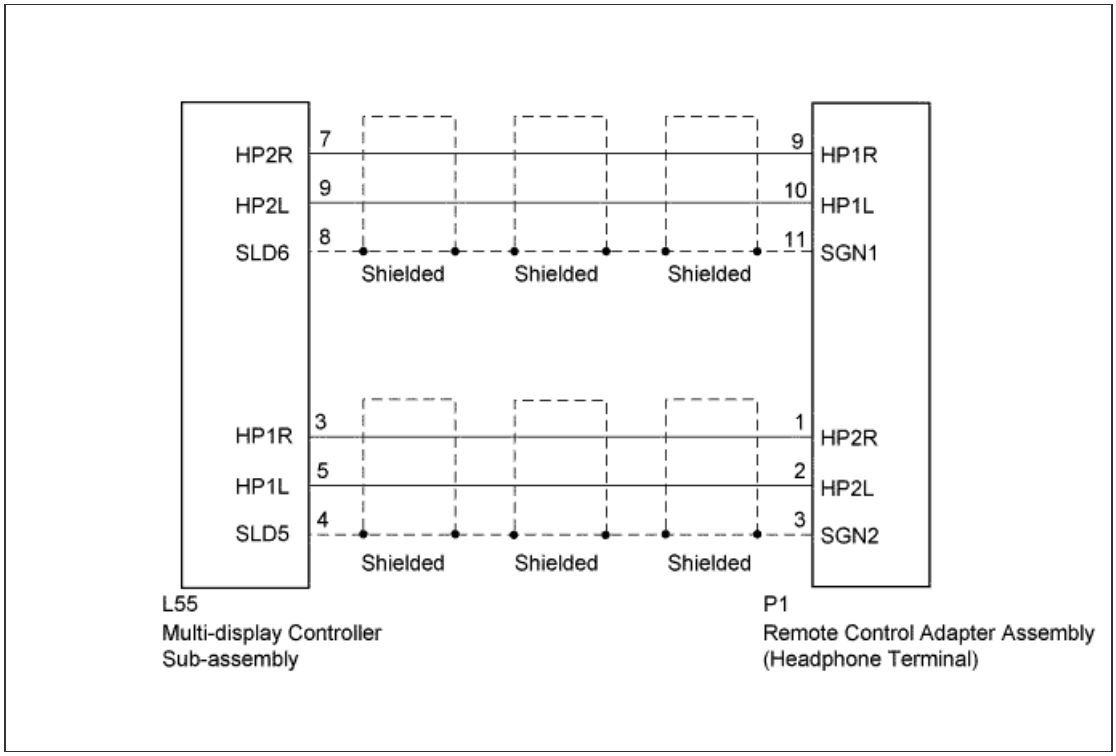
### END (HEADPHONES ARE DEFECTIVE)

**for Preparation** Click here

## DESCRIPTION

This is the sound signal circuit between the multi-display controller sub-assembly and headphone terminal.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY - HEADPHONE TERMINAL)

a. Disconnect the L55 multi-display controller sub-assembly connector.

b. Disconnect the P1 remote control adapter assembly (headphone terminal) connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L55-7 (HP2R) - P1-9 (HP1R) | Always | Below 1 Ω |
| L55-9 (HP2L) - P1-10 (HP1L) | Always | Below 1 Ω |
| L55-8 (SLD6) - P1-11 (SGN1) | Always | Below 1 Ω |
| L55-3 (HP1R) - P1-1 (HP2R) | Always | Below 1 Ω |
| L55-5 (HP1L) - P1-2 (HP2L) | Always | Below 1 Ω |
| L55-4 (SLD5) - P1-3 (SGN2) | Always | Below 1 Ω |
| L55-7 (HP2R) - Body ground | Always | 10 kΩ or higher |
| L55-9 (HP2L) - Body ground | Always | 10 kΩ or higher |
| L55-8 (SLD6) - Body ground | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| L55-3 (HP1R) - Body ground | Always | 10 kΩ or higher |
| L55-5 (HP1L) - Body ground | Always | 10 kΩ or higher |
| L55-4 (SLD5) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

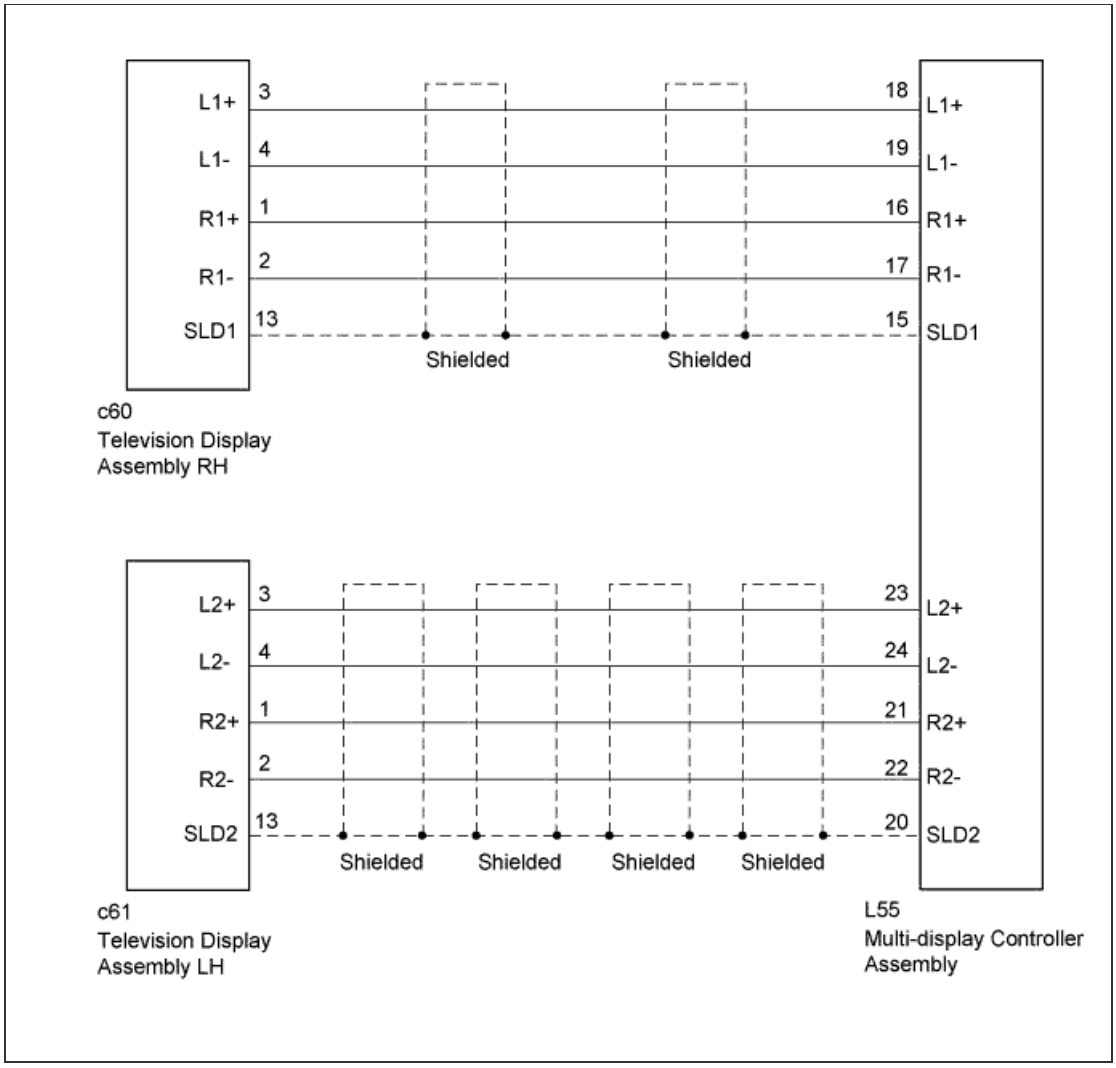
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This is the sound signal circuit between the multi-display controller sub-assembly and the television display assembly RH and LH.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY - TELEVISION DISPLAY ASSEMBLY RH AND LH)

a. Disconnect the L55 multi-display controller sub-assembly connector.

b. Disconnect the c60 television display assembly RH connector.

c. Disconnect the c61 television display assembly LH connector.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**
**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L55-18 (L1+) - c60-3 (L1+) | Always | Below 1 Ω |
| L55-19 (L1-) - c60-4 (L1-) | Always | Below 1 Ω |
| L55-16 (R1+) - | | |

| | | |
|---|---|---|
| c60-1 (R1+) | Always | Below 1 Ω |
| L55-17 (R1-) - c60-2 (R1-) | Always | Below 1 Ω |
| L55-15 (SLD1) - c60-13 (SLD1) | Always | Below 1 Ω |
| L55-18 (L1+) - Body ground | Always | 10 kΩ or higher |
| L55-19 (L1-) - Body ground | Always | 10 kΩ or higher |
| L55-16 (R1+) - Body ground | Always | 10 kΩ or higher |
| L55-17 (R1-) - Body ground | Always | 10 kΩ or higher |
| L55-15 (SLD1) - Body ground | Always | 10 kΩ or higher |

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L55-23 (L2+) - c61-3 (L2+) | Always | Below 1 Ω |
| L55-24 (L2-) - c61-4 (L2-) | Always | Below 1 Ω |
| L55-21 (R2+) - c61-1 (R2+) | Always | Below 1 Ω |
| L55-22 (R2-) - c61-2 (R2-) | Always | Below 1 Ω |
| L55-20 (SLD2) - c61-13 (SLD2) | Always | Below 1 Ω |
| L55-23 (L2+) - Body ground | Always | 10 kΩ or higher |
| L55-24 (L2-) - Body ground | Always | 10 kΩ or higher |
| L55-21 (R2+) - Body ground | Always | 10 kΩ or higher |
| L55-22 (R2-) - Body ground | Always | 10 kΩ or higher |
| L55-20 (SLD2) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

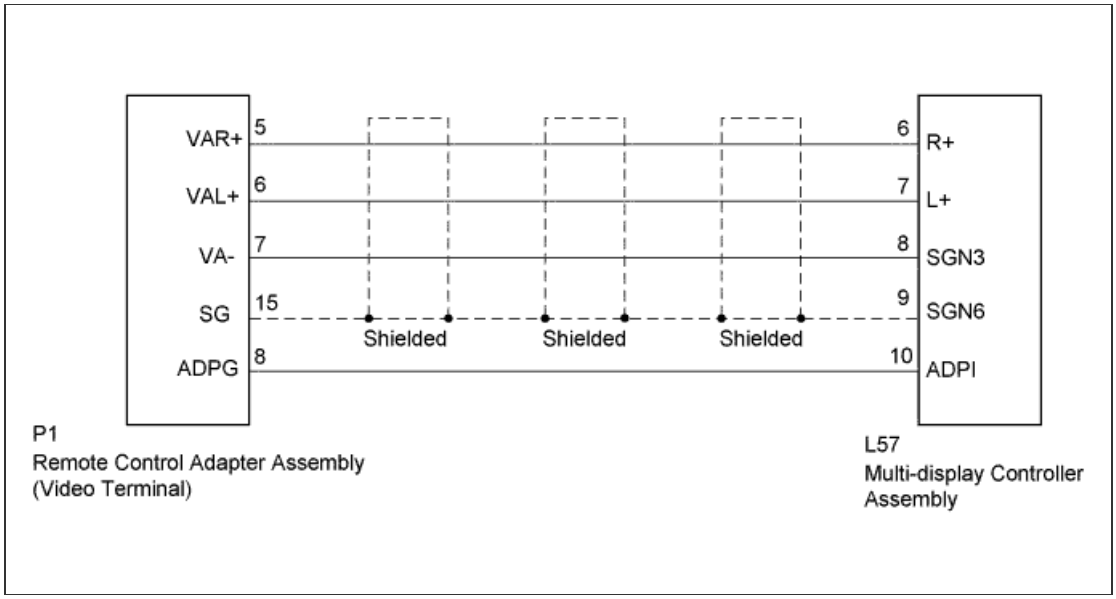
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This is the sound signal circuit between the video terminal and multi-display controller sub-assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY - VIDEO TERMINAL)

a. Disconnect the L57 multi-display controller sub-assembly connector.

b. Disconnect the P1 remote control adapter assembly (video terminal) connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L57-6 (R+) - P1-5 (VAR+) | Always | Below 1 Ω |
| L57-7 (L+) - P1-6 (VAL+) | Always | Below 1 Ω |
| L57-8 (SGN3) - P1-7 (VA-) | Always | Below 1 Ω |
| L57-9 (SGN6) - P1-15 (SG) | Always | Below 1 Ω |
| L57-10 (ADPI) - P1-8 (ADPG) | Always | Below 1 Ω |
| L57-6 (R+) - Body ground | Always | 10 kΩ or higher |
| L57-7 (L+) - Body ground | Always | 10 kΩ or higher |
| L57-8 (SGN3) - Body ground | Always | 10 kΩ or higher |
| L57-9 (SGN6) - Body ground | Always | 10 kΩ or higher |
| L57-10 (ADPI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

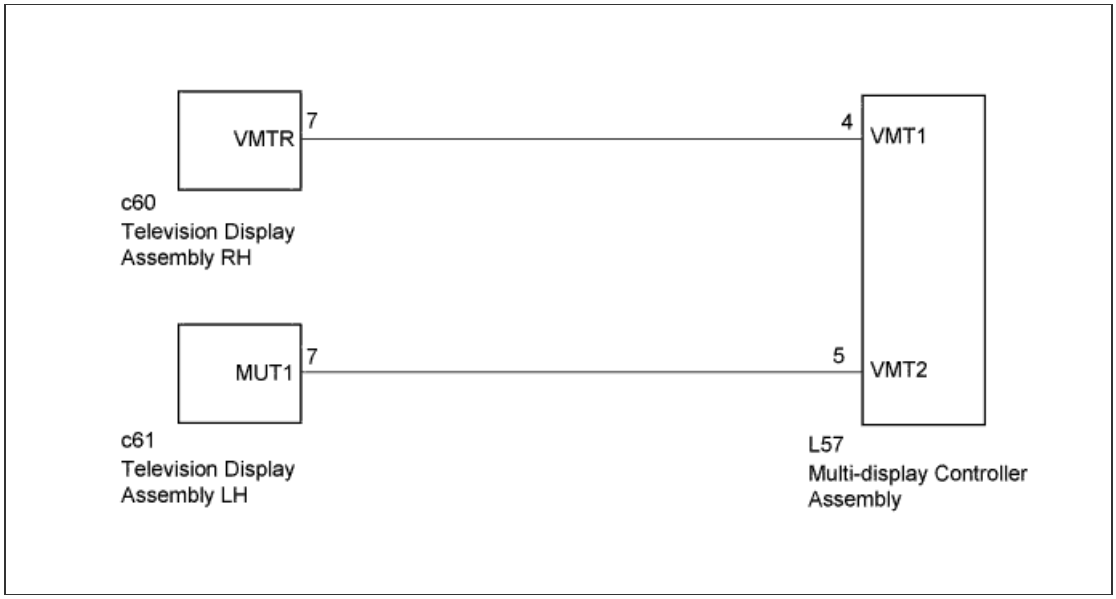
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This is the visual mute signal circuit between the multi-display controller sub-assembly and television display assembly.

## WIRING DIAGRAM



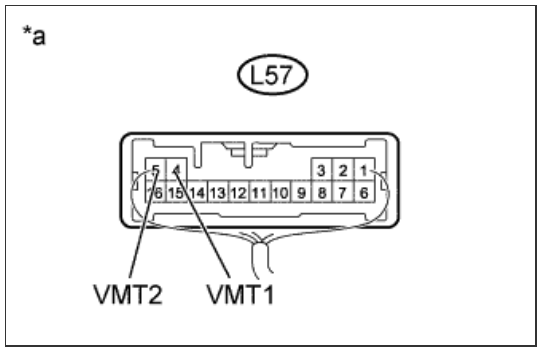

## INSPECTION PROCEDURE

### 1.CHECK MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY

a. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L57-4 (VMT1) - Body ground | RSE playing → Source changed | 3.5 V or higher → Below 1 V |
| L57-5 (VMT2) - Body ground | RSE playing → Source changed | 3.5 V or higher → Below 1 V |




**Text in illustration**

| | |
|---|---|
| *a | Component with harness connected (Multi-display Controller Sub-assembly) |

NG → Go to step 2

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

### 2.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY - TELEVISION DISPLAY ASSEMBLY RH AND LH)

a. Disconnect the L57 multi-display controller sub-assembly connector.

b. Disconnect the c60 television display assembly RH connector.

c. Disconnect the c61 television display assembly LH connector.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L57-4 (VMT1) - c60-7 (VMTR) | Always | Below 1 Ω |
| L57-4 (VMT1) - Body ground | Always | 10 kΩ or higher |

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L57-5 (VMT2) - c61-7 (MUT1) | Always | Below 1 Ω |
| L57-5 (VMT2) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

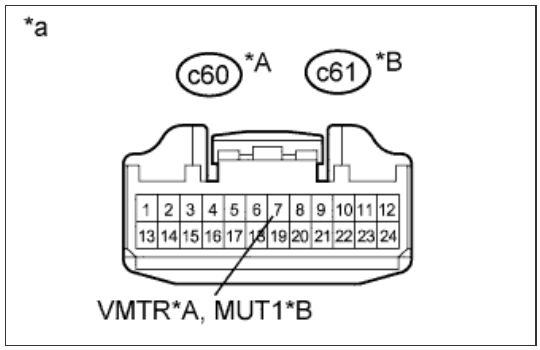
OK

## 3.CHECK MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY

a. Disconnect the c60 television display assembly RH connector.

b. Disconnect the c61 television display assembly LH connector.

c. Measure the voltage according to the value(s) in the table below.




**Standard Voltage:**

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| c60-7 (VMTR) - Body ground | Display operating → Source changed | 3.5 V or higher → Below 1 V |

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| c61-7 (MUT1) - Body ground | Display operating → Source changed | 3.5 V or higher → Below 1 V |

**Text in Illustration**

| | |
|---|---|
| *A | for RH |
| *B | for LH |
| *a | Front view of wire harness connector (to Television Display Assembly) |

**Result**

| Result | Proceed to |
|---|---|
| OK (for RH) | A |
| OK (for LH) | B |
| NG | C |

B

REPLACE TELEVISION DISPLAY LH (Click here)

C

REPLACE MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY (Click here)

A

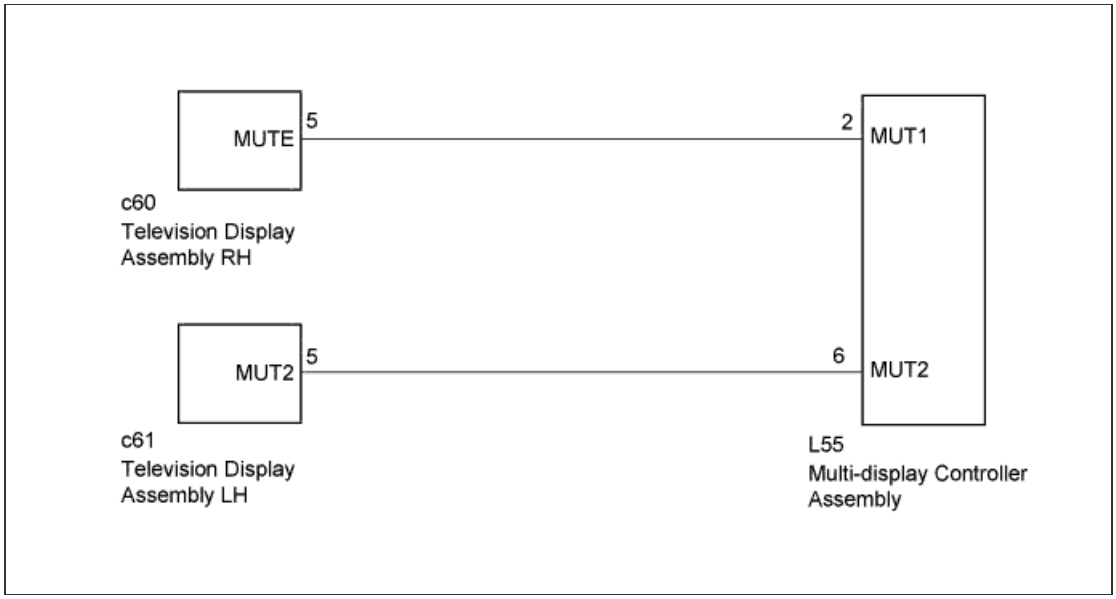
REPLACE TELEVISION DISPLAY ASSEMBLY RH (Click here)

**for Preparation** Click here

## DESCRIPTION

This is the mute signal circuit between the multi-display controller sub-assembly and television display assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY

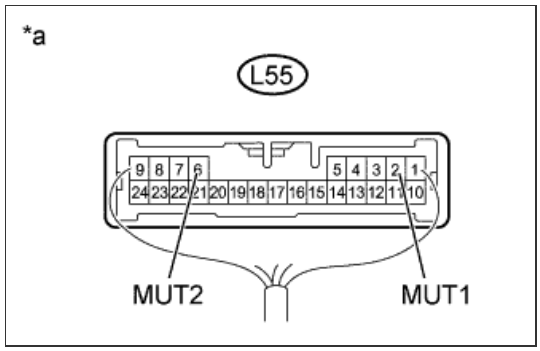
a. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L55-2 (MUT1) - Body ground | RSE playing → Source changed | 3.5 V or higher → Below 1 V |
| L55-6 (MUT2) - Body ground | RSE playing → Source changed | 3.5 V or higher → Below 1 V |

**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Multi-display Controller Sub-assembly) |




NG → Go to step 2

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

### 2.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY - TELEVISION DISPLAY ASSEMBLY RH AND LH)

a. Disconnect the L55 multi-display controller sub-assembly connector.

b. Disconnect the c60 television display assembly RH connector.

c. Disconnect the c61 television display assembly LH connector.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L55-2 (MUT1) - c60-5 (MUTE) | Always | Below 1 Ω |
| L55-2 (MUT1) - Body ground | Always | 10 kΩ or higher |

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L55-6 (MUT2) - c61-5 (MUT2) | Always | Below 1 Ω |
| L55-6 (MUT2) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

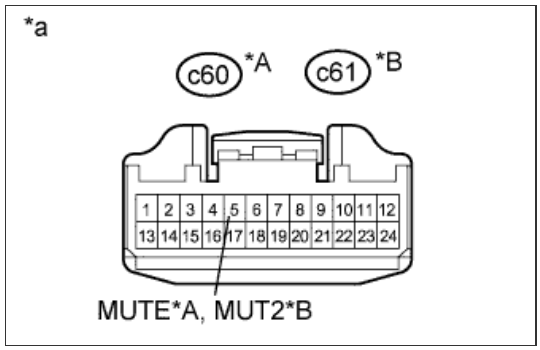
OK

## 3.CHECK MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY

a. Disconnect the c60 television display assembly RH connector.

b. Disconnect the c61 television display assembly LH connector.

c. Measure the voltage according to the value(s) in the table below.




**Standard Voltage:**

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| c60-5 (MUTE) - Body ground | RSE playing → Source changed | 3.5 V or higher → Below 1 V |

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| c61-5 (MUT2) - Body ground | RSE playing → Source changed | 3.5 V or higher → Below 1 V |

**Text in Illustration**

| | |
|---|---|
| *A | for RH |
| *B | for LH |
| *a | Front view of wire harness connector (to Television Display Assembly) |

**Result**

| Result | Proceed to |
|---|---|
| OK (for RH) | A |
| OK (for LH) | B |
| NG | C |

B → REPLACE TELEVISION DISPLAY ASSEMBLY LH (Click here)

C

REPLACE MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY (Click here)

A

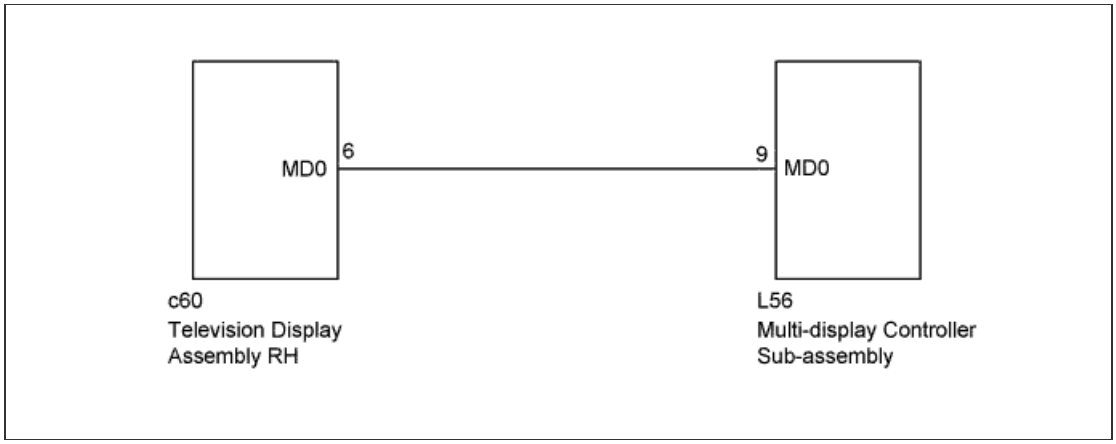
REPLACE TELEVISION DISPLAY ASSEMBLY RH (Click here)

**for Preparation** Click here

## DESCRIPTION

This is the display mode signal circuit between the multi-display controller sub-assembly and television display assembly RH.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**1.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY - TELEVISION DISPLAY ASSEMBLY RH)**

a. Disconnect the L56 multi-display controller sub-assembly connector.

b. Disconnect the c60 television display assembly RH connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L56-9 (MD0) - c60-6 (MD0) | Always | Below 1 Ω |
| L56-9 (MD0) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

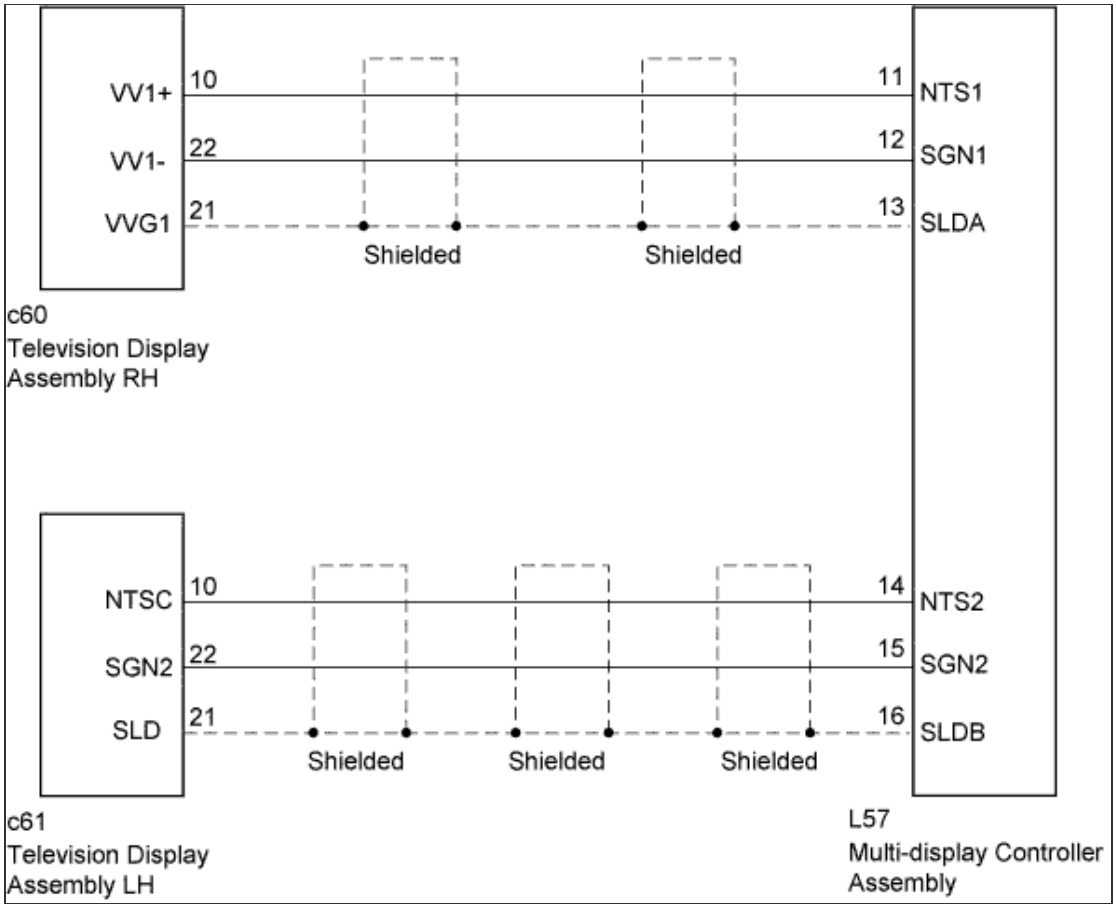
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This is the display signal circuit between the multi-display controller sub-assembly and television display assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY - TELEVISION DISPLAY ASSEMBLY RH AND LH)

a. Disconnect the L57 multi-display controller sub-assembly connector.

b. Disconnect the c60 television display assembly RH connector.

c. Disconnect the c61 television display assembly LH connector.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for RH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L57-11 (NTS1) - c60-10 (VV1+) | Always | Below 1 Ω |
| L57-12 (SGN1) - c60-22 (VV1-) | Always | Below 1 Ω |
| L57-13 (SLDA) - c60-21 (VVG1) | Always | Below 1 Ω |
| L57-11 (NTS1) - Body ground | Always | 10 kΩ or higher |
| L57-12 (SGN1) - Body ground | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| L57-13 (SLDA) - Body ground | Always | 10 kΩ or higher |

**for LH:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L57-14 (NTS2) - c61-10 (NTSC) | Always | Below 1 Ω |
| L57-15 (SGN2) - c61-22 (SGN2) | Always | Below 1 Ω |
| L57-16 (SLDB) - c61-21 (SLD) | Always | Below 1 Ω |
| L57-14 (NTS2) - Body ground | Always | 10 kΩ or higher |
| L57-15 (SGN2) - Body ground | Always | 10 kΩ or higher |
| L57-16 (SLDB) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

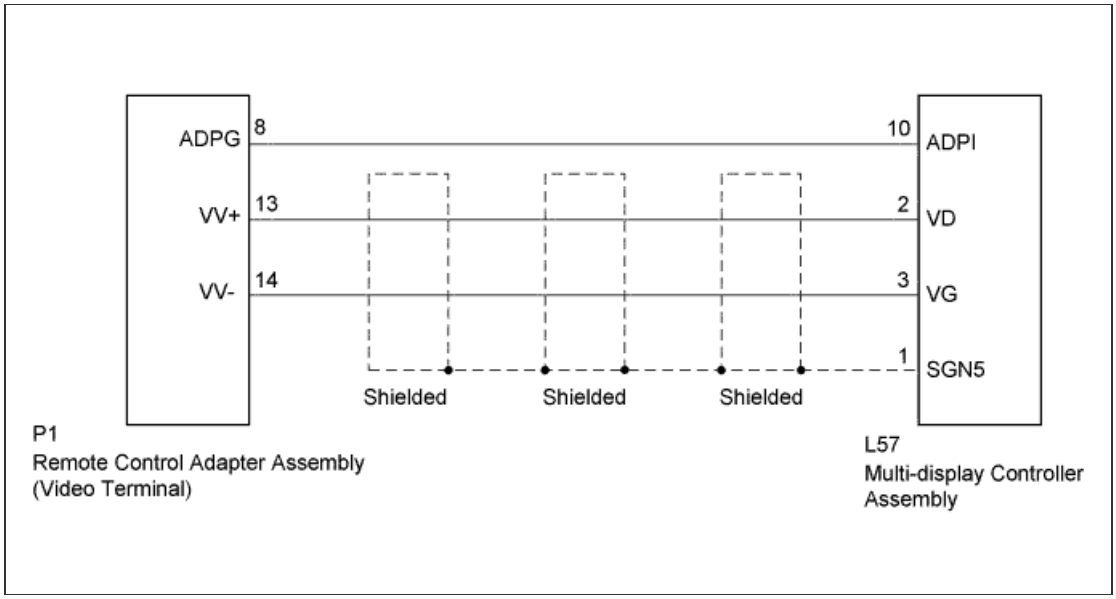
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This is the display signal circuit between the video terminal and multi-display controller sub-assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**1.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY - VIDEO TERMINAL)**

a. Disconnect the L57 multi-display controller sub-assembly connector.

b. Disconnect the P1 remote control adapter assembly (video terminal) connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L57-2 (VD) - P1-13 (VV+) | Always | Below 1 Ω |
| L57-3 (VG) - P1-14 (VV-) | Always | Below 1 Ω |
| L57-10 (ADPI) - P1-8 (ADPG) | Always | Below 1 Ω |
| L57-2 (VD) - Body ground | Always | 10 kΩ or higher |
| L57-3 (VG) - Body ground | Always | 10 kΩ or higher |
| L57-10 (ADPI) - Body ground | Always | 10 kΩ or higher |
| L57-1 (SGN5) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

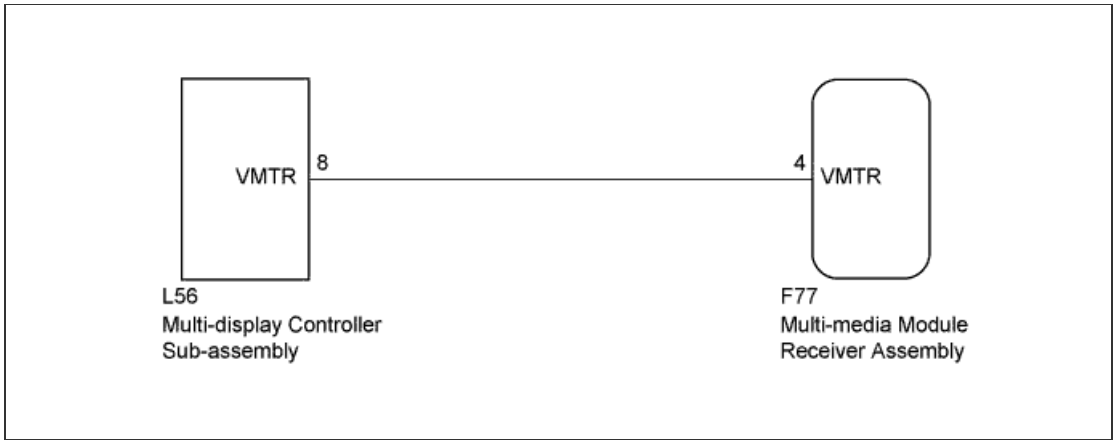
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This is the visual mute signal circuit between the multi-media module receiver assembly and the multi-display controller sub-assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY

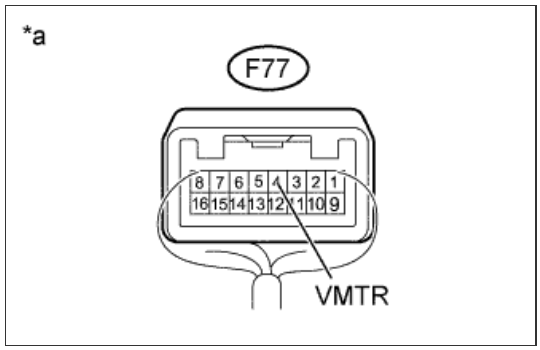
a. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F77-4 (VMTR) - Body ground | RSE playing → Source changed | 3.5 V or higher → Below 1 V |

**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Multi-media Module Receiver Assembly) |




NG → Go to step 2

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

### 2.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY)

a. Disconnect the F77 multi-media module receiver assembly connector.

b. Disconnect the L56 multi-display controller sub-assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F77-4 (VMTR) - L56-8 (VMTR) | Always | Below 1 Ω |
| F77-4 (VMTR) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 3.CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY

a. Disconnect the multi-display controller sub-assembly connector.

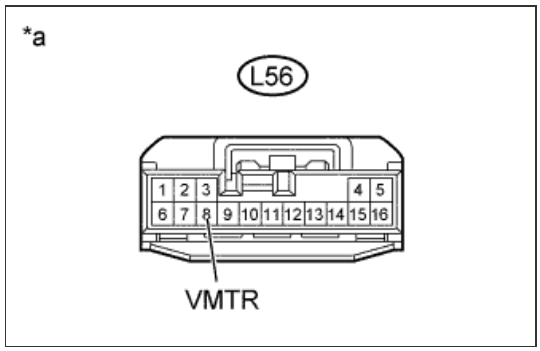
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L56-8 (VMTR) - Body ground | RSE playing → Source changed | 3.5 V or higher → Below 1 V |

**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Multi-display Controller Sub-assembly) |




NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

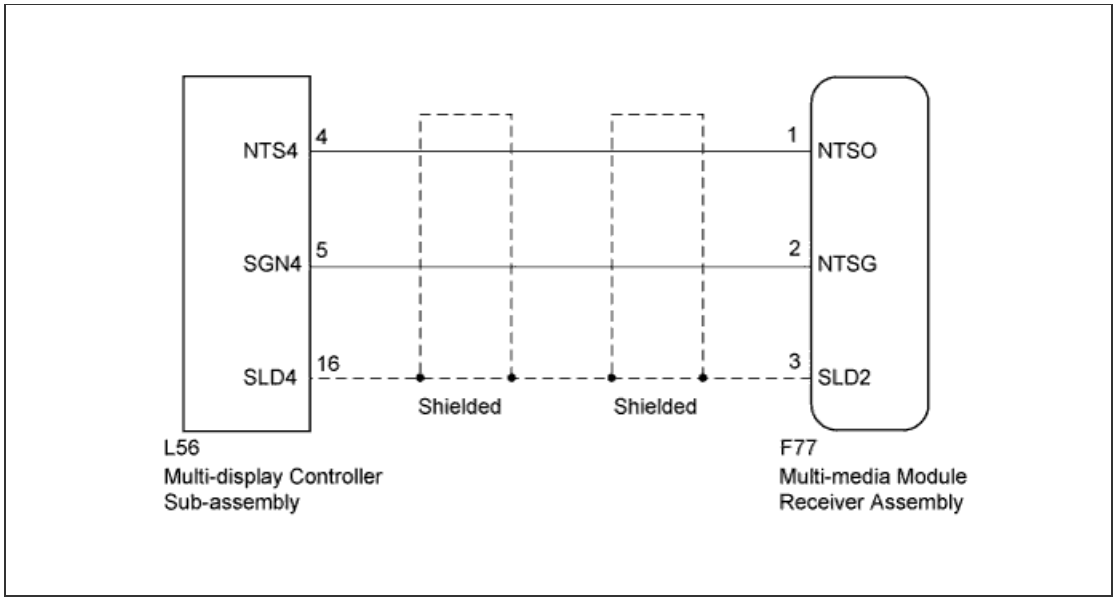
REPLACE MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY (Click here)

**for Preparation** Click here

## DESCRIPTION

This is the display signal circuit between the multi-media module receiver assembly and the multi-display controller sub-assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**1.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY)**

a. Disconnect the F77 multi-media module receiver assembly connector.

b. Disconnect the L56 multi-display controller sub-assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F77-1 (NTSO) - L56-4 (NTS4) | Always | Below 1 Ω |
| F77-2 (NTSG) - L56-5 (SGN4) | Always | Below 1 Ω |
| F77-3 (SLD2) - L56-16 (SLD4) | Always | Below 1 Ω |
| F77-1 (NTSO) - Body ground | Always | 10 kΩ or higher |
| F77-2 (NTSG) - Body ground | Always | 10 kΩ or higher |
| F77-3 (SLD2) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

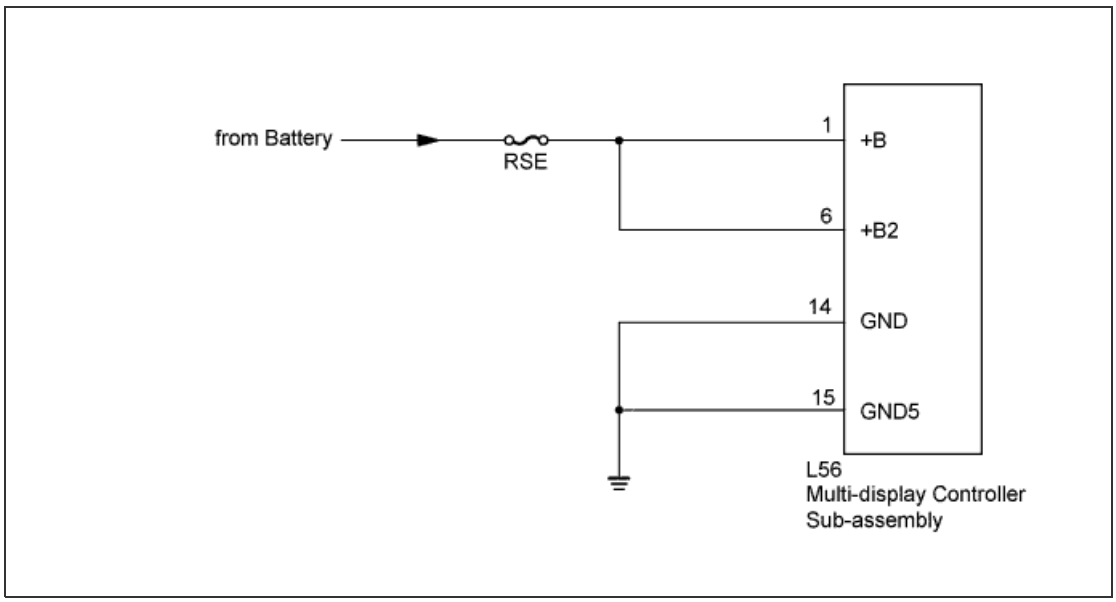
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This is the power source circuit of the multi-display controller sub-assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY - BATTERY AND BODY GROUND)

a. Disconnect the multi-display controller sub-assembly connector.

b. Measure the resistance according to the value(s) in the table below.

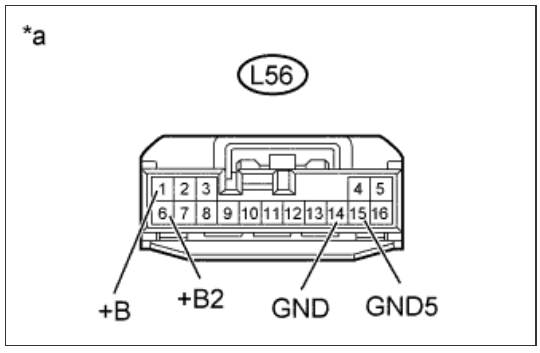
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L56-14 (GND) - Body ground | Always | Below 1 Ω |
| L56-15 (GND5) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L56-1 (+B) - L56-14 (GND) | Always | 11 to 14 V |
| L56-6 (+B2) - L56-14 (GND) | Always | 11 to 14 V |




**Text in Illustration**

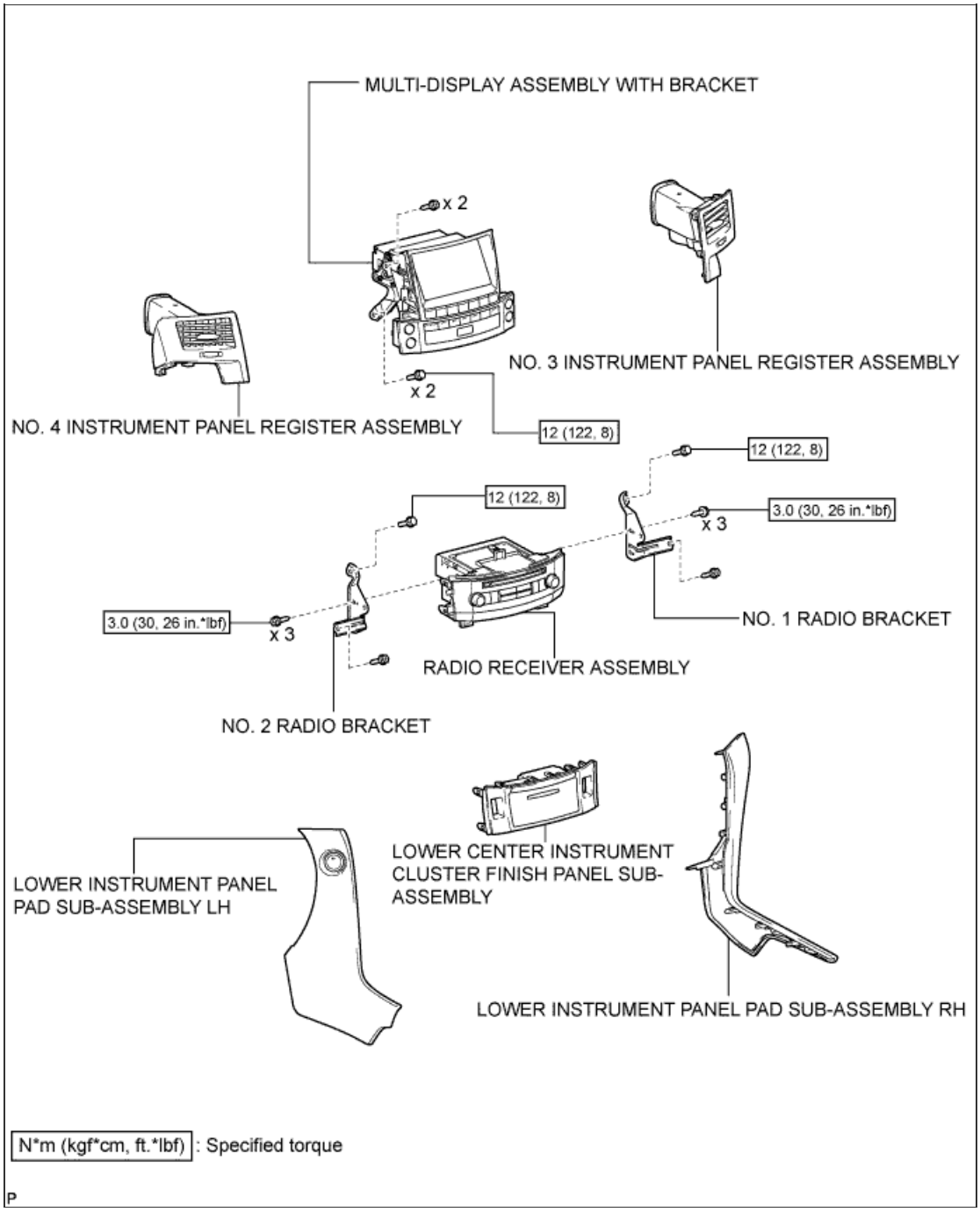
| | |
|---|---|
| *a | Front view of wire harness connector (to Multi-display Controller Sub-assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

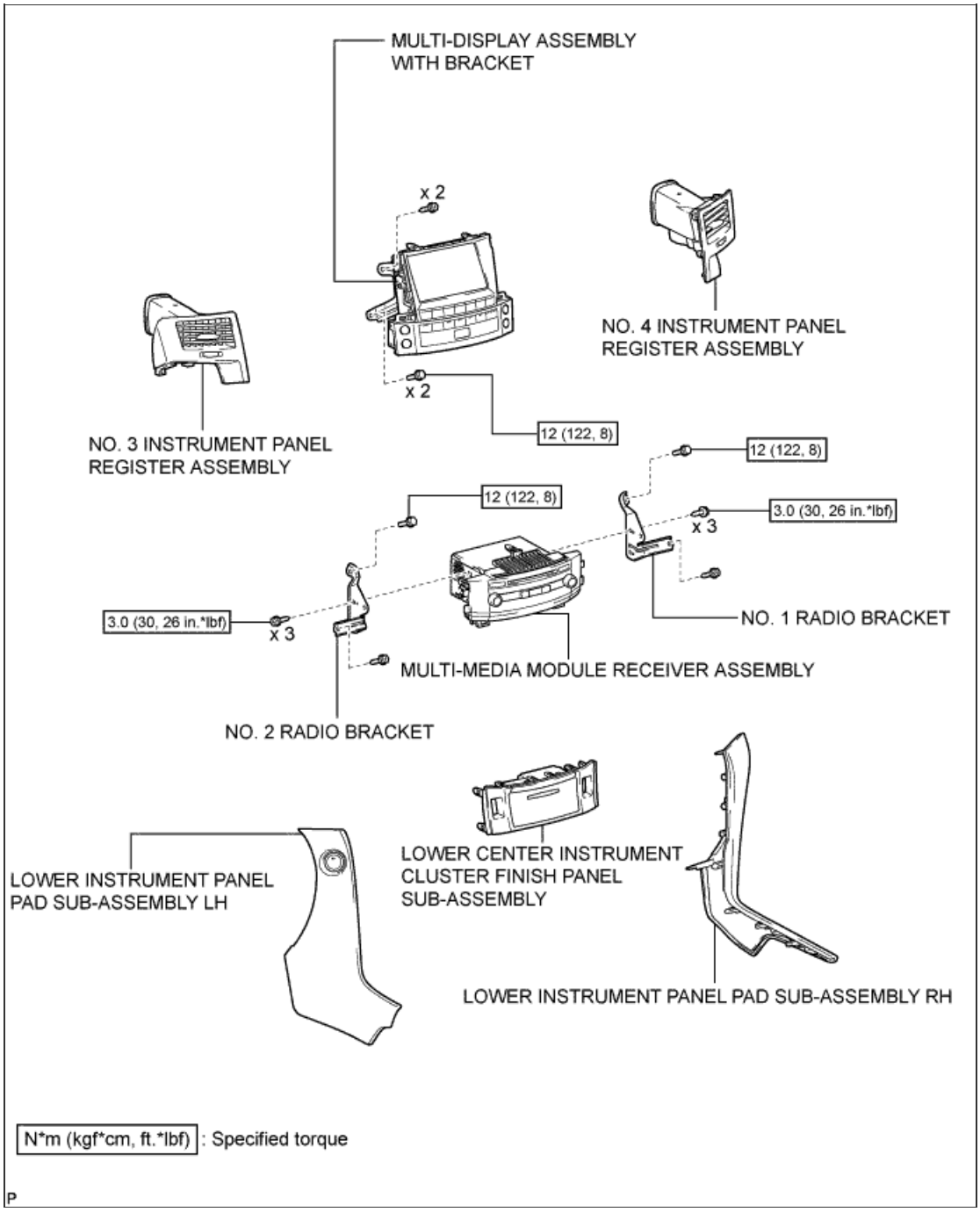
OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here



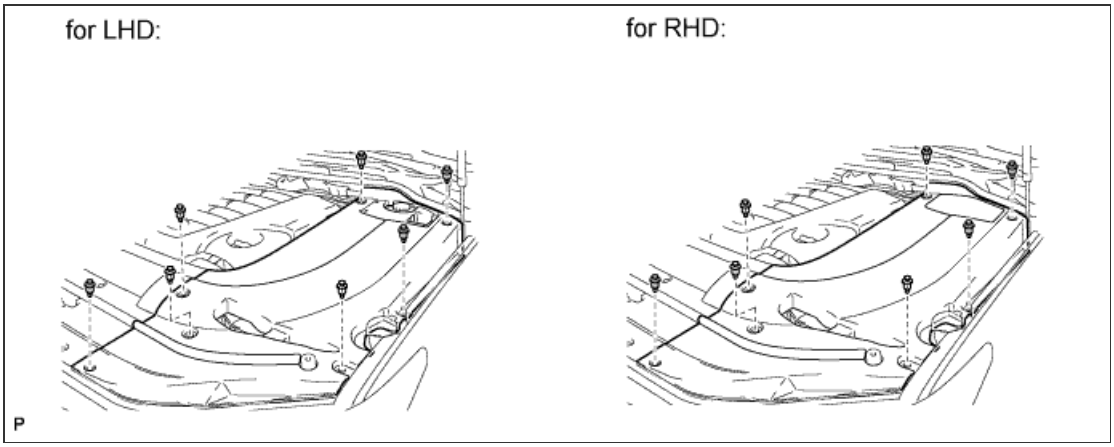
**for Preparation** Click here



**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover.




## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

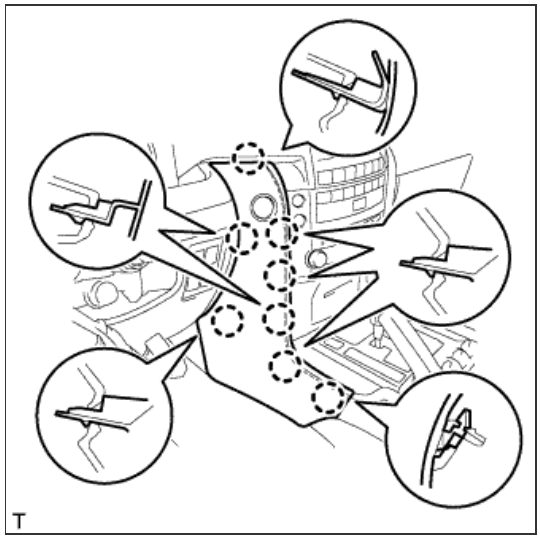
**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 3. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

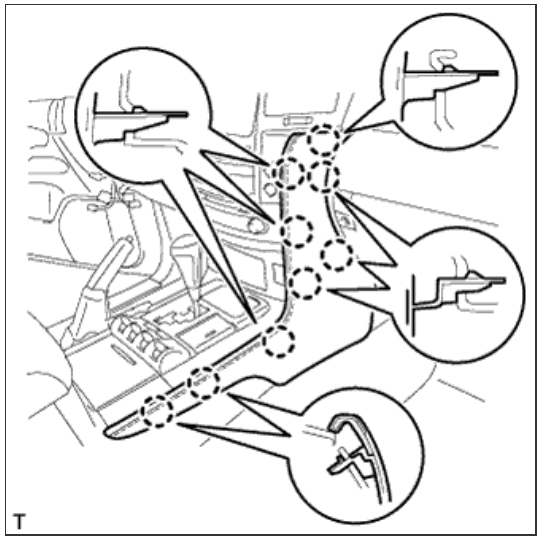
a. Detach the 8 claws.

b. Disconnect the connector and remove the panel pad.




## 4. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY RH

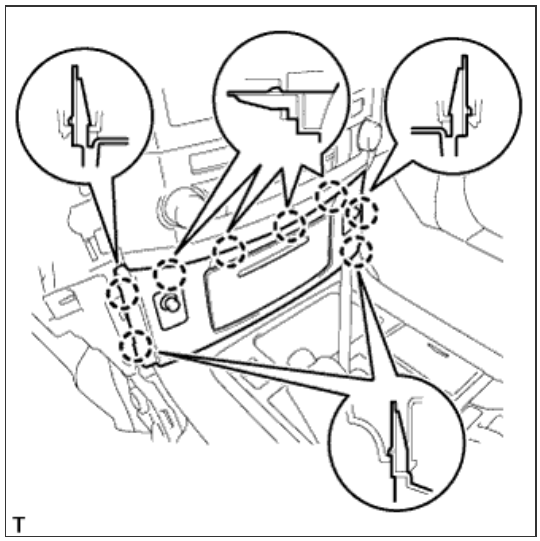
a. Detach the 9 claws and remove the panel pad.




## 5. REMOVE LOWER CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

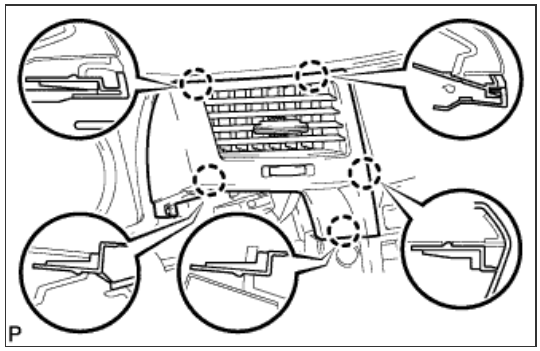
a. Detach the 8 claws.

b. Disconnect the connectors and remove the panel.



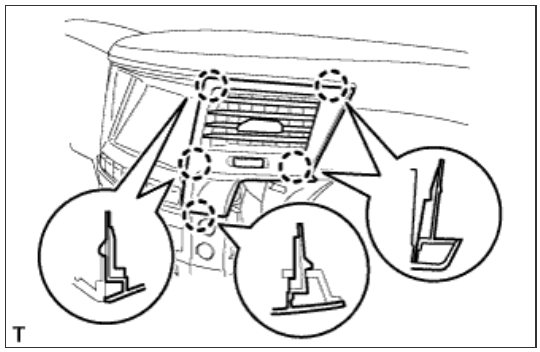

## 6. REMOVE NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Detach the 5 claws and remove the register.



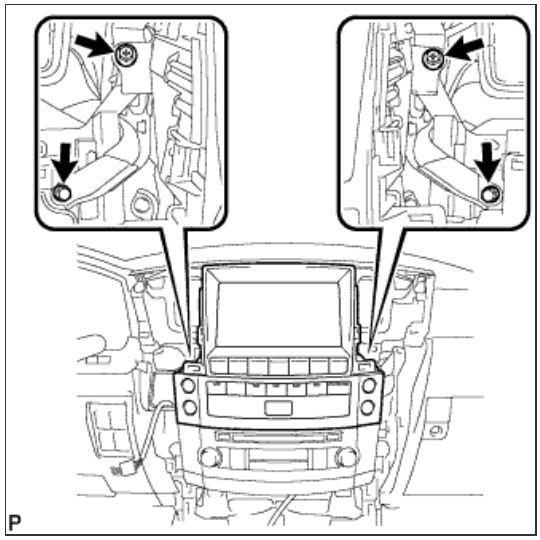

## 7. REMOVE NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Detach the 5 claws and remove the register.



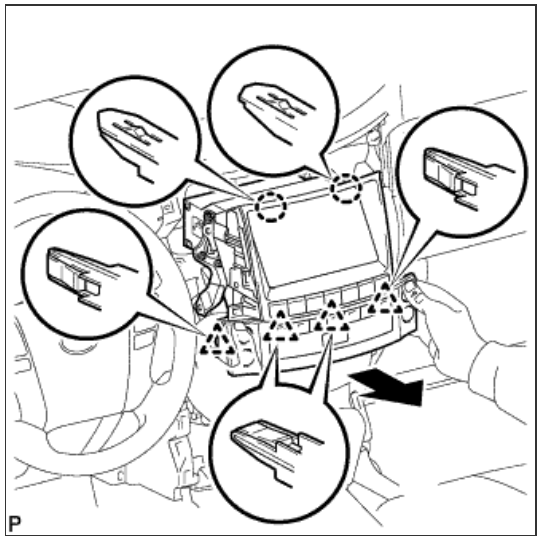

## 8. REMOVE MULTI-DISPLAY ASSEMBLY WITH BRACKET (w/o Navigation System)

a. Remove the 2 screws and 2 bolts.



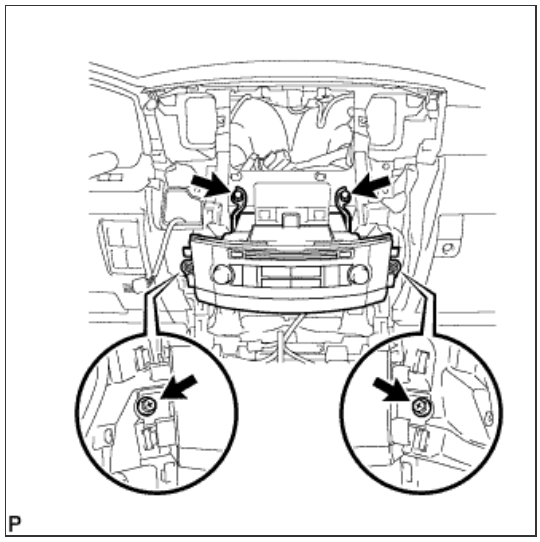

b. Pull the display to detach the 2 claws and 4 clips on the backside of the display.

c. Disconnect the connectors and remove the display.



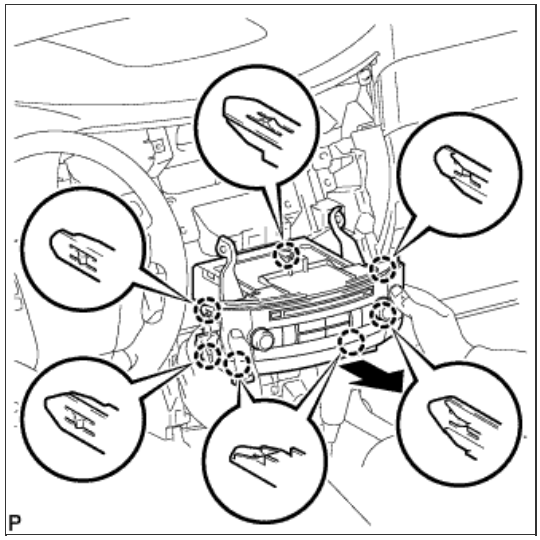

## 9. REMOVE RADIO RECEIVER ASSEMBLY WITH BRACKET

a. Remove the 2 screws and 2 bolts.



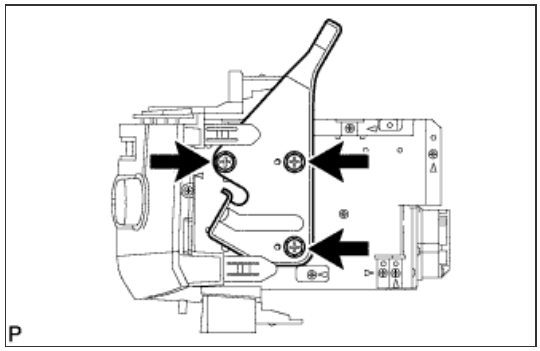

b. Pull the radio receiver to detach the 7 claws on the backside of the radio receiver.

c. Disconnect the connectors and remove the radio receiver.



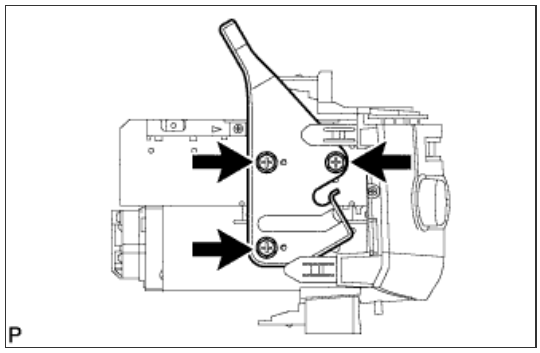

## 10. REMOVE NO. 1 RADIO BRACKET

a. Remove the 3 bolts and bracket.




## 11. REMOVE NO. 2 RADIO BRACKET

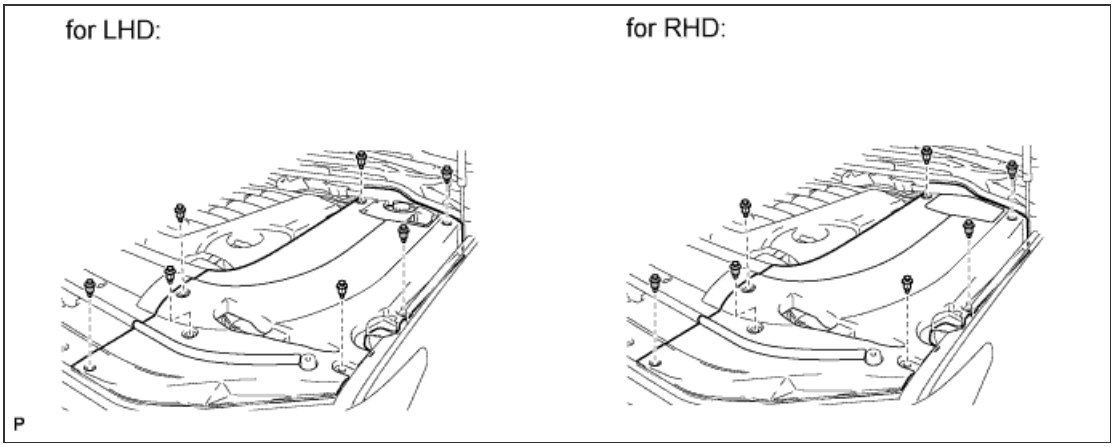
a. Remove the 3 bolts and bracket.


P

**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover LH.




## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

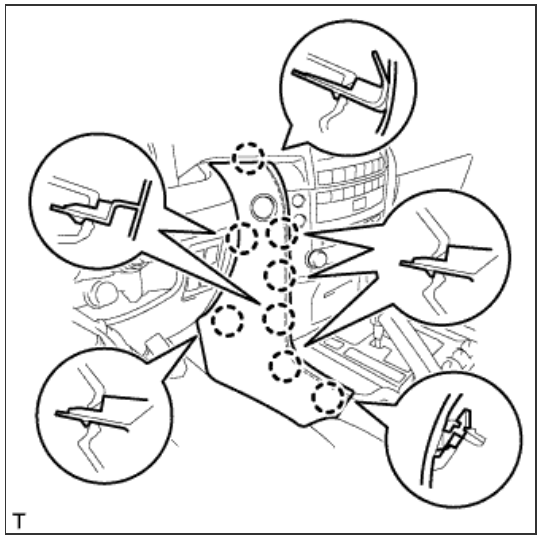
**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 3. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

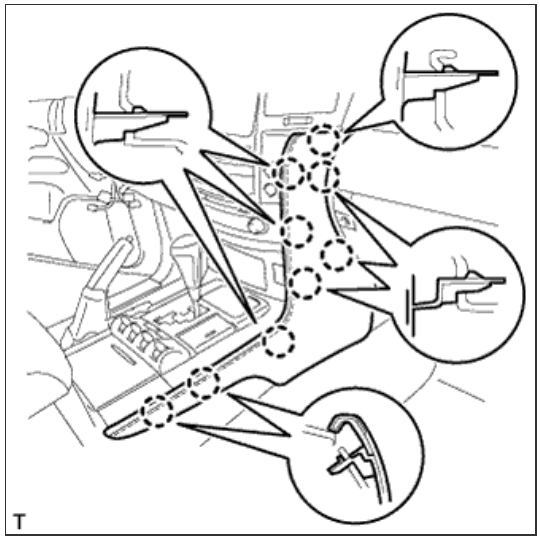
a. Detach the 8 claws.

b. Disconnect the connector and remove the panel pad.




## 4. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY RH

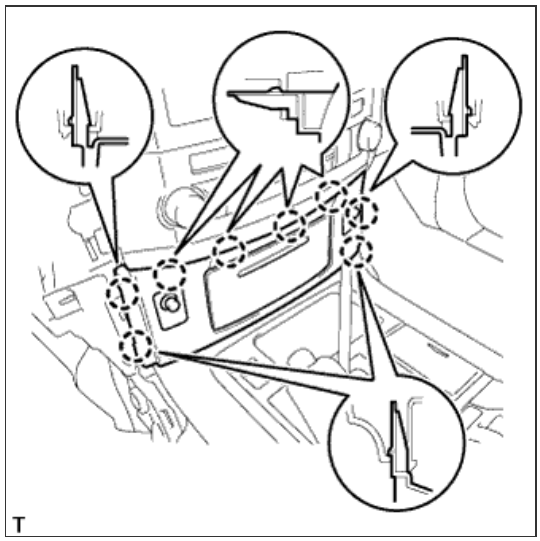
a. Detach the 9 claws and remove the panel pad.




## 5. REMOVE LOWER CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

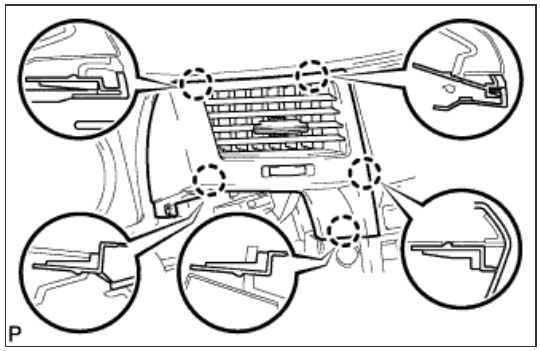
a. Detach the 8 claws.

b. Disconnect the connectors and remove the panel.



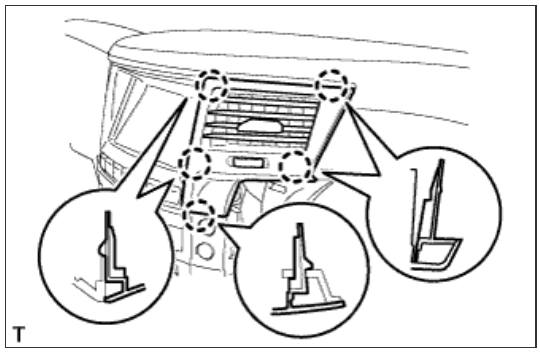

## 6. REMOVE NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Detach the 5 claws and remove the register.



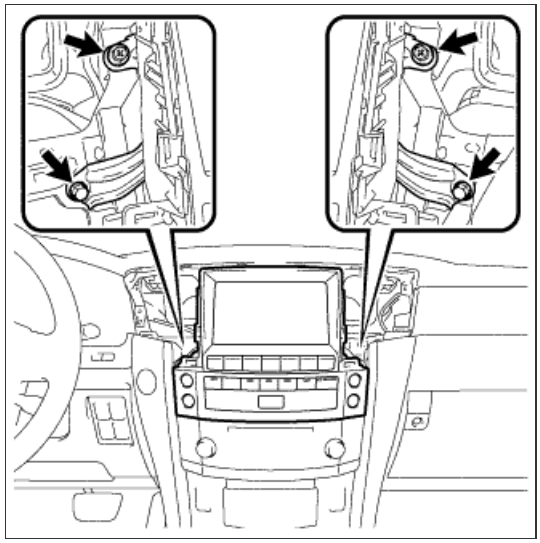

## 7. REMOVE NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Detach the 5 claws and remove the register.



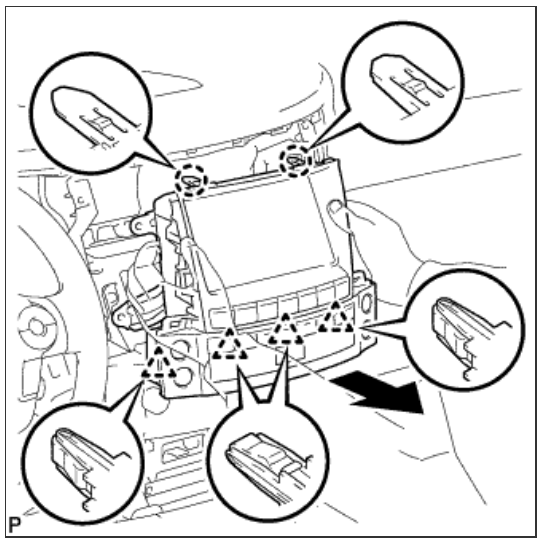

## 8. REMOVE MULTI-DISPLAY ASSEMBLY WITH BRACKET

a. Remove the 2 screws and 2 bolts.



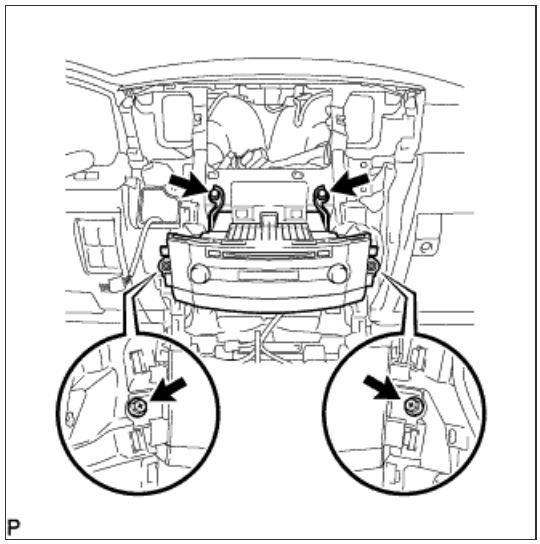
b. Pull the multi-display assembly with bracket to detach the 2 claws and 4 clips on the backside of the multi-display assembly.

c. Disconnect the connectors and remove the multi-display assembly.



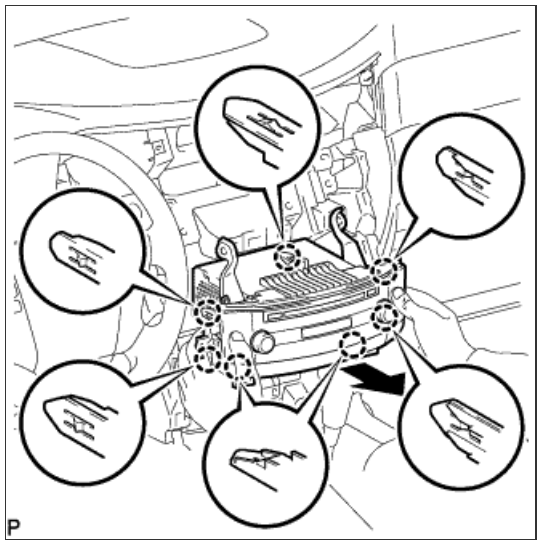

## 9. REMOVE MULTI-MEDIA MODULE RECEIVER ASSEMBLY WITH BRACKET

a. Remove the 2 screws and 2 bolts.



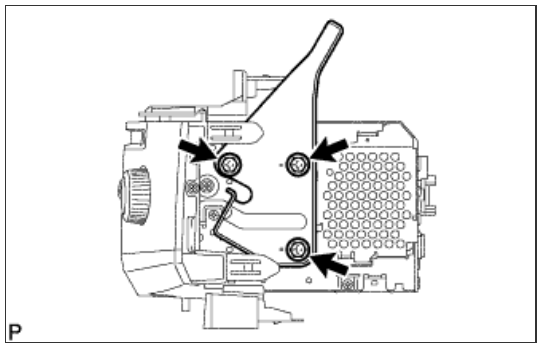

b. Pull the multi-media module receiver assembly to detach the 7 claws on the backside of the multi-media module receiver assembly with bracket.

c. Disconnect the connectors and remove the multi-media module receiver assembly.



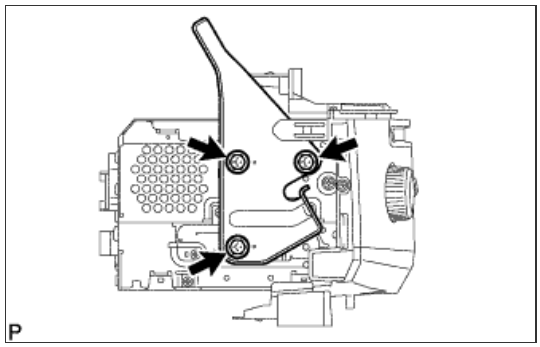

**10. REMOVE NO. 1 RADIO BRACKET**

a. Remove the 3 bolts and No. 1 radio bracket.




**11. REMOVE NO. 2 RADIO BRACKET**

a. Remove the 3 bolts and No. 2 radio bracket.

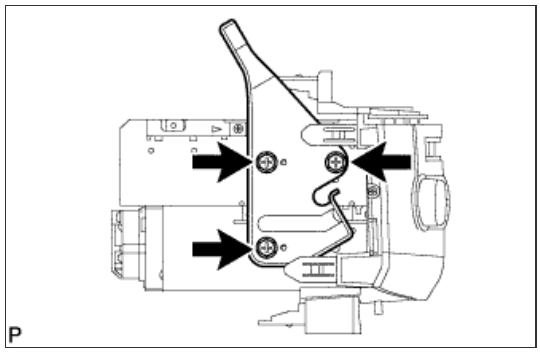

P

**for Preparation** Click here

## 1. INSTALL NO. 2 RADIO BRACKET

a. Install the bracket with the 3 bolts.

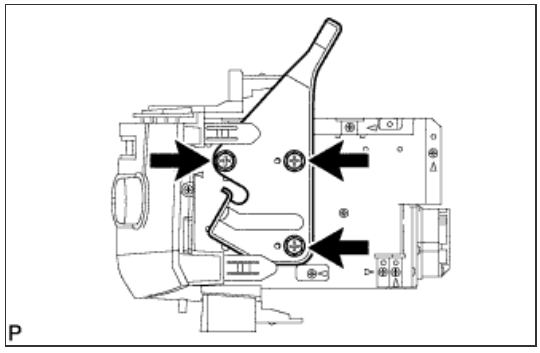
**Torque:**
**3.0 N*m{ 30 kgf*cm , 26 in.*lbf }**




## 2. INSTALL NO. 1 RADIO BRACKET

a. Install the bracket with the 3 bolts.

**Torque:**
**3.0 N*m{ 30 kgf*cm , 26 in.*lbf }**



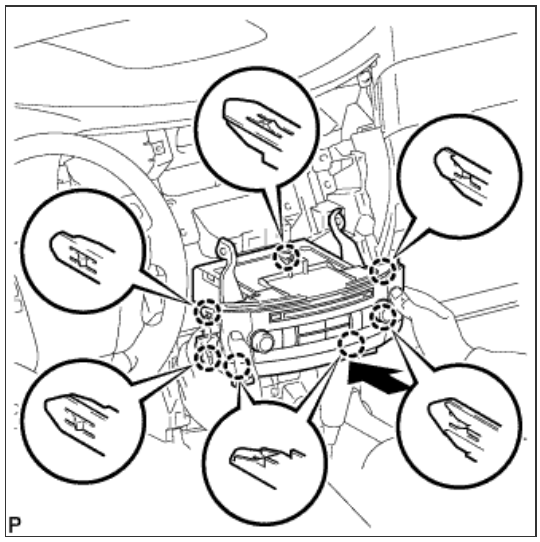

## 3. INSTALL RADIO RECEIVER ASSEMBLY WITH BRACKET

a. Connect the connectors.

b. Insert the radio receiver to attach the 7 claws on its backside.

**NOTICE:**

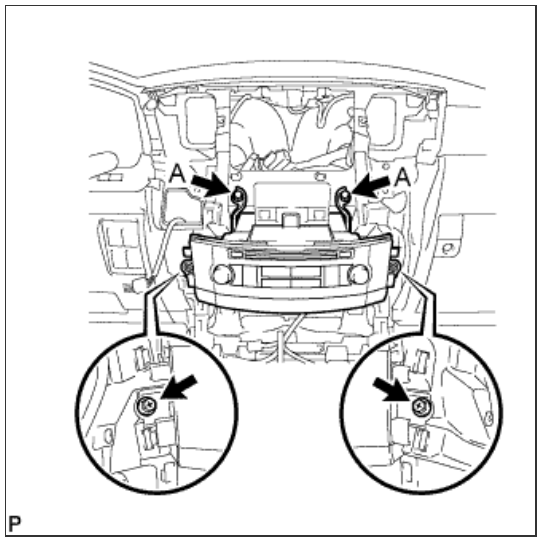
When inserting the radio receiver, do not press the knobs on it.




c. Install the radio receiver with the 2 screws and 2 bolts.

c. Install the radio receiver with the 2 screws and 2 bolts.

**Torque:**
**for bolts labeled A:**
**12 N*m{ 122 kgf*cm , 8 ft.*lbf }**



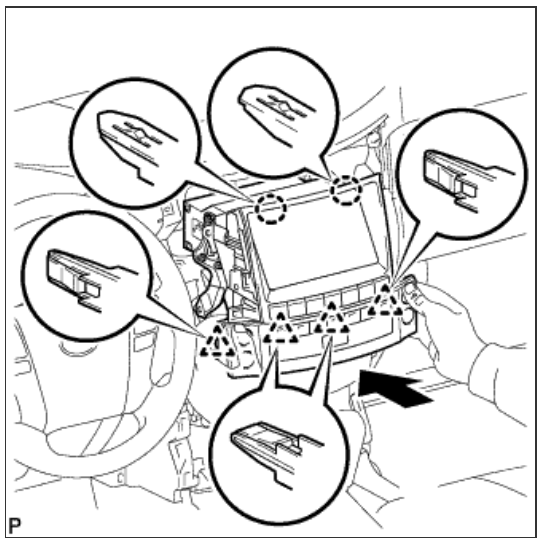

## 4. INSTALL MULTI-DISPLAY ASSEMBLY WITH BRACKET (w/o Navigation System)

a. Connect the connectors.

b. Insert the display to attach the 2 claws and 4 clips on its backside.

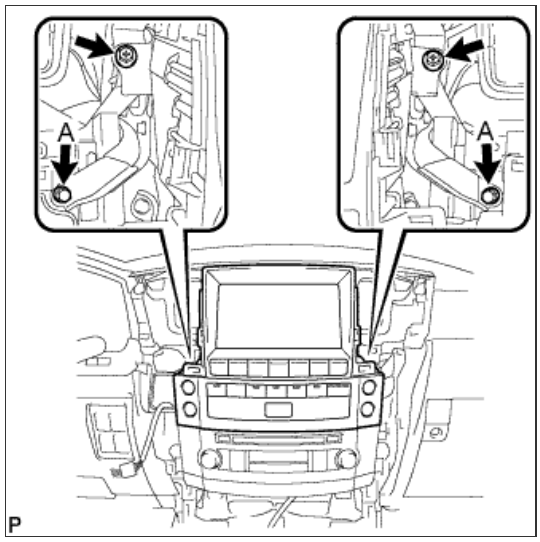
**NOTICE:**

When inserting the display, do not press the knobs on it.



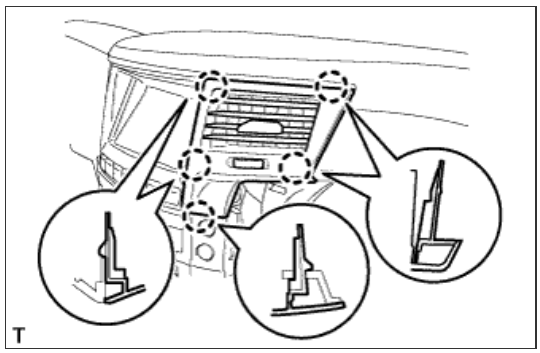

c. Install the display with the 2 screws and 2 bolts.

**Torque:**
**for bolts labeled A:**
**12 N*m{ 122 kgf*cm , 8 ft.*lbf }**



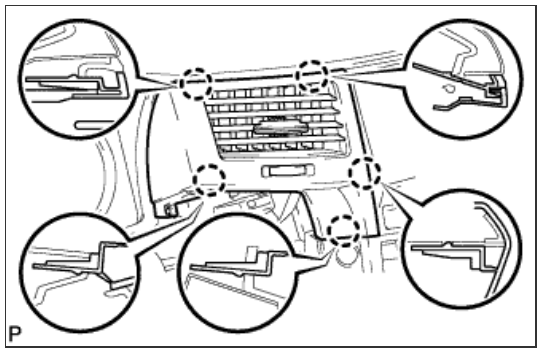

## 5. INSTALL NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Attach the 5 claws to install the register.




## 6. INSTALL NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

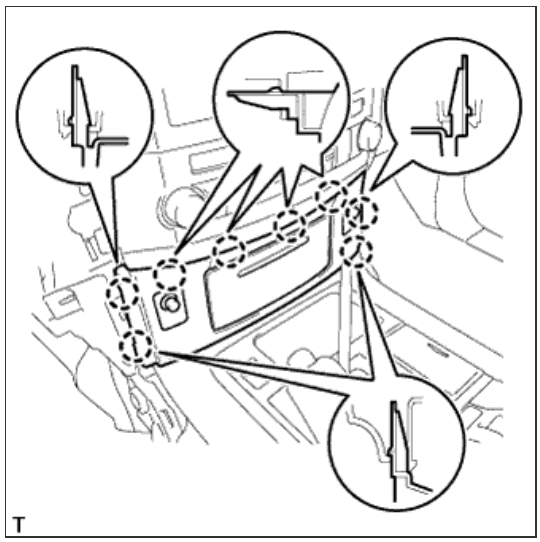
a. Attach the 5 claws to install the register.




## 7. INSTALL LOWER CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

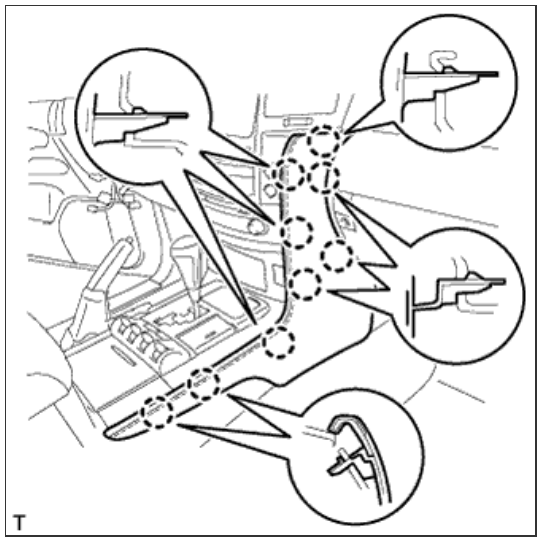
a. Connect the connectors.

b. Attach the 8 claws to install the panel.




## 8. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY RH

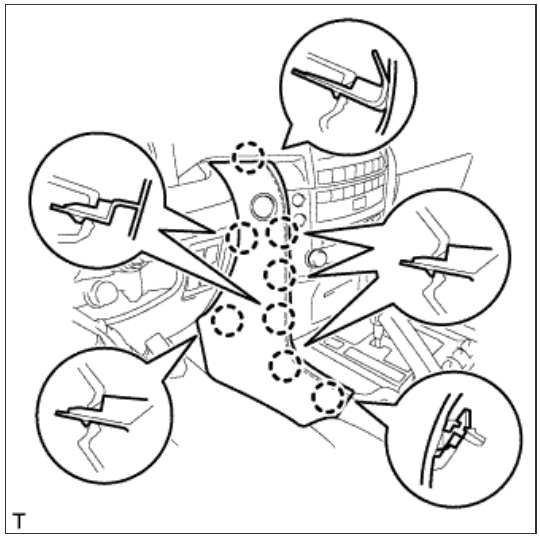
a. Attach the 9 claws to install the panel pad.




## 9. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Connect the connector.

b. Attach the 8 claws to install the panel pad.




## 10. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

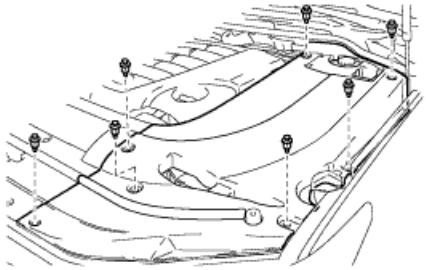
**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

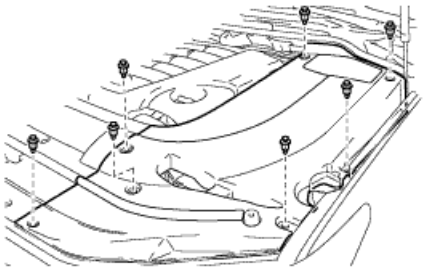
## 11. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover with the 7 clips.

for LHD:



for RHD:



P

**for Preparation** Click here

## 1. INSTALL NO. 2 RADIO BRACKET

a. Install the No. 2 radio bracket with the 3 bolts.

**Torque:**
**3.0 N*m{ 30 kgf*cm , 26 in.*lbf }**

## 2. INSTALL NO. 1 RADIO BRACKET

a. Install the No. 1 radio bracket with the 3 bolts.

**Torque:**
**3.0 N*m{ 30 kgf*cm , 26 in.*lbf }**

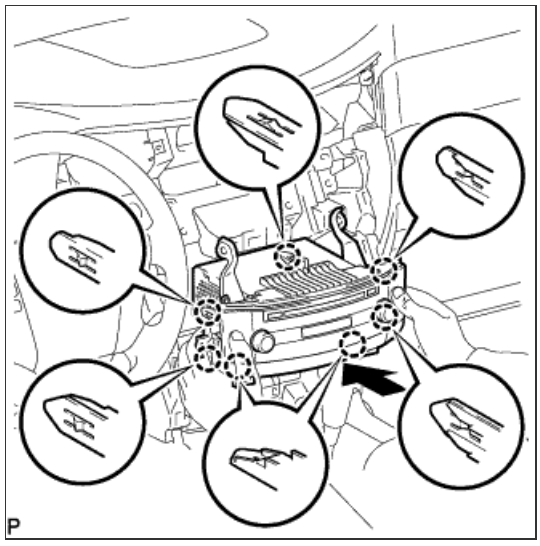
## 3. INSTALL MULTI-MEDIA MODULE RECEIVER ASSEMBLY WITH BRACKET

a. Connect the connectors.

b. Insert the multi-media module receiver assembly with bracket to attach the 7 claws on its backside.

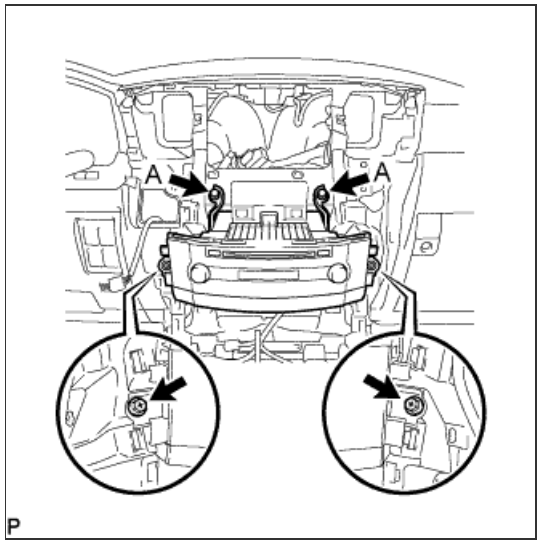
**NOTICE:**

When inserting the multi-media module receiver assembly, do not press the knobs on it.




c. Install the multi-media module receiver assembly with the 2 screws and 2 bolts.

**Torque:**
**for bolts labeled A:**
**12 N*m{ 122 kgf*cm , 8 ft.*lbf }**



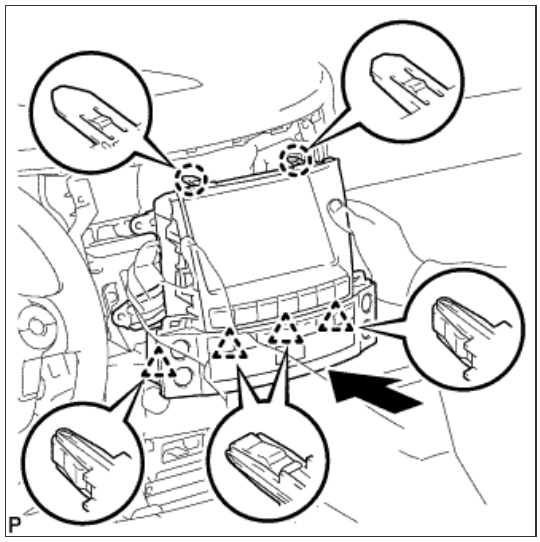
## 4. INSTALL MULTI-DISPLAY ASSEMBLY WITH BRACKET

a. Connect the connectors.

b. Insert the multi-display assembly with bracket to attach the 2 claws and 4 clips on its backside.

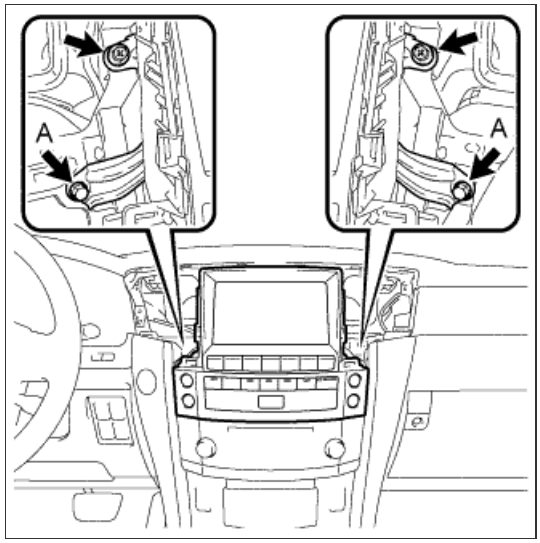
**NOTICE:**

When inserting the multi-display assembly, do not press the knobs on it.



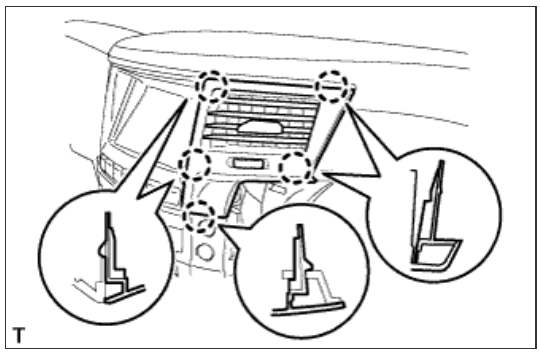

c. Install the multi-display assembly with the 2 screws and 2 bolts.

**Torque:**
**for bolts labeled A:**
**12 N*m{ 122 kgf*cm , 8 ft.*lbf }**



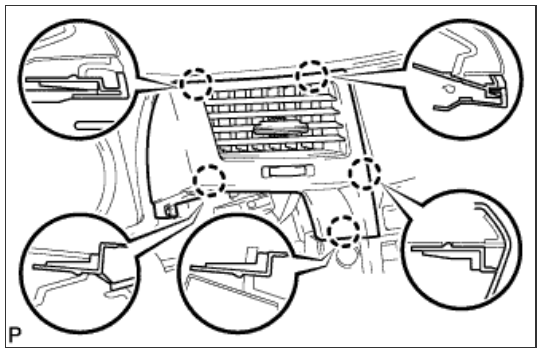

## 5. INSTALL NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Attach the 5 claws to install the register.




## 6. INSTALL NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

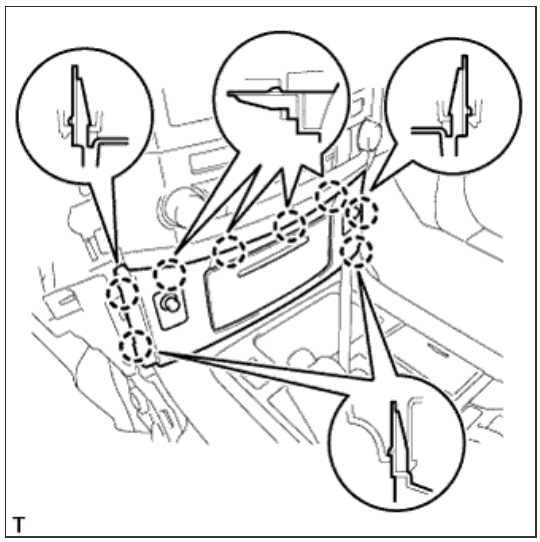
a. Attach the 5 claws to install the register.




## 7. INSTALL LOWER CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

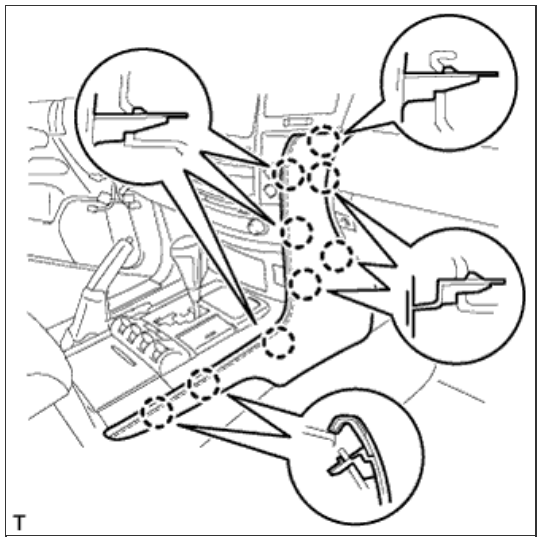
a. Connect the connectors.

b. Attach the 8 claws to install the panel.




## 8. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY RH

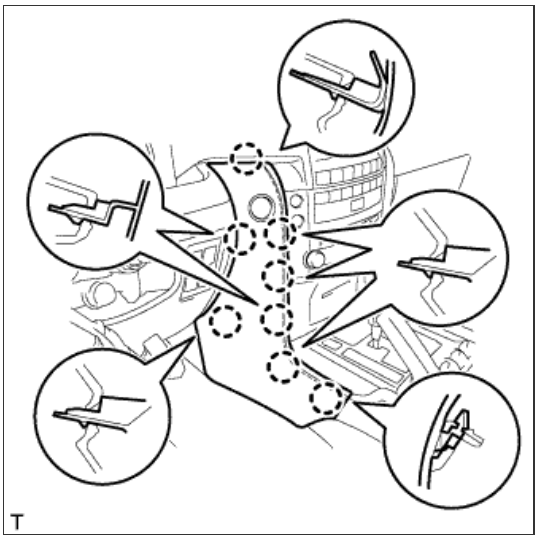
a. Attach the 9 claws to install the panel pad.




## 9. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Connect the connector.

b. Attach the 8 claws to install the panel pad.




### 10. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

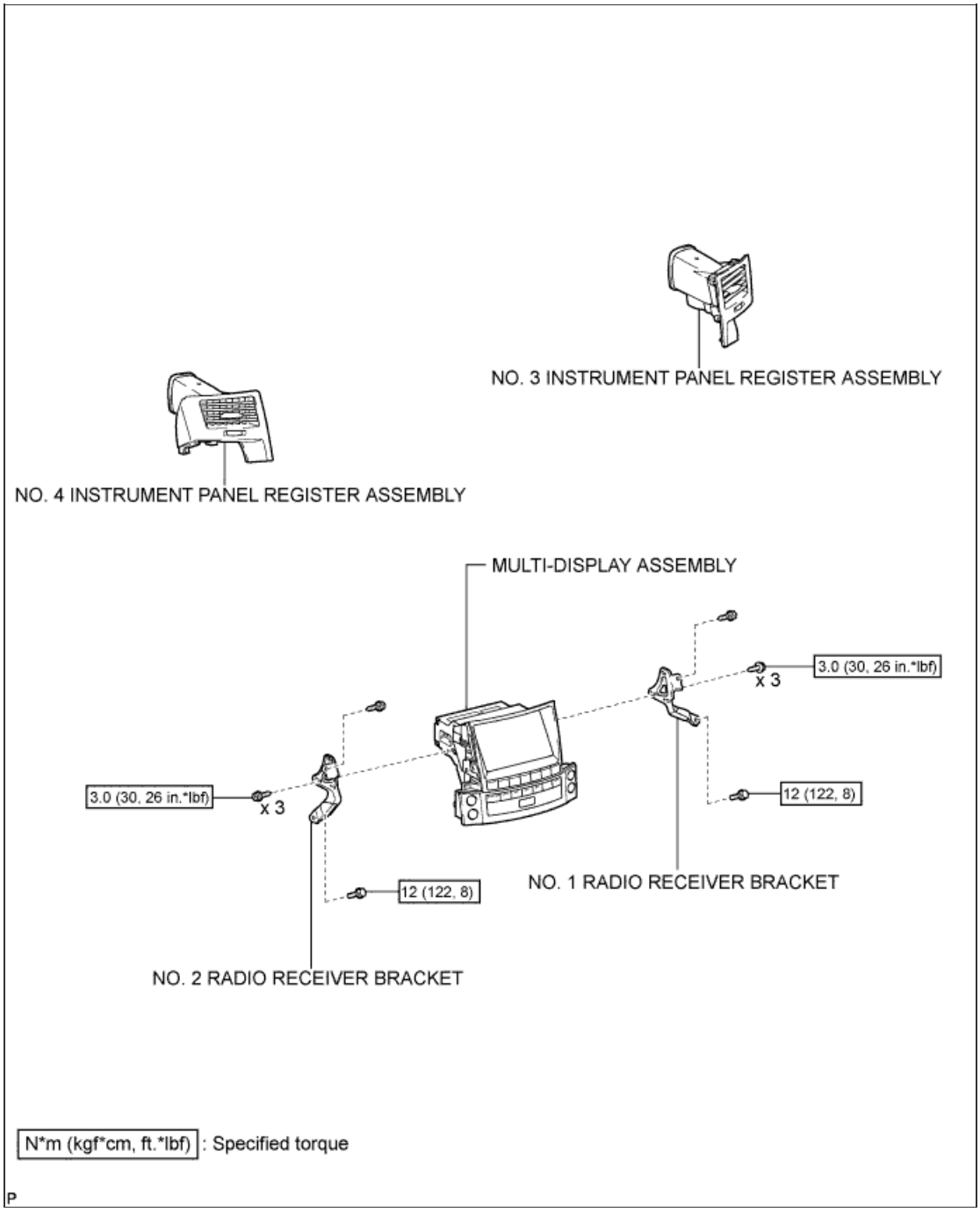
**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

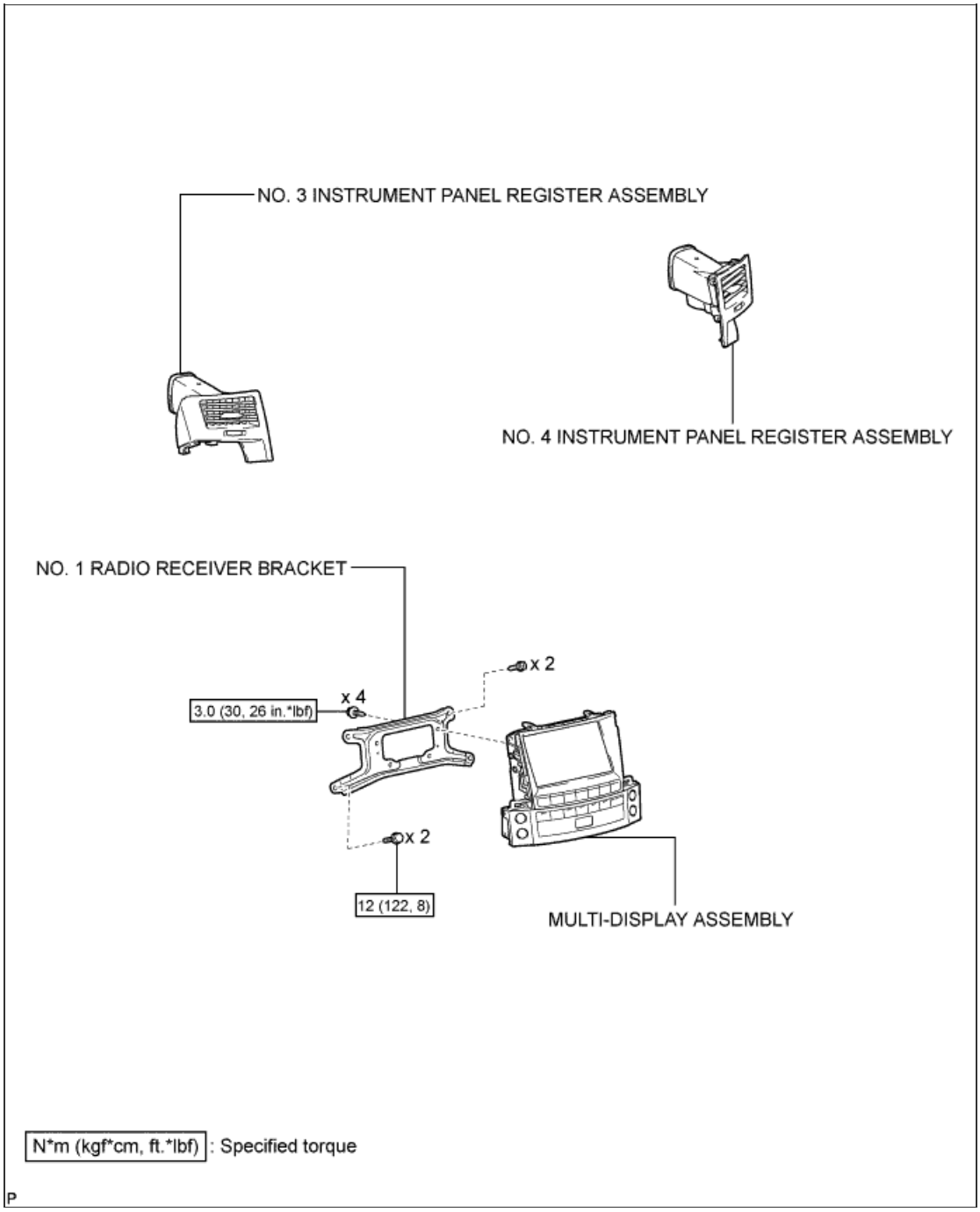
### 11. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover LH with the 7 clips.

**for Preparation** Click here



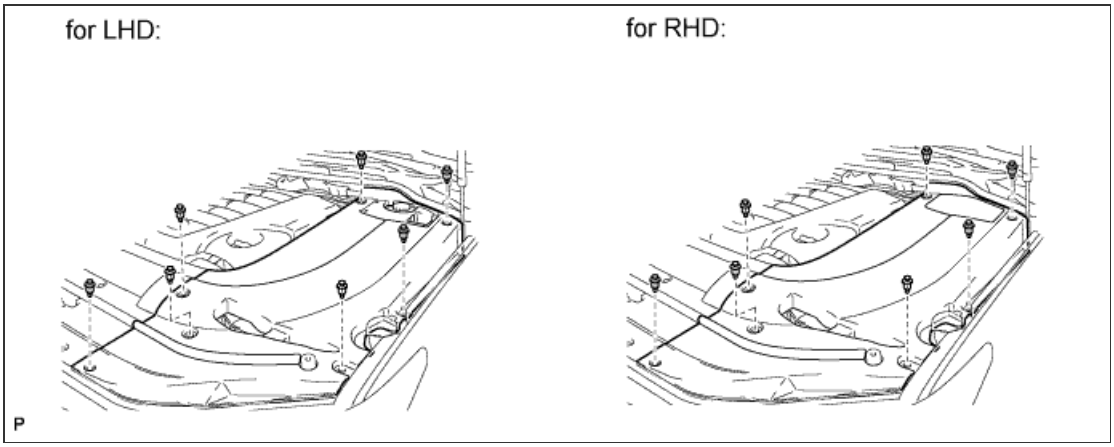
**for Preparation** Click here



**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover.



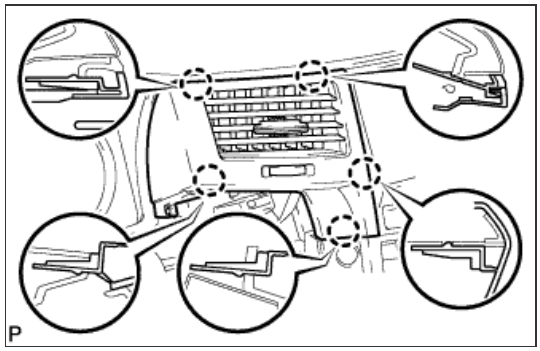

## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

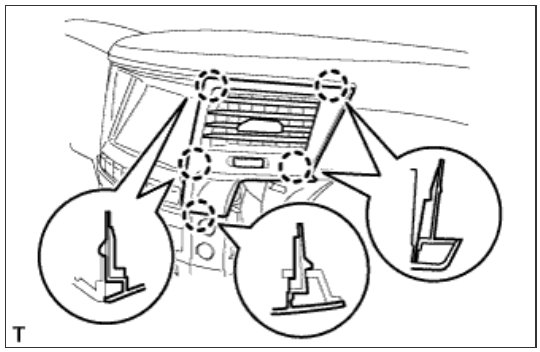
## 3. REMOVE NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Detach the 5 claws and remove the register.



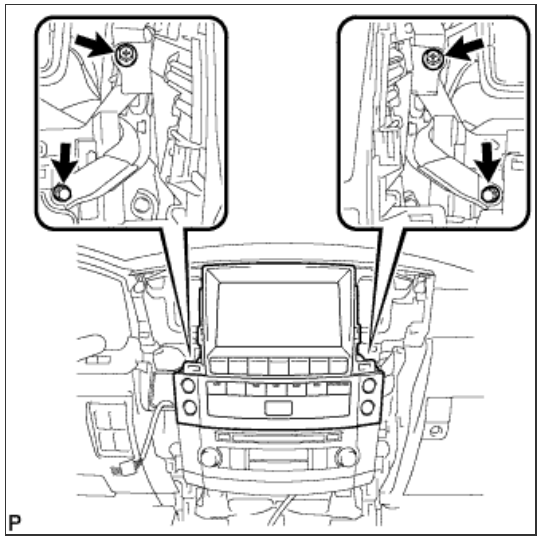

## 4. REMOVE NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Detach the 5 claws and remove the register.



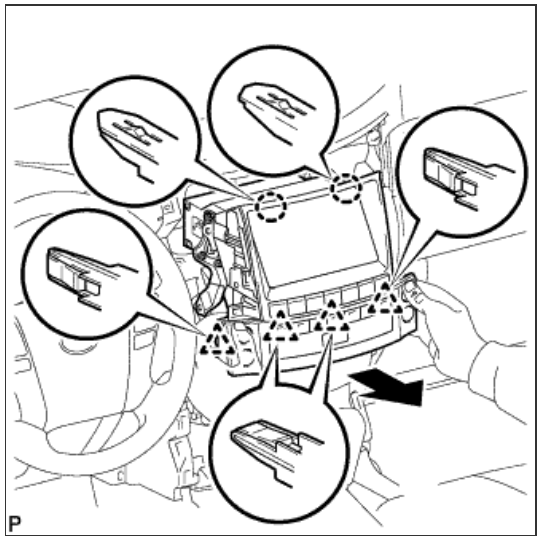

## 5. REMOVE MULTI-DISPLAY ASSEMBLY WITH BRACKET

a. Remove the 2 screws and 2 bolts.



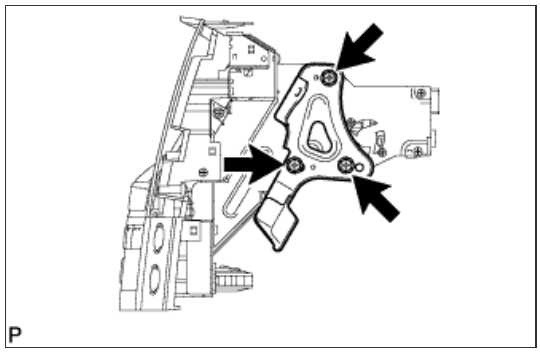

b. Pull the display to detach the 2 claws and 4 clips on the backside of the display.

c. Disconnect the connectors and remove the display.



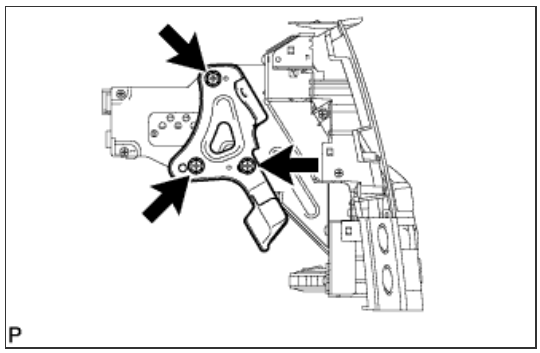

## 6. REMOVE NO. 1 RADIO RECEIVER BRACKET

a. Remove the 3 bolts and bracket.




### 7. REMOVE NO. 2 RADIO RECEIVER BRACKET

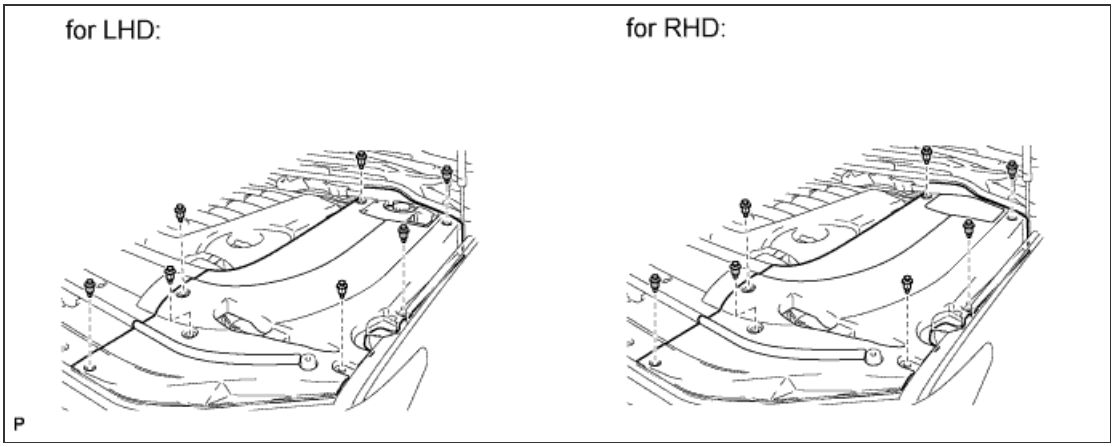
a. Remove the 3 bolts and bracket.



**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover LH.



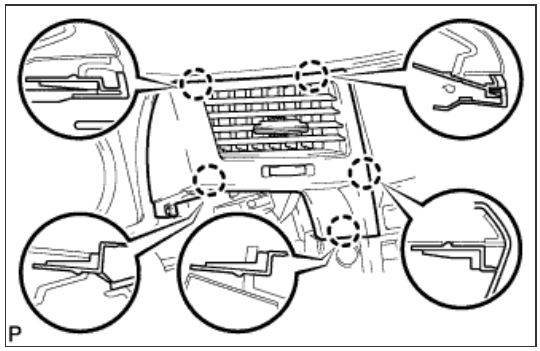

## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

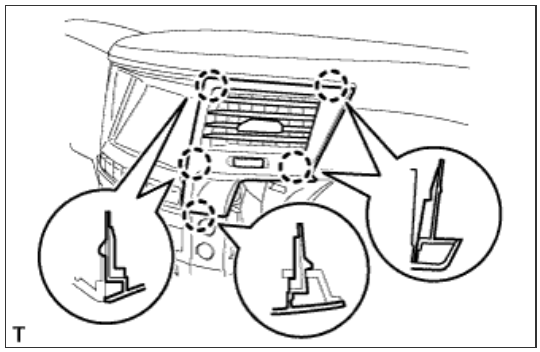
## 3. REMOVE NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Detach the 5 claws and remove the register.



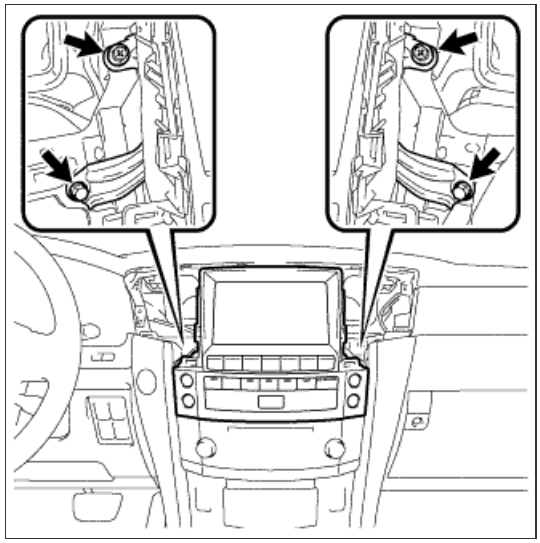

## 4. REMOVE NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Detach the 5 claws and remove the register.



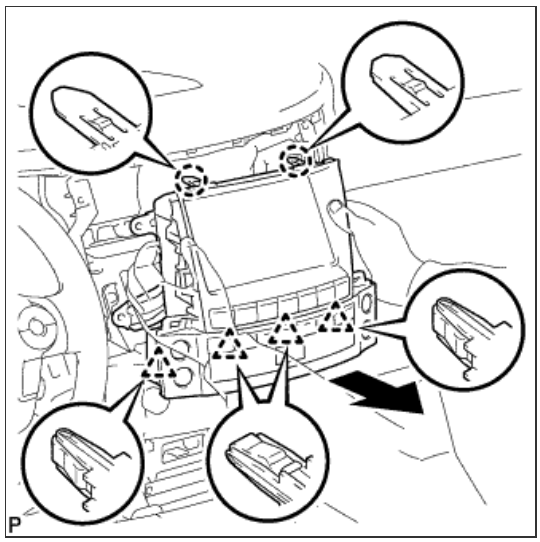

## 5. REMOVE MULTI-DISPLAY ASSEMBLY WITH BRACKET

a. Remove the 2 screws and 2 bolts.



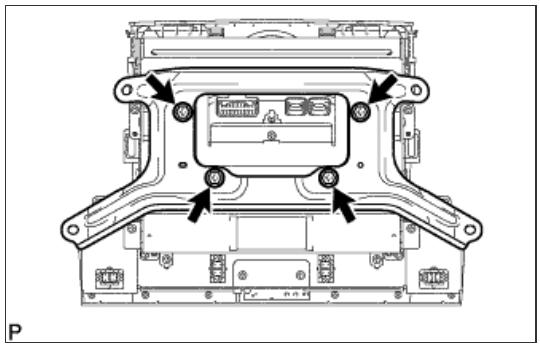
b. Pull the multi-display assembly with bracket to detach the 2 claws and 4 clips on the backside of the multi-display assembly.

c. Disconnect the connectors and remove the multi-display assembly.




## 6. REMOVE NO. 1 RADIO RECEIVER BRACKET

a. Remove the 4 bolts and No.1 radio receiver bracket.

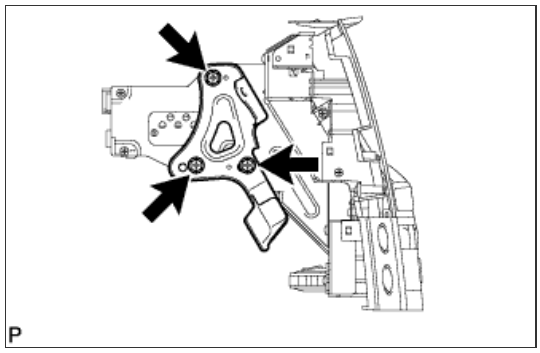

P

**for Preparation** Click here

## 1. INSTALL NO. 2 RADIO RECEIVER BRACKET

a. Install the bracket with the 3 bolts.

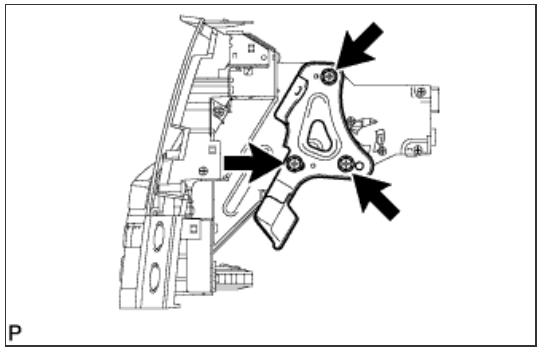
**Torque:**
**3.0 N*m{ 30 kgf*cm , 26 in.*lbf }**




## 2. INSTALL NO. 1 RADIO RECEIVER BRACKET

a. Install the bracket with the 3 bolts.

**Torque:**
**3.0 N*m{ 30 kgf*cm , 26 in.*lbf }**



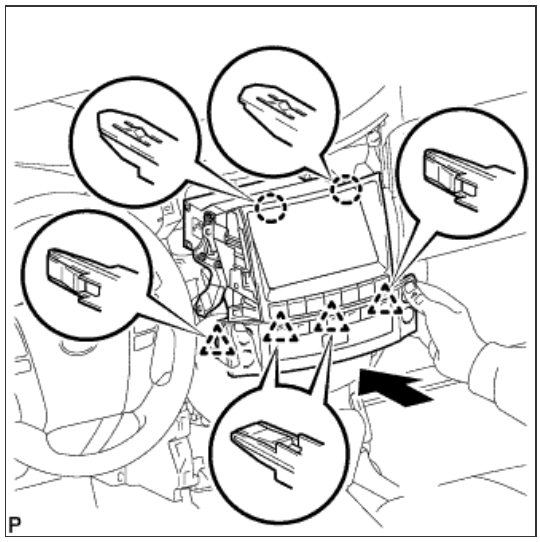

## 3. INSTALL MULTI-DISPLAY ASSEMBLY WITH BRACKET

a. Connect the connectors.

b. Insert the display to attach the 2 claws and 4 clips on its backside.

**NOTICE:**

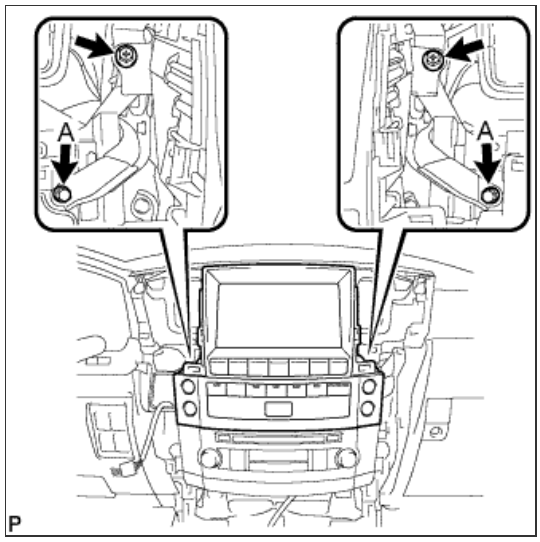
When inserting the display, do not press the knobs on it.




c. Install the display with the 2 screws and 2 bolts.

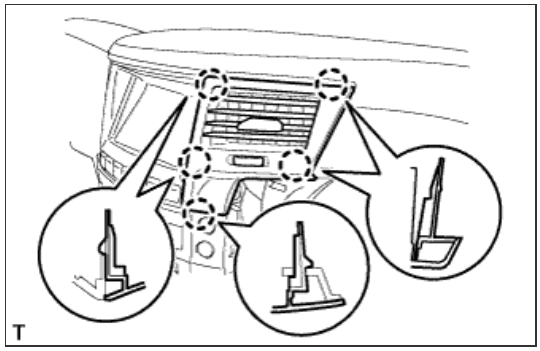
c. Install the display with the 2 screws and 2 bolts.

**Torque:**
**for bolts labeled A:**
**12 N*m{ 122 kgf*cm , 8 ft.*lbf }**



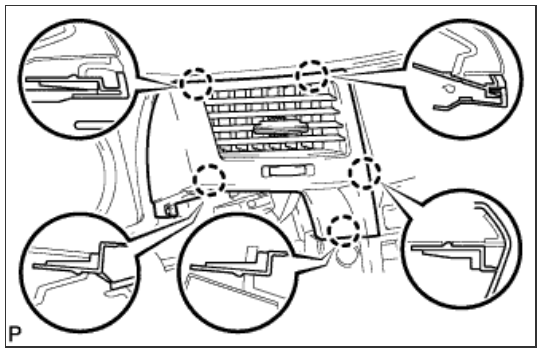

## 4. INSTALL NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Attach the 5 claws to install the register.




## 5. INSTALL NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Attach the 5 claws to install the register.




## 6. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

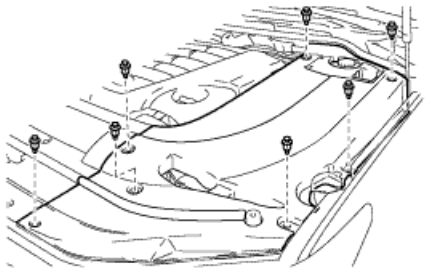
**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

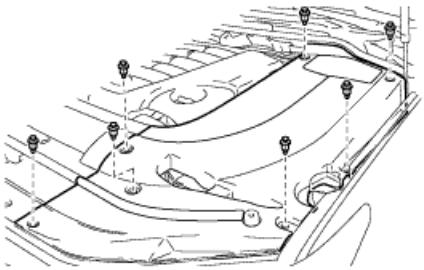
## 7. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover with the 7 clips.

for LHD:



for RHD:



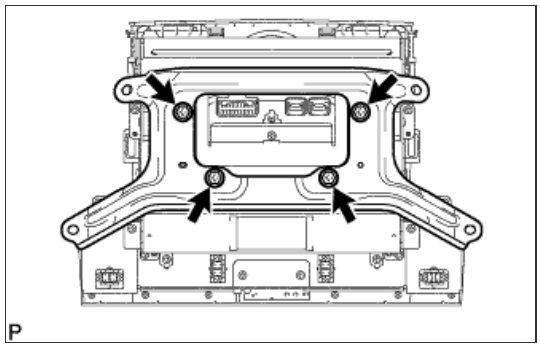
P

**for Preparation** Click here

## 1. INSTALL NO. 1 RADIO RECEIVER BRACKET

a. Install the No. 1 radio receiver bracket with the 4 bolts.

**Torque:**
**3.0 N*m{ 30 kgf*cm , 26 in.*lbf }**



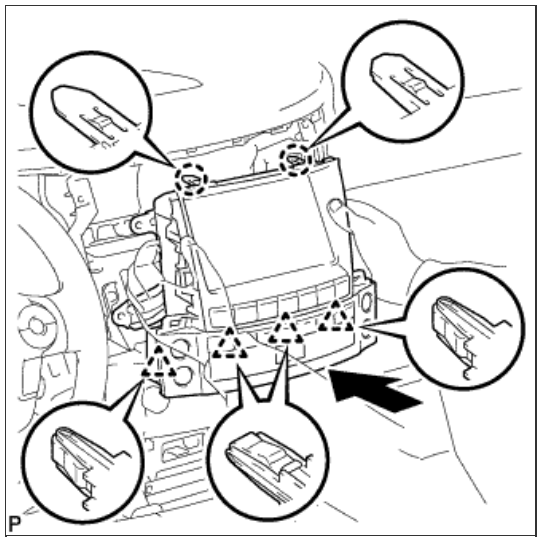

## 2. INSTALL MULTI-DISPLAY ASSEMBLY WITH BRACKET

a. Connect the connectors.

b. Insert the multi-display assembly with bracket to attach the 2 claws and 4 clips on its backside.

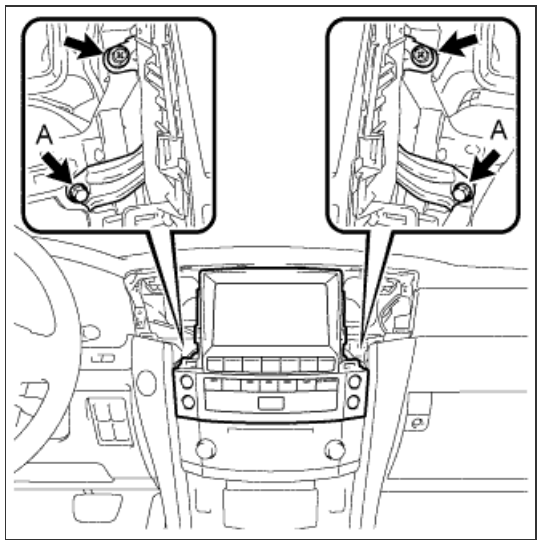
**NOTICE:**

When inserting the multi-display assembly, do not press the knobs on it.



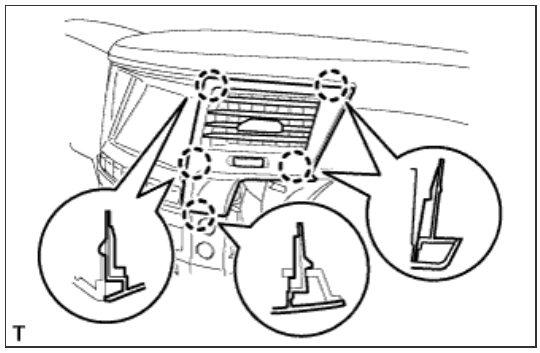

c. Install the multi-display assembly with the 2 screws and 2 bolts.

**Torque:**
**for bolts labeled A:**
**12 N*m{ 122 kgf*cm , 8 ft.*lbf }**



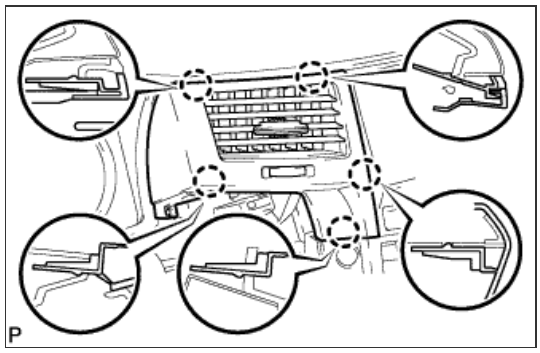
### 3. INSTALL NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Attach the 5 claws to install the register.




### 4. INSTALL NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Attach the 5 claws to install the register.




### 5. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

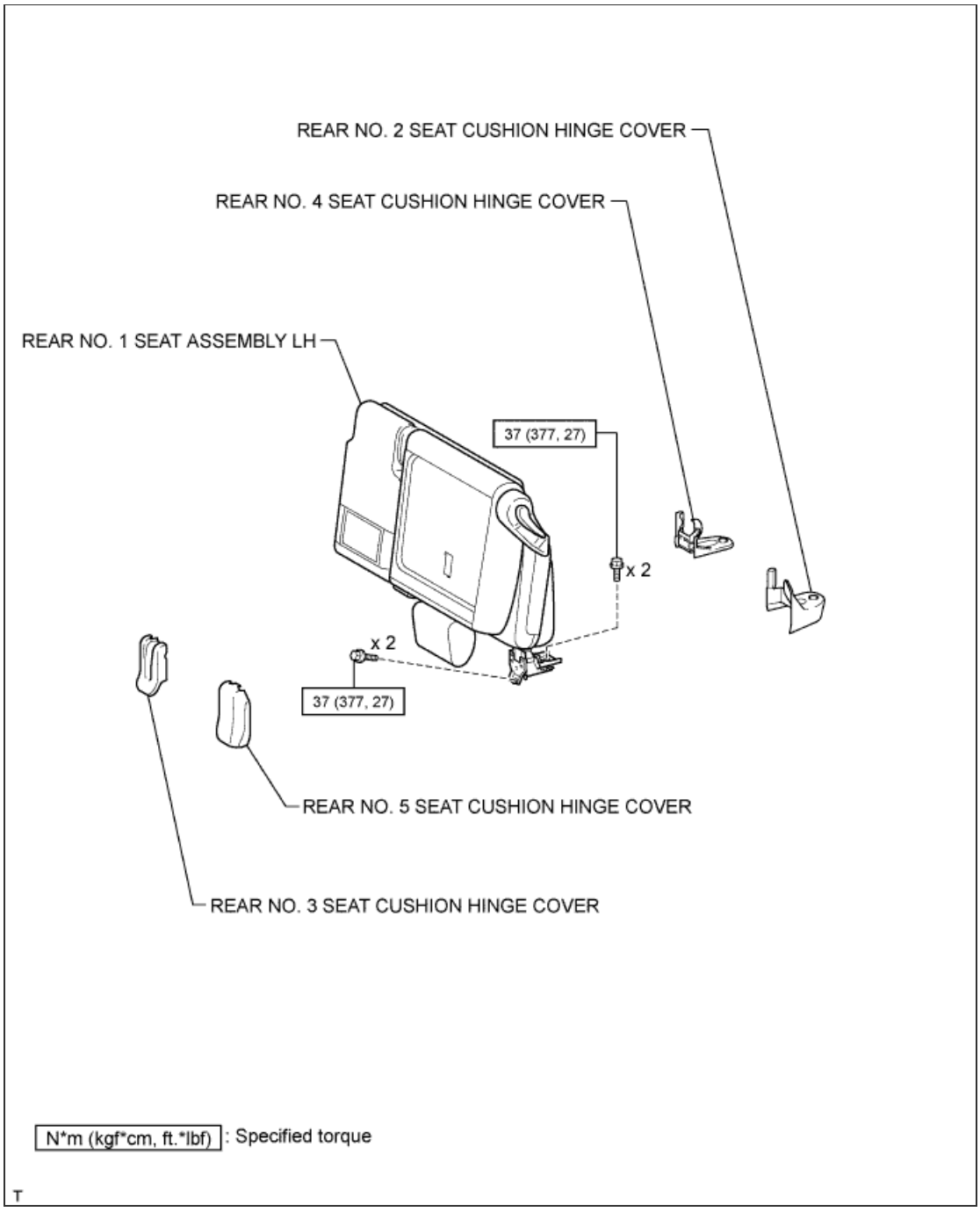
**NOTICE:**

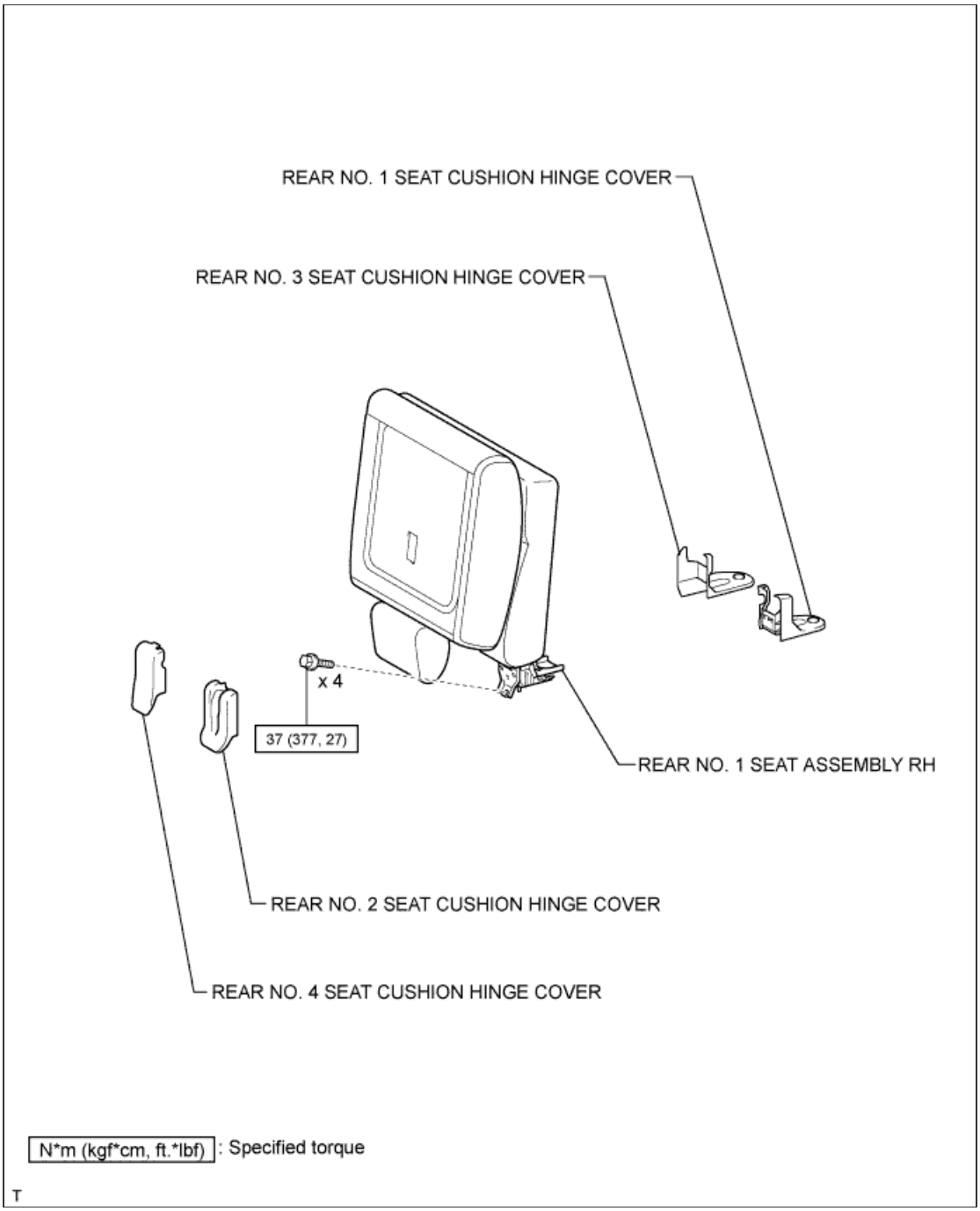
When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

### 6. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover LH with the 7 clips.

**for Preparation** Click here

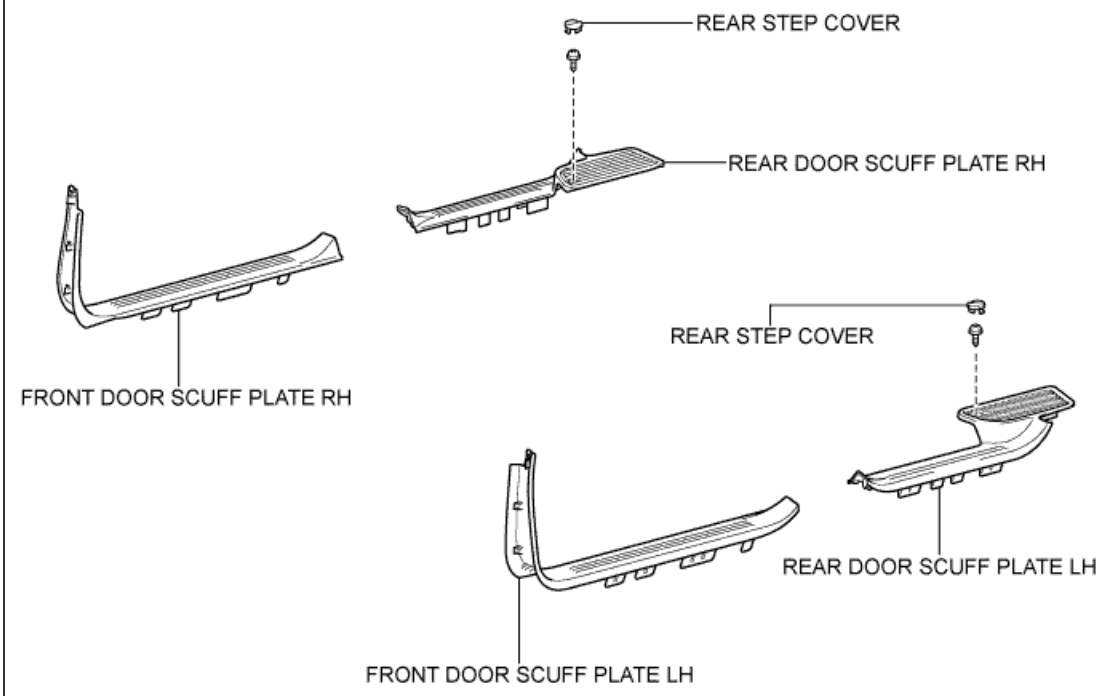





N*m (kgf*cm, ft.*lbf) : Specified torque

T

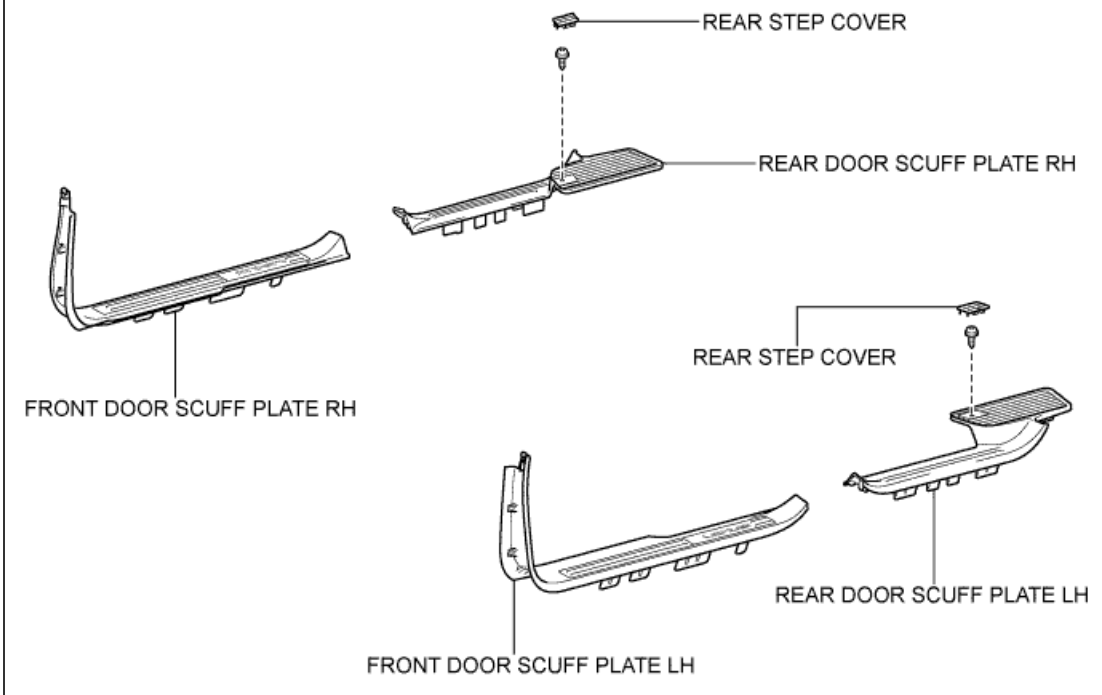
w/o Illumination Type Front Door Scuff Plate:



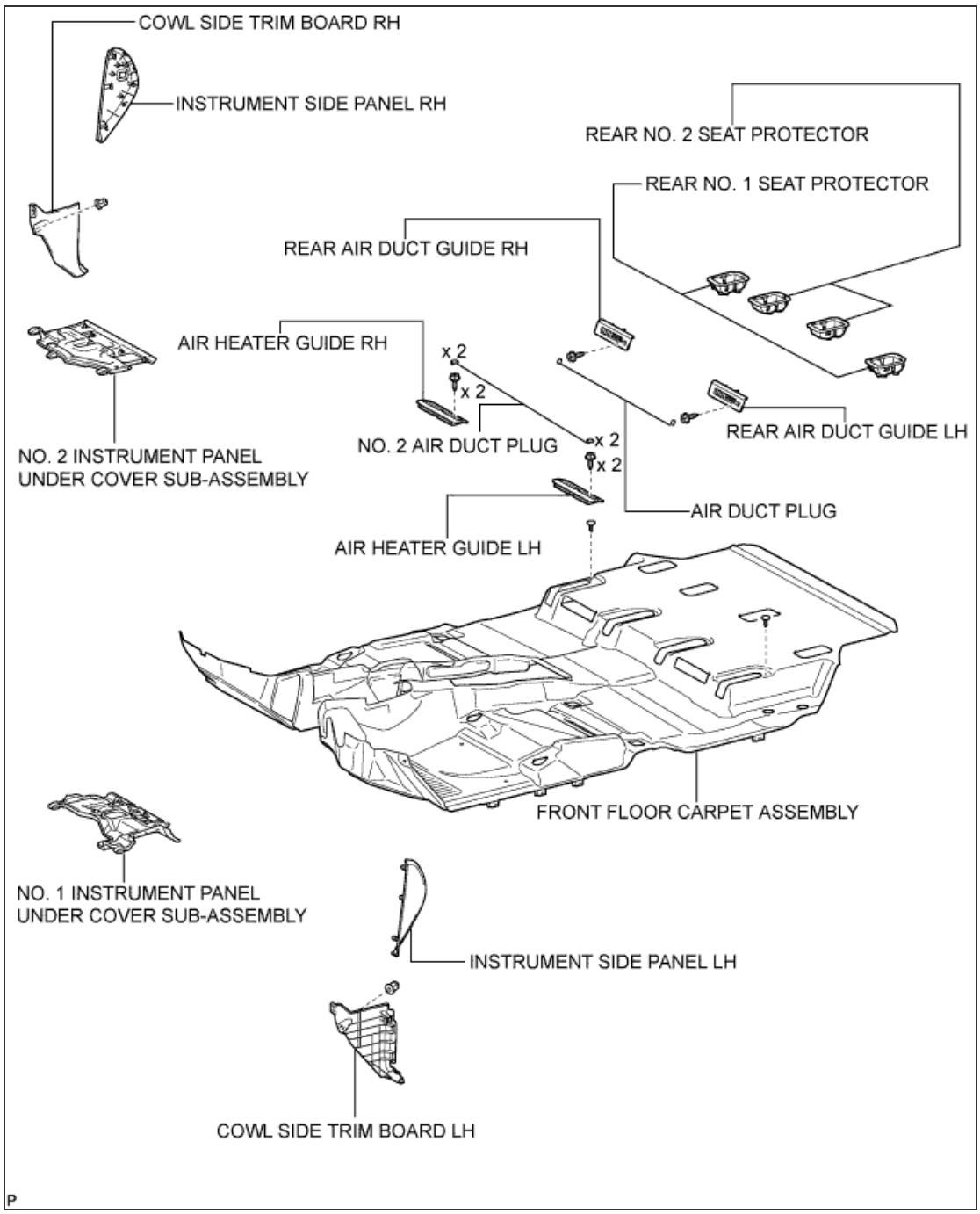

T



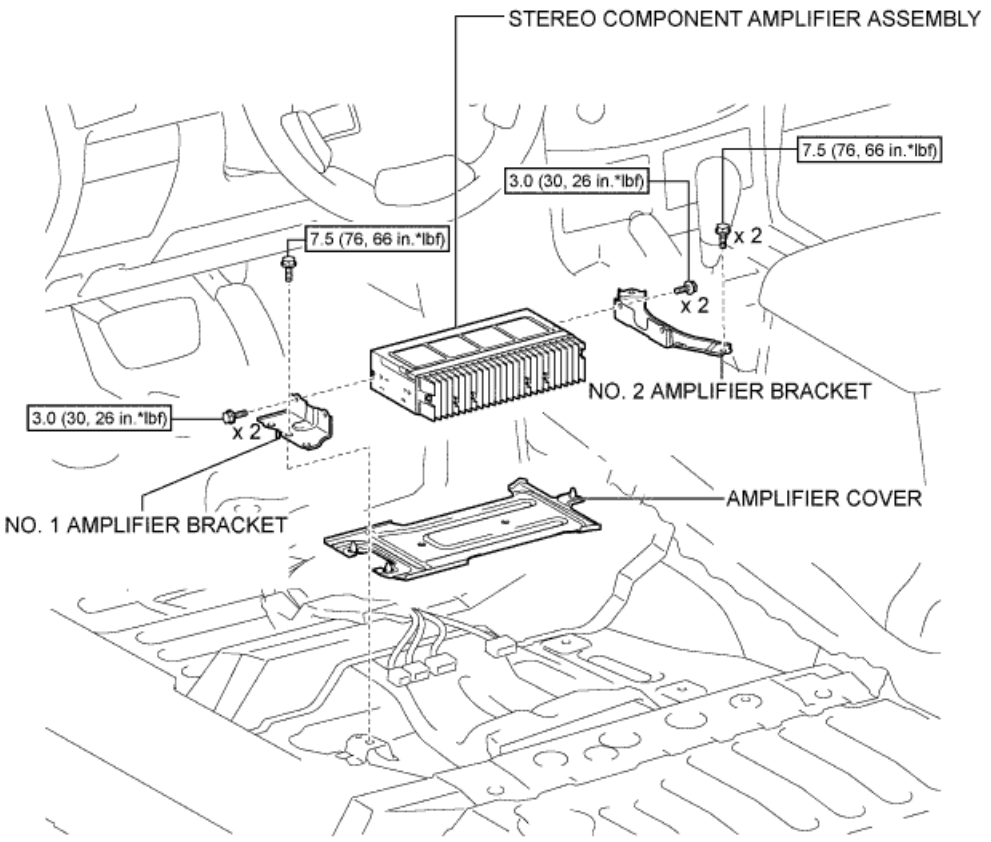
w/ Illumination Type Front Door Scuff Plate:




T


COWL SIDE TRIM BOARD RH
INSTRUMENT SIDE PANEL RH
REAR NO. 2 SEAT PROTECTOR
REAR NO. 1 SEAT PROTECTOR
REAR AIR DUCT GUIDE RH
AIR HEATER GUIDE RH
x 2
x 2
NO. 2 AIR DUCT PLUG
x 2
x 2
REAR AIR DUCT GUIDE LH
NO. 2 INSTRUMENT PANEL
UNDER COVER SUB-ASSEMBLY
AIR DUCT PLUG
AIR HEATER GUIDE LH
FRONT FLOOR CARPET ASSEMBLY
NO. 1 INSTRUMENT PANEL
UNDER COVER SUB-ASSEMBLY
INSTRUMENT SIDE PANEL LH
COWL SIDE TRIM BOARD LH
P

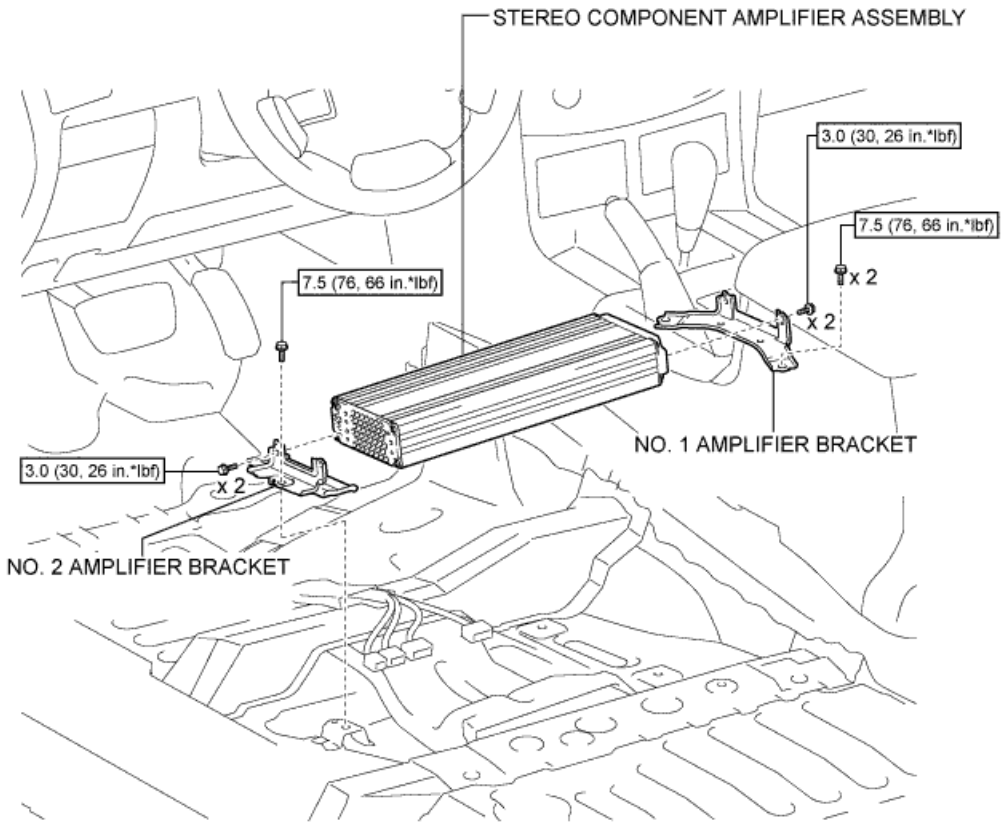
for 9 Speakers:




N*m (kgf*cm, ft.*lbf) : Specified torque

P

for 19 Speakers:



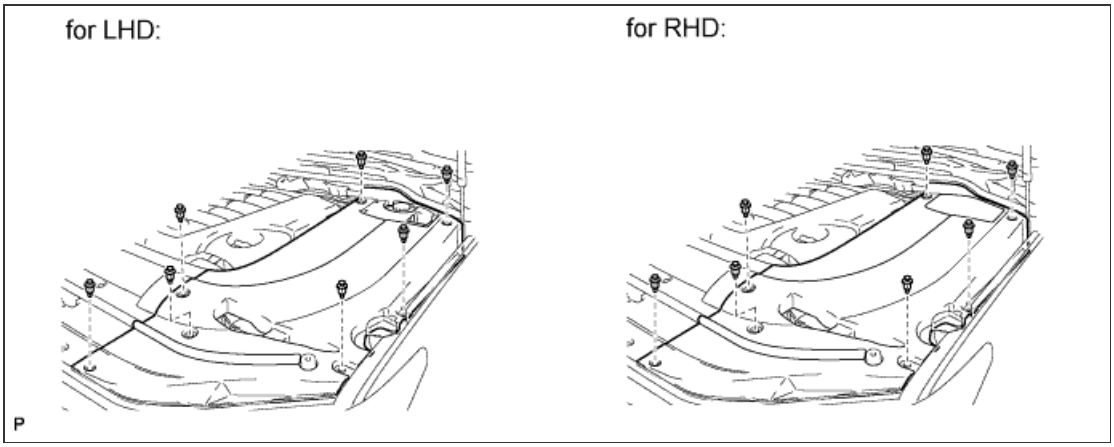

N*m (kgf*cm, ft.*lbf) : Specified torque

P

**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover.




## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**CAUTION:**

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 3. REMOVE FRONT SEAT ASSEMBLY LH

a. Remove the front seat assembly LH ( Click here).

## 4. REMOVE FRONT SEAT ASSEMBLY RH

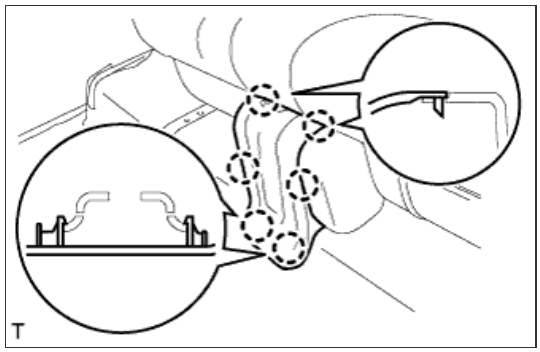
a. Remove the front seat assembly RH ( Click here).

## 5. REMOVE REAR NO. 3 SEAT CUSHION HINGE COVER

a. Using a screwdriver, detach the 6 claws and remove the cover.

**HINT:**

Tape the screwdriver tip before use.

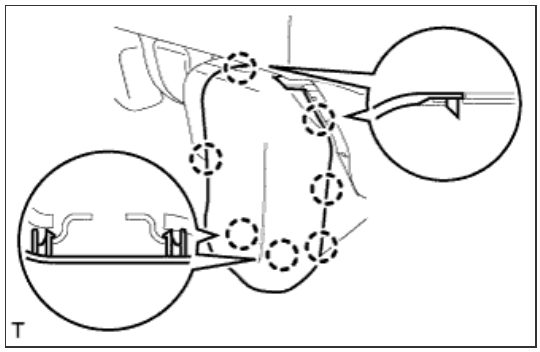



## 6. REMOVE REAR NO. 5 SEAT CUSHION HINGE COVER

a. Using a screwdriver, detach the 7 claws and remove the cover.

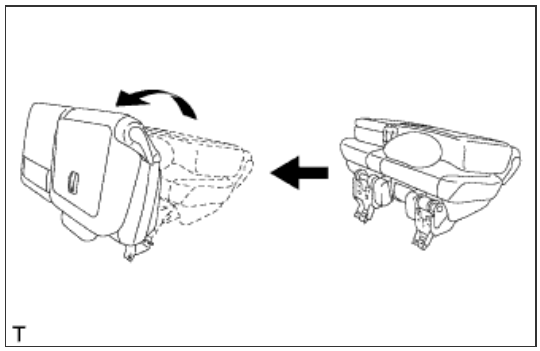
**HINT:**

Tape the screwdriver tip before use.




## 7. REMOVE REAR NO. 2 SEAT CUSHION HINGE COVER

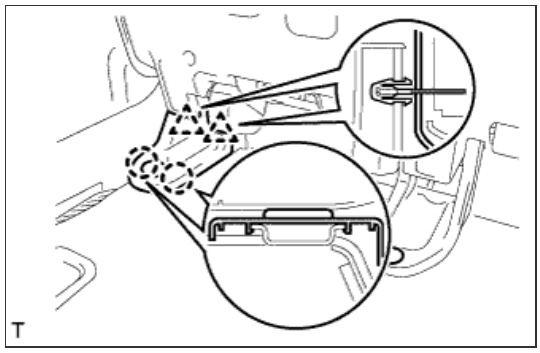
a. Operate the reclining adjuster release handle to move the seat into the position shown in the illustration.




b. Using a screwdriver, detach the 2 claws and 2 clips, and remove the cover.

**HINT:**

Tape the screwdriver tip before use.

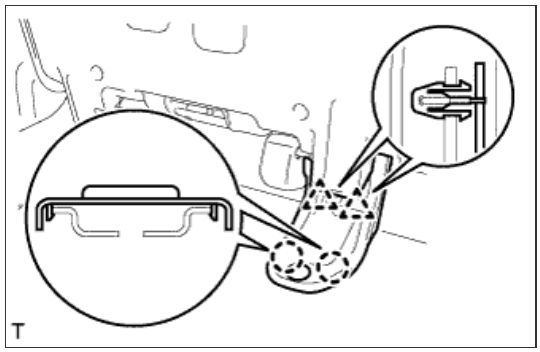



## 8. REMOVE REAR NO. 4 SEAT CUSHION HINGE COVER

a. Using a screwdriver, detach the 2 claws and 2 clips, and remove the cover.

**HINT:**

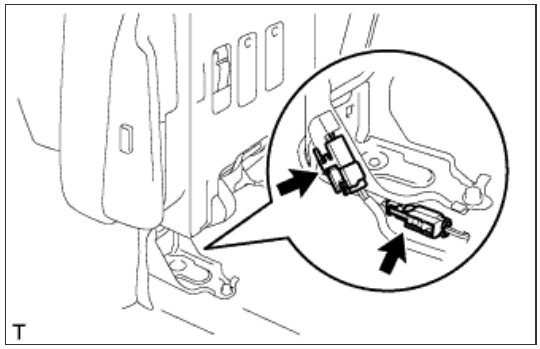
Tape the screwdriver tip before use.




## 9. REMOVE REAR NO. 1 SEAT ASSEMBLY LH

a. Disconnect the connector.

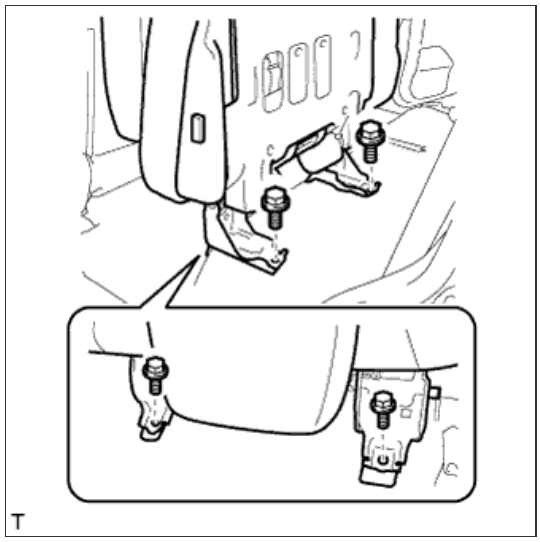
b. w/ Seat Heater System:
Disconnect the connector.




c. Remove the 4 bolts and seat assembly.

**NOTICE:**

Be careful not to damage the vehicle body.

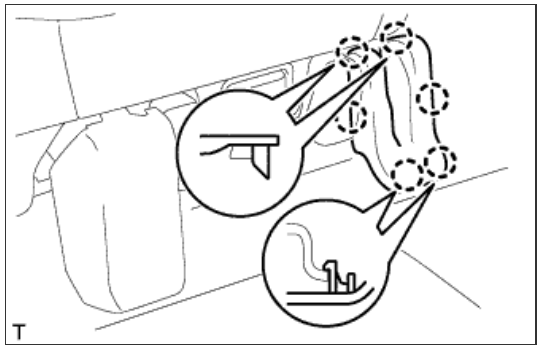



## 10. REMOVE REAR NO. 2 SEAT CUSHION HINGE COVER

a. Using a screwdriver, detach the 6 claws and remove the cover.

**HINT:**

Tape the screwdriver tip before use.

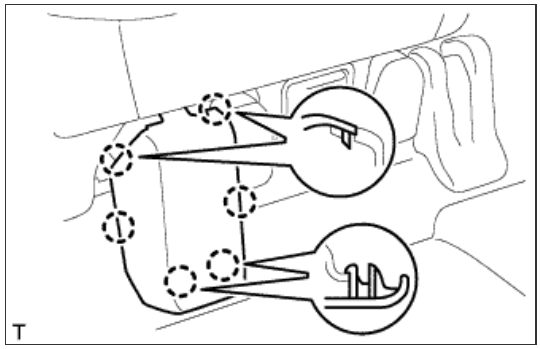



## 11. REMOVE REAR NO. 4 SEAT CUSHION HINGE COVER

a. Using a screwdriver, detach the 6 claws and remove the cover.

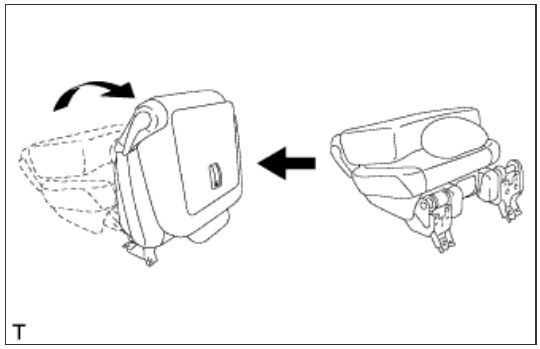
**HINT:**

Tape the screwdriver tip before use.




## 12. REMOVE REAR NO. 1 SEAT CUSHION HINGE COVER

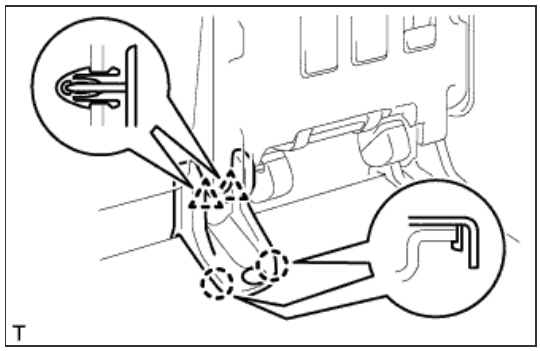
a. Operate the reclining adjuster release handle to move the seat into the position shown in the illustration.




b. Using a screwdriver, detach the 2 claws and 2 clips, and remove the cover.

**HINT:**

Tape the screwdriver tip before use.

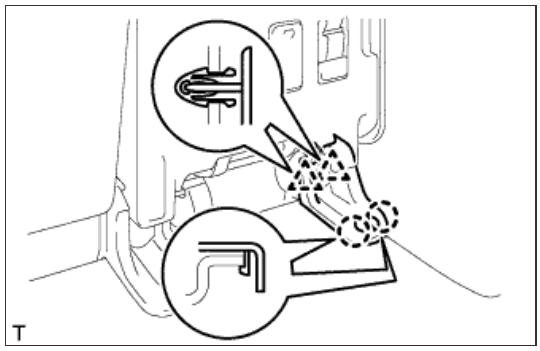



## 13. REMOVE REAR NO. 3 SEAT CUSHION HINGE COVER

a. Using a screwdriver, detach the 2 claws and 2 clips, and remove the cover.

**HINT:**

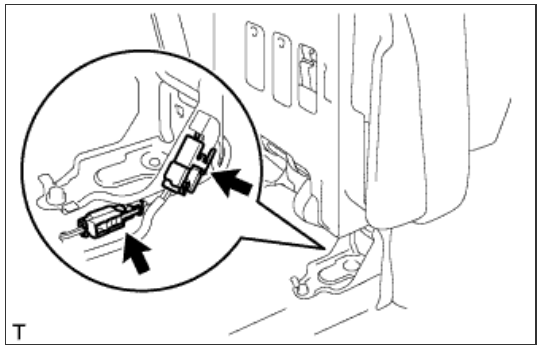
Tape the screwdriver tip before use.




## 14. REMOVE REAR NO. 1 SEAT ASSEMBLY RH

a. Disconnect the connector.

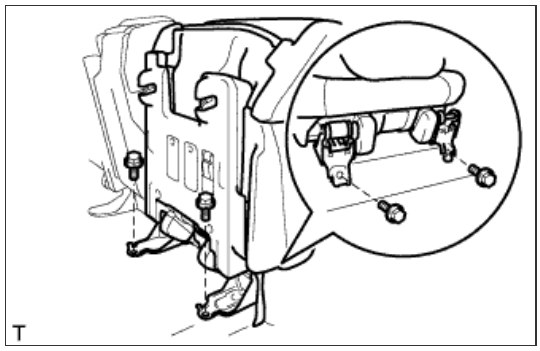
b. w/ Seat Heater System:
Disconnect the connector.




c. Remove the 4 bolts and seat assembly.

**NOTICE:**

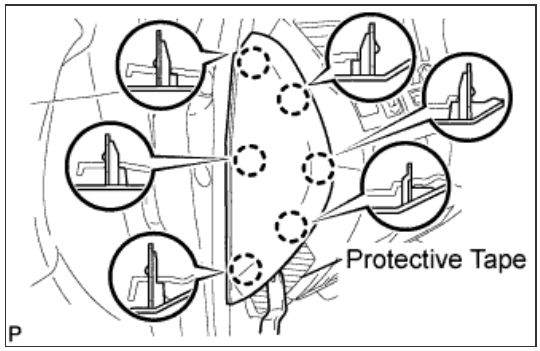
Be careful not to damage the vehicle body.




## 15. REMOVE INSTRUMENT SIDE PANEL LH

a. Place protective tape as shown in the illustration.

b. Using a moulding remover, detach the 6 claws and remove the side panel.




## 16. REMOVE INSTRUMENT SIDE PANEL RH

a. w/o Airbag Cut Off Switch:

i. Place protective tape as shown in the illustration.

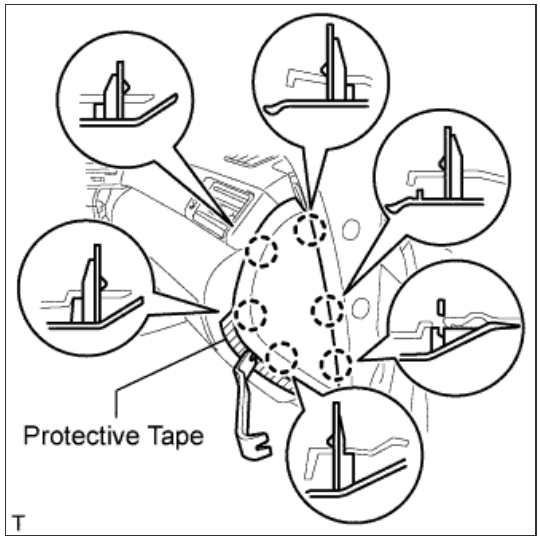
ii. Using a moulding remover, detach the 6 claws and remove the side panel.

b. w/ Airbag Cut Off Switch:

i. Place protective tape as shown in the illustration.

ii. Using a moulding remover, detach the 6 claws.

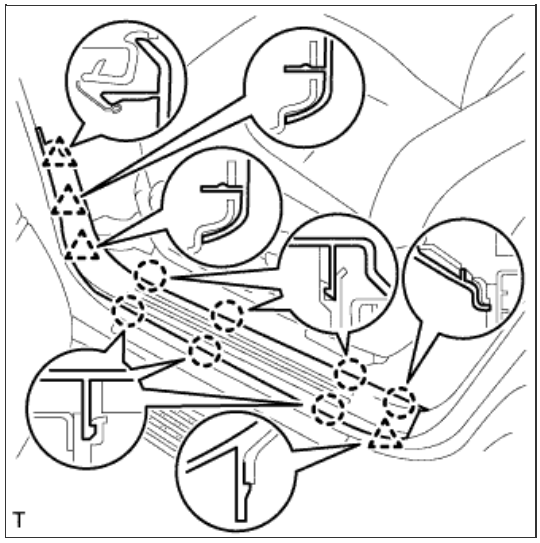
iii. Remove the side panel and disconnect the connector.




## 17. REMOVE FRONT DOOR SCUFF PLATE LH

a. w/o Illumination:

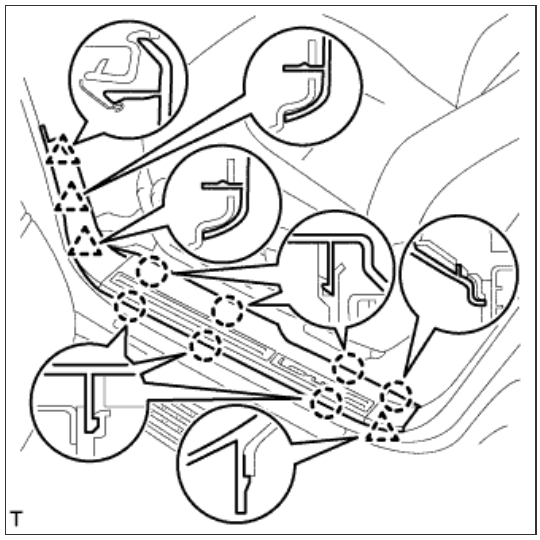
i. Detach the 7 claws and 4 clips, and remove the scuff plate.




b. w/ Illumination:

i. Detach the 7 claws and 4 clips.

ii. Disconnect the connector and remove the scuff plate.




## 18. REMOVE FRONT DOOR SCUFF PLATE RH

**HINT:**

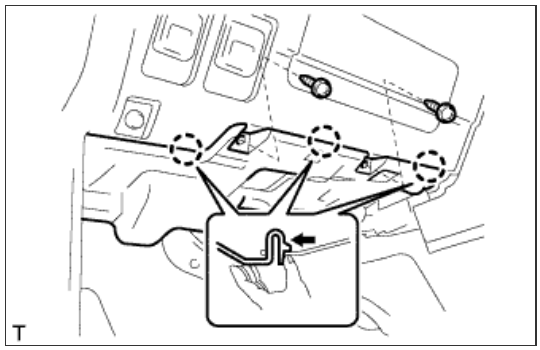
Use the same procedures described for the LH side.

## 19. REMOVE NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Remove the 2 screws.

b. Detach the 3 claws.

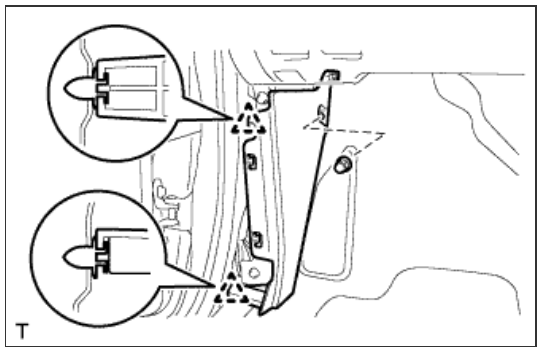
c. Remove the under cover and disconnect the connectors.




## 20. REMOVE COWL SIDE TRIM BOARD LH

a. Remove the cap nut.

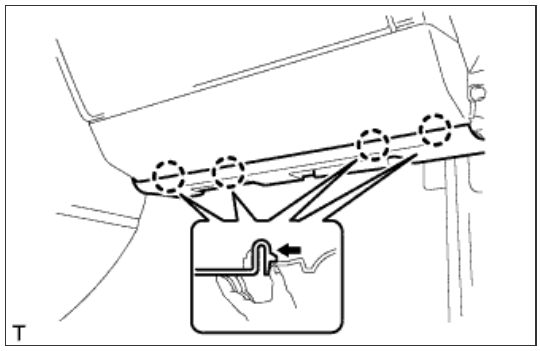
b. Detach the 2 clips and remove the trim board.




## 21. REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Detach the 4 claws.

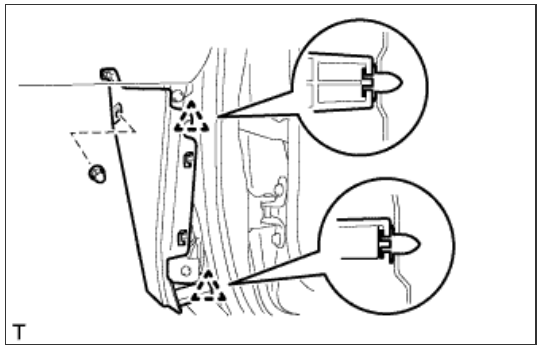
b. Remove the under cover and disconnect the connector.




## 22. REMOVE COWL SIDE TRIM BOARD RH

a. Remove the cap nut.

b. Detach the 2 clips and remove the trim board.

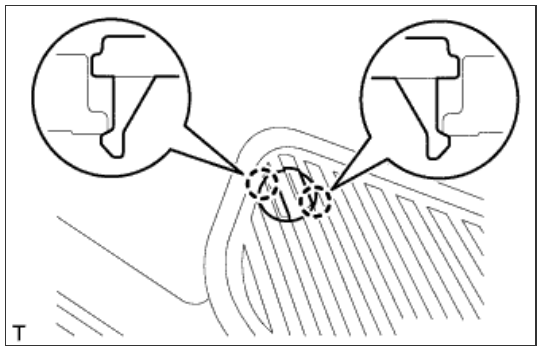



## 23. REMOVE REAR STEP COVER

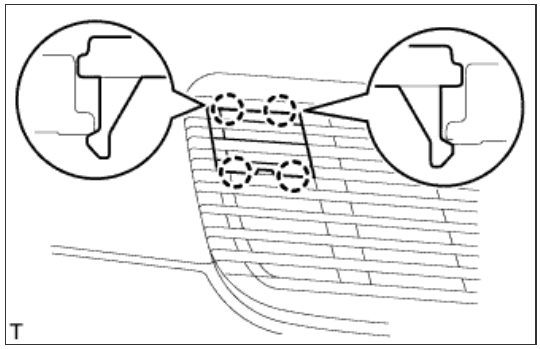
**HINT:**

Use the same procedure to remove the step cover on the other side.

a. w/o Illumination Type Front Door Scuff Plate:
Detach the 2 claws and remove the step cover.




b. w/ Illumination Type Front Door Scuff Plate:
Detach the 4 claws and remove the step cover.

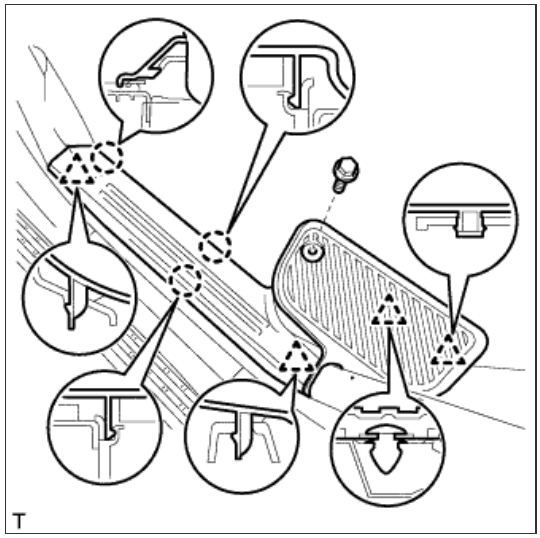



## 24. REMOVE REAR DOOR SCUFF PLATE LH

a. w/o Illumination Type Front Door Scuff Plate:
Remove the rear door scuff plate.

i. Remove the screw.

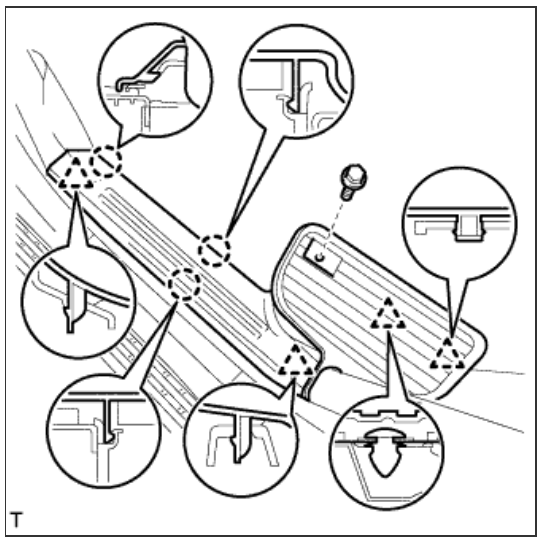
ii. Detach the 3 claws and 4 clips, and remove the scuff plate.




b. w/ Illumination Type Front Door Scuff Plate:
Remove the rear door scuff plate.

i. Remove the screw.

ii. Detach the 3 claws and 4 clips, and remove the scuff plate.



## 25. REMOVE REAR DOOR SCUFF PLATE RH

**HINT:**

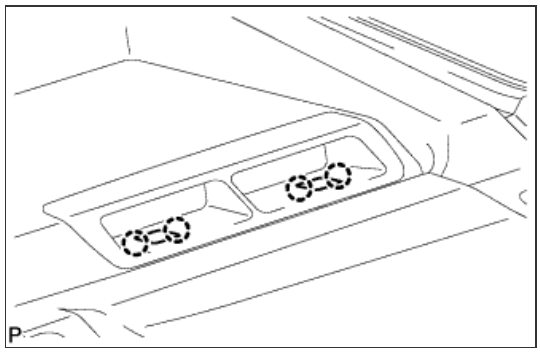
Use the same procedures described for the LH side.

## 26. REMOVE NO. 2 AIR DUCT PLUG

a. Detach the 4 claws and remove the 2 plugs.

**HINT:**

Use the same procedures for both sides.

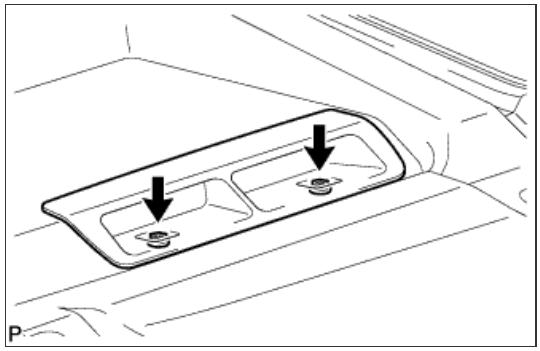



## 27. REMOVE AIR HEATER GUIDE

a. Remove the 2 screws and guide.

**HINT:**

Use the same procedures for both sides.

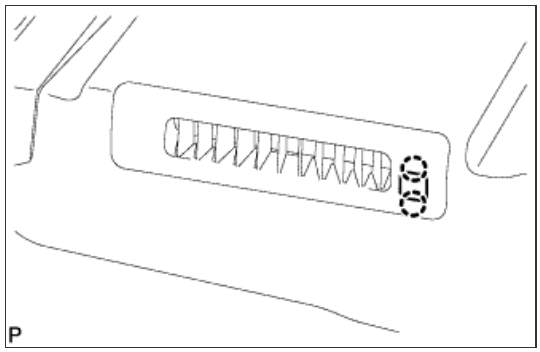



## 28. REMOVE AIR DUCT PLUG

a. Detach the 2 claws and remove the plug.

**HINT:**

Use the same procedures for both sides.



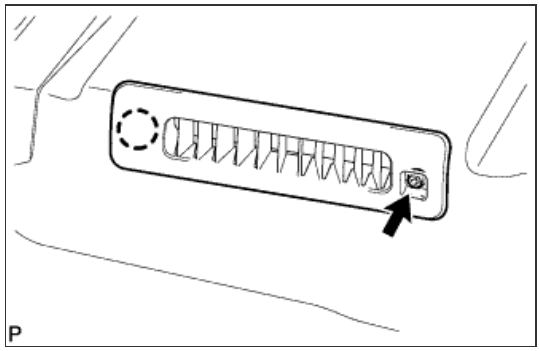

## 29. REMOVE REAR AIR DUCT GUIDE

**HINT:**

Use the same procedures for both sides.

a. Remove the screw.

b. Detach the claw and remove the guide.

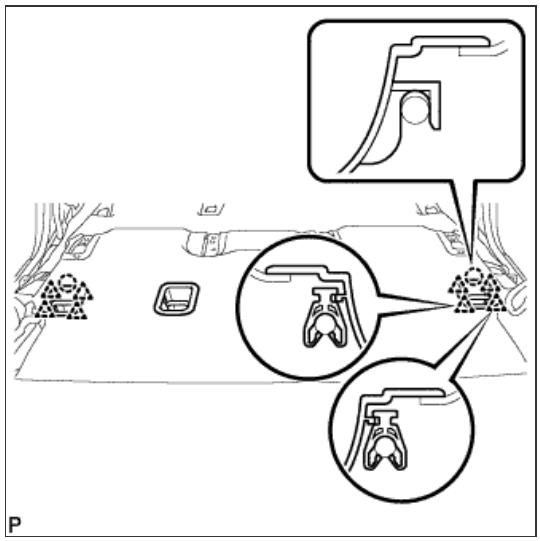



## 30. REMOVE REAR NO. 1 SEAT PROTECTOR

a. Detach the 4 clips and claw, and remove the protector.

**HINT:**

Use the same procedures to remove the protector on the other side.

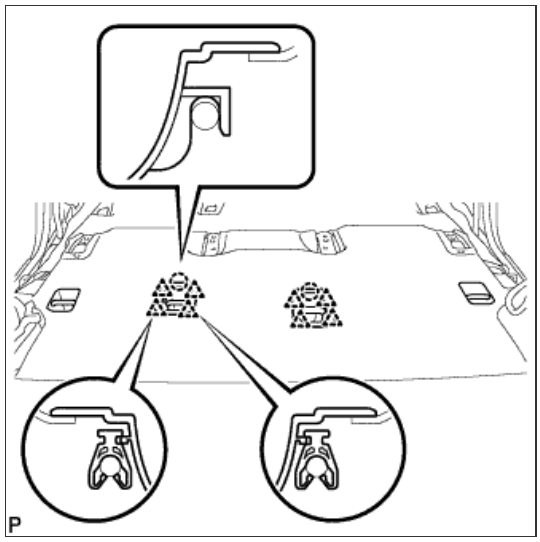



## 31. REMOVE REAR NO. 2 SEAT PROTECTOR

a. Detach the 4 clips and claw, and remove the protector.

**HINT:**

Use the same procedures to remove the protector on the other side.




## 32. REMOVE COOLING BOX ASSEMBLY (w/ Cool Box)

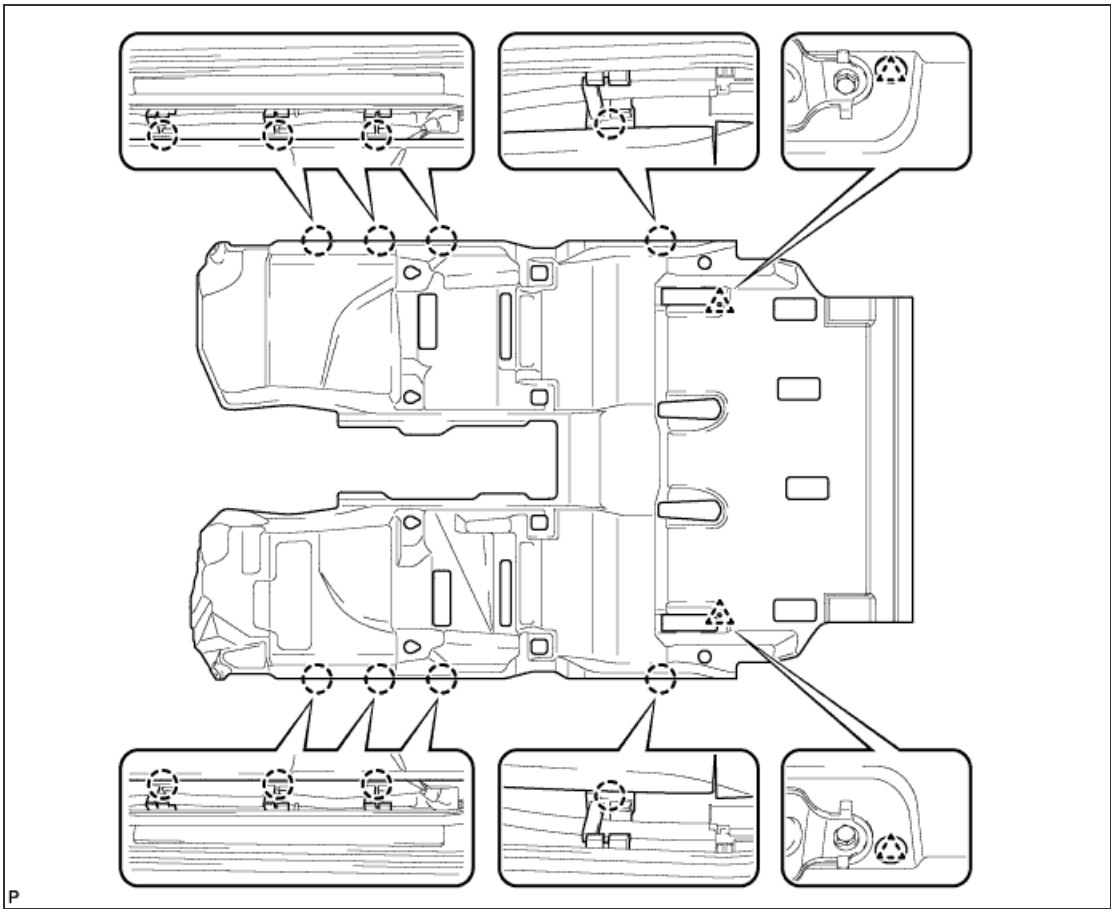
a. Remove the cooling box assembly (Click here).

### 33. REMOVE REAR CONSOLE BOX SUB-ASSEMBLY (w/o Cool Box)

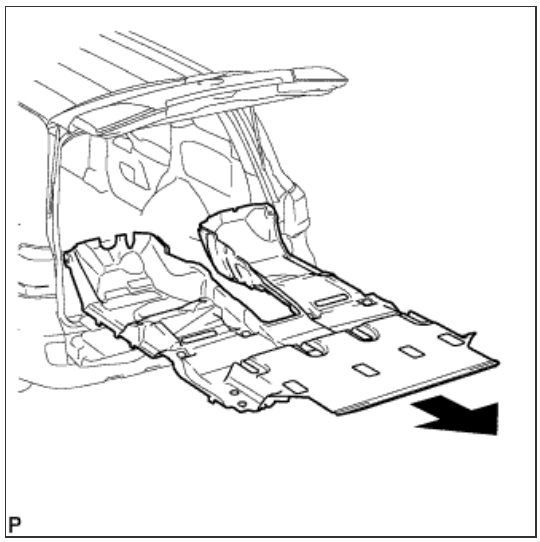
a. Remove the rear console box sub-assembly (Click here).

### 34. REMOVE FRONT FLOOR CARPET ASSEMBLY

a. Detach the 2 clips and 8 claws.




b. Remove the carpet from the floor, open the back door and tail gate, and remove the carpet from the rear of the vehicle.



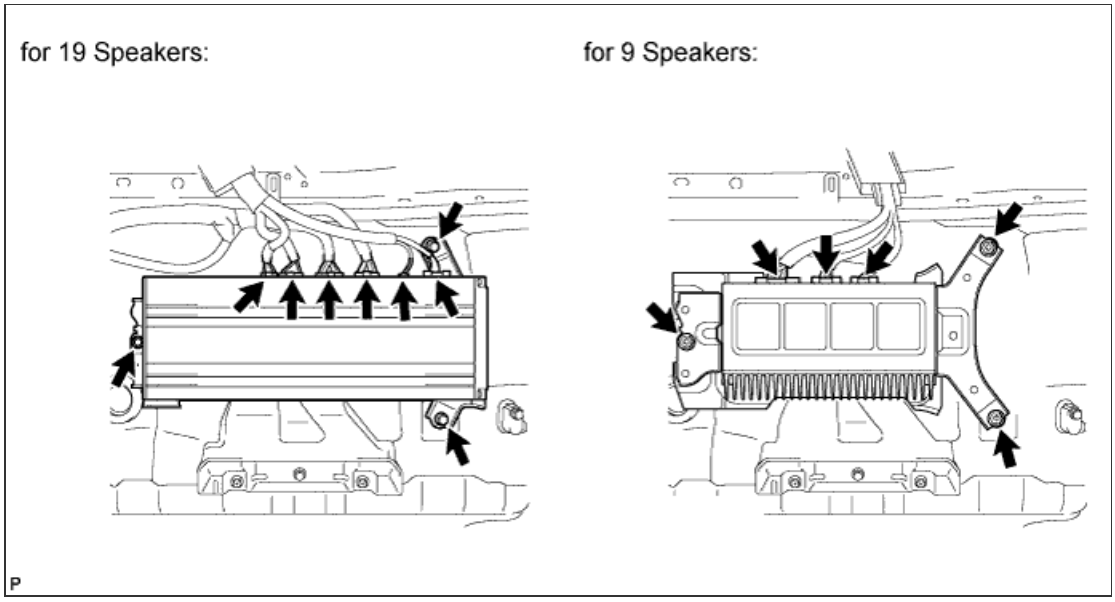

### 35. REMOVE STEREO COMPONENT AMPLIFIER ASSEMBLY WITH BRACKET

a. for 19 Speakers:

i. Disconnect the 6 connectors.

b. for 9 Speakers:

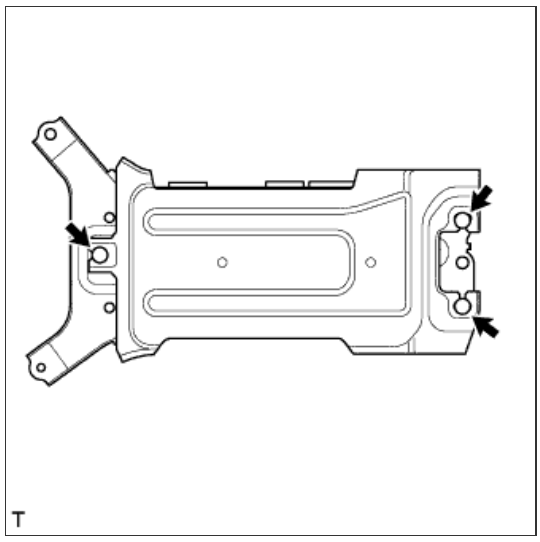
i. Disconnect the 3 connectors.




c. Remove the 3 bolts and remove the amplifier with bracket.

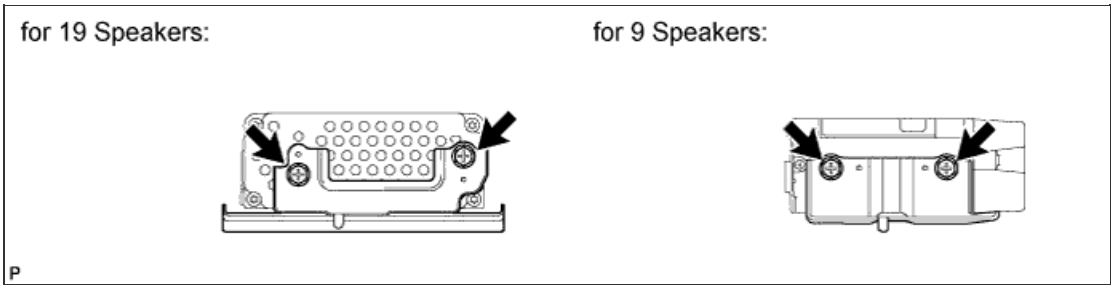
**36. REMOVE AMPLIFIER COVER (for 9 Speakers)**

a. Detach the 3 clips and remove the cover.



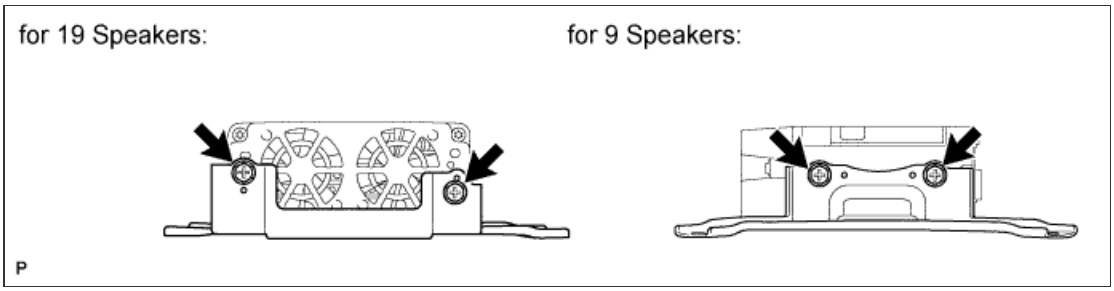

**37. REMOVE NO. 1 AMPLIFIER BRACKET**

a. Remove the 2 screws and bracket.




**38. REMOVE NO. 2 AMPLIFIER BRACKET**

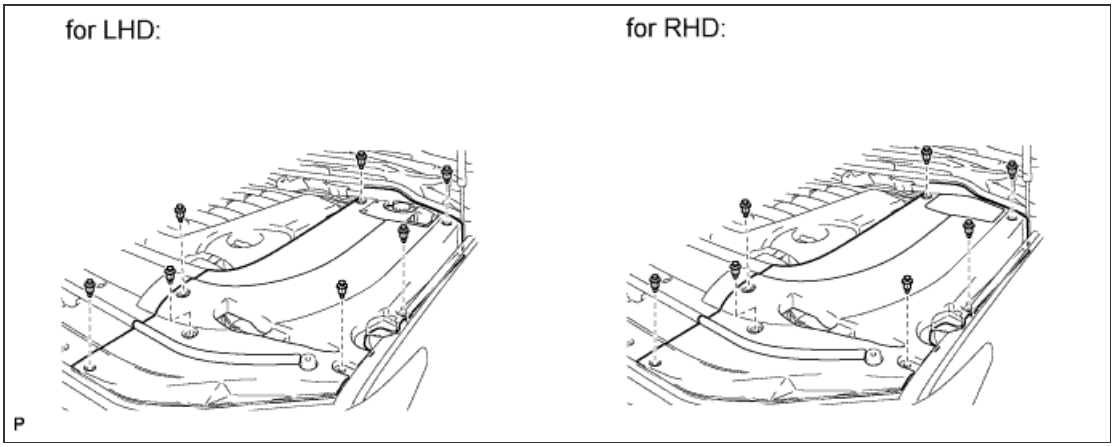
a. Remove the 2 screws and bracket.



**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover.




## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**CAUTION:**

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 3. REMOVE FRONT SEAT ASSEMBLY LH

a. Remove the front seat assembly LH ( Click here).

## 4. REMOVE FRONT SEAT ASSEMBLY RH

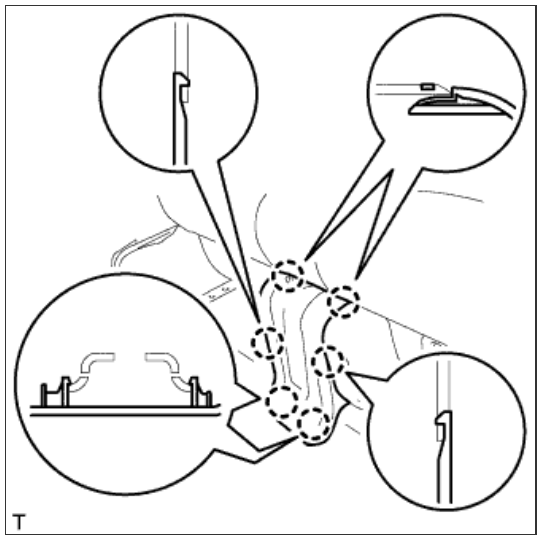
a. Remove the front seat assembly RH ( Click here).

## 5. REMOVE REAR NO. 3 SEAT CUSHION HINGE COVER

a. Using a screwdriver, detach the 6 claws and remove the cover.

**HINT:**

Tape the screwdriver tip before use.

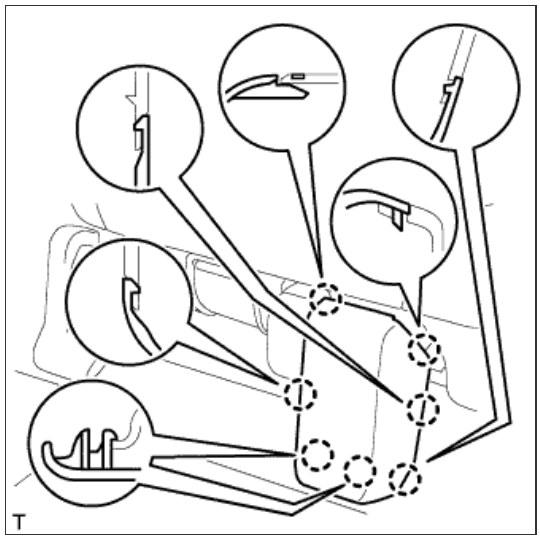



## 6. REMOVE REAR NO. 5 SEAT CUSHION HINGE COVER

a. Using a screwdriver, detach the 7 claws and remove the cover.

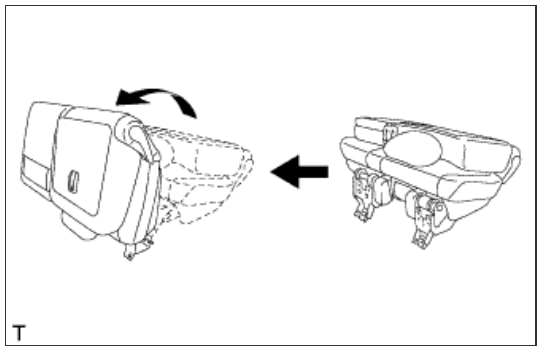
**HINT:**

Tape the screwdriver tip before use.




## 7. REMOVE REAR NO. 2 SEAT CUSHION HINGE COVER

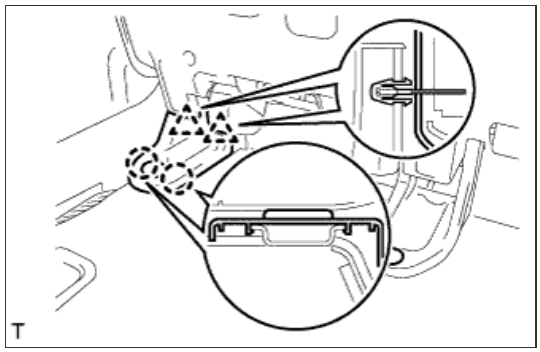
a. Operate the reclining adjuster release handle to move the seat into the position shown in the illustration.




b. Using a screwdriver, detach the 2 claws and 2 clips, and remove the cover.

**HINT:**

Tape the screwdriver tip before use.

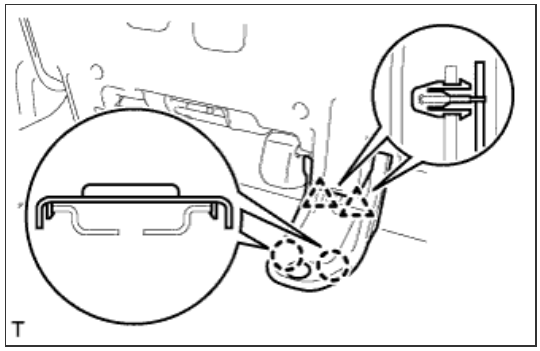



## 8. REMOVE REAR NO. 4 SEAT CUSHION HINGE COVER

a. Using a screwdriver, detach the 2 claws and 2 clips, and remove the cover.

**HINT:**

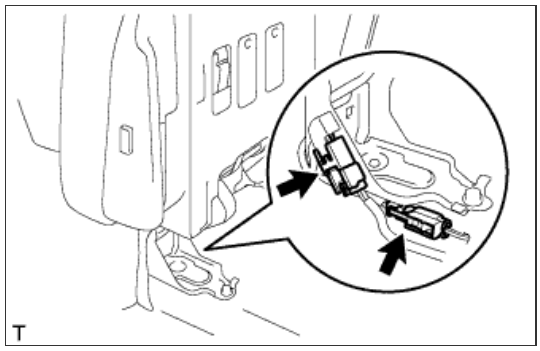
Tape the screwdriver tip before use.




## 9. REMOVE REAR NO. 1 SEAT ASSEMBLY LH

a. Disconnect the connector.

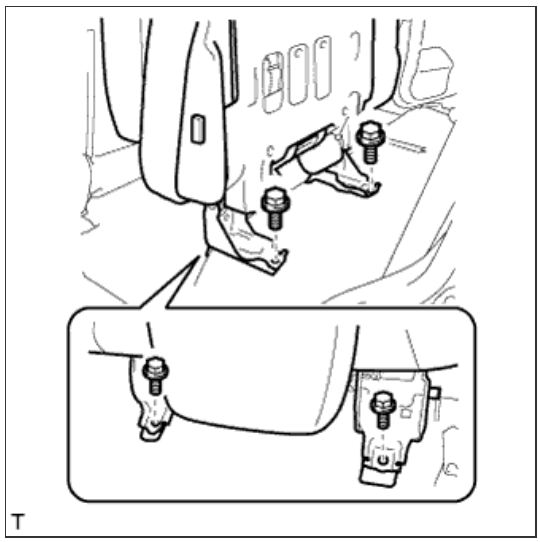
b. w/ Seat Heater System:
Disconnect the connector.




c. Remove the 4 bolts and seat assembly.

**NOTICE:**

Be careful not to damage the vehicle body.

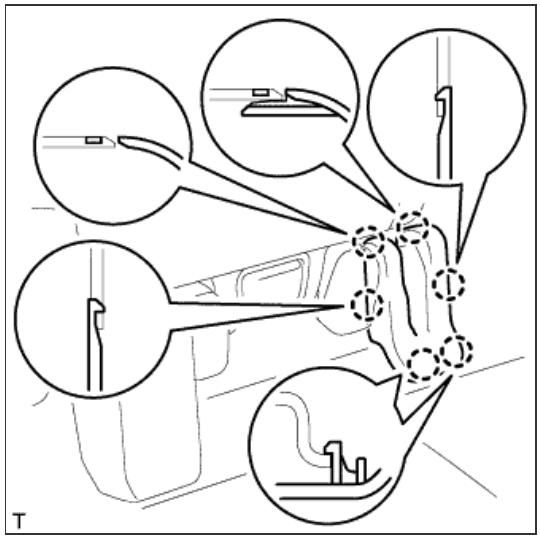


## 10. REMOVE REAR NO. 2 SEAT CUSHION HINGE COVER

a. Using a screwdriver, detach the 6 claws and remove the cover.

**HINT:**

Tape the screwdriver tip before use.

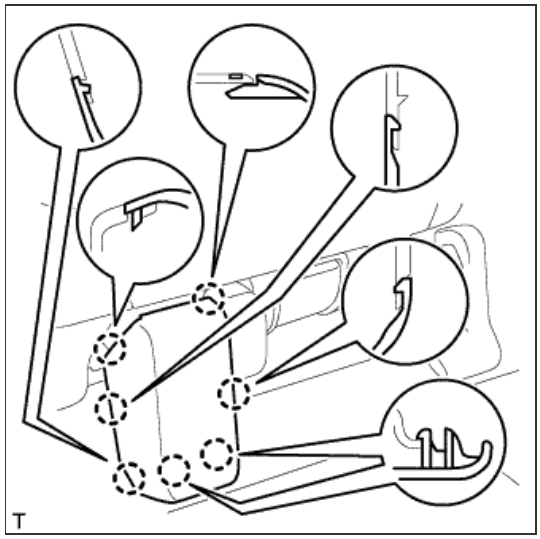



## 11. REMOVE REAR NO. 4 SEAT CUSHION HINGE COVER

a. Using a screwdriver, detach the 7 claws and remove the cover.

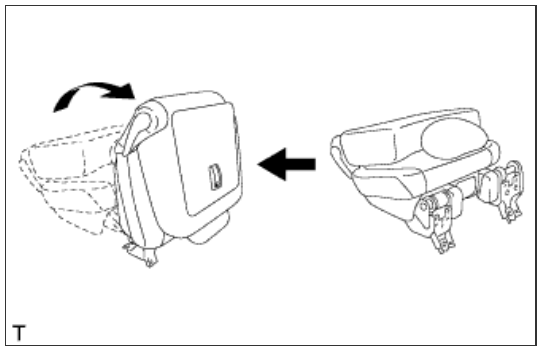
**HINT:**

Tape the screwdriver tip before use.




## 12. REMOVE REAR NO. 1 SEAT CUSHION HINGE COVER

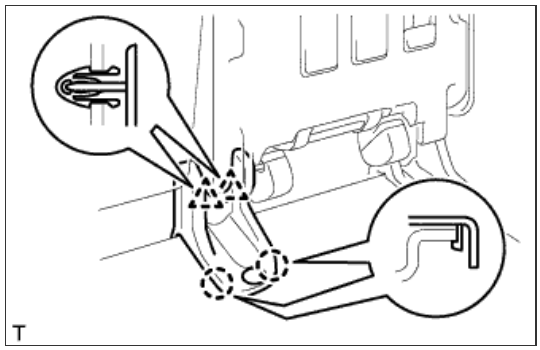
a. Operate the reclining adjuster release handle to move the seat into the position shown in the illustration.




b. Using a screwdriver, detach the 2 claws and 2 clips, and remove the cover.

**HINT:**

Tape the screwdriver tip before use.

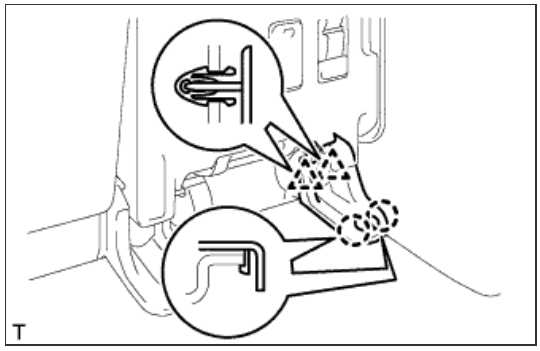



## 13. REMOVE REAR NO. 3 SEAT CUSHION HINGE COVER

a. Using a screwdriver, detach the 2 claws and 2 clips, and remove the cover.

**HINT:**

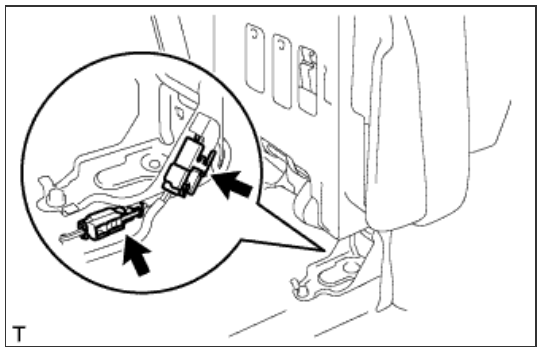
Tape the screwdriver tip before use.




## 14. REMOVE REAR NO. 1 SEAT ASSEMBLY RH

a. Disconnect the connector.

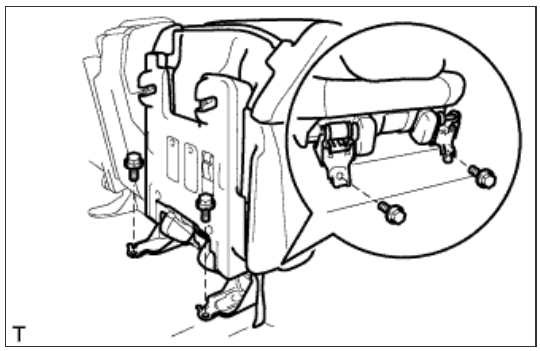
b. w/ Seat Heater System:
Disconnect the connector.




c. Remove the 4 bolts and seat assembly.

**NOTICE:**

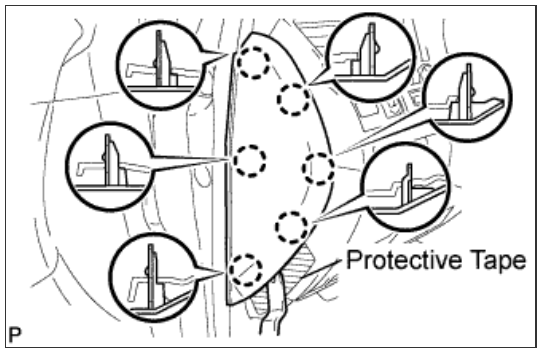
Be careful not to damage the vehicle body.




## 15. REMOVE INSTRUMENT SIDE PANEL LH

a. Place protective tape as shown in the illustration.

b. Using a moulding remover, detach the 6 claws and remove the side panel.




## 16. REMOVE INSTRUMENT SIDE PANEL RH

a. w/o Airbag Cut Off Switch:

i. Place protective tape as shown in the illustration.

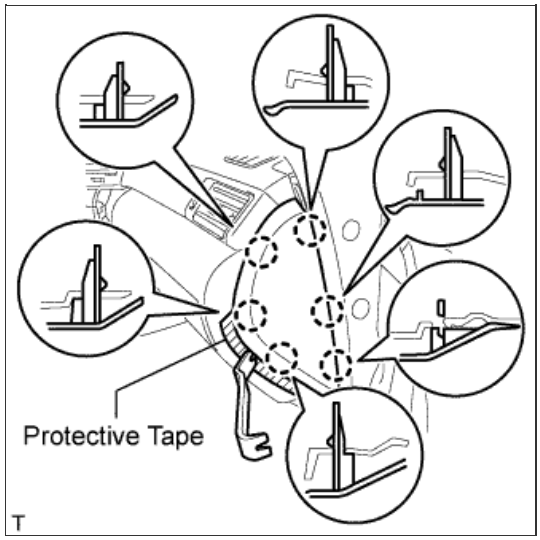
ii. Using a moulding remover, detach the 6 claws and remove the side panel.

b. w/ Airbag Cut Off Switch:

i. Place protective tape as shown in the illustration.

ii. Using a moulding remover, detach the 6 claws.

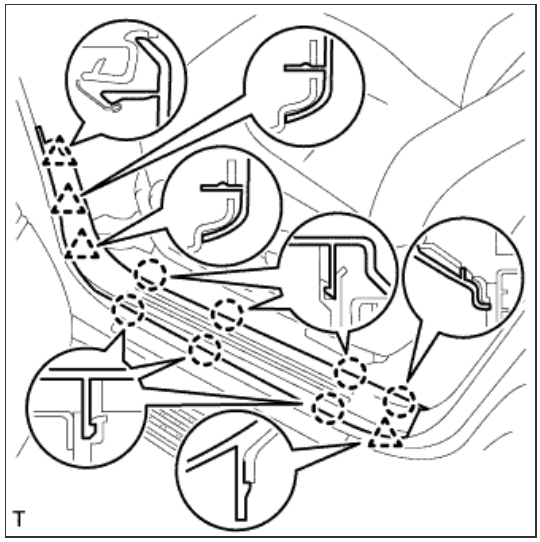
iii. Remove the side panel and disconnect the connector.




## 17. REMOVE FRONT DOOR SCUFF PLATE LH

a. w/o Illumination:

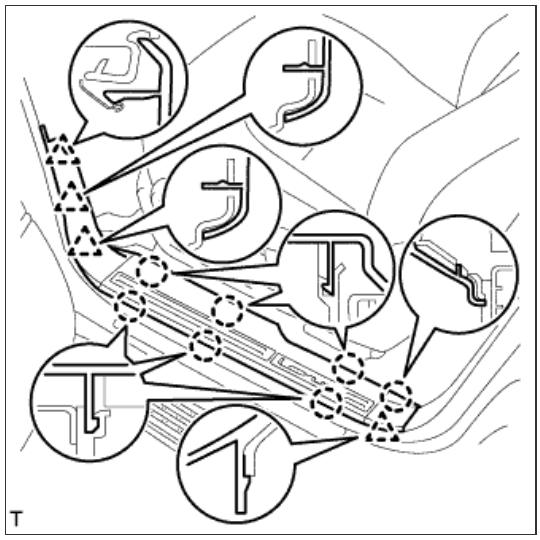
i. Detach the 7 claws and 4 clips, and remove the scuff plate.




b. w/ Illumination:

i. Detach the 7 claws and 4 clips.

ii. Disconnect the connector and remove the scuff plate.




### 18. REMOVE FRONT DOOR SCUFF PLATE RH

**HINT:**

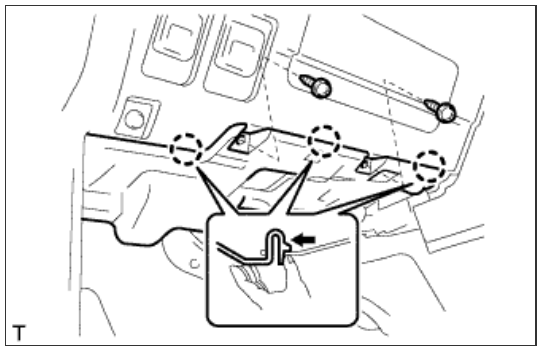
Use the same procedures described for the LH side.

### 19. REMOVE NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Remove the 2 screws.

b. Detach the 3 claws.

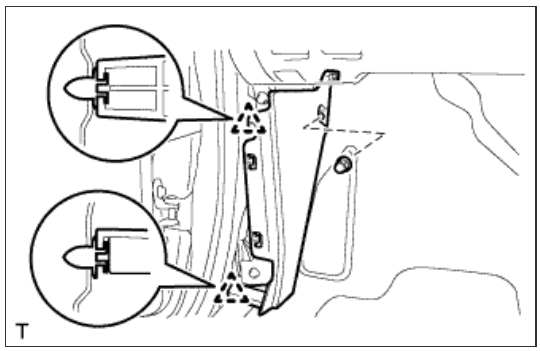
c. Remove the under cover and disconnect the connectors.




### 20. REMOVE COWL SIDE TRIM BOARD LH

a. Remove the cap nut.

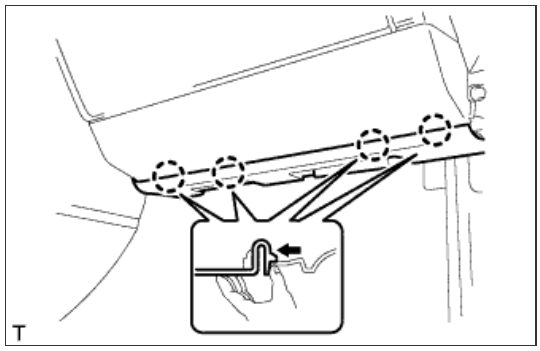
b. Detach the 2 clips and remove the trim board.




### 21. REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Detach the 4 claws.

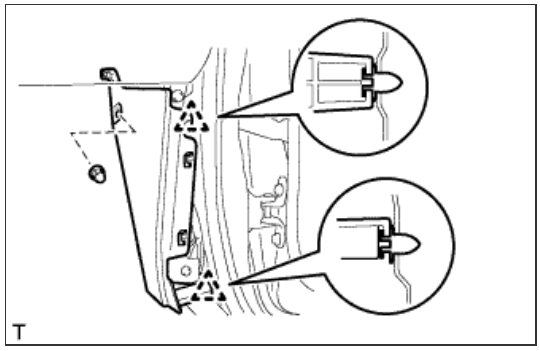
b. Remove the under cover and disconnect the connector.




## 22. REMOVE COWL SIDE TRIM BOARD RH

a. Remove the cap nut.

b. Detach the 2 clips and remove the trim board.

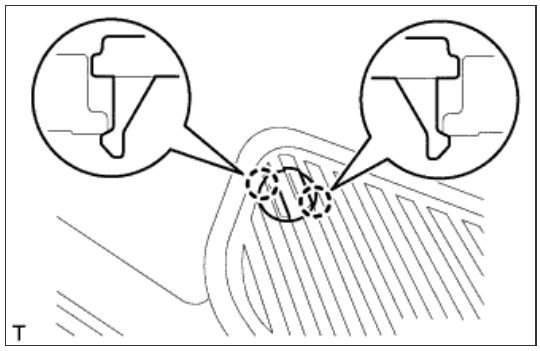



## 23. REMOVE REAR STEP COVER

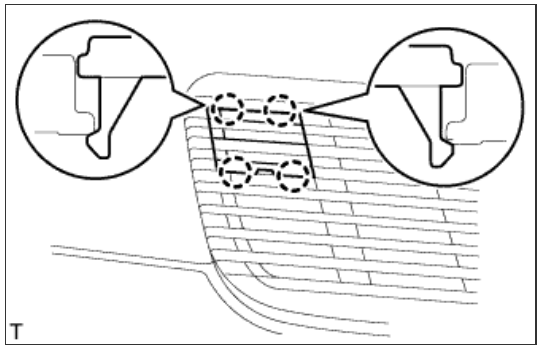
**HINT:**

Use the same procedure to remove the step cover on the other side.

a. w/o Illumination Type Front Door Scuff Plate:
Detach the 2 claws and remove the step cover.




b. w/ Illumination Type Front Door Scuff Plate:
Detach the 4 claws and remove the step cover.

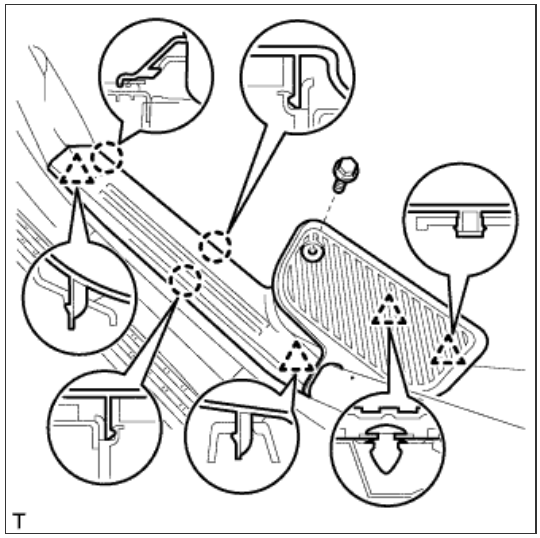



## 24. REMOVE REAR DOOR SCUFF PLATE LH

a. w/o Illumination Type Front Door Scuff Plate:
Remove the rear door scuff plate.

i. Remove the screw.

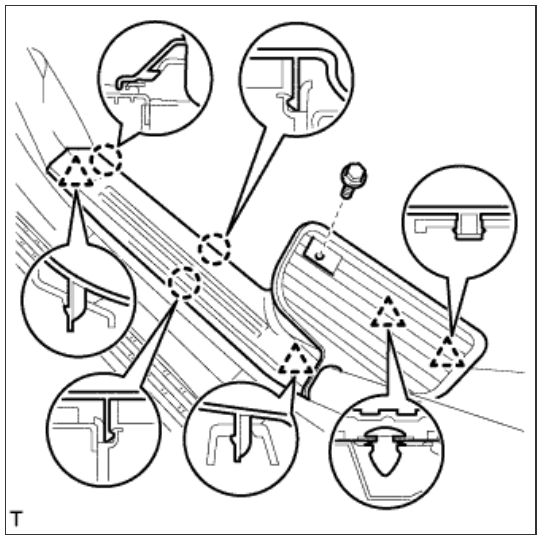
ii. Detach the 3 claws and 4 clips, and remove the scuff plate.




b. w/ Illumination Type Front Door Scuff Plate:
Remove the rear door scuff plate.

i. Remove the screw.

ii. Detach the 3 claws and 4 clips, and remove the scuff plate.




## 25. REMOVE REAR DOOR SCUFF PLATE RH

**HINT:**

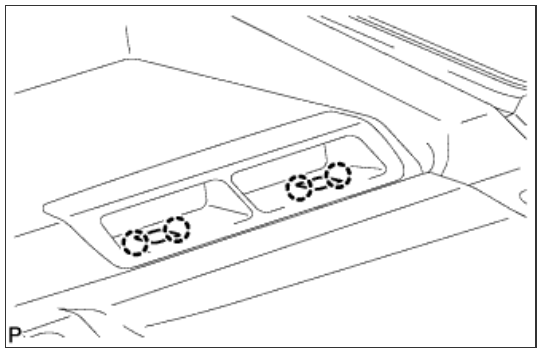
Use the same procedures described for the LH side.

## 26. REMOVE NO. 2 AIR DUCT PLUG

a. Detach the 4 claws and remove the 2 plugs.

**HINT:**

Use the same procedures for both sides.

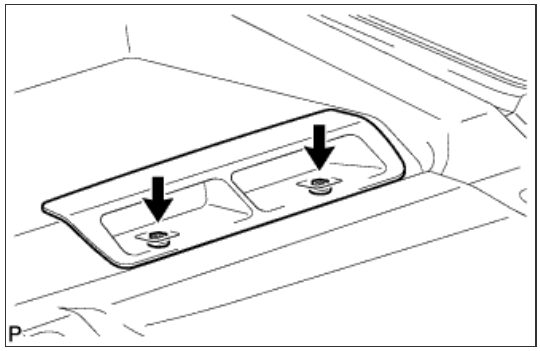



## 27. REMOVE AIR HEATER GUIDE

a. Remove the 2 screws and guide.

**HINT:**

Use the same procedures for both sides.

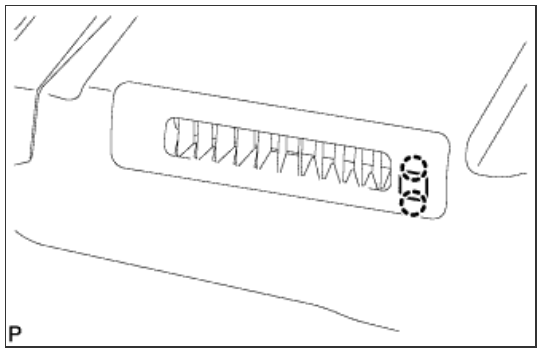



## 28. REMOVE AIR DUCT PLUG

a. Detach the 2 claws and remove the plug.

**HINT:**

Use the same procedures for both sides.



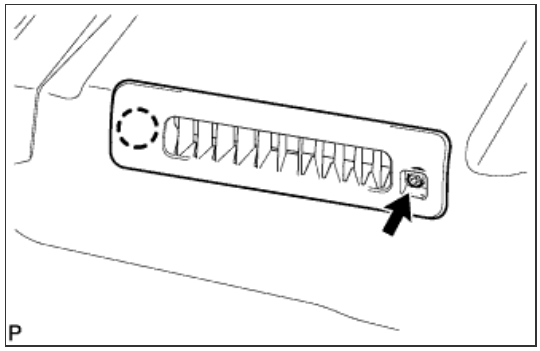

## 29. REMOVE REAR AIR DUCT GUIDE

**HINT:**

Use the same procedures for both sides.

a. Remove the screw.

b. Detach the claw and remove the guide.

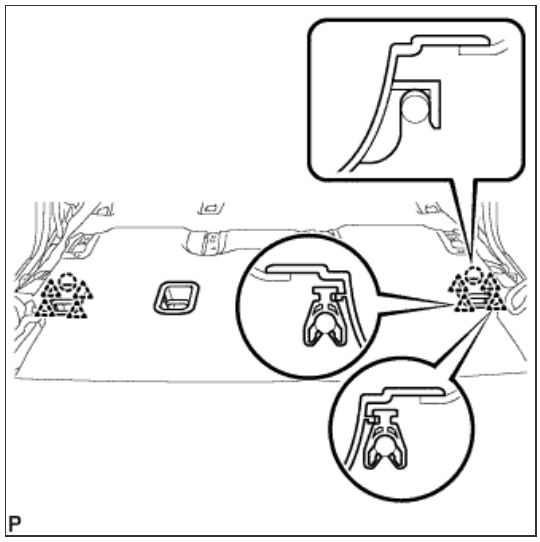



## 30. REMOVE REAR NO. 1 SEAT PROTECTOR

a. Detach the 4 clips and claw, and remove the protector.

**HINT:**

Use the same procedures to remove the protector on the other side.

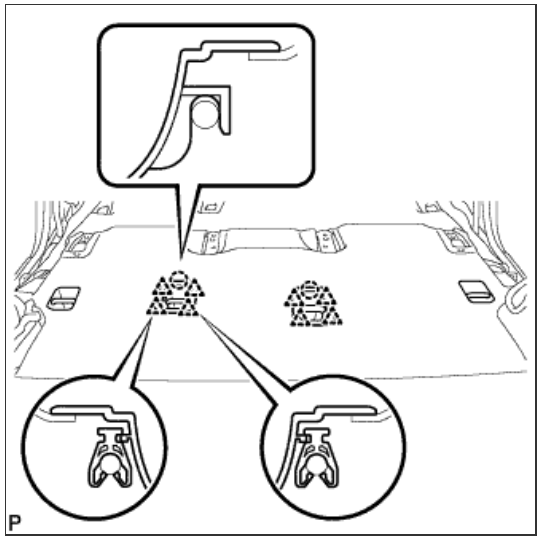



### 31. REMOVE REAR NO. 2 SEAT PROTECTOR

a. Detach the 4 clips and claw, and remove the protector.

**HINT:**

Use the same procedures to remove the protector on the other side.




### 32. REMOVE COOLING BOX ASSEMBLY (w/ Cool Box)

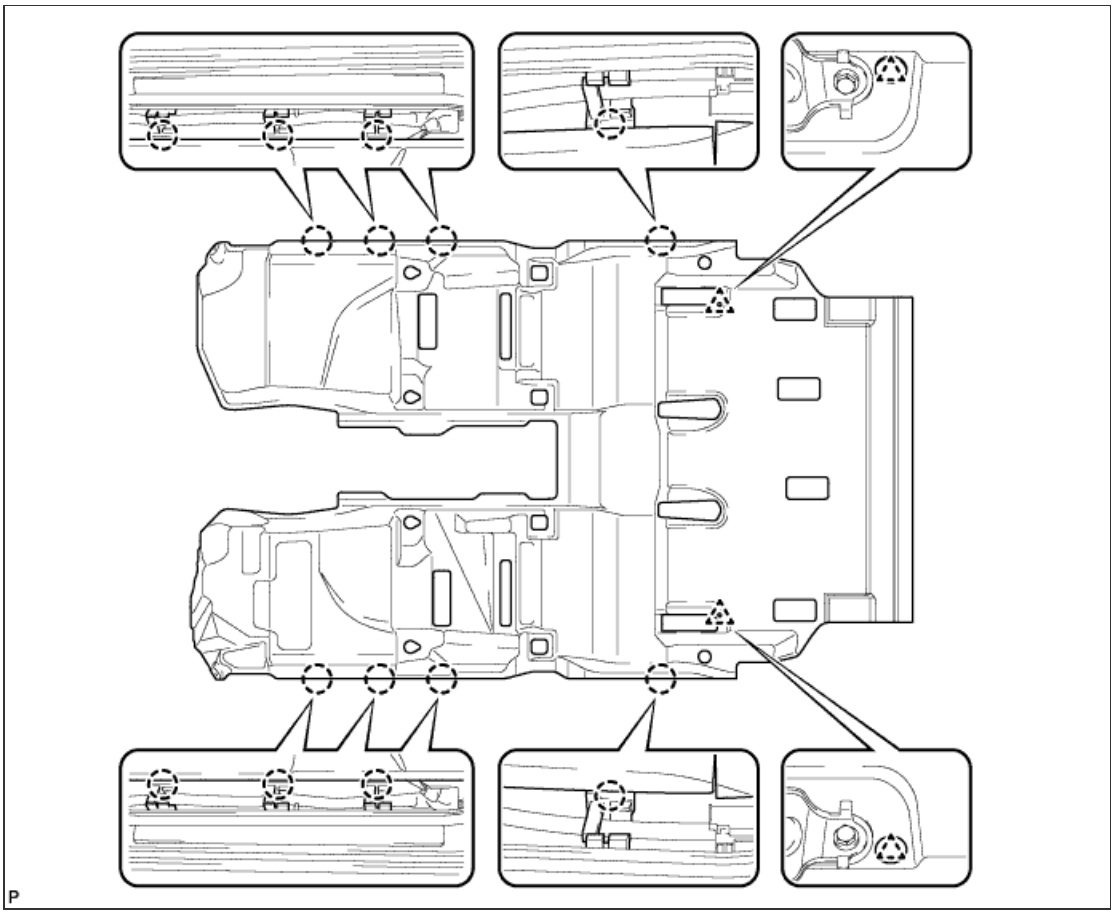
a. Remove the cooling box assembly (Click here).

### 33. REMOVE REAR CONSOLE BOX SUB-ASSEMBLY (w/o Cool Box)

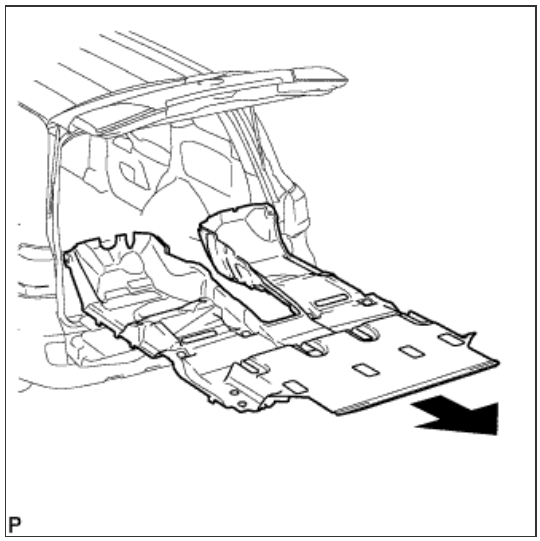
a. Remove the rear console box sub-assembly (Click here).

### 34. REMOVE FRONT FLOOR CARPET ASSEMBLY

a. Detach the 2 clips and 8 claws.




b. Remove the carpet from the floor, open the back door and tail gate, and remove the carpet from the rear of the vehicle.



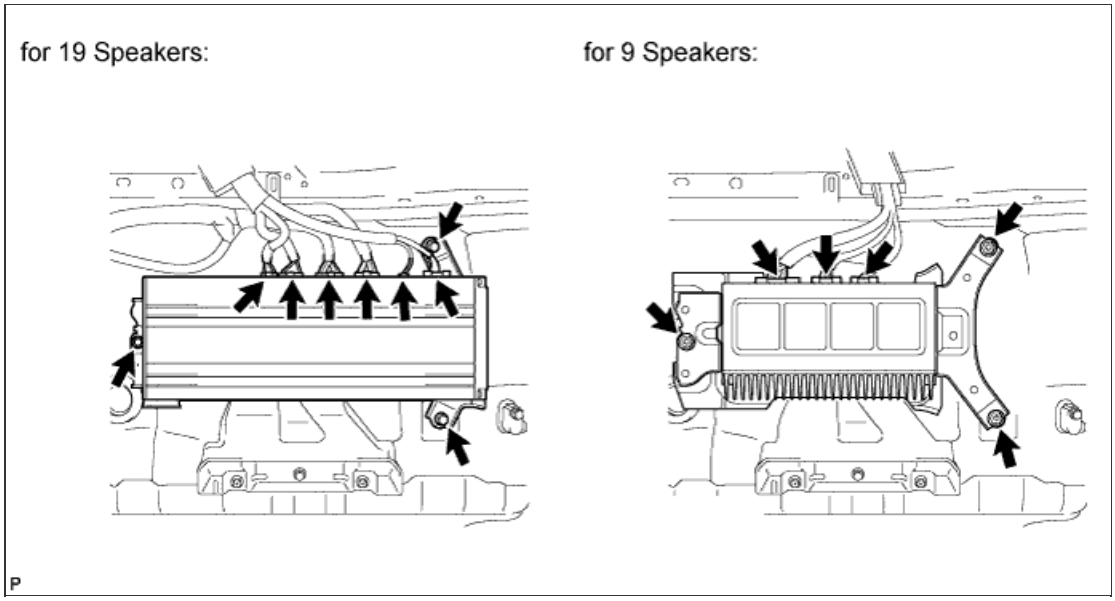

### 35. REMOVE STEREO COMPONENT AMPLIFIER ASSEMBLY WITH BRACKET

a. for 19 Speakers:

i. Disconnect the 6 connectors.

b. for 9 Speakers:

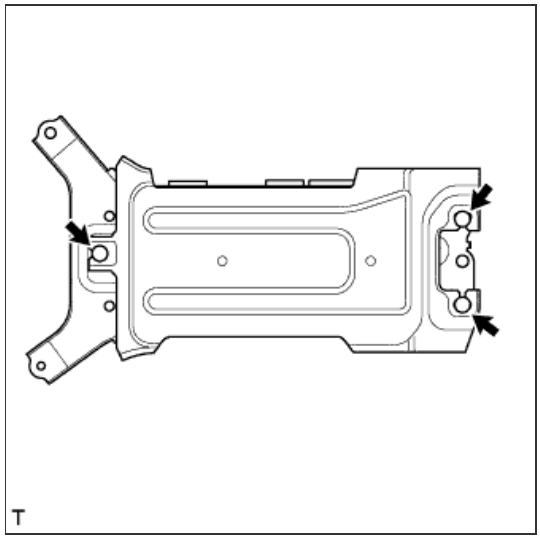
i. Disconnect the 3 connectors.




c. Remove the 3 bolts and remove the amplifier with bracket.

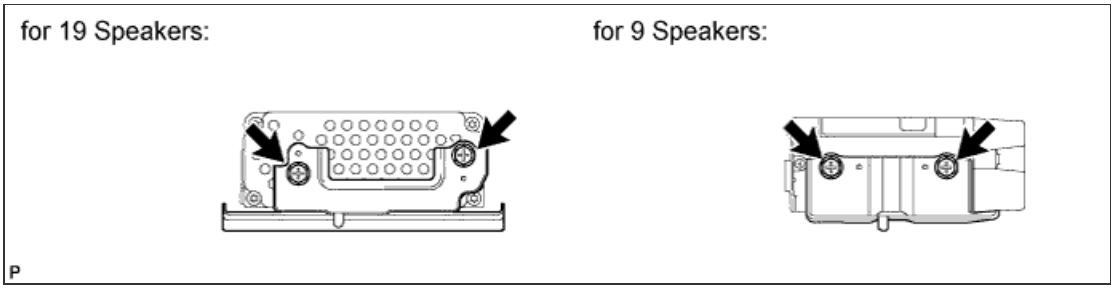
## 36. REMOVE AMPLIFIER COVER (for 9 Speakers)

a. Detach the 3 clips and remove the cover.



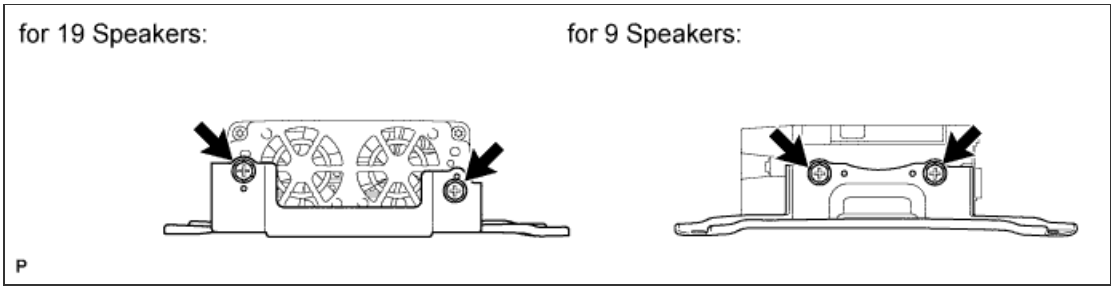

## 37. REMOVE NO. 1 AMPLIFIER BRACKET

a. Remove the 2 screws and bracket.



## 38. REMOVE NO. 2 AMPLIFIER BRACKET

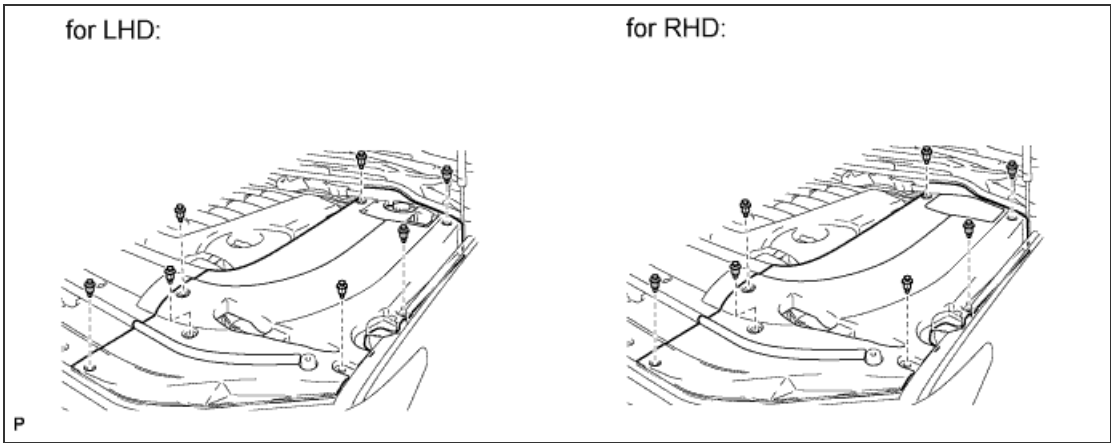
a. Remove the 2 screws and bracket.



**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover LH.




## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**CAUTION:**

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 3. REMOVE FRONT SEAT ASSEMBLY LH

a. Remove the front seat assembly LH ( Click here).

## 4. REMOVE FRONT SEAT ASSEMBLY RH

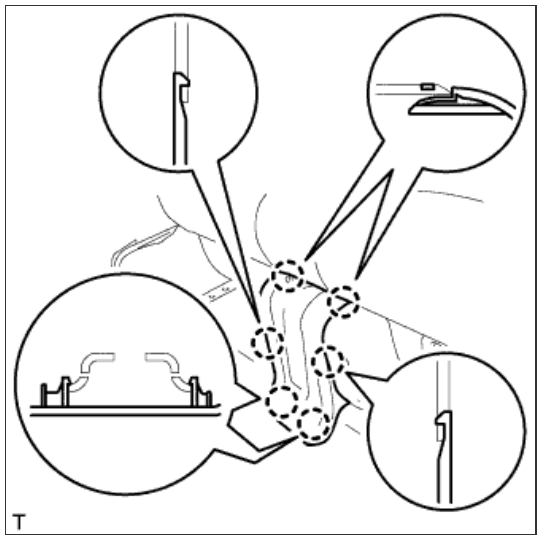
a. Remove the front seat assembly RH ( Click here).

## 5. REMOVE REAR NO. 3 SEAT CUSHION HINGE COVER

a. Using a screwdriver, detach the 6 claws and remove the cover.

**HINT:**

Tape the screwdriver tip before use.

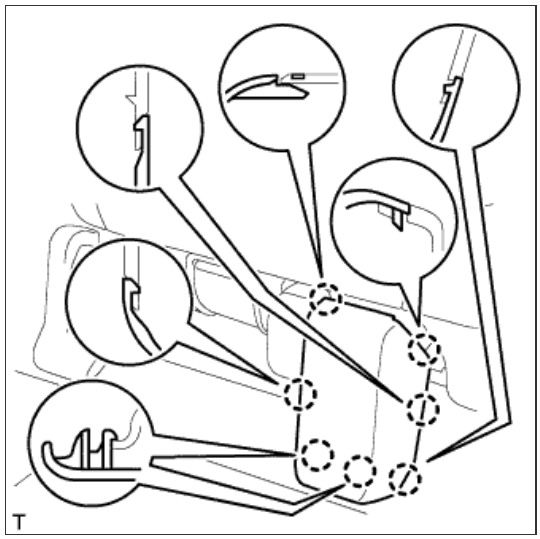



## 6. REMOVE REAR NO. 5 SEAT CUSHION HINGE COVER

a. Using a screwdriver, detach the 7 claws and remove the cover.

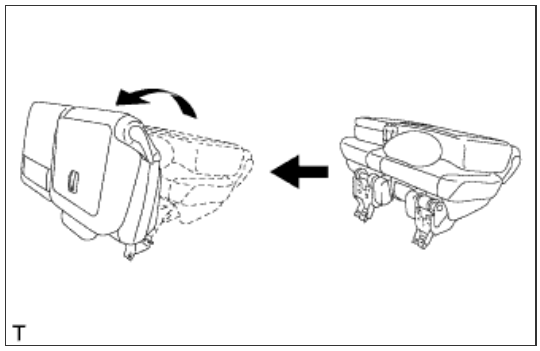
**HINT:**

Tape the screwdriver tip before use.




## 7. REMOVE REAR NO. 2 SEAT CUSHION HINGE COVER

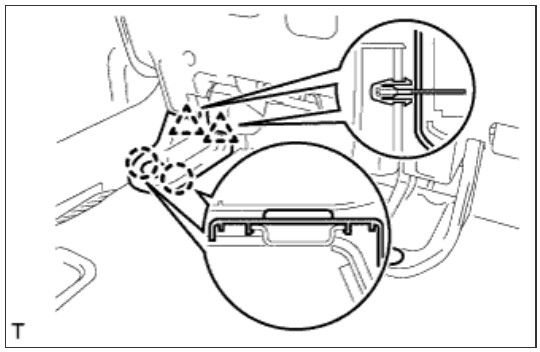
a. Operate the reclining adjuster release handle to move the seat into the position shown in the illustration.




b. Using a screwdriver, detach the 2 claws and 2 clips, and remove the cover.

**HINT:**

Tape the screwdriver tip before use.

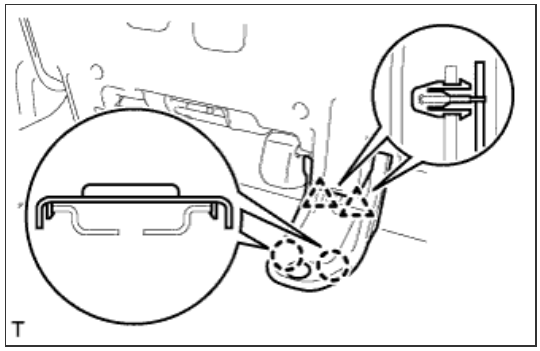



## 8. REMOVE REAR NO. 4 SEAT CUSHION HINGE COVER

a. Using a screwdriver, detach the 2 claws and 2 clips, and remove the cover.

**HINT:**

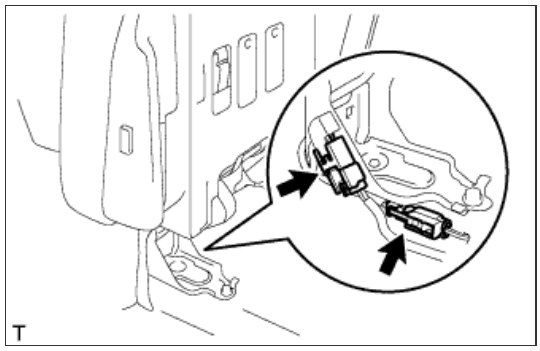
Tape the screwdriver tip before use.




## 9. REMOVE REAR NO. 1 SEAT ASSEMBLY LH

a. Disconnect the connector.

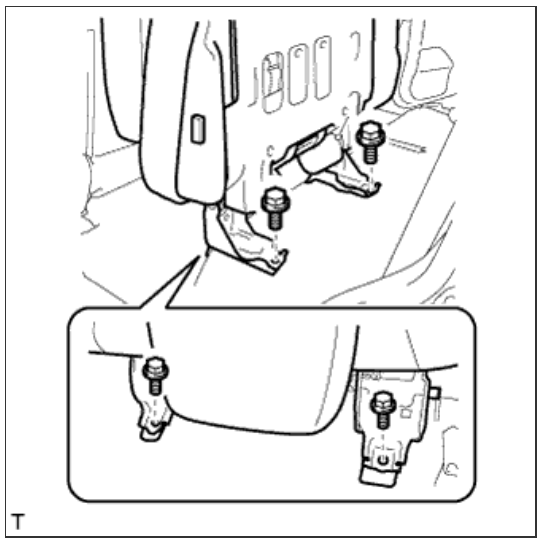
b. w/ Seat Heater System:
Disconnect the connector.




c. Remove the 4 bolts and seat assembly.

**NOTICE:**

Be careful not to damage the vehicle body.

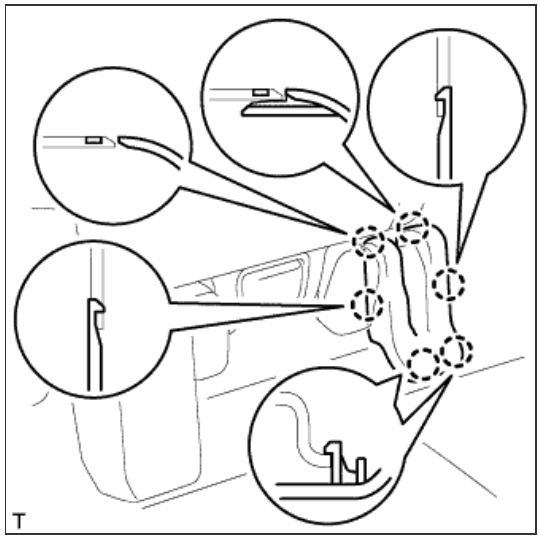


## 10. REMOVE REAR NO. 2 SEAT CUSHION HINGE COVER

a. Using a screwdriver, detach the 6 claws and remove the cover.

**HINT:**

Tape the screwdriver tip before use.

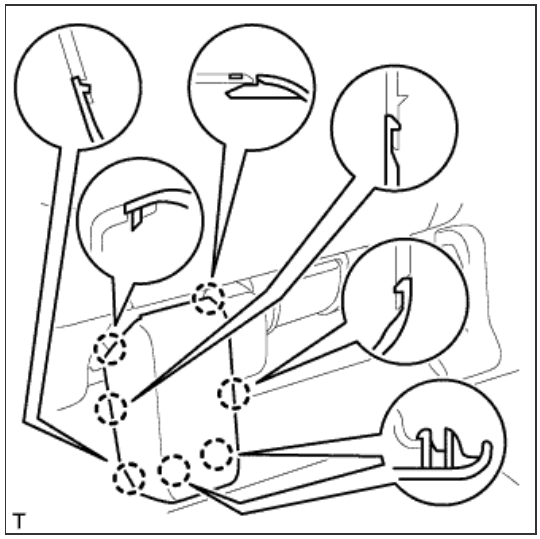



## 11. REMOVE REAR NO. 4 SEAT CUSHION HINGE COVER

a. Using a screwdriver, detach the 7 claws and remove the cover.

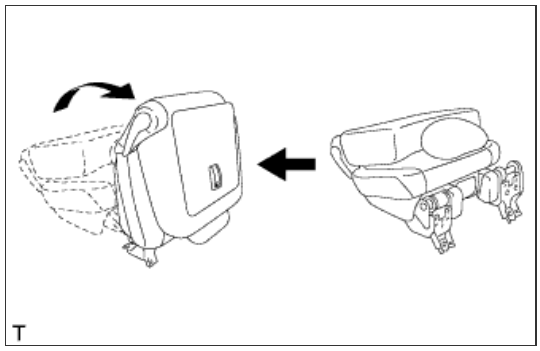
**HINT:**

Tape the screwdriver tip before use.




## 12. REMOVE REAR NO. 1 SEAT CUSHION HINGE COVER

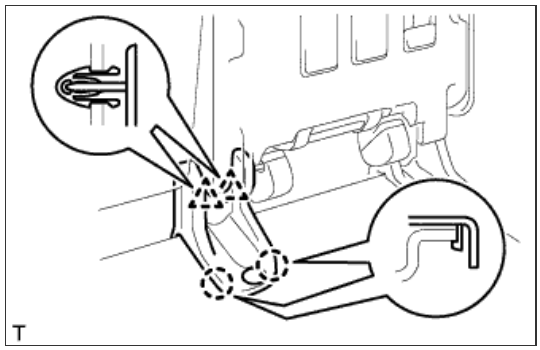
a. Operate the reclining adjuster release handle to move the seat into the position shown in the illustration.




b. Using a screwdriver, detach the 2 claws and 2 clips, and remove the cover.

**HINT:**

Tape the screwdriver tip before use.

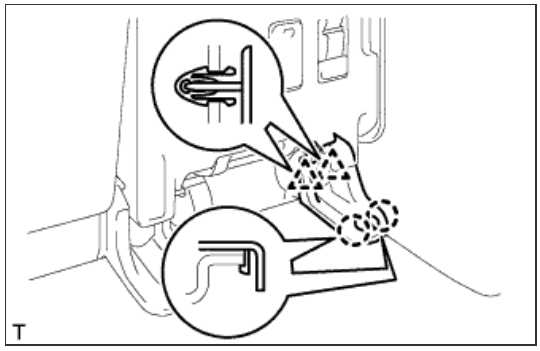



## 13. REMOVE REAR NO. 3 SEAT CUSHION HINGE COVER

a. Using a screwdriver, detach the 2 claws and 2 clips, and remove the cover.

**HINT:**

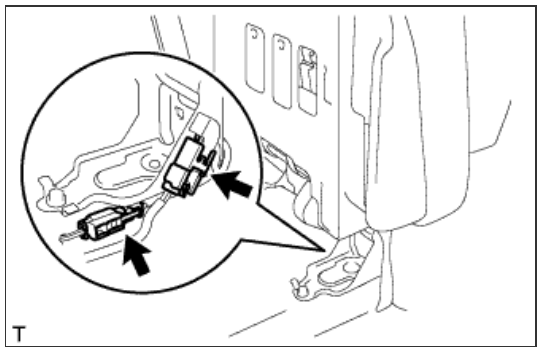
Tape the screwdriver tip before use.




## 14. REMOVE REAR NO. 1 SEAT ASSEMBLY RH

a. Disconnect the connector.

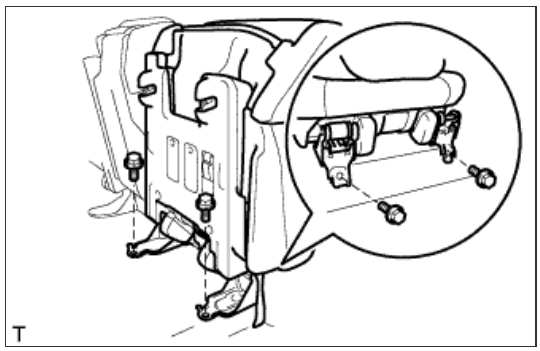
b. w/ Seat Heater System:
Disconnect the connector.




c. Remove the 4 bolts and seat assembly.

**NOTICE:**

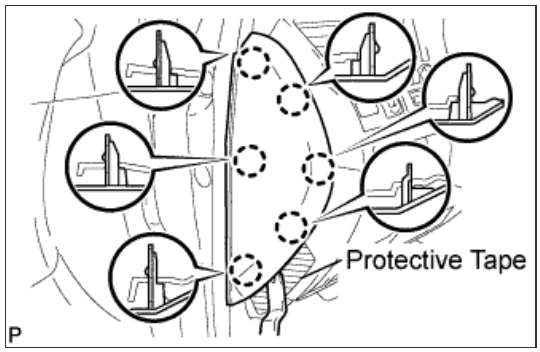
Be careful not to damage the vehicle body.




## 15. REMOVE INSTRUMENT SIDE PANEL LH

a. Place protective tape as shown in the illustration.

b. Using a moulding remover, detach the 6 claws and remove the side panel.




## 16. REMOVE INSTRUMENT SIDE PANEL RH

a. w/o Airbag Cut Off Switch:

i. Place protective tape as shown in the illustration.

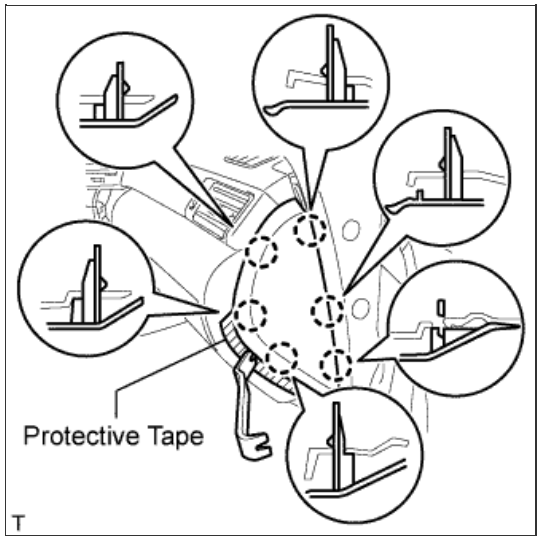
ii. Using a moulding remover, detach the 6 claws and remove the side panel.

b. w/ Airbag Cut Off Switch:

i. Place protective tape as shown in the illustration.

ii. Using a moulding remover, detach the 6 claws.

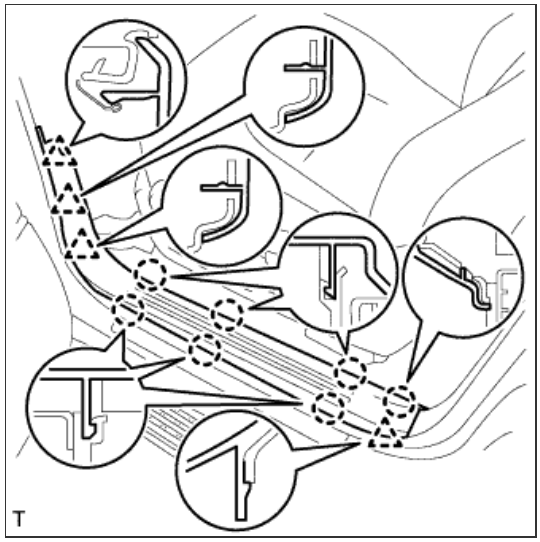
iii. Remove the side panel and disconnect the connector.




## 17. REMOVE FRONT DOOR SCUFF PLATE LH

a. w/o Illumination:

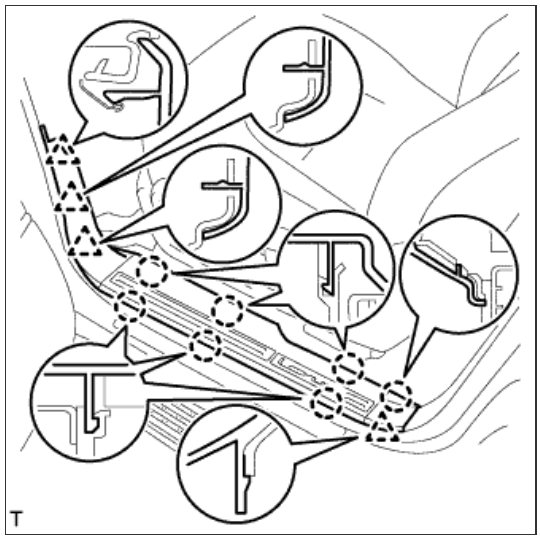
i. Detach the 7 claws and 4 clips, and remove the scuff plate.




b. w/ Illumination:

i. Detach the 7 claws and 4 clips.

ii. Disconnect the connector and remove the scuff plate.




### 18. REMOVE FRONT DOOR SCUFF PLATE RH

**HINT:**

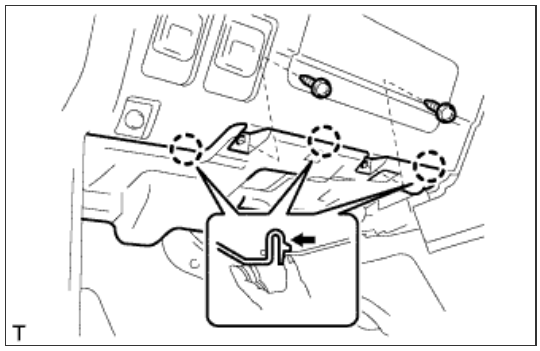
Use the same procedures described for the LH side.

### 19. REMOVE NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Remove the 2 screws.

b. Detach the 3 claws.

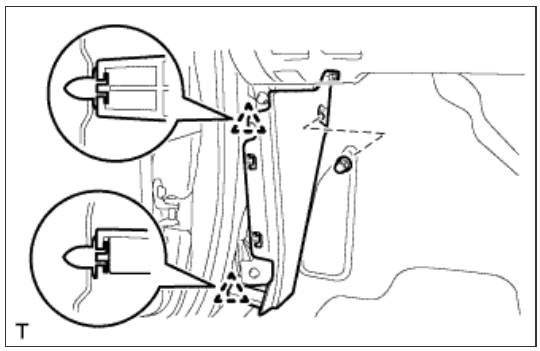
c. Remove the under cover and disconnect the connectors.




### 20. REMOVE COWL SIDE TRIM BOARD LH

a. Remove the cap nut.

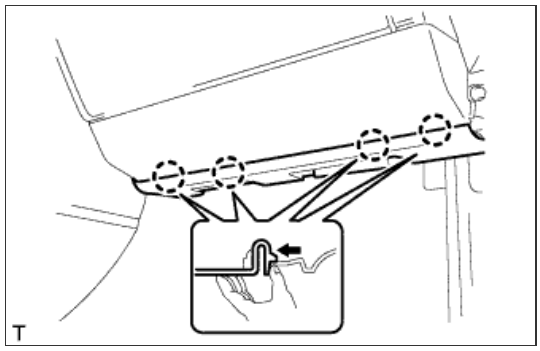
b. Detach the 2 clips and remove the trim board.




### 21. REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Detach the 4 claws.

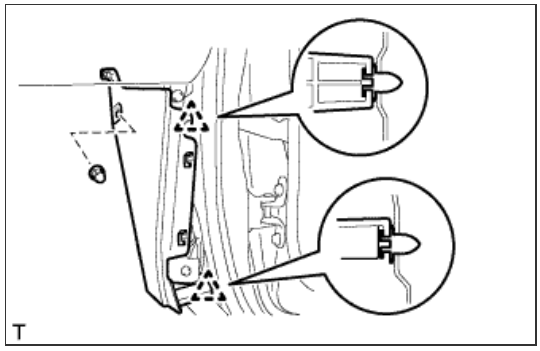
b. Remove the under cover and disconnect the connector.




## 22. REMOVE COWL SIDE TRIM BOARD RH

a. Remove the cap nut.

b. Detach the 2 clips and remove the trim board.

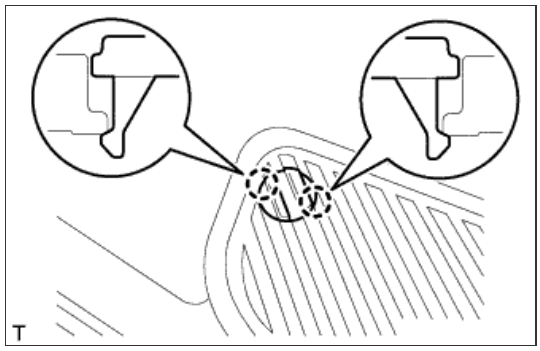



## 23. REMOVE REAR STEP COVER

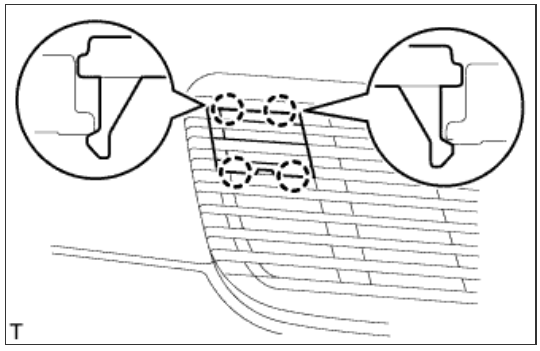
**HINT:**

Use the same procedure to remove the step cover on the other side.

a. w/o Illumination Type Front Door Scuff Plate:
Detach the 2 claws and remove the step cover.




b. w/ Illumination Type Front Door Scuff Plate:
Detach the 4 claws and remove the step cover.

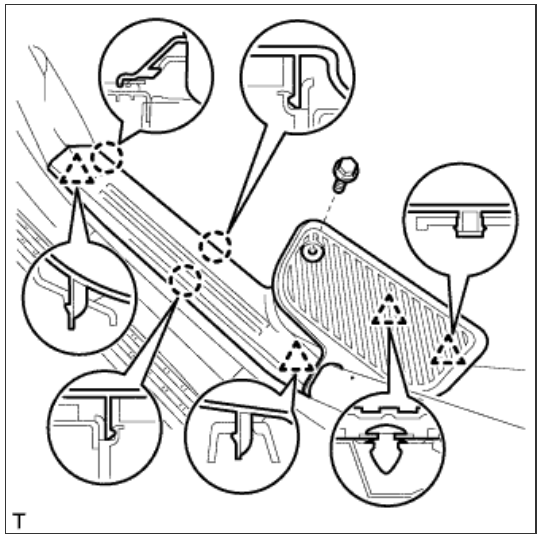



## 24. REMOVE REAR DOOR SCUFF PLATE LH

a. w/o Illumination Type Front Door Scuff Plate:
Remove the rear door scuff plate.

i. Remove the screw.

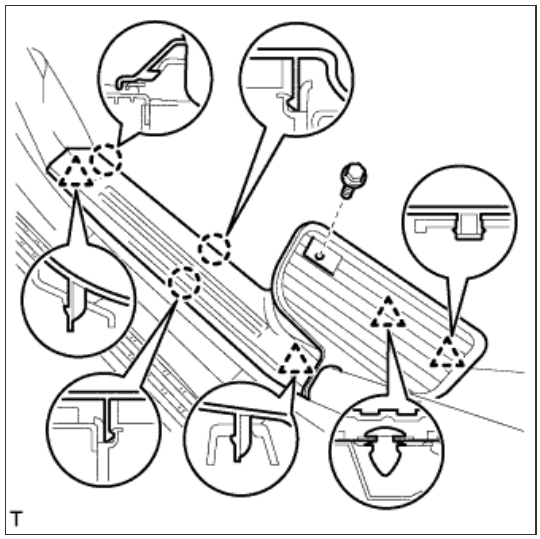
ii. Detach the 3 claws and 4 clips, and remove the scuff plate.




b. w/ Illumination Type Front Door Scuff Plate:
Remove the rear door scuff plate.

i. Remove the screw.

ii. Detach the 3 claws and 4 clips, and remove the scuff plate.




## 25. REMOVE REAR DOOR SCUFF PLATE RH

**HINT:**

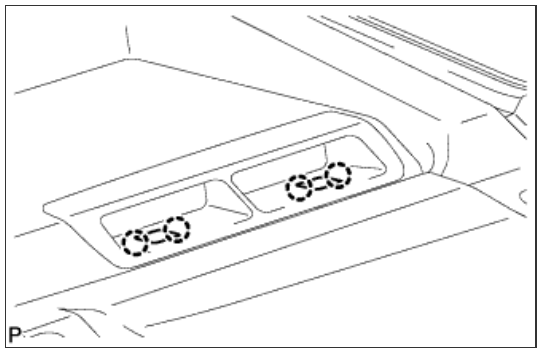
Use the same procedures described for the LH side.

## 26. REMOVE NO. 2 AIR DUCT PLUG

a. Detach the 4 claws and remove the 2 plugs.

**HINT:**

Use the same procedures for both sides.

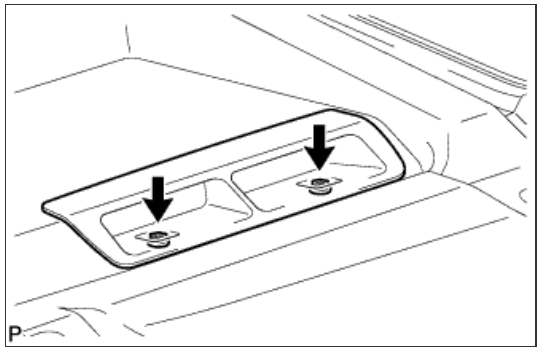



## 27. REMOVE AIR HEATER GUIDE

a. Remove the 2 screws and guide.

**HINT:**

Use the same procedures for both sides.

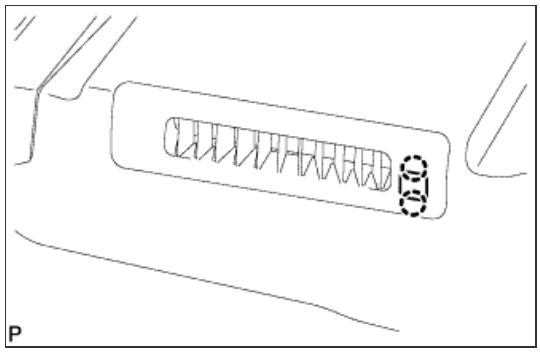



## 28. REMOVE AIR DUCT PLUG

a. Detach the 2 claws and remove the plug.

**HINT:**

Use the same procedures for both sides.



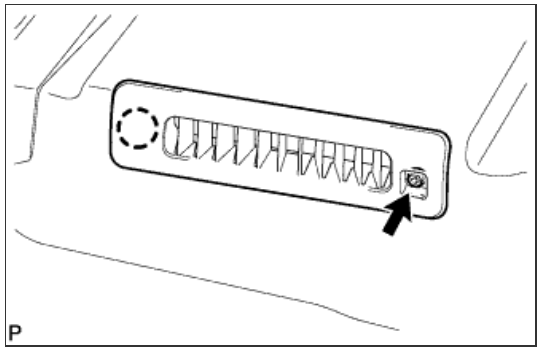

## 29. REMOVE REAR AIR DUCT GUIDE

**HINT:**

Use the same procedures for both sides.

a. Remove the screw.

b. Detach the claw and remove the guide.

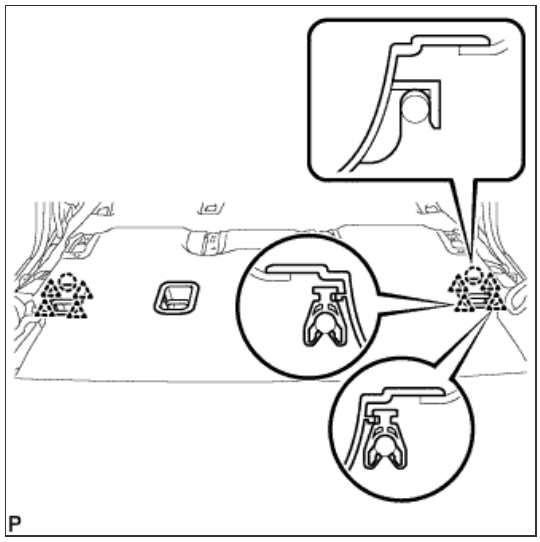



## 30. REMOVE REAR NO. 1 SEAT PROTECTOR

a. Detach the 4 clips and claw, and remove the protector.

**HINT:**

Use the same procedures to remove the protector on the other side.

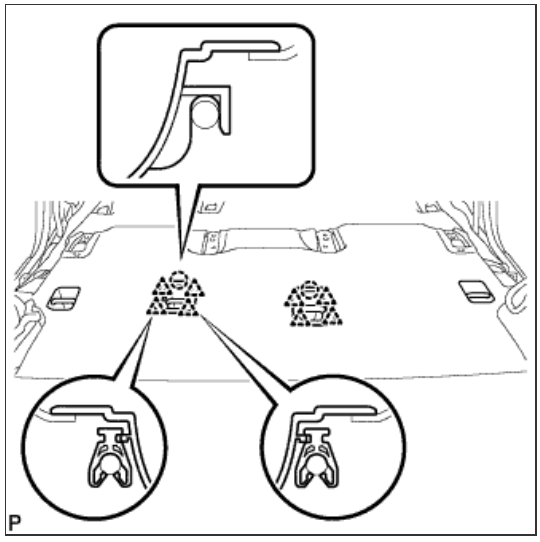



### 31. REMOVE REAR NO. 2 SEAT PROTECTOR

a. Detach the 4 clips and claw, and remove the protector.

**HINT:**

Use the same procedures to remove the protector on the other side.




### 32. REMOVE COOLING BOX ASSEMBLY (w/ Cool Box)

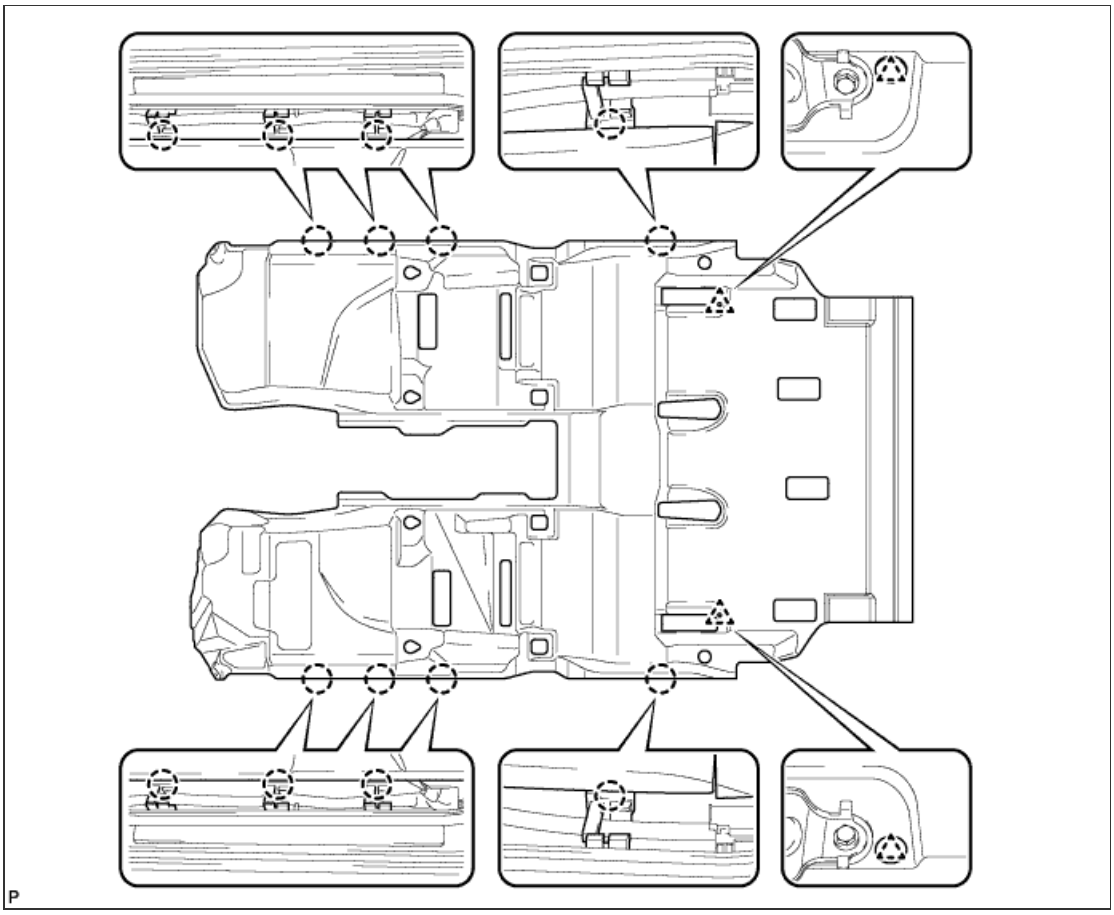
a. Remove the cooling box assembly (Click here).

### 33. REMOVE REAR CONSOLE BOX SUB-ASSEMBLY (w/o Cool Box)

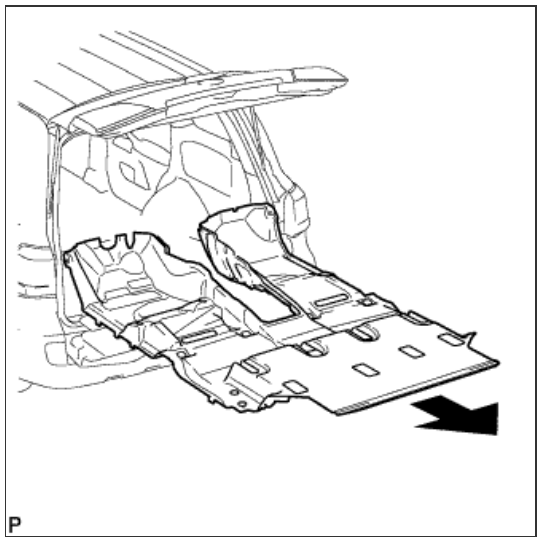
a. Remove the rear console box sub-assembly (Click here).

### 34. REMOVE FRONT FLOOR CARPET ASSEMBLY

a. Detach the 2 clips and 8 claws.




b. Remove the carpet from the floor, open the back door and tail gate, and remove the carpet from the rear of the vehicle.



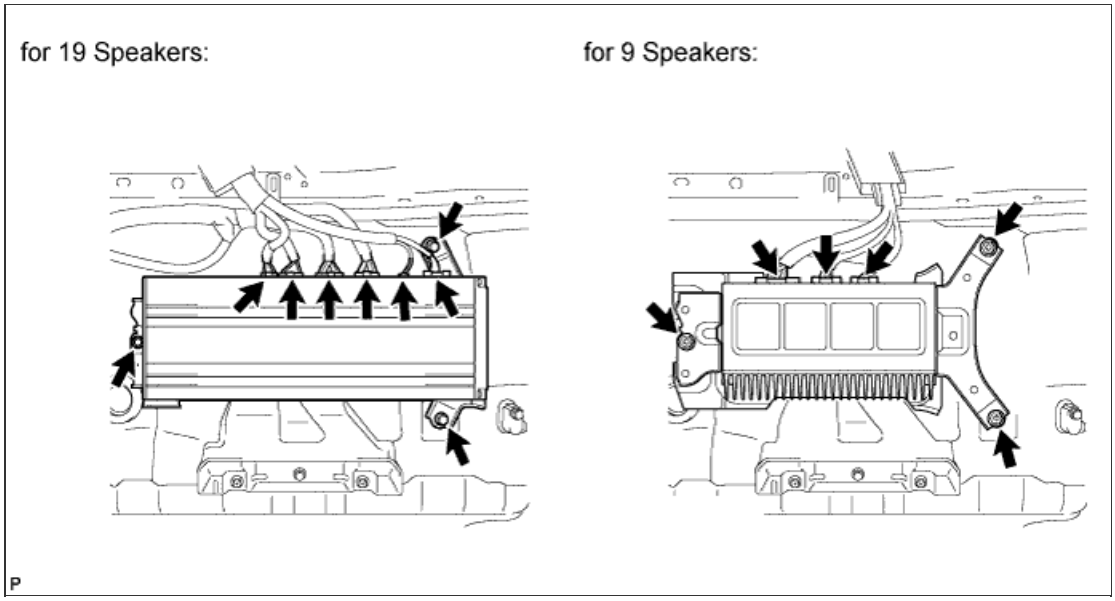

### 35. REMOVE STEREO COMPONENT AMPLIFIER ASSEMBLY WITH BRACKET

a. for 19 Speakers:

i. Disconnect the 6 connectors.

b. for 9 Speakers:

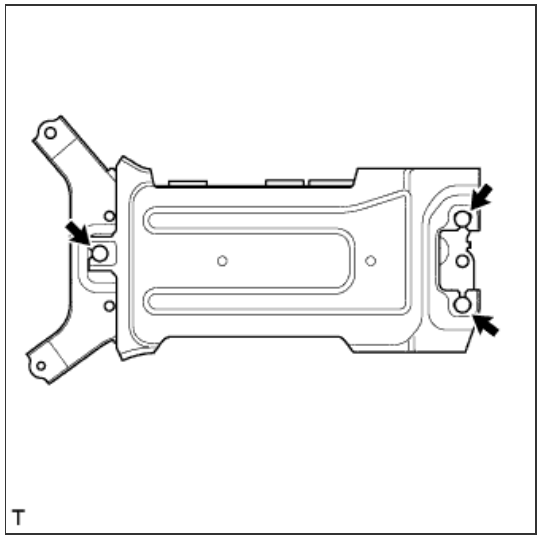
i. Disconnect the 3 connectors.




c. Remove the 3 bolts and remove the amplifier with bracket.

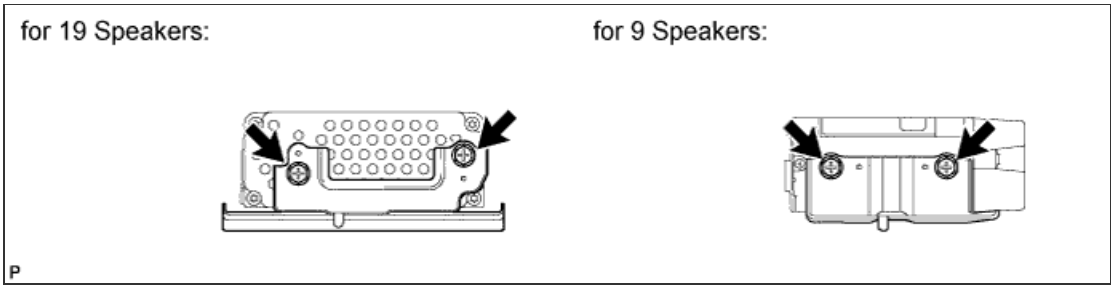
## 36. REMOVE AMPLIFIER COVER (for 9 Speakers)

a. Detach the 3 clips and remove the cover.



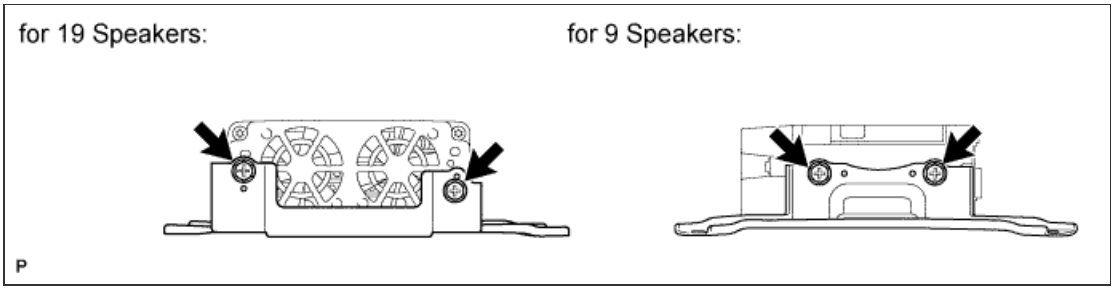

## 37. REMOVE NO. 1 AMPLIFIER BRACKET

a. Remove the 2 screws and bracket.



## 38. REMOVE NO. 2 AMPLIFIER BRACKET

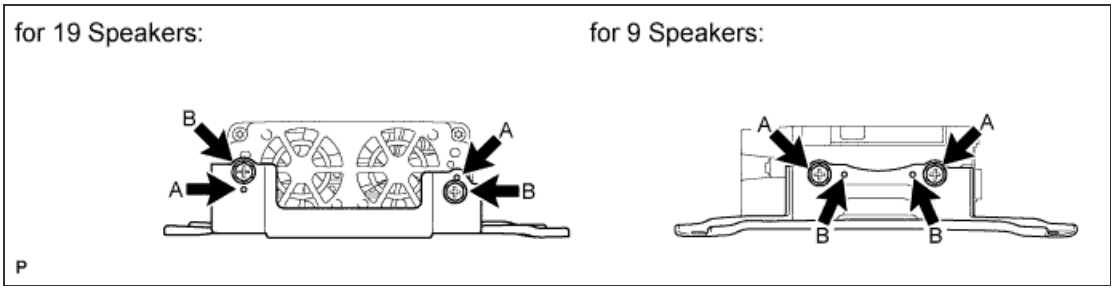
a. Remove the 2 screws and bracket.



**for Preparation** Click here

## 1. INSTALL NO. 2 AMPLIFIER BRACKET

a. Set the aligning protrusions of the bracket, labeled A, into the holes of the amplifier.

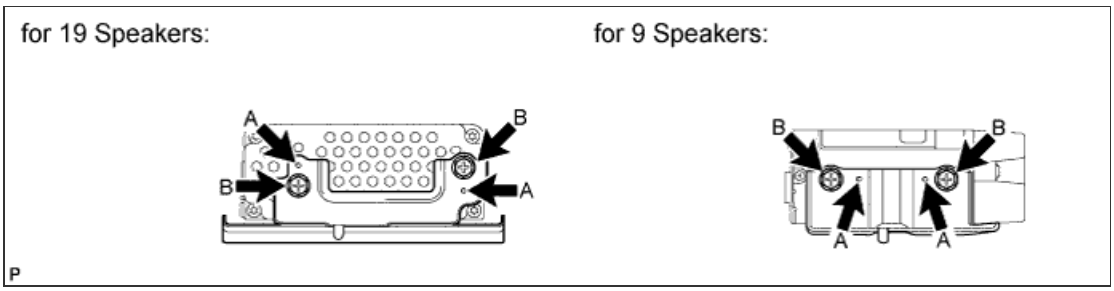



b. Install the bracket with the 2 screws labeled B.

**Torque:**
**3.0 N*m{ 30 kgf*cm , 26 in.*lbf }**

## 2. INSTALL NO. 1 AMPLIFIER BRACKET

a. Set the aligning protrusions of the bracket, labeled A, into the holes of the amplifier.

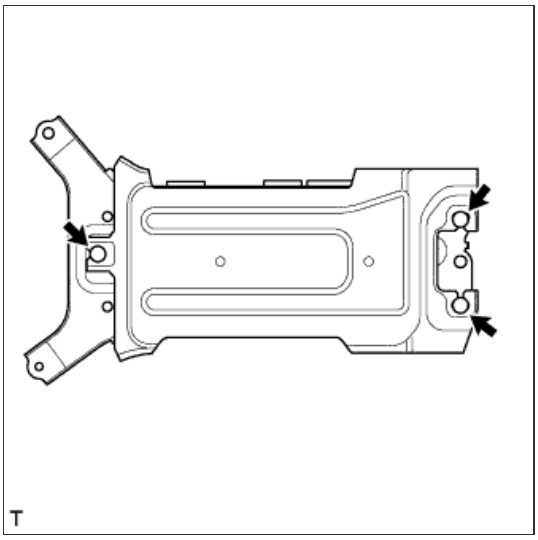



b. Install the bracket with the 2 screws labeled B.

**Torque:**
**3.0 N*m{ 30 kgf*cm , 26 in.*lbf }**

## 3. INSTALL AMPLIFIER COVER (for 9 Speakers)

a. Attach the 3 clips to install the cover.



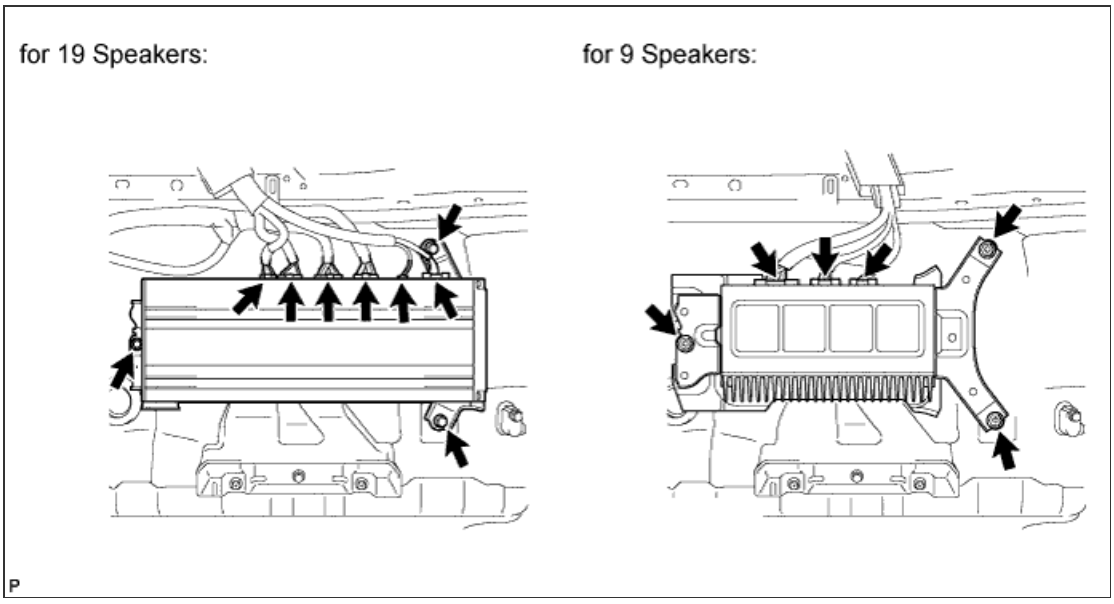

## 4. INSTALL STEREO COMPONENT AMPLIFIER ASSEMBLY WITH BRACKET

a. Install the amplifier with the 3 bolts.

**Torque:**
**7.5 N*m{ 76 kgf*cm , 66 in.*lbf }**

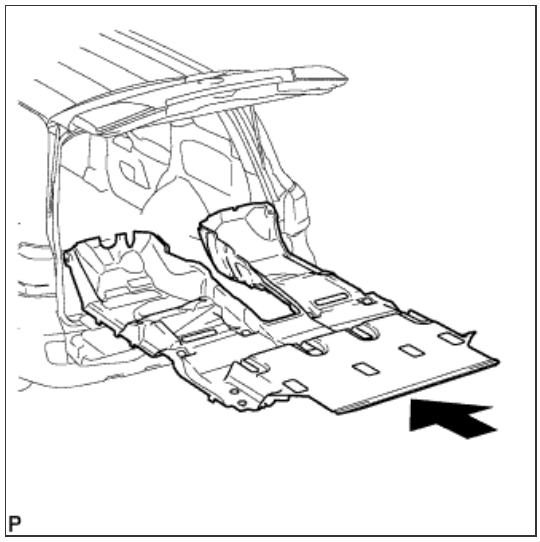
b. for 19 Speakers:
Connect the 6 connectors.

c. for 9 Speakers:
Connect the 3 connectors.

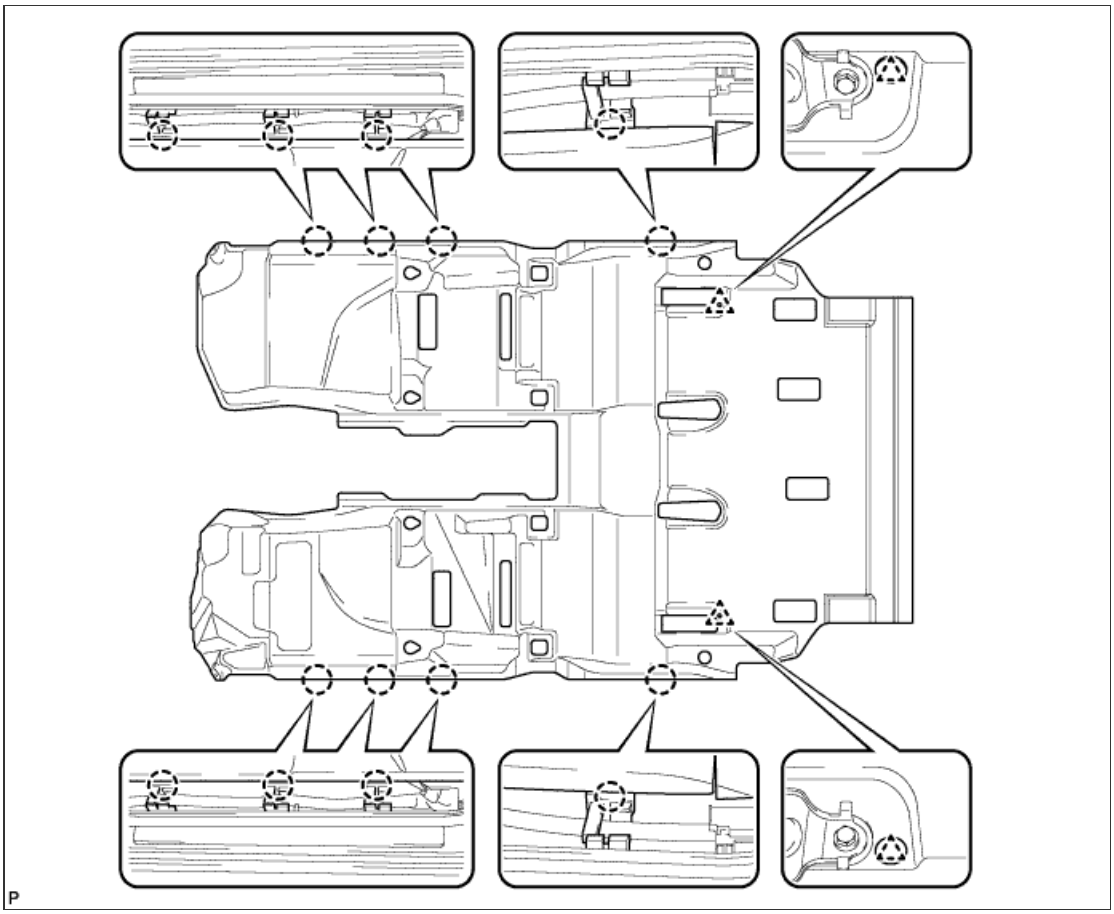



## 5. INSTALL FRONT FLOOR CARPET ASSEMBLY

a. Open the tail gate and back door, insert the carpet into the cabin from the rear, and install it to the floor.




b. Attach the 2 clips and 8 claws.




## 6. INSTALL REAR CONSOLE BOX SUB-ASSEMBLY (w/o Cool Box)

a. Install the rear console box (Click here).

## 7. INSTALL COOLING BOX ASSEMBLY (w/ Cool Box)

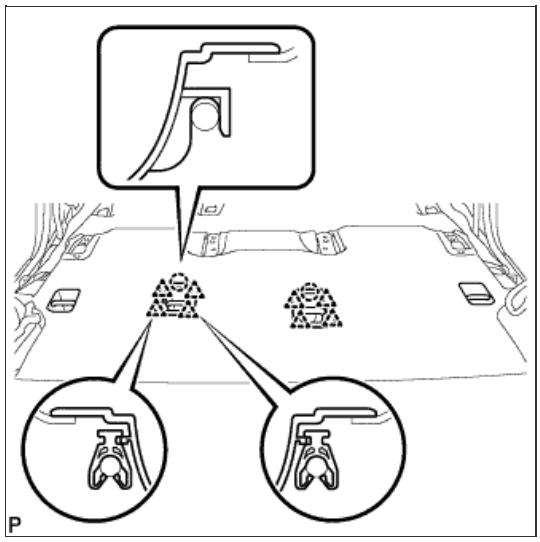
a. Install the cooling box (Click here).

### 8. INSTALL REAR NO. 2 SEAT PROTECTOR

a. Attach the 4 clips and claw to install the protector.

**HINT:**

Use the same procedures to install the protector on the other side.

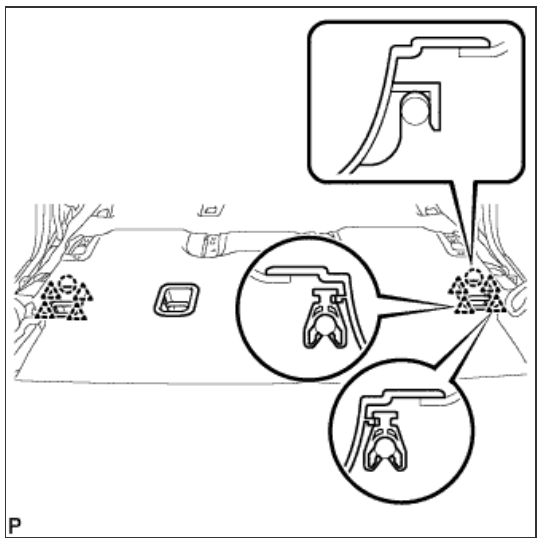



### 9. INSTALL REAR NO. 1 SEAT PROTECTOR

a. Attach the 4 clips and claw to install the protector.

**HINT:**

Use the same procedures to install the protector on the other side.



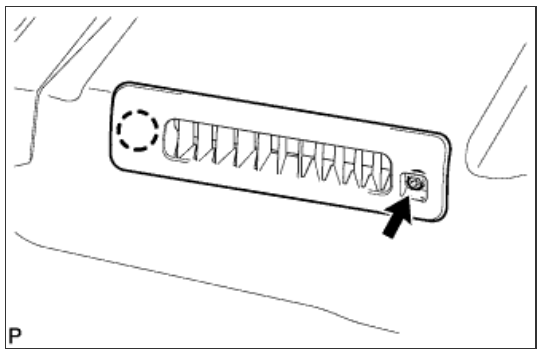

### 10. INSTALL REAR AIR DUCT GUIDE

**HINT:**

Use the same procedures for both sides.

a. Attach the claw to install the guide.

b. Install the screw.

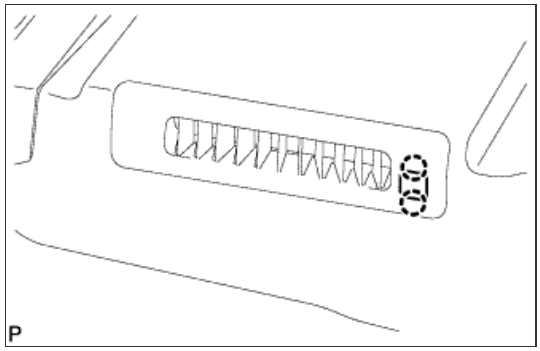


## 11. INSTALL AIR DUCT PLUG

a. Attach the 2 claws to install the plug.

**HINT:**

Use the same procedures for both sides.

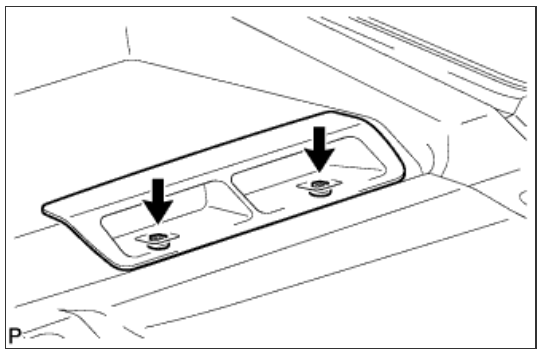



## 12. INSTALL AIR HEATER GUIDE

a. Install the guide with the 2 screws.

**HINT:**

Use the same procedures for both sides.

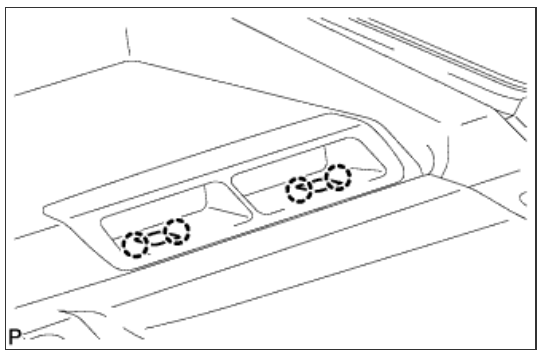



## 13. INSTALL NO. 2 AIR DUCT PLUG

a. Attach the 4 claws to install the 2 plugs.

**HINT:**

Use the same procedures for both sides.




## 14. INSTALL REAR DOOR SCUFF PLATE RH

**HINT:**

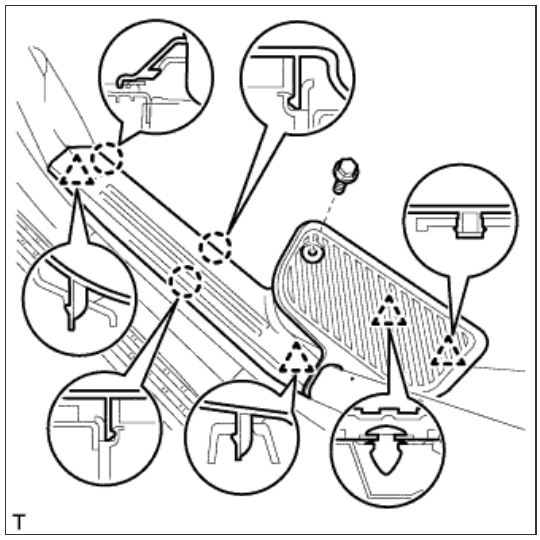
Use the same procedures described for the LH side.

## 15. INSTALL REAR DOOR SCUFF PLATE LH

a. w/o Illumination Type Front Door Scuff Plate:

i. Attach the 3 claws and 4 clips to install the scuff plate.

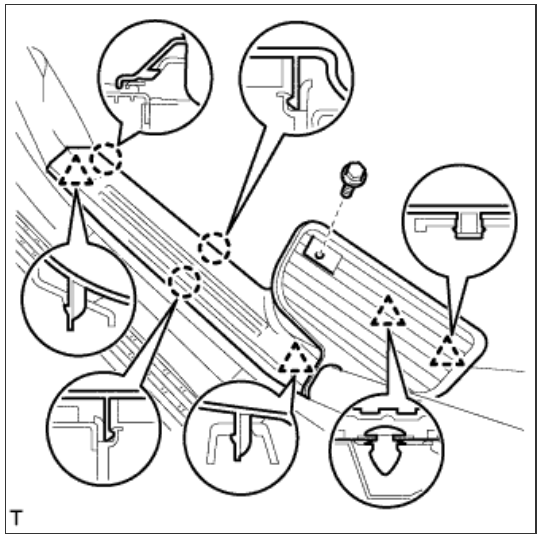
ii. Install the screw.




b. w/ Illumination Type Front Door Scuff Plate:

i. Attach the 3 claws and 4 clips to install the scuff plate.

ii. Install the screw.

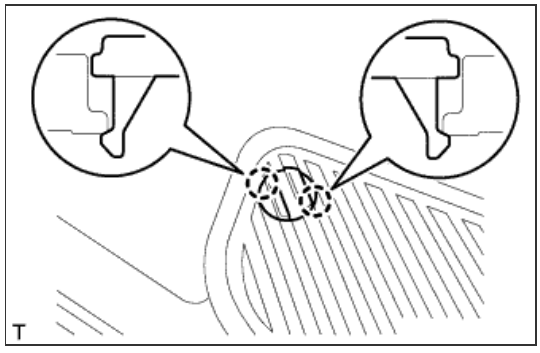



## 16. INSTALL REAR STEP COVER

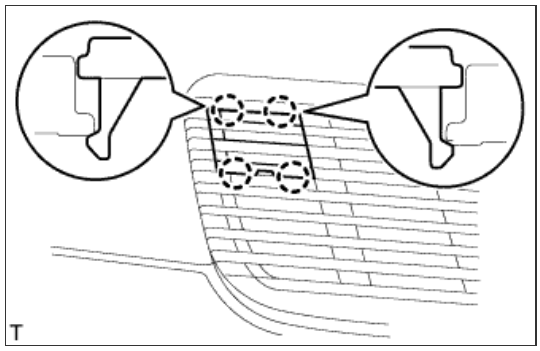
**HINT:**

Use the same procedure to install the step cover on the other side.

a. w/o Illumination Type Front Door Scuff Plate:
Attach the 2 claws to install the step cover.



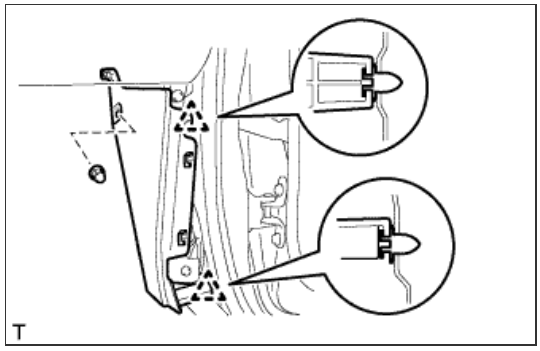

b. w/ Illumination Type Front Door Scuff Plate:
Attach the 4 claws to install the step cover.




## 17. INSTALL COWL SIDE TRIM BOARD RH

a. Attach the 2 clips to install the trim board.

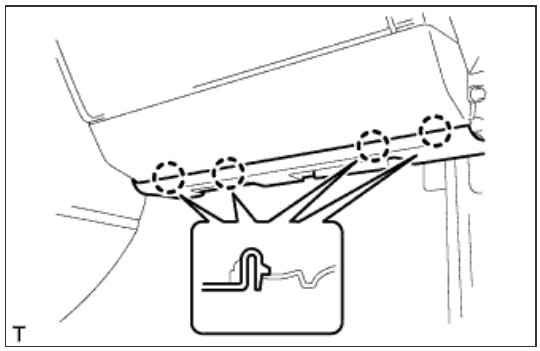
b. Install the cap nut.




## 18. INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Connect the connector.

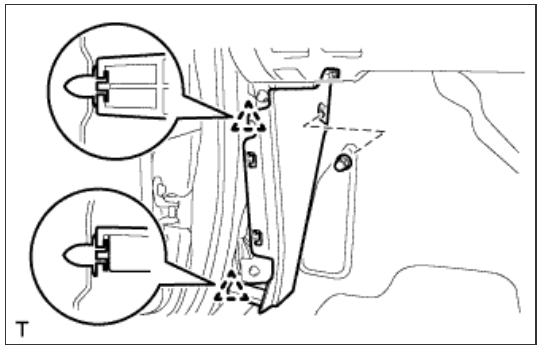
b. Attach the 4 claws to install the under cover.




## 19. INSTALL COWL SIDE TRIM BOARD LH

a. Attach the 2 clips to install the trim board.

b. Install the cap nut.

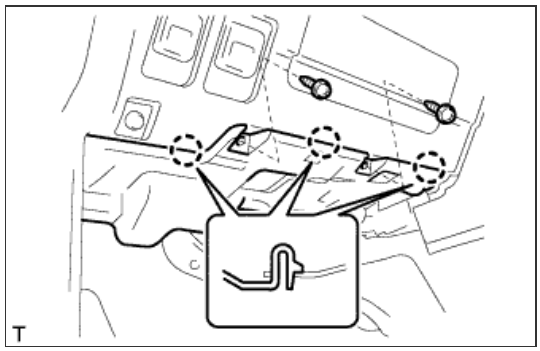



## 20. INSTALL NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Connect the connectors.

b. Attach the 3 claws to install the under cover.

c. Install the 2 screws.




## 21. INSTALL FRONT DOOR SCUFF PLATE RH

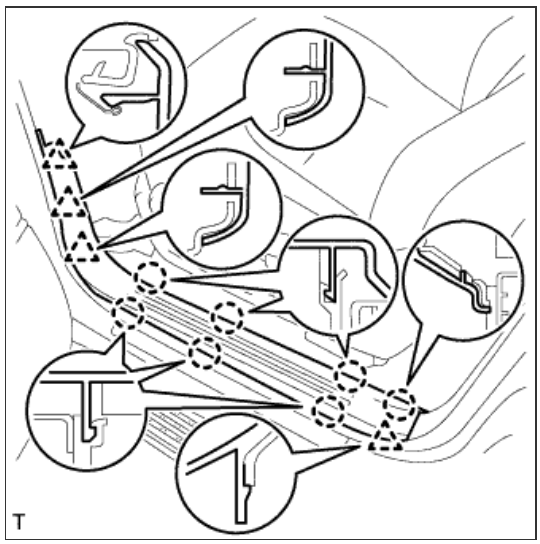
**HINT:**

Use the same procedures described for the LH side.

## 22. INSTALL FRONT DOOR SCUFF PLATE LH

a. w/o Illumination:

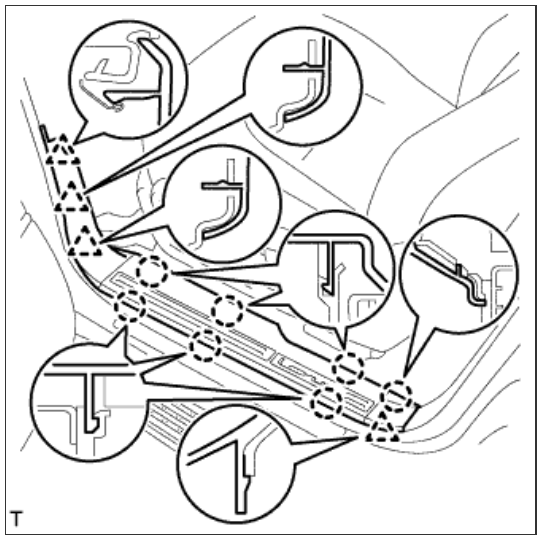
i. Attach the 7 claws and 4 clips to install the scuff plate.




b. w/ Illumination:

i. Connect the connector.

ii. Attach the 7 claws and 4 clips to install the scuff plate.




## 23. INSTALL INSTRUMENT SIDE PANEL RH

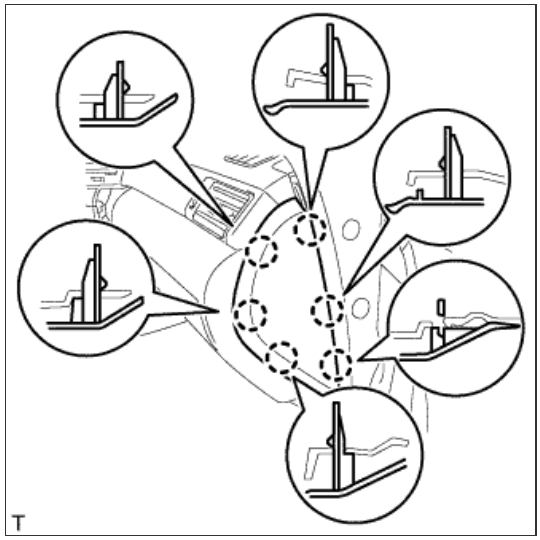
a. w/o Airbag Cut Off Switch:

i. Attach the 6 claws to install the side panel.

b. w/ Airbag Cut Off Switch:

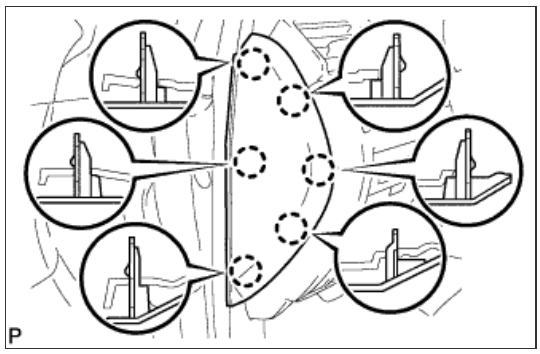
i. Connect the connector.

ii. Attach the 6 claws to install the side panel.




## 24. INSTALL INSTRUMENT SIDE PANEL LH

a. Attach the 6 claws to install the side panel.




## 25. INSTALL REAR NO. 1 SEAT ASSEMBLY RH

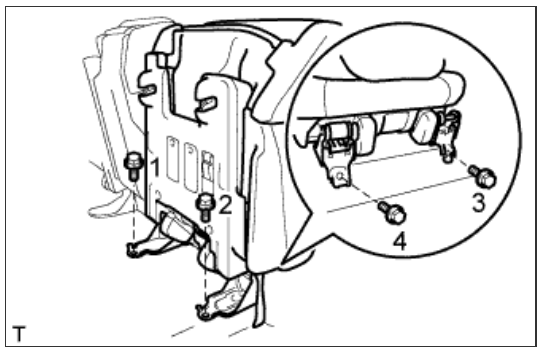
a. Temporarily install the seat assembly with the 4 bolts.

**NOTICE:**

Be careful not to damage the vehicle body.

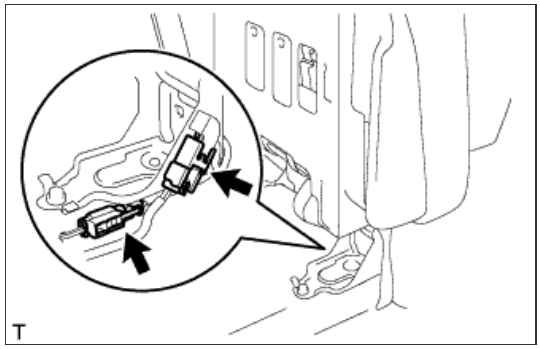
b. Tighten the bolts in the order shown in the illustration.

**Torque:**
**37 N*m{ 377 kgf*cm , 27 ft.*lbf }**



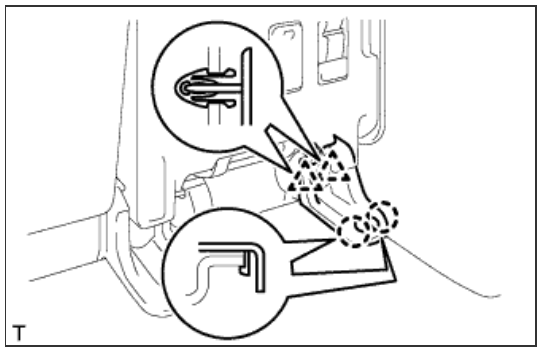

c. Connect the connector.

d. w/ Seat Heater System:
Connect the connector.



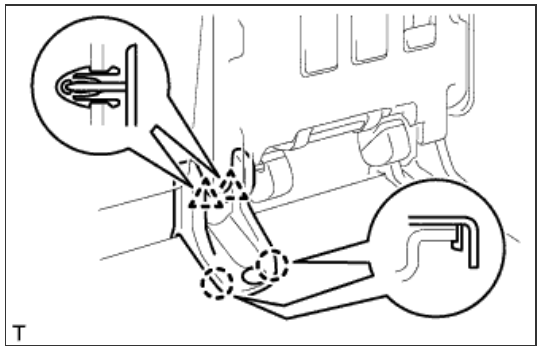
## 26. INSTALL REAR NO. 3 SEAT CUSHION HINGE COVER

a. Attach the 2 clips and 2 claws to install the cover.




## 27. INSTALL REAR NO. 1 SEAT CUSHION HINGE COVER

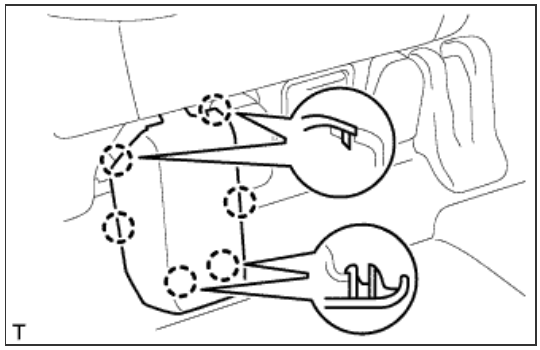
a. Attach the 2 clips and 2 claws to install the cover.




## 28. INSTALL REAR NO. 4 SEAT CUSHION HINGE COVER

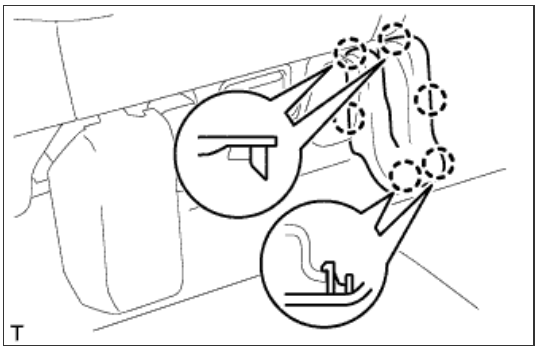
a. Return the seat to the upright position.

b. Attach the 6 claws to install the cover.




## 29. INSTALL REAR NO. 2 SEAT CUSHION HINGE COVER

a. Attach the 6 claws to install the cover.




## 30. INSTALL REAR NO. 1 SEAT ASSEMBLY LH

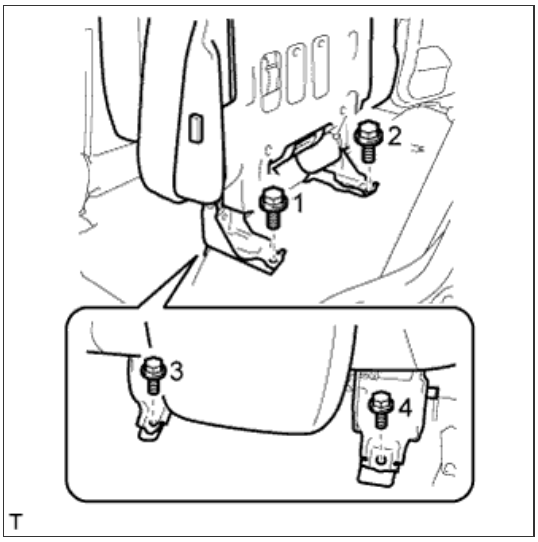
a. Temporarily install the seat assembly with the 4 bolts.

**NOTICE:**

Be careful not to damage the vehicle body.

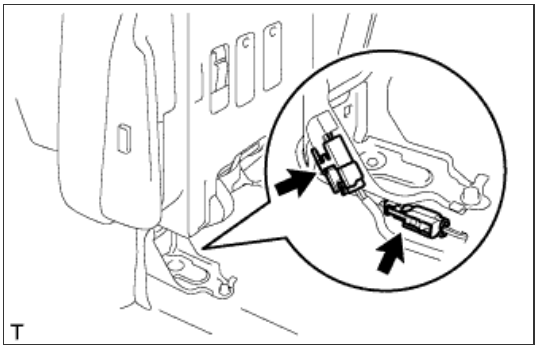
b. Tighten the bolts in the order shown in the illustration.

**Torque:**
**37 N*m{ 377 kgf*cm , 27 ft.*lbf }**



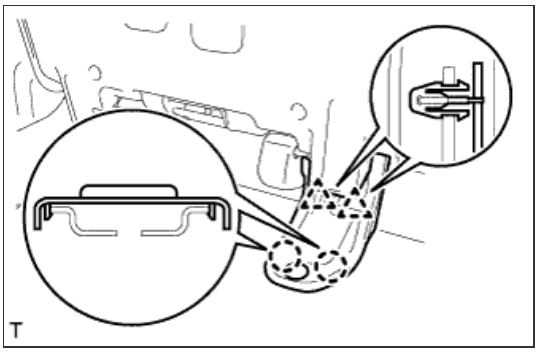

c. Connect the connector.

d. w/ Seat Heater System:
Connect the connector.



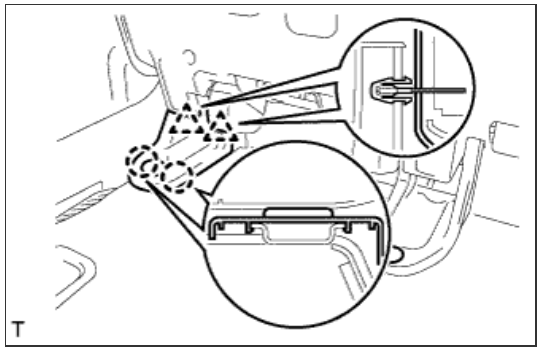

## 31. INSTALL REAR NO. 4 SEAT CUSHION HINGE COVER

a. Attach the 2 clips and 2 claws to install the cover.




## 32. INSTALL REAR NO. 2 SEAT CUSHION HINGE COVER

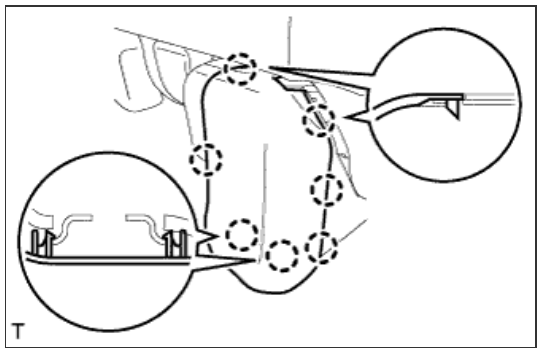
a. Attach the 2 clips and 2 claws to install the cover.




### 33. INSTALL REAR NO. 5 SEAT CUSHION HINGE COVER

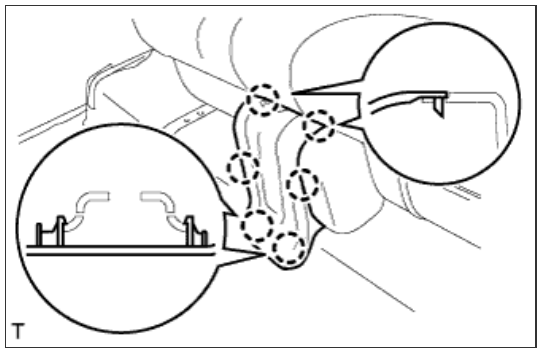
a. Return the seat to the upright position.

b. Attach the 7 claws to install the cover.




### 34. INSTALL REAR NO. 3 SEAT CUSHION HINGE COVER

a. Attach the 6 claws to install the cover.




### 35. INSTALL FRONT SEAT ASSEMBLY RH

a. Install the front seat assembly RH ( Click here).

### 36. INSTALL FRONT SEAT ASSEMBLY LH

a. Install the front seat assembly LH ( Click here).

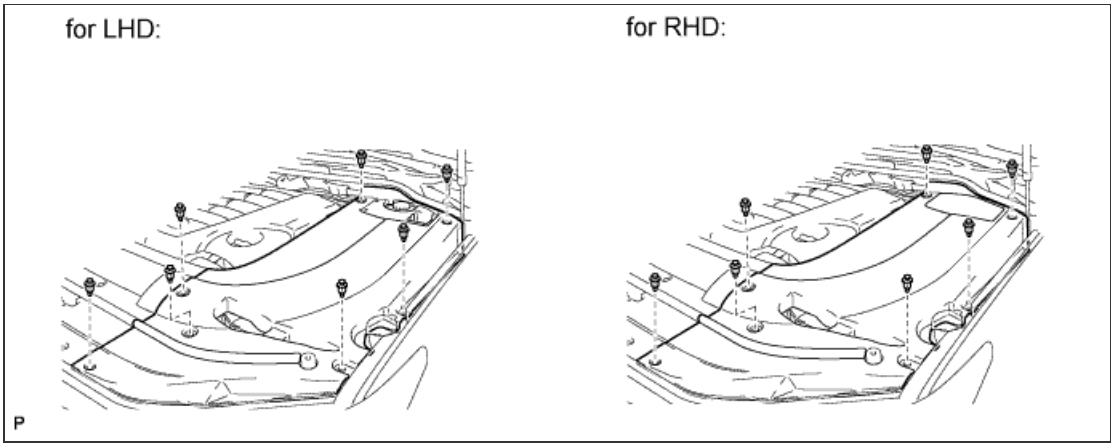
### 37. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 38. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover with the 7 clips.



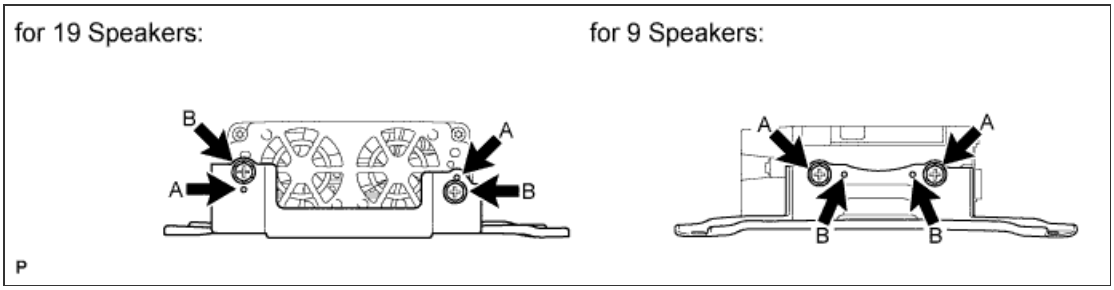

## 39. CHECK SRS WARNING LIGHT

a. Check the SRS warning light (Click here).

**for Preparation** Click here

## 1. INSTALL NO. 2 AMPLIFIER BRACKET

a. Set the aligning protrusions of the bracket, labeled A, into the holes of the amplifier.

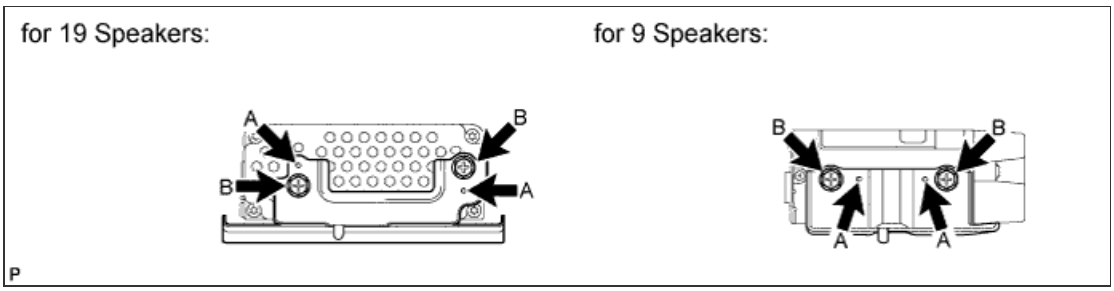



b. Install the bracket with the 2 screws labeled B.

**Torque:**
**3.0 N*m{ 30 kgf*cm , 26 in.*lbf }**

## 2. INSTALL NO. 1 AMPLIFIER BRACKET

a. Set the aligning protrusions of the bracket, labeled A, into the holes of the amplifier.

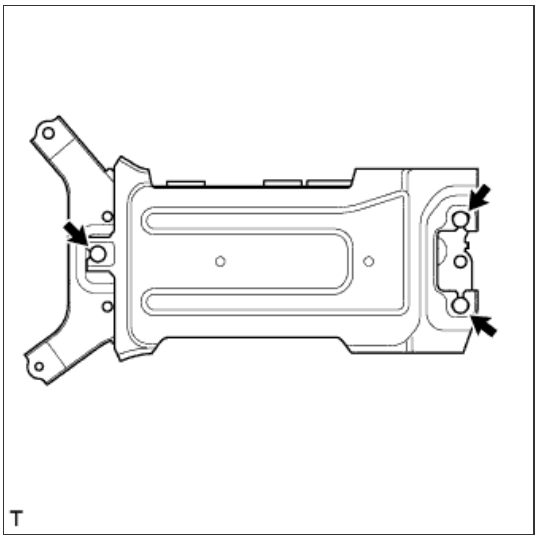



b. Install the bracket with the 2 screws labeled B.

**Torque:**
**3.0 N*m{ 30 kgf*cm , 26 in.*lbf }**

## 3. INSTALL AMPLIFIER COVER (for 9 Speakers)

a. Attach the 3 clips to install the cover.



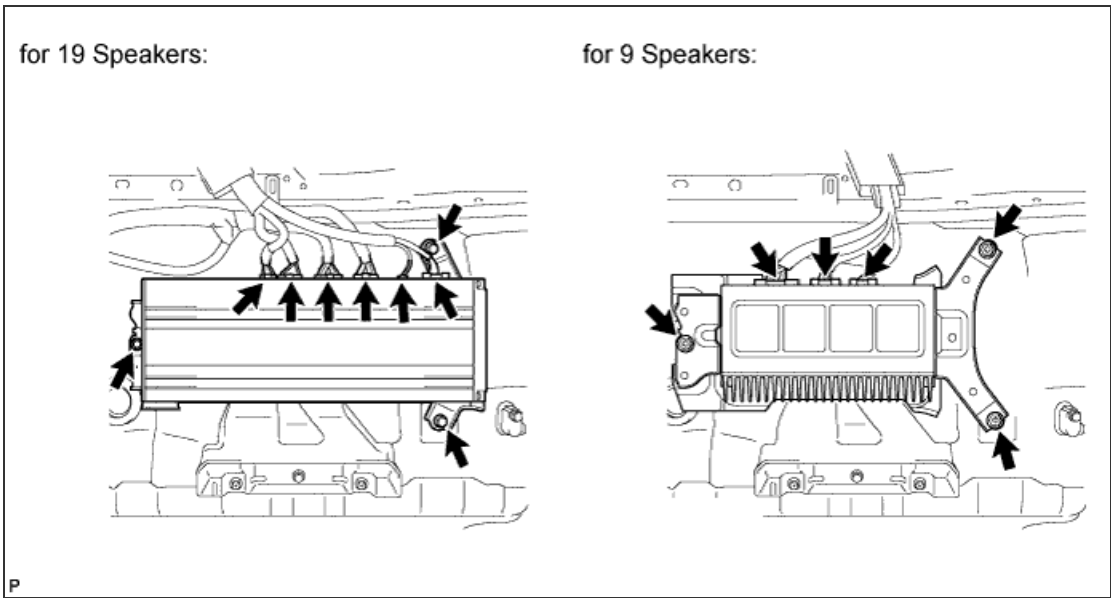

## 4. INSTALL STEREO COMPONENT AMPLIFIER ASSEMBLY WITH BRACKET

a. Install the amplifier with the 3 bolts.

**Torque:**
**7.5 N*m{ 76 kgf*cm , 66 in.*lbf }**

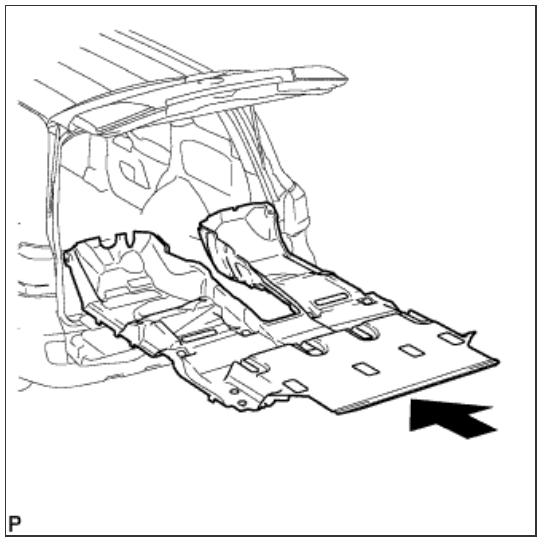
b. for 19 Speakers:
Connect the 6 connectors.

c. for 9 Speakers:
Connect the 3 connectors.

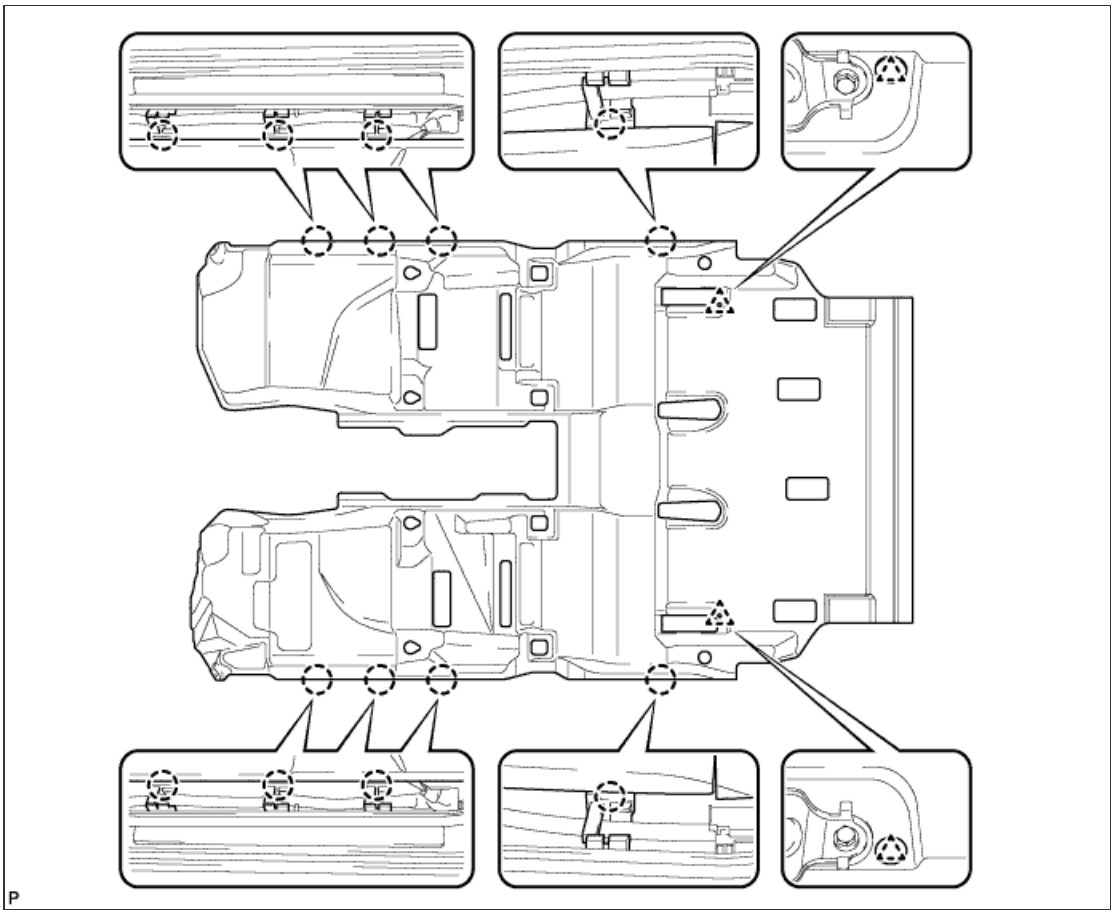



## 5. INSTALL FRONT FLOOR CARPET ASSEMBLY

a. Open the tail gate and back door, insert the carpet into the cabin from the rear, and install it to the floor.




b. Attach the 2 clips and 8 claws.




## 6. INSTALL REAR CONSOLE BOX SUB-ASSEMBLY (w/o Cool Box)

a. Install the rear console box (Click here).

## 7. INSTALL COOLING BOX ASSEMBLY (w/ Cool Box)

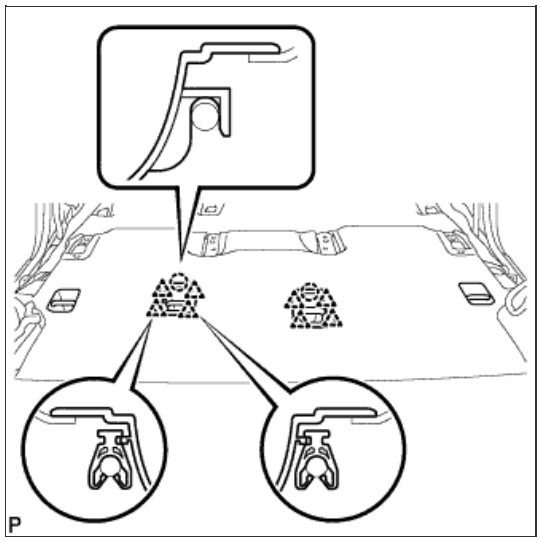
a. Install the cooling box (Click here).

### 8. INSTALL REAR NO. 2 SEAT PROTECTOR

a. Attach the 4 clips and claw to install the protector.

**HINT:**

Use the same procedures to install the protector on the other side.

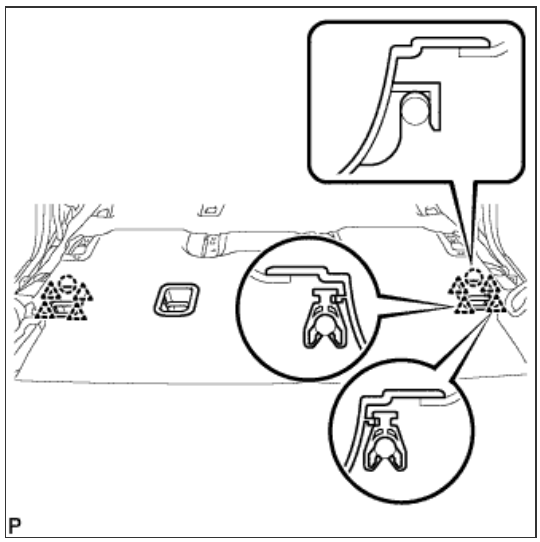



### 9. INSTALL REAR NO. 1 SEAT PROTECTOR

a. Attach the 4 clips and claw to install the protector.

**HINT:**

Use the same procedures to install the protector on the other side.



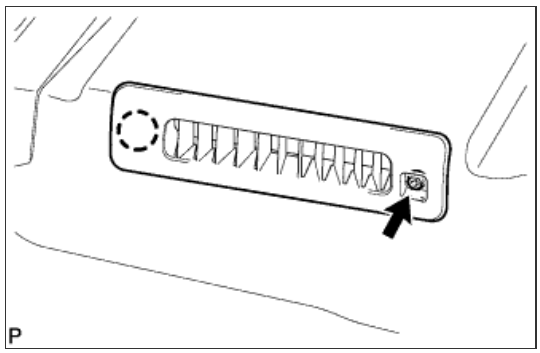

### 10. INSTALL REAR AIR DUCT GUIDE

**HINT:**

Use the same procedures for both sides.

a. Attach the claw to install the guide.

b. Install the screw.

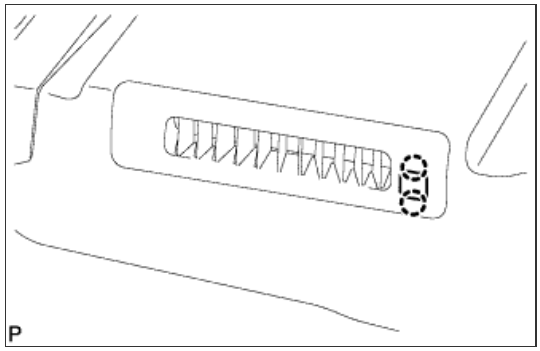


## 11. INSTALL AIR DUCT PLUG

a. Attach the 2 claws to install the plug.

**HINT:**

Use the same procedures for both sides.

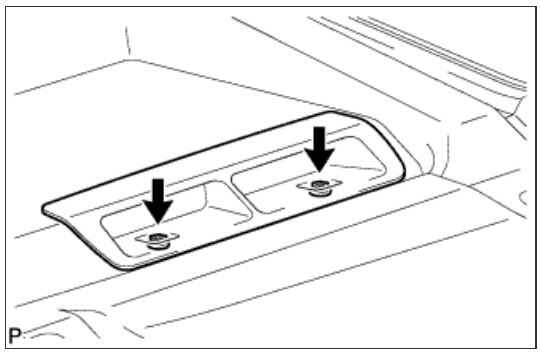



## 12. INSTALL AIR HEATER GUIDE

a. Install the guide with the 2 screws.

**HINT:**

Use the same procedures for both sides.

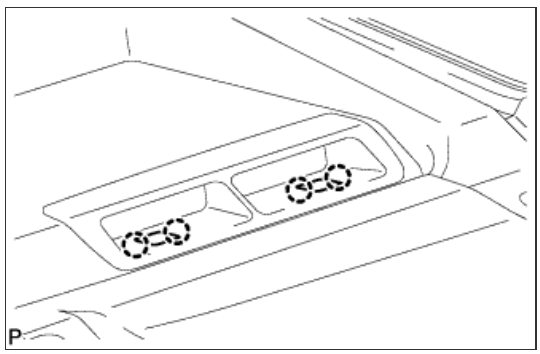



## 13. INSTALL NO. 2 AIR DUCT PLUG

a. Attach the 4 claws to install the 2 plugs.

**HINT:**

Use the same procedures for both sides.




## 14. INSTALL REAR DOOR SCUFF PLATE RH

**HINT:**

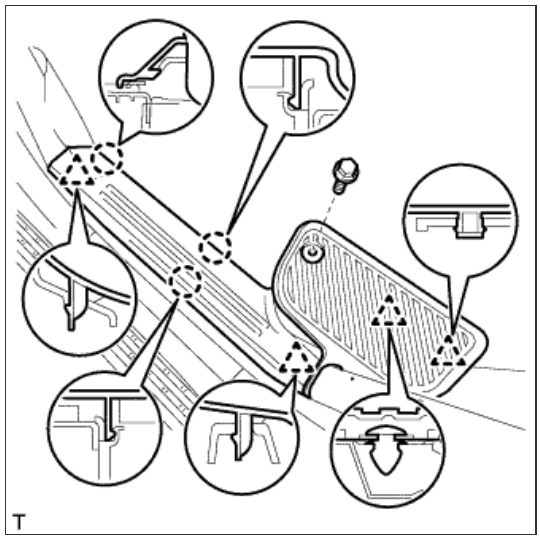
Use the same procedures described for the LH side.

## 15. INSTALL REAR DOOR SCUFF PLATE LH

a. w/o Illumination Type Front Door Scuff Plate:

i. Attach the 3 claws and 4 clips to install the scuff plate.

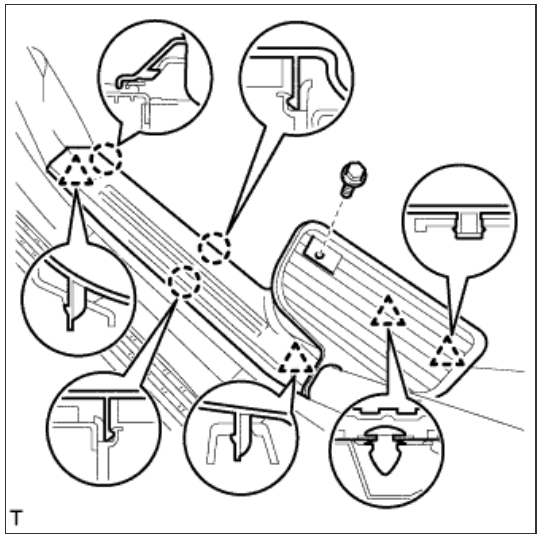
ii. Install the screw.




b. w/ Illumination Type Front Door Scuff Plate:

i. Attach the 3 claws and 4 clips to install the scuff plate.

ii. Install the screw.

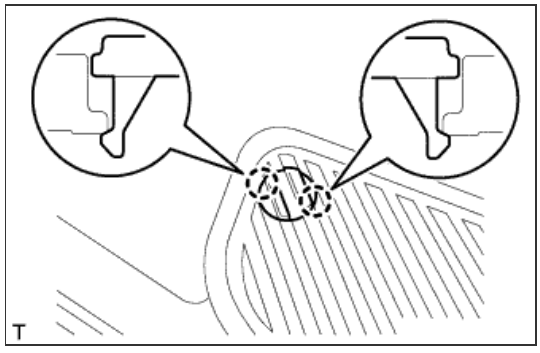



## 16. INSTALL REAR STEP COVER

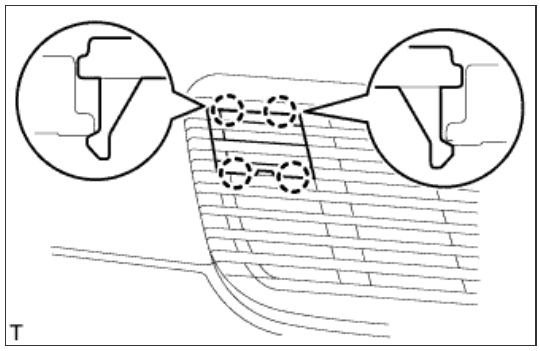
**HINT:**

Use the same procedure to install the step cover on the other side.

a. w/o Illumination Type Front Door Scuff Plate:
Attach the 2 claws to install the step cover.



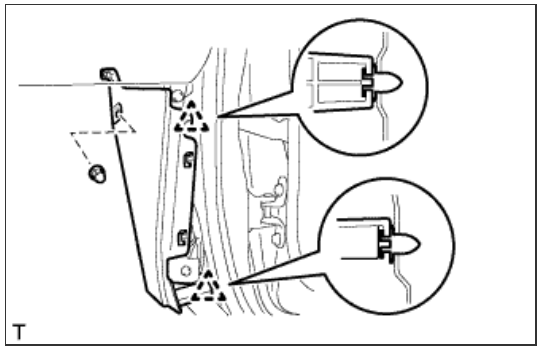

b. w/ Illumination Type Front Door Scuff Plate:
Attach the 4 claws to install the step cover.




## 17. INSTALL COWL SIDE TRIM BOARD RH

a. Attach the 2 clips to install the trim board.

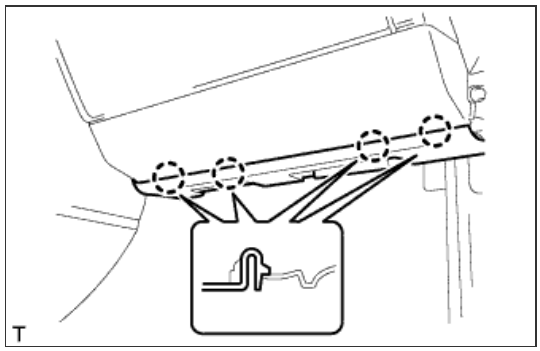
b. Install the cap nut.




## 18. INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Connect the connector.

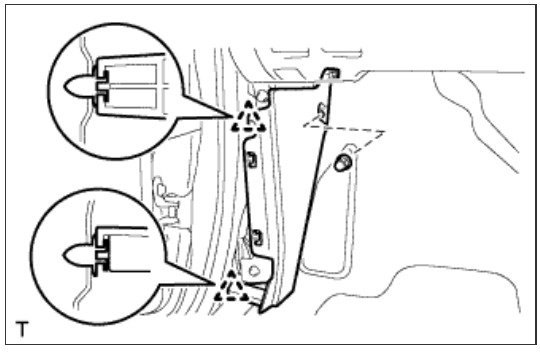
b. Attach the 4 claws to install the under cover.




## 19. INSTALL COWL SIDE TRIM BOARD LH

a. Attach the 2 clips to install the trim board.

b. Install the cap nut.

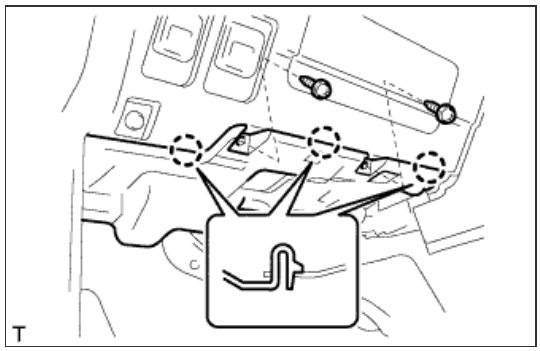



## 20. INSTALL NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Connect the connectors.

b. Attach the 3 claws to install the under cover.

c. Install the 2 screws.




## 21. INSTALL FRONT DOOR SCUFF PLATE RH

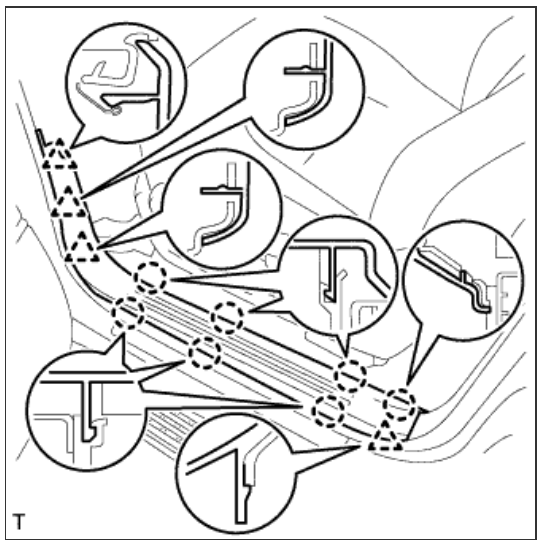
**HINT:**

Use the same procedures described for the LH side.

## 22. INSTALL FRONT DOOR SCUFF PLATE LH

a. w/o Illumination:

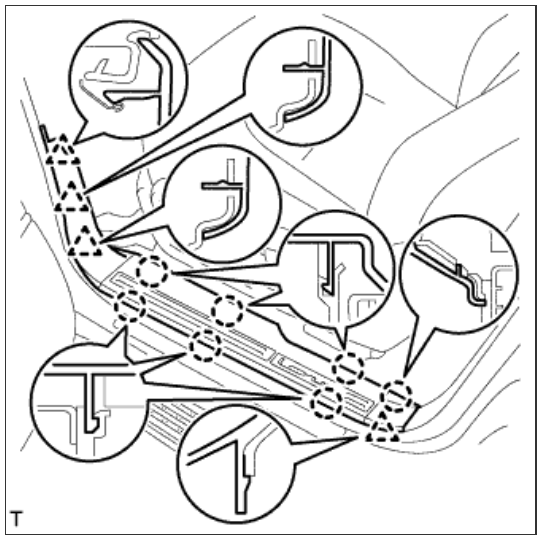
i. Attach the 7 claws and 4 clips to install the scuff plate.




b. w/ Illumination:

i. Connect the connector.

ii. Attach the 7 claws and 4 clips to install the scuff plate.




## 23. INSTALL INSTRUMENT SIDE PANEL RH

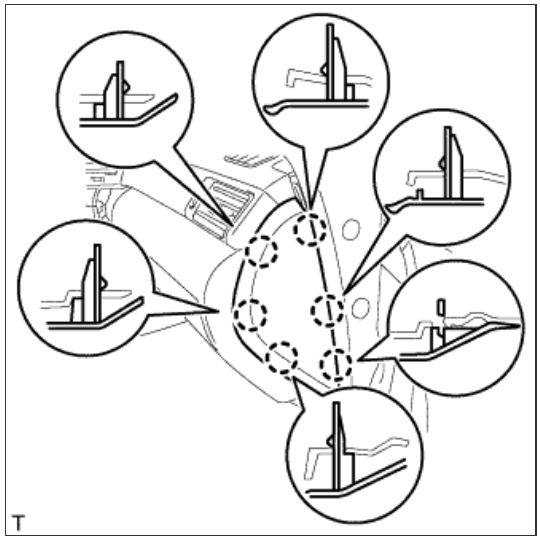
a. w/o Airbag Cut Off Switch:

i. Attach the 6 claws to install the side panel.

b. w/ Airbag Cut Off Switch:

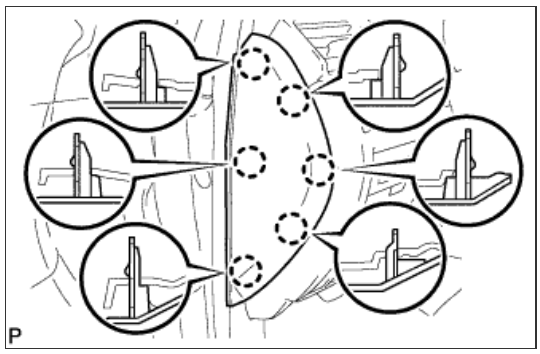
i. Connect the connector.

ii. Attach the 6 claws to install the side panel.




## 24. INSTALL INSTRUMENT SIDE PANEL LH

a. Attach the 6 claws to install the side panel.




## 25. INSTALL REAR NO. 1 SEAT ASSEMBLY RH

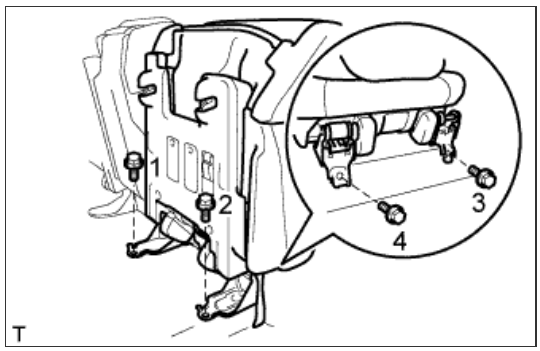
a. Temporarily install the seat assembly with the 4 bolts.

**NOTICE:**

Be careful not to damage the vehicle body.

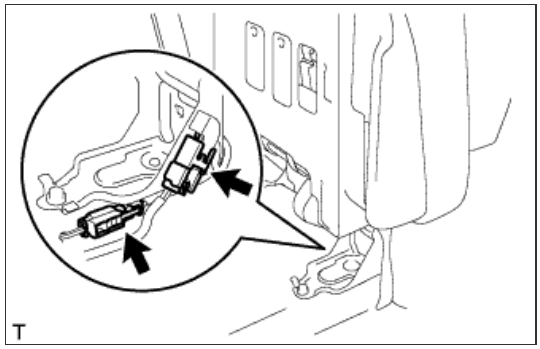
b. Tighten the bolts in the order shown in the illustration.

**Torque:**
**37 N*m{ 377 kgf*cm , 27 ft.*lbf }**



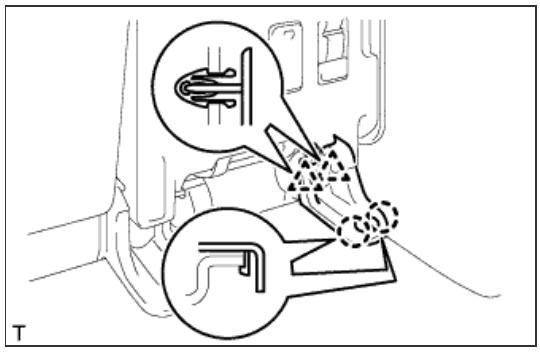

c. Connect the connector.

d. w/ Seat Heater System:
Connect the connector.



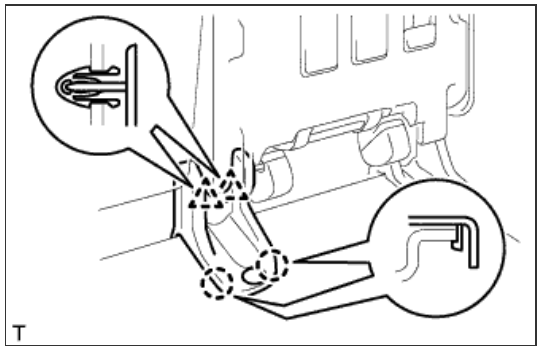
## 26. INSTALL REAR NO. 3 SEAT CUSHION HINGE COVER

a. Attach the 2 clips and 2 claws to install the cover.




## 27. INSTALL REAR NO. 1 SEAT CUSHION HINGE COVER

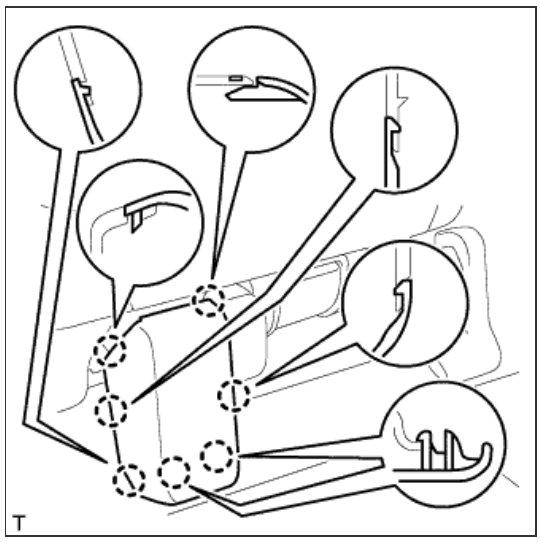
a. Attach the 2 clips and 2 claws to install the cover.




## 28. INSTALL REAR NO. 4 SEAT CUSHION HINGE COVER

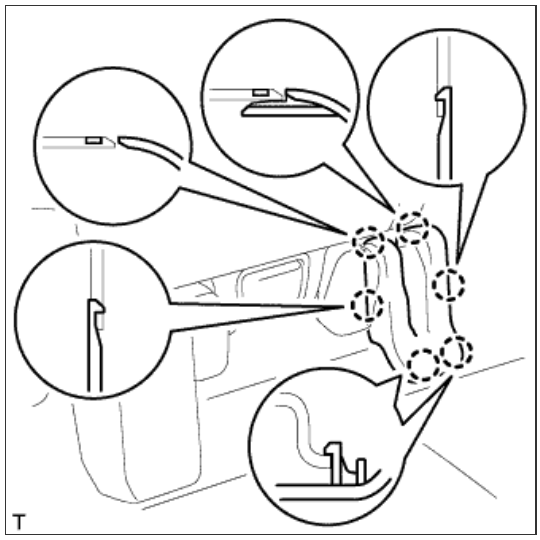
a. Return the seat to the upright position.

b. Attach the 7 claws to install the cover.




## 29. INSTALL REAR NO. 2 SEAT CUSHION HINGE COVER

a. Attach the 6 claws to install the cover.




## 30. INSTALL REAR NO. 1 SEAT ASSEMBLY LH

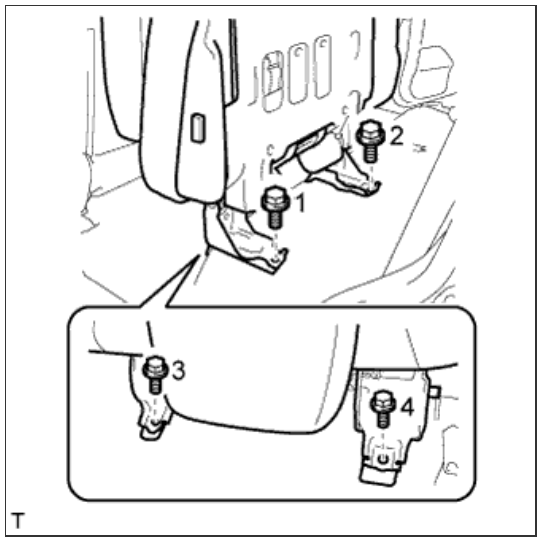
a. Temporarily install the seat assembly with the 4 bolts.

**NOTICE:**

Be careful not to damage the vehicle body.

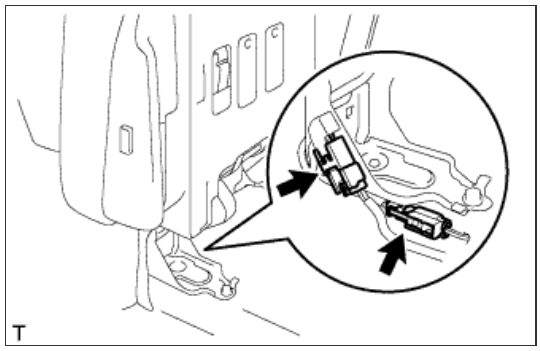
b. Tighten the bolts in the order shown in the illustration.

**Torque:**
**37 N*m{ 377 kgf*cm , 27 ft.*lbf }**



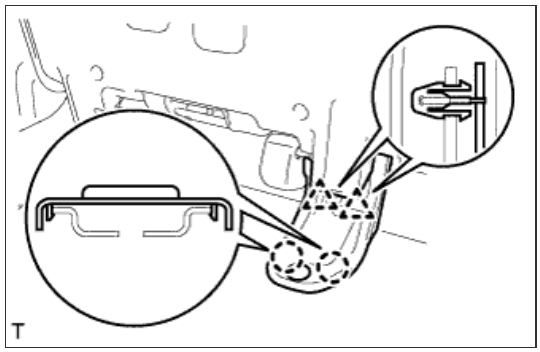

c. Connect the connector.

d. w/ Seat Heater System:
Connect the connector.



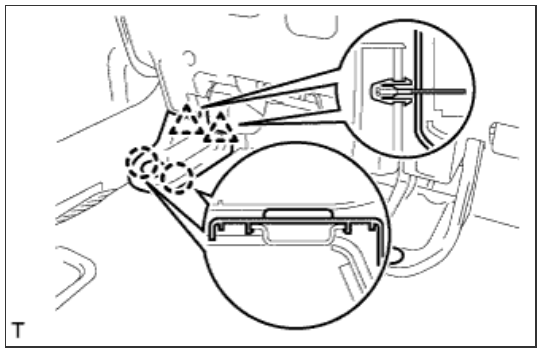

## 31. INSTALL REAR NO. 4 SEAT CUSHION HINGE COVER

a. Attach the 2 clips and 2 claws to install the cover.




### 32. INSTALL REAR NO. 2 SEAT CUSHION HINGE COVER

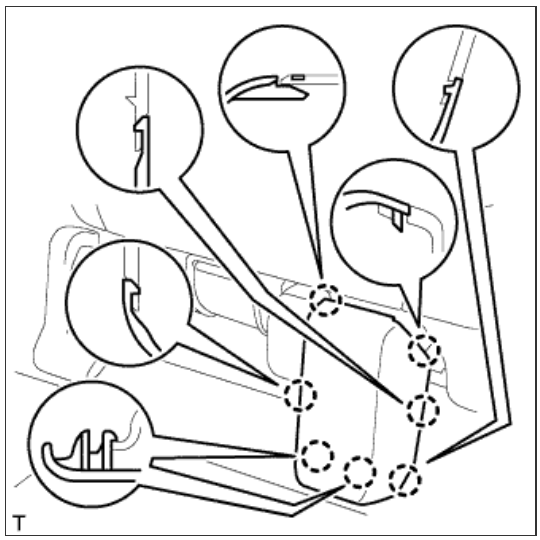
a. Attach the 2 clips and 2 claws to install the cover.




### 33. INSTALL REAR NO. 5 SEAT CUSHION HINGE COVER

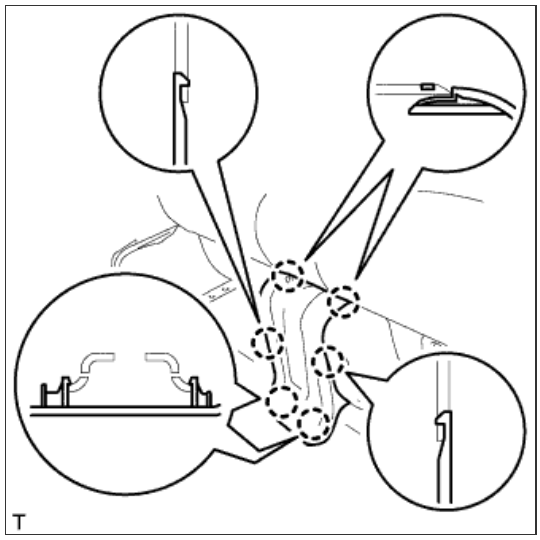
a. Return the seat to the upright position.

b. Attach the 7 claws to install the cover.




### 34. INSTALL REAR NO. 3 SEAT CUSHION HINGE COVER

a. Attach the 6 claws to install the cover.




### 35. INSTALL FRONT SEAT ASSEMBLY RH

a. Install the front seat assembly RH ( Click here).

### 36. INSTALL FRONT SEAT ASSEMBLY LH

a. Install the front seat assembly LH ( Click here).

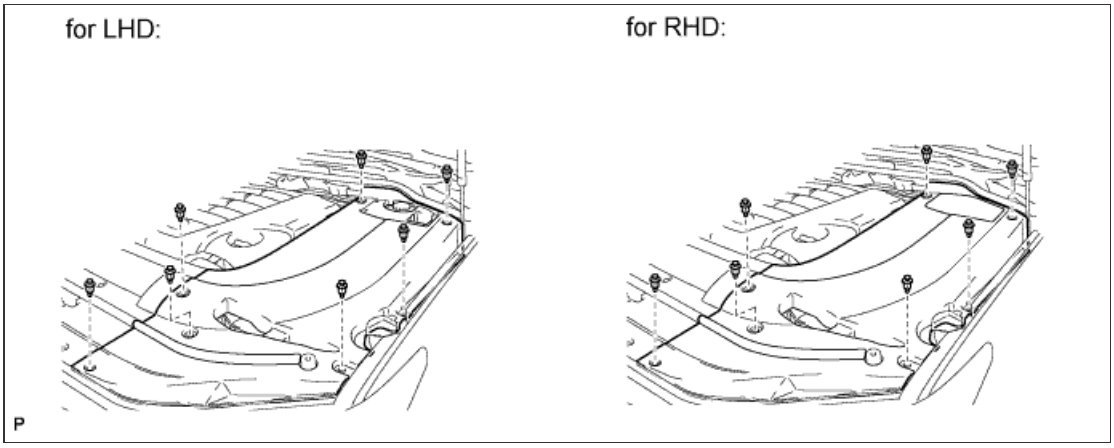
### 37. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

### 38. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover with the 7 clips.



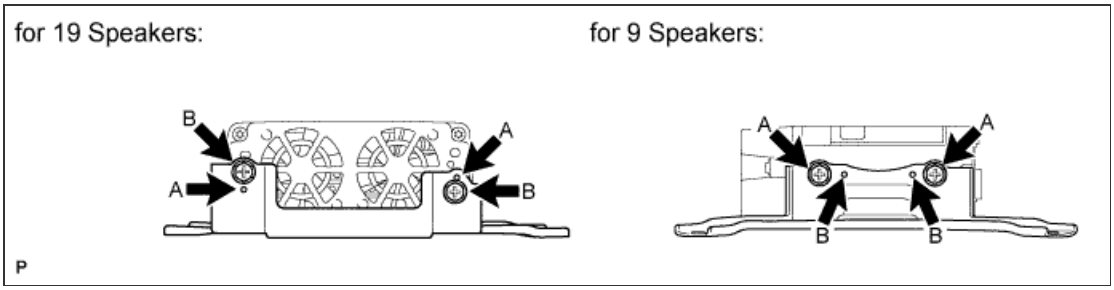

### 39. CHECK SRS WARNING LIGHT

a. Check the SRS warning light (Click here).

**for Preparation** Click here

## 1. INSTALL NO. 2 AMPLIFIER BRACKET

a. Set the aligning protrusions of the bracket, labeled A, into the holes of the amplifier.

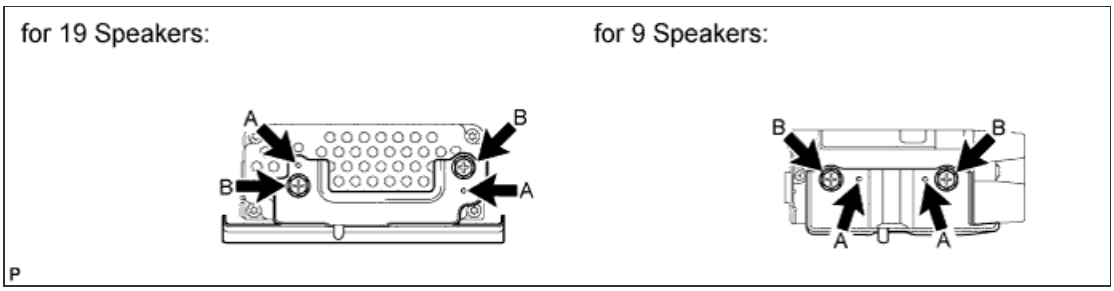



b. Install the bracket with the 2 screws labeled B.

**Torque:**
**3.0 N*m{ 30 kgf*cm , 26 in.*lbf }**

## 2. INSTALL NO. 1 AMPLIFIER BRACKET

a. Set the aligning protrusions of the bracket, labeled A, into the holes of the amplifier.

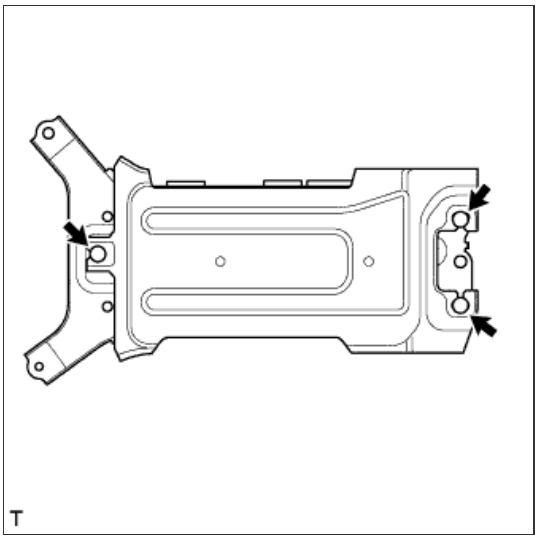



b. Install the bracket with the 2 screws labeled B.

**Torque:**
**3.0 N*m{ 30 kgf*cm , 26 in.*lbf }**

## 3. INSTALL AMPLIFIER COVER (for 9 Speakers)

a. Attach the 3 clips to install the cover.



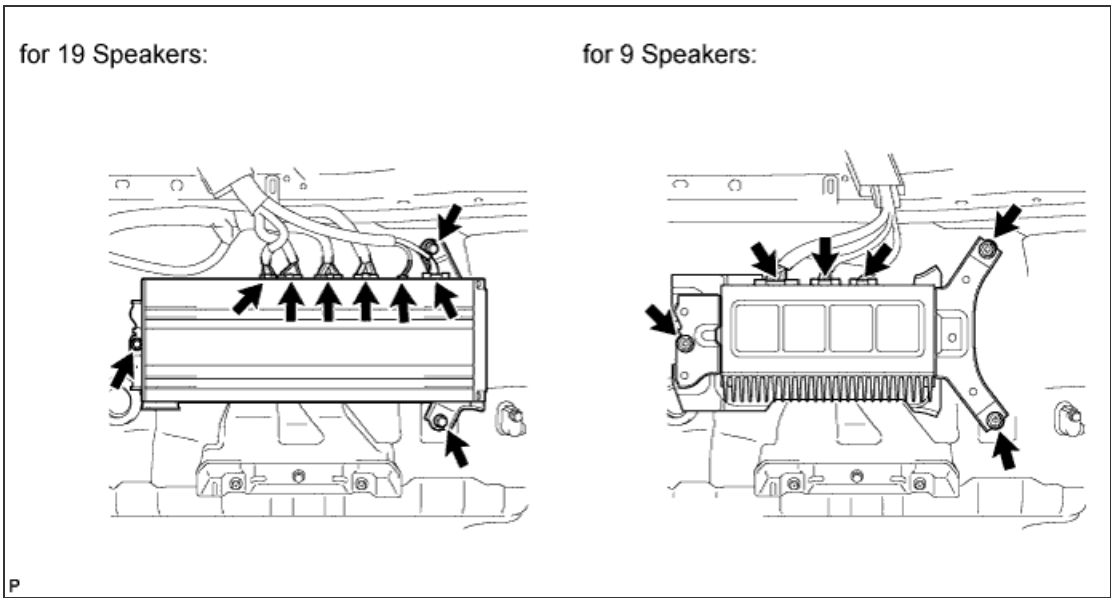

## 4. INSTALL STEREO COMPONENT AMPLIFIER ASSEMBLY WITH BRACKET

a. Install the amplifier with the 3 bolts.

**Torque:**
**7.5 N*m{ 76 kgf*cm , 66 in.*lbf }**

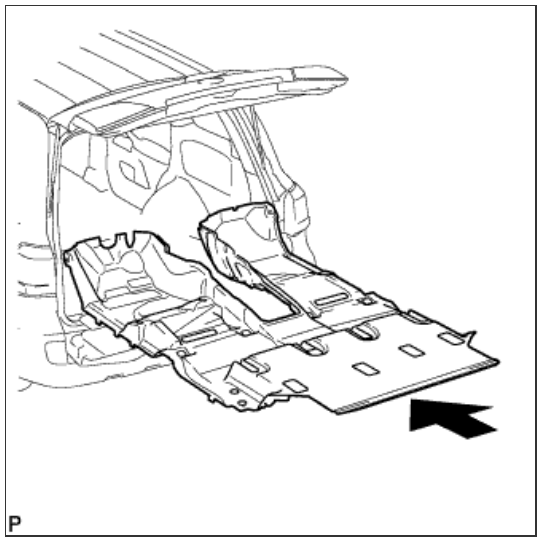
b. for 19 Speakers:
Connect the 6 connectors.

c. for 9 Speakers:
Connect the 3 connectors.

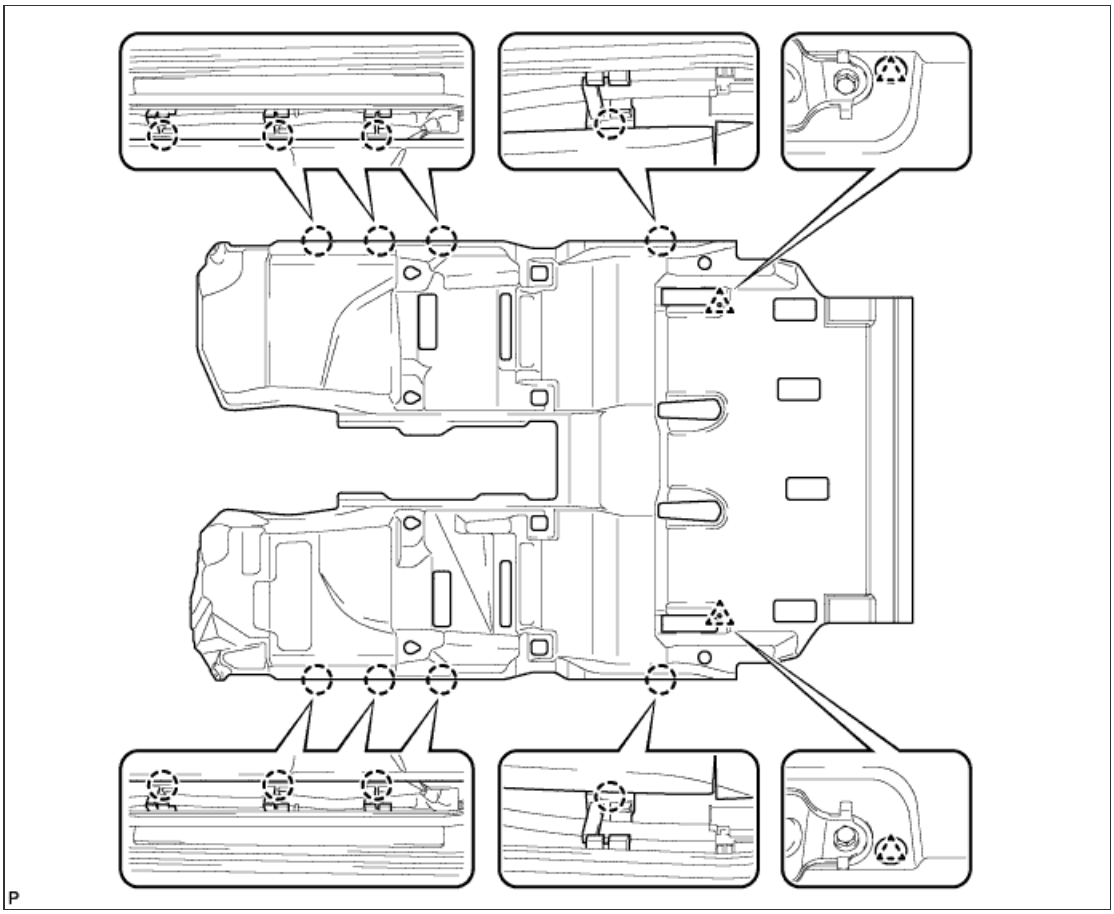



## 5. INSTALL FRONT FLOOR CARPET ASSEMBLY

a. Open the tail gate and back door, insert the carpet into the cabin from the rear, and install it to the floor.




b. Attach the 2 clips and 8 claws.




## 6. INSTALL REAR CONSOLE BOX SUB-ASSEMBLY (w/o Cool Box)

a. Install the rear console box (Click here).

## 7. INSTALL COOLING BOX ASSEMBLY (w/ Cool Box)

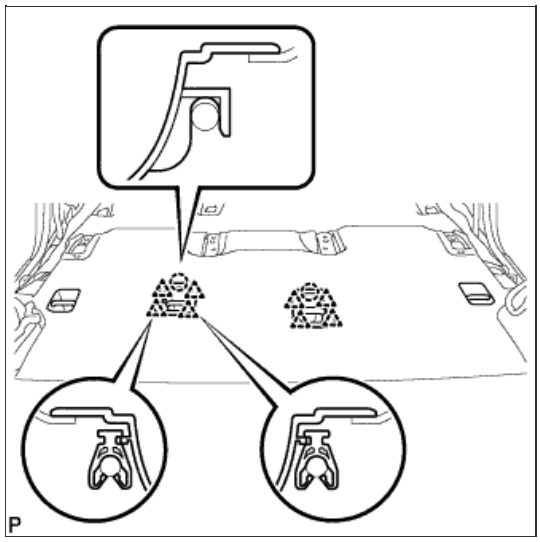
a. Install the cooling box (Click here).

### 8. INSTALL REAR NO. 2 SEAT PROTECTOR

a. Attach the 4 clips and claw to install the protector.

**HINT:**

Use the same procedures to install the protector on the other side.

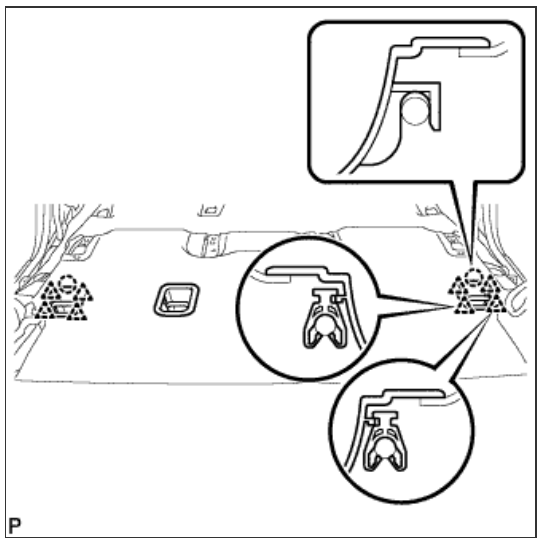



### 9. INSTALL REAR NO. 1 SEAT PROTECTOR

a. Attach the 4 clips and claw to install the protector.

**HINT:**

Use the same procedures to install the protector on the other side.



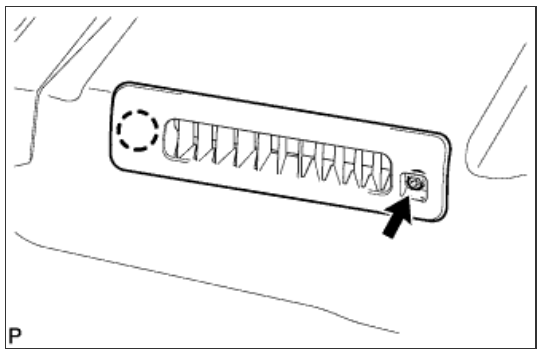

### 10. INSTALL REAR AIR DUCT GUIDE

**HINT:**

Use the same procedures for both sides.

a. Attach the claw to install the guide.

b. Install the screw.

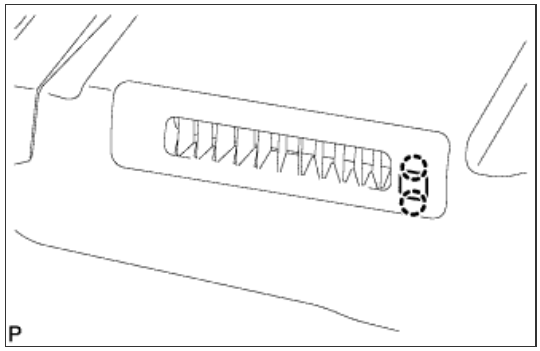


## 11. INSTALL AIR DUCT PLUG

a. Attach the 2 claws to install the plug.

**HINT:**

Use the same procedures for both sides.

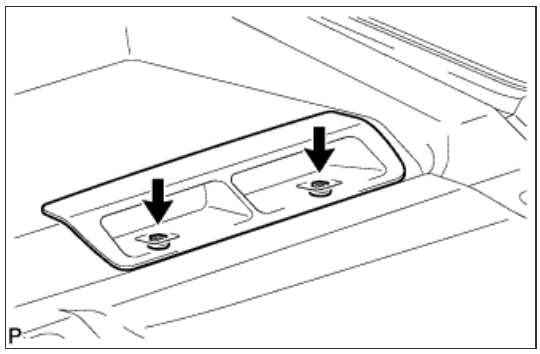



## 12. INSTALL AIR HEATER GUIDE

a. Install the guide with the 2 screws.

**HINT:**

Use the same procedures for both sides.

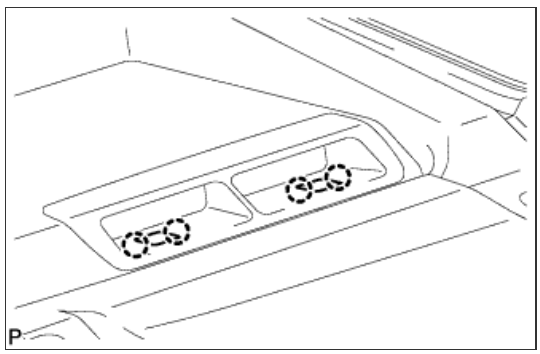



## 13. INSTALL NO. 2 AIR DUCT PLUG

a. Attach the 4 claws to install the 2 plugs.

**HINT:**

Use the same procedures for both sides.




## 14. INSTALL REAR DOOR SCUFF PLATE RH

**HINT:**

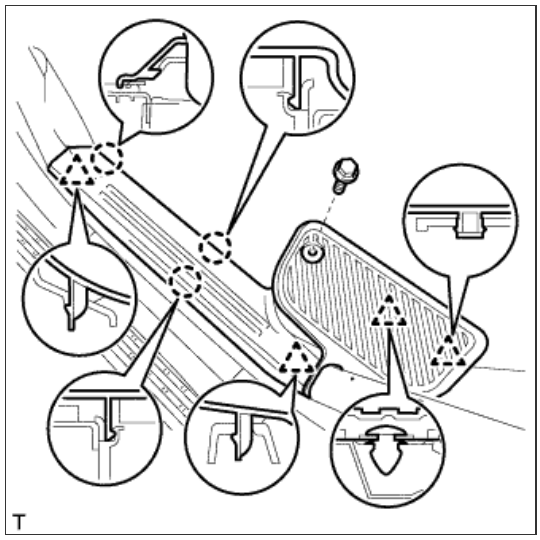
Use the same procedures described for the LH side.

## 15. INSTALL REAR DOOR SCUFF PLATE LH

a. w/o Illumination Type Front Door Scuff Plate:

i. Attach the 3 claws and 4 clips to install the scuff plate.

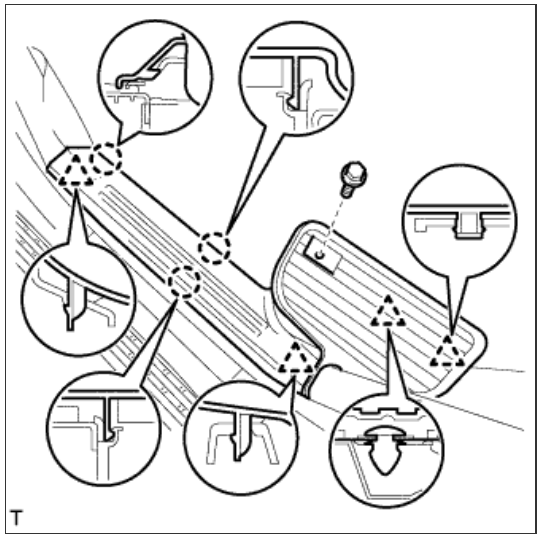
ii. Install the screw.




b. w/ Illumination Type Front Door Scuff Plate:

i. Attach the 3 claws and 4 clips to install the scuff plate.

ii. Install the screw.

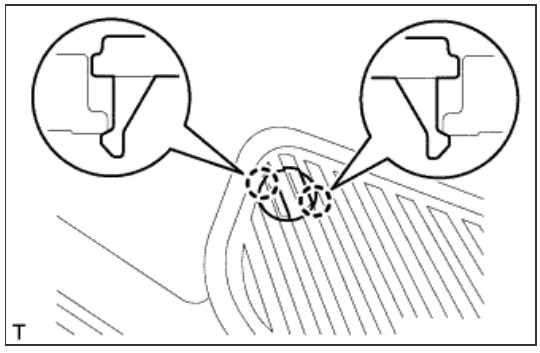



## 16. INSTALL REAR STEP COVER

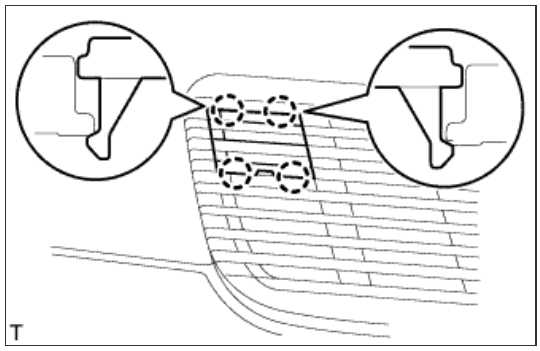
**HINT:**

Use the same procedure to install the step cover on the other side.

a. w/o Illumination Type Front Door Scuff Plate:
Attach the 2 claws to install the step cover.



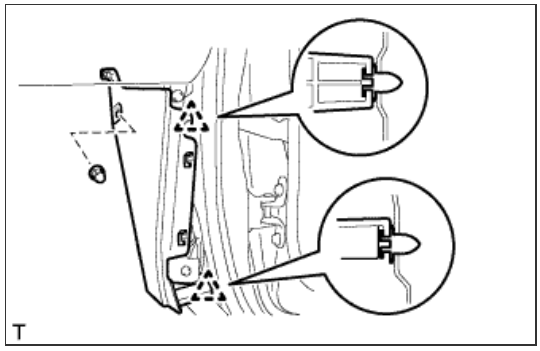

b. w/ Illumination Type Front Door Scuff Plate:
Attach the 4 claws to install the step cover.




## 17. INSTALL COWL SIDE TRIM BOARD RH

a. Attach the 2 clips to install the trim board.

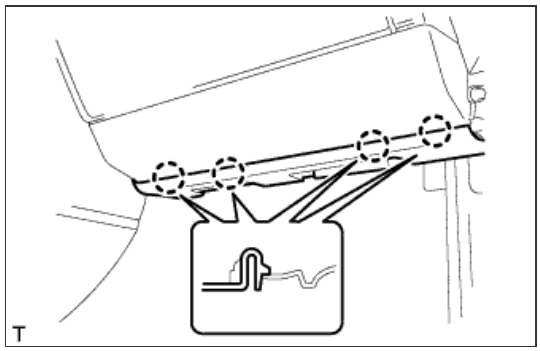
b. Install the cap nut.




## 18. INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Connect the connector.

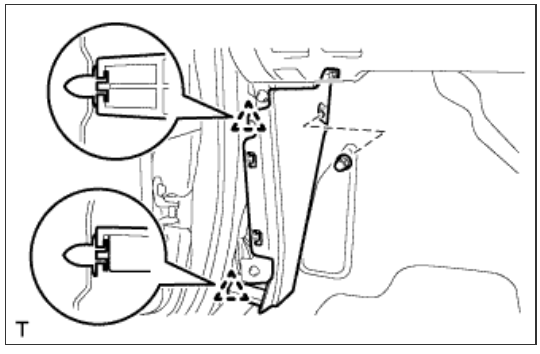
b. Attach the 4 claws to install the under cover.




## 19. INSTALL COWL SIDE TRIM BOARD LH

a. Attach the 2 clips to install the trim board.

b. Install the cap nut.

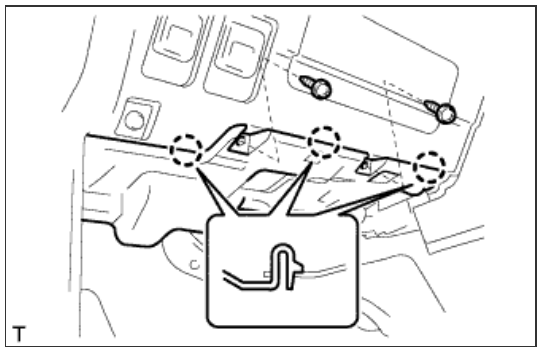



## 20. INSTALL NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Connect the connectors.

b. Attach the 3 claws to install the under cover.

c. Install the 2 screws.




## 21. INSTALL FRONT DOOR SCUFF PLATE RH

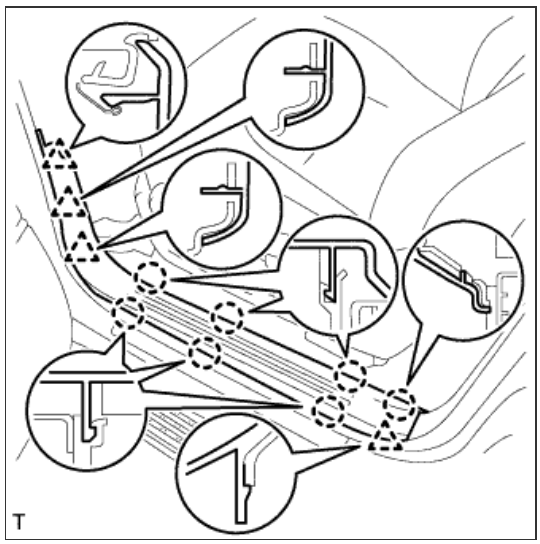
**HINT:**

Use the same procedures described for the LH side.

## 22. INSTALL FRONT DOOR SCUFF PLATE LH

a. w/o Illumination:

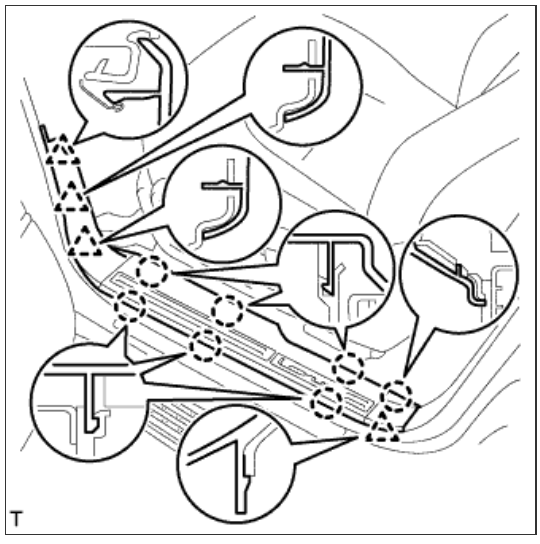
i. Attach the 7 claws and 4 clips to install the scuff plate.




b. w/ Illumination:

i. Connect the connector.

ii. Attach the 7 claws and 4 clips to install the scuff plate.




## 23. INSTALL INSTRUMENT SIDE PANEL RH

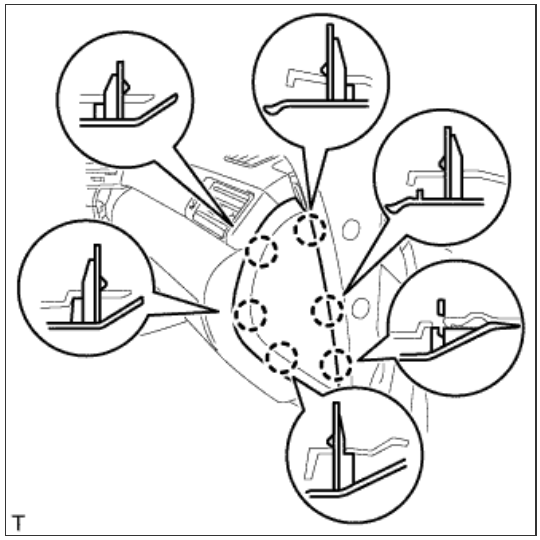
a. w/o Airbag Cut Off Switch:

i. Attach the 6 claws to install the side panel.

b. w/ Airbag Cut Off Switch:

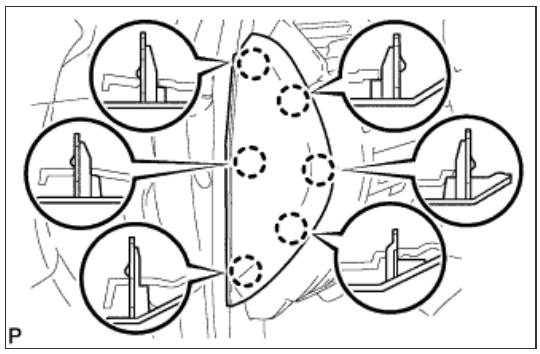
i. Connect the connector.

ii. Attach the 6 claws to install the side panel.




## 24. INSTALL INSTRUMENT SIDE PANEL LH

a. Attach the 6 claws to install the side panel.




## 25. INSTALL REAR NO. 1 SEAT ASSEMBLY RH

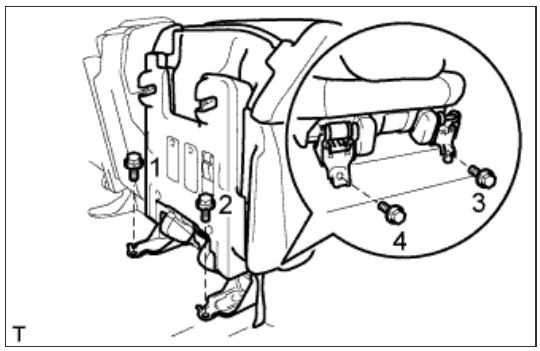
a. Temporarily install the seat assembly with the 4 bolts.

**NOTICE:**

Be careful not to damage the vehicle body.

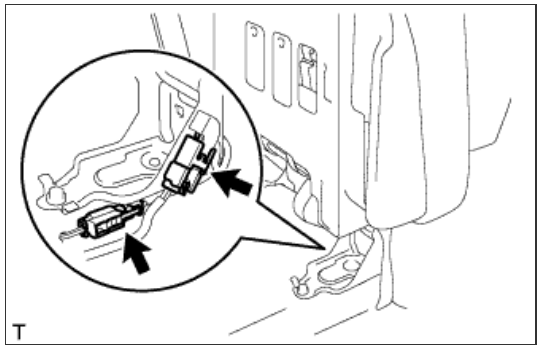
b. Tighten the bolts in the order shown in the illustration.

**Torque:**
**37 N*m{ 377 kgf*cm , 27 ft.*lbf }**



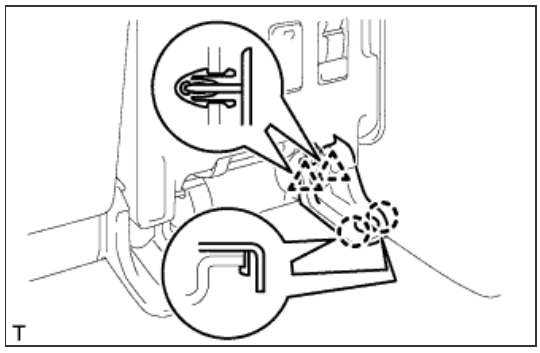

c. Connect the connector.

d. w/ Seat Heater System:
Connect the connector.



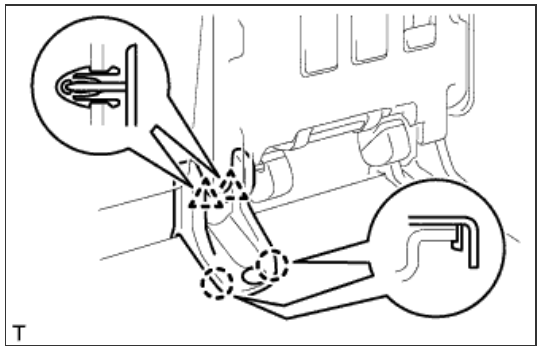
## 26. INSTALL REAR NO. 3 SEAT CUSHION HINGE COVER

a. Attach the 2 clips and 2 claws to install the cover.




## 27. INSTALL REAR NO. 1 SEAT CUSHION HINGE COVER

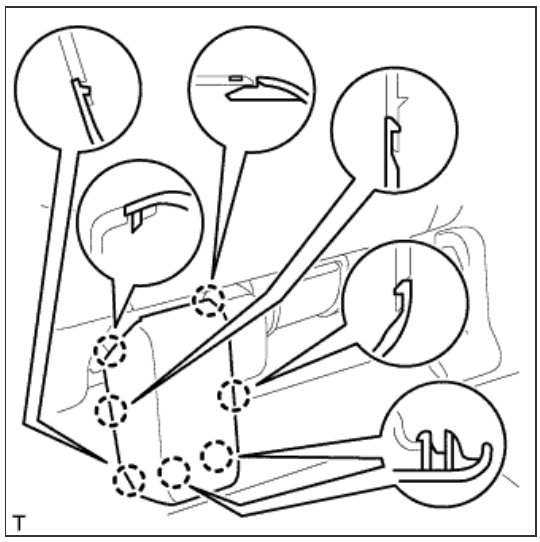
a. Attach the 2 clips and 2 claws to install the cover.




## 28. INSTALL REAR NO. 4 SEAT CUSHION HINGE COVER

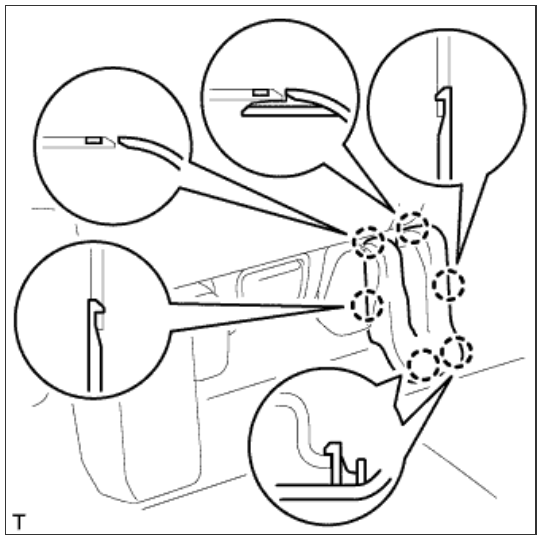
a. Return the seat to the upright position.

b. Attach the 7 claws to install the cover.




## 29. INSTALL REAR NO. 2 SEAT CUSHION HINGE COVER

a. Attach the 6 claws to install the cover.




## 30. INSTALL REAR NO. 1 SEAT ASSEMBLY LH

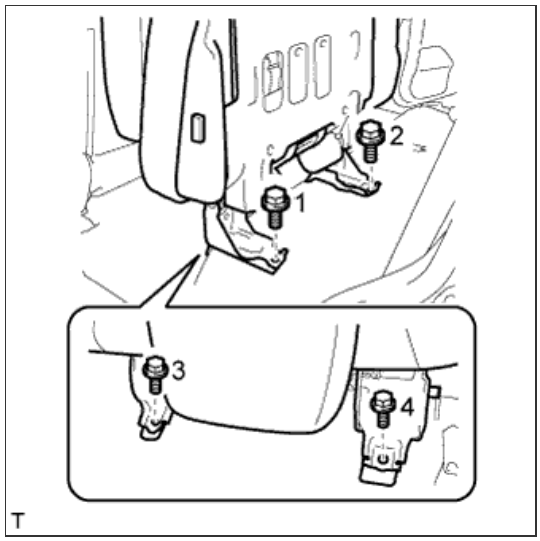
a. Temporarily install the seat assembly with the 4 bolts.

**NOTICE:**

Be careful not to damage the vehicle body.

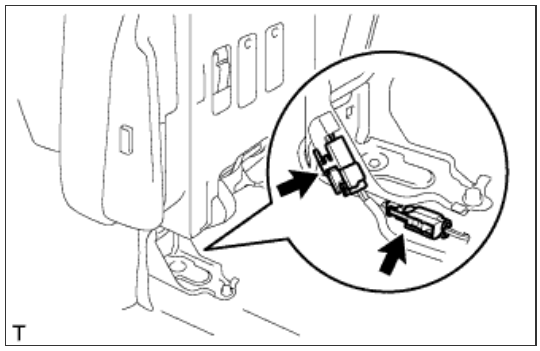
b. Tighten the bolts in the order shown in the illustration.

**Torque:**
**37 N*m{ 377 kgf*cm , 27 ft.*lbf }**



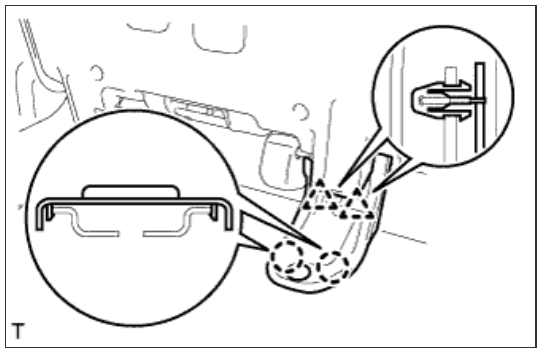

c. Connect the connector.

d. w/ Seat Heater System:
Connect the connector.



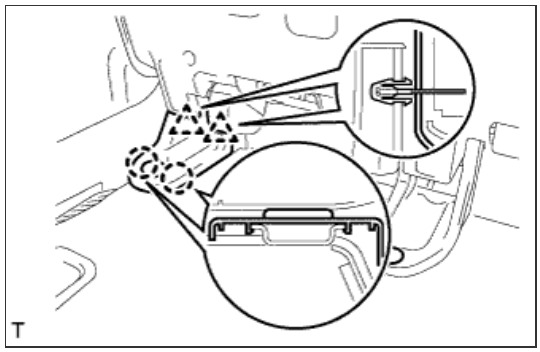

## 31. INSTALL REAR NO. 4 SEAT CUSHION HINGE COVER

a. Attach the 2 clips and 2 claws to install the cover.




### 32. INSTALL REAR NO. 2 SEAT CUSHION HINGE COVER

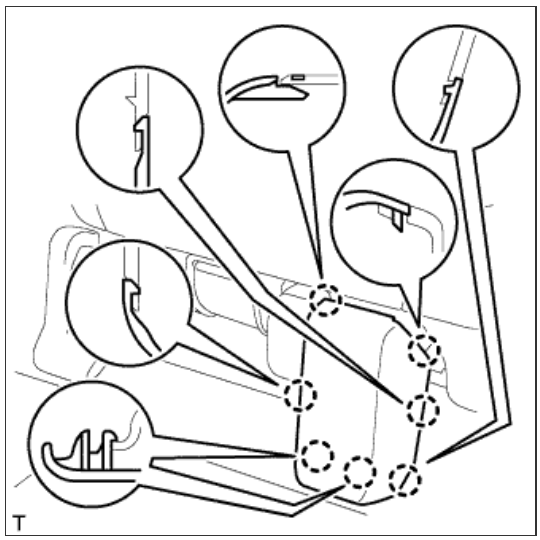
a. Attach the 2 clips and 2 claws to install the cover.




### 33. INSTALL REAR NO. 5 SEAT CUSHION HINGE COVER

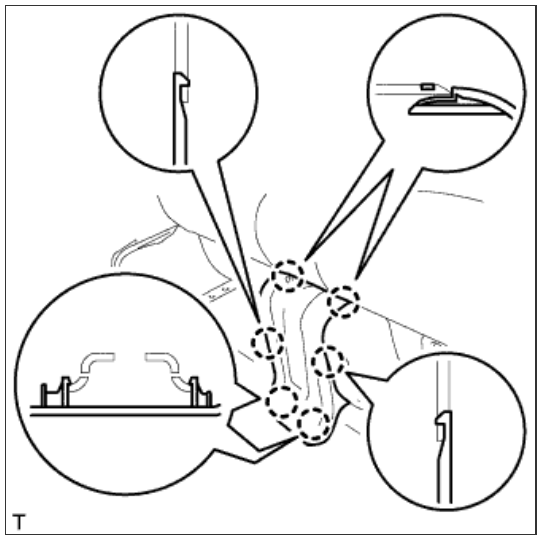
a. Return the seat to the upright position.

b. Attach the 7 claws to install the cover.




### 34. INSTALL REAR NO. 3 SEAT CUSHION HINGE COVER

a. Attach the 6 claws to install the cover.




### 35. INSTALL FRONT SEAT ASSEMBLY RH

a. Install the front seat assembly RH ( Click here).

### 36. INSTALL FRONT SEAT ASSEMBLY LH

a. Install the front seat assembly LH ( Click here).

### 37. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

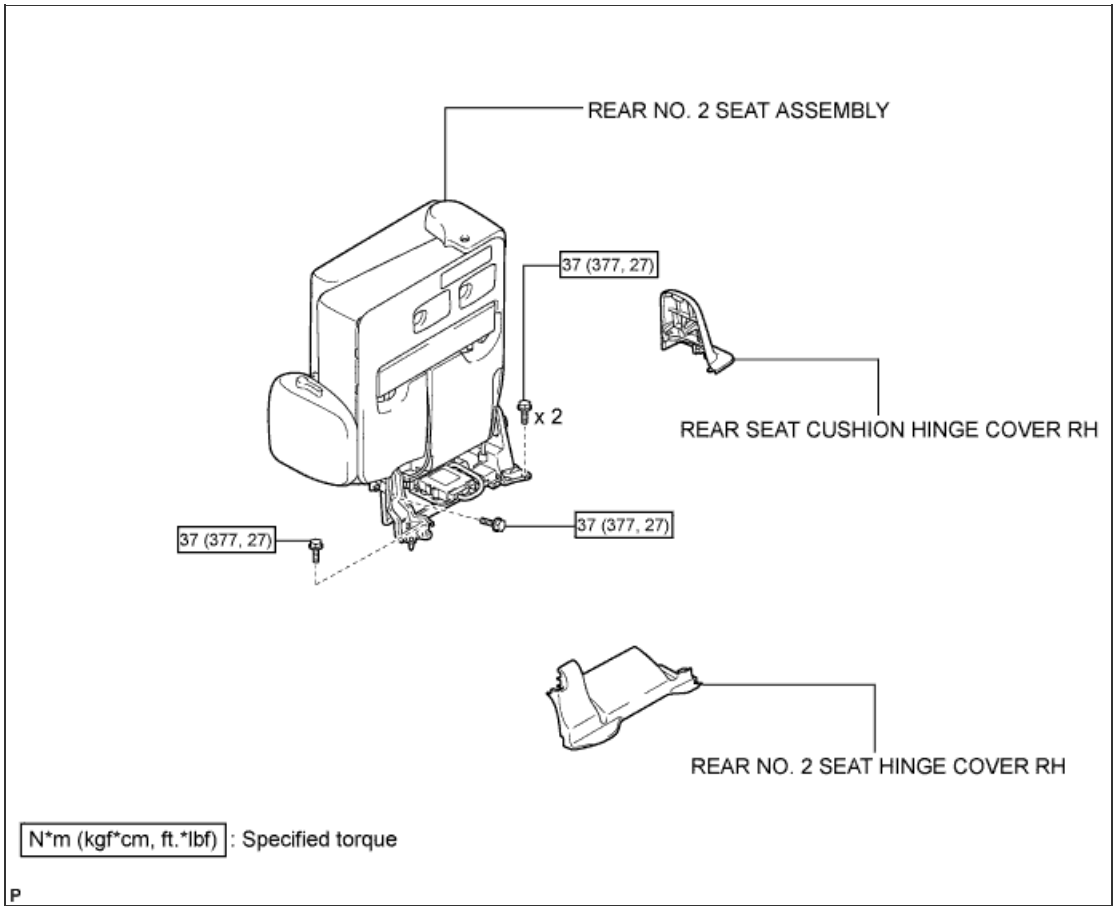
### 38. INSTALL ENGINE ROOM SIDE COVER LH

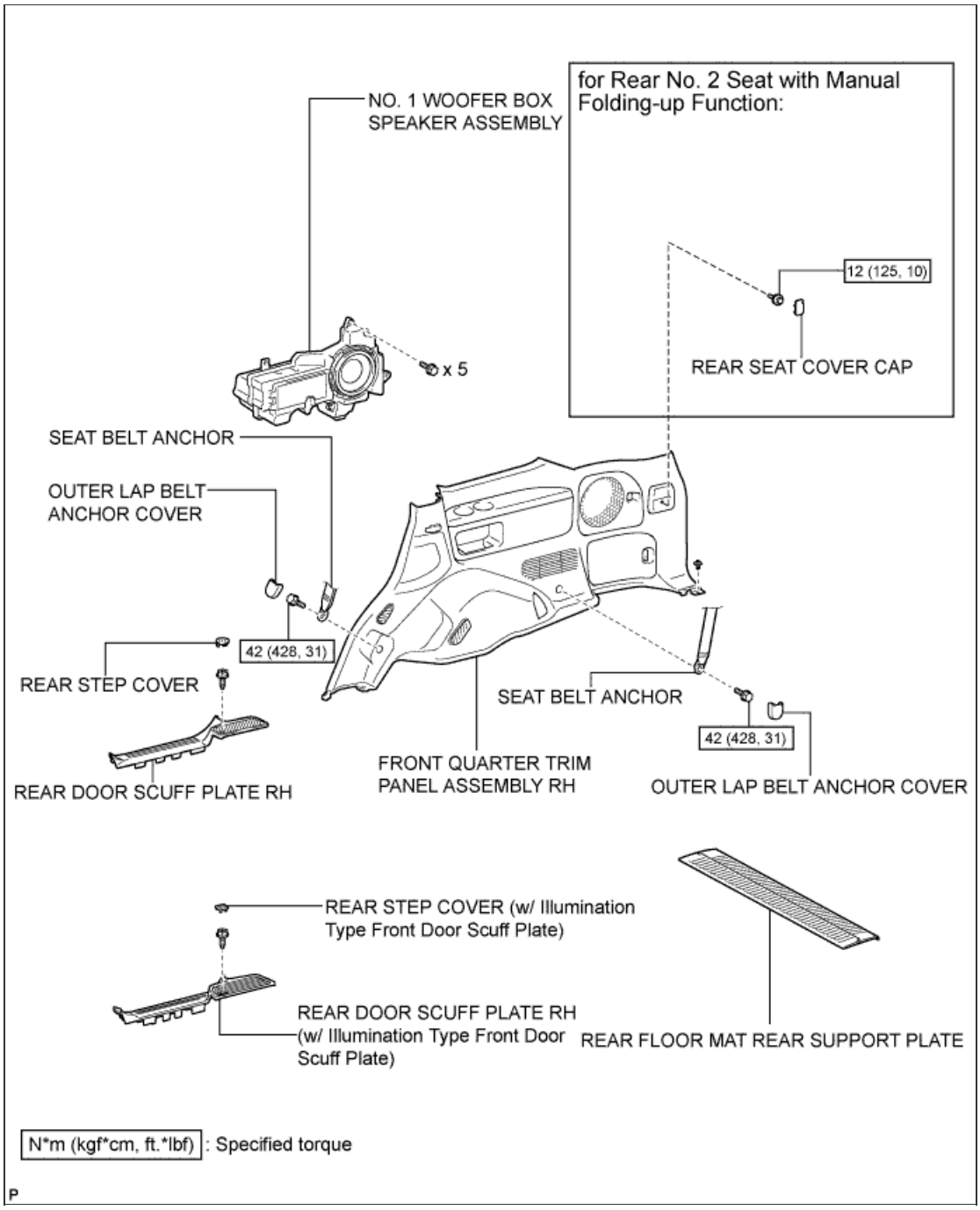
a. Install the engine room side cover LH with the 7 clips.

### 39. CHECK SRS WARNING LIGHT

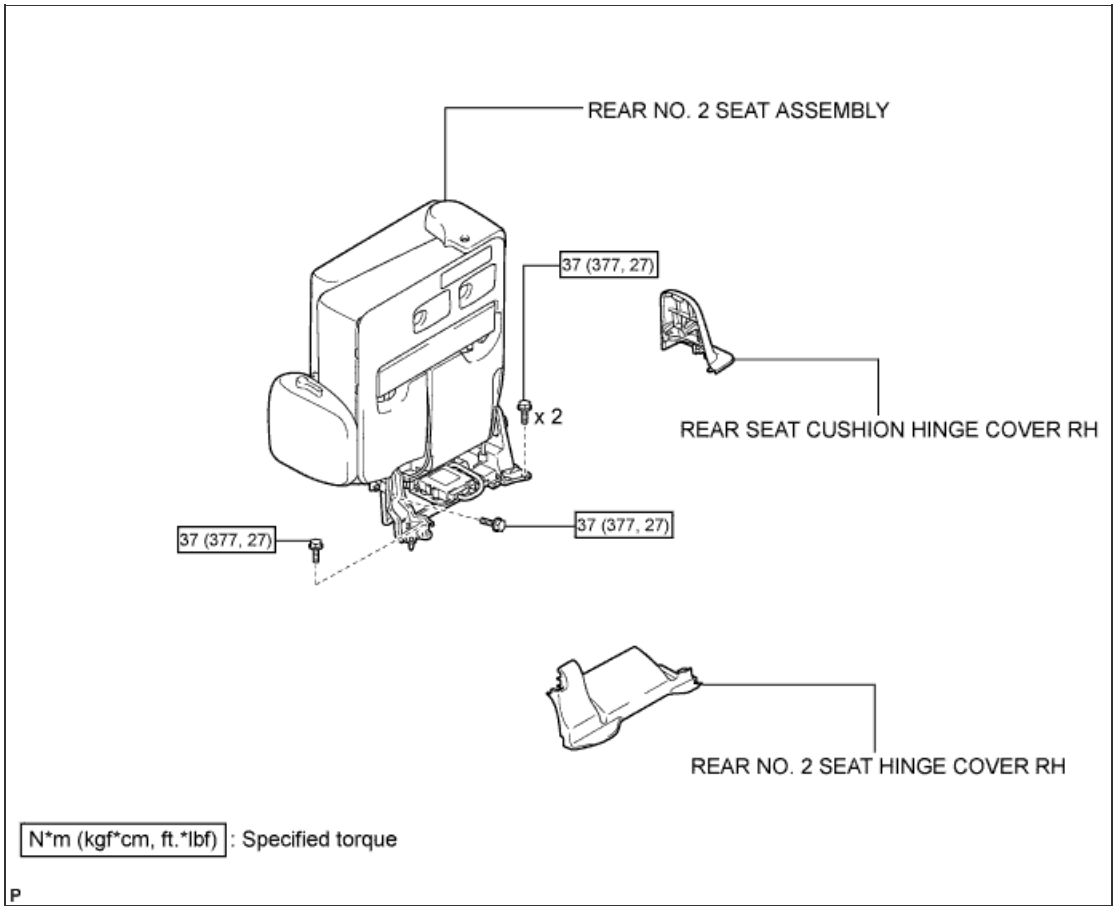
a. Check the SRS warning light (Click here).

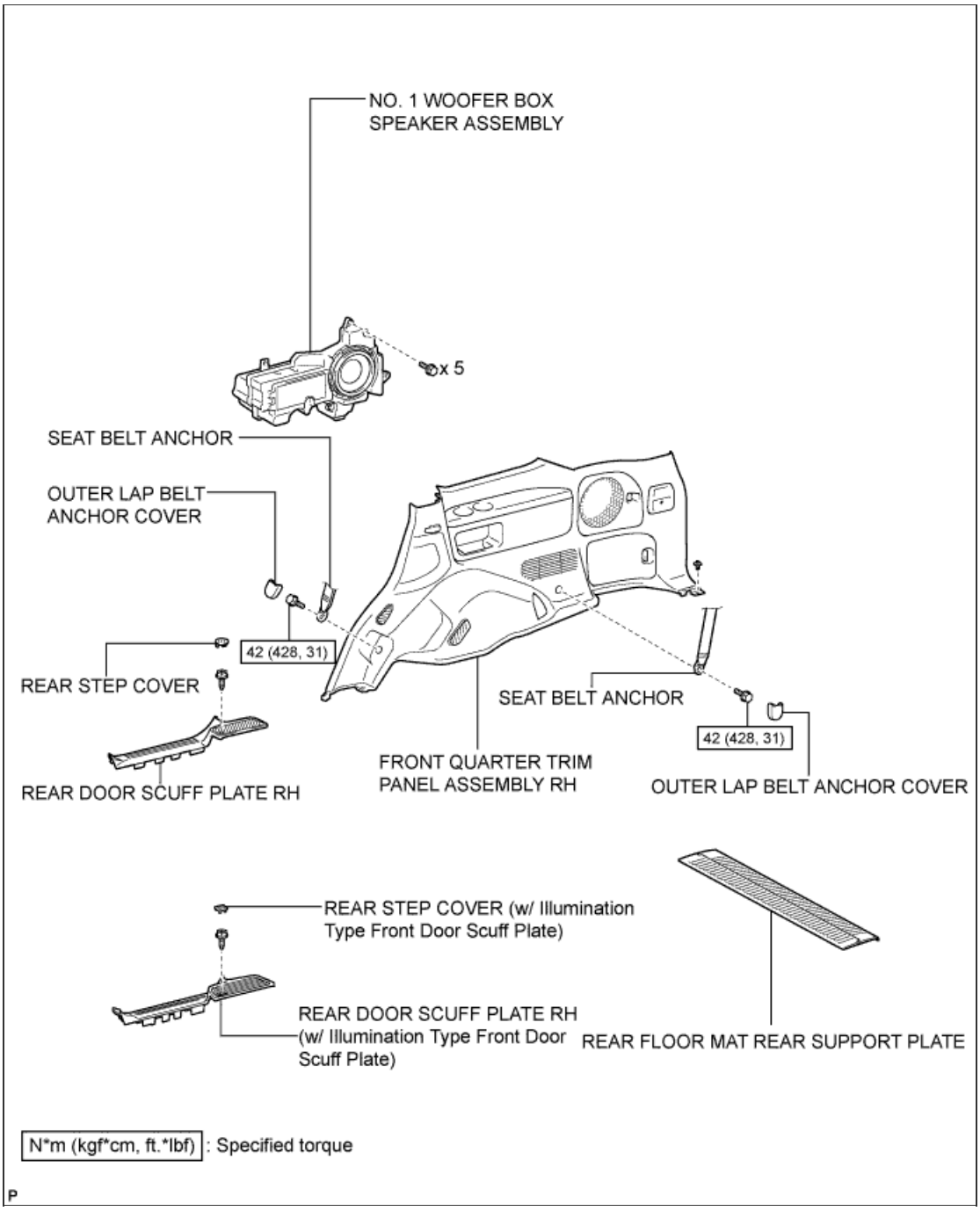
**for Preparation** Click here




NO. 1 WOOFER BOX SPEAKER ASSEMBLY
x 5
for Rear No. 2 Seat with Manual Folding-up Function:
12 (125, 10)
REAR SEAT COVER CAP
SEAT BELT ANCHOR
OUTER LAP BELT ANCHOR COVER
42 (428, 31)
REAR STEP COVER
REAR DOOR SCUFF PLATE RH
FRONT QUARTER TRIM PANEL ASSEMBLY RH
SEAT BELT ANCHOR
42 (428, 31)
OUTER LAP BELT ANCHOR COVER
REAR STEP COVER (w/ Illumination Type Front Door Scuff Plate)
REAR DOOR SCUFF PLATE RH (w/ Illumination Type Front Door Scuff Plate)
REAR FLOOR MAT REAR SUPPORT PLATE
N*m (kgf*cm, ft.*lbf) : Specified torque
P

**for Preparation** Click here




NO. 1 WOOFER BOX SPEAKER ASSEMBLY
x 5
SEAT BELT ANCHOR
OUTER LAP BELT ANCHOR COVER
42 (428, 31)
REAR STEP COVER
REAR DOOR SCUFF PLATE RH
FRONT QUARTER TRIM PANEL ASSEMBLY RH
SEAT BELT ANCHOR
42 (428, 31)
OUTER LAP BELT ANCHOR COVER
REAR STEP COVER (w/ Illumination Type Front Door Scuff Plate)
REAR DOOR SCUFF PLATE RH (w/ Illumination Type Front Door Scuff Plate)
REAR FLOOR MAT REAR SUPPORT PLATE
N*m (kgf*cm, ft.*lbf) : Specified torque
P

**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

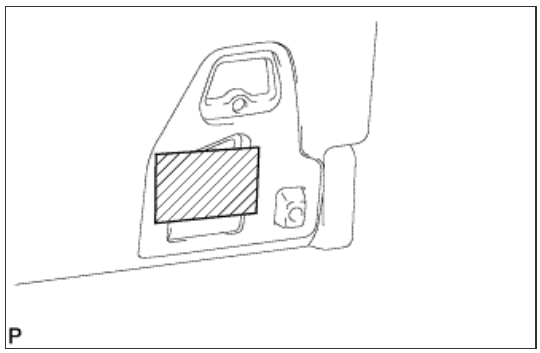
## 2. REMOVE REAR SEAT CUSHION HINGE COVER RH

a. Apply protective tape to the rear seatback lock striker as shown in the illustration to prevent the seat from locking.

b. Operate the power seat switch and move the seat to the storage position.

**HINT:**

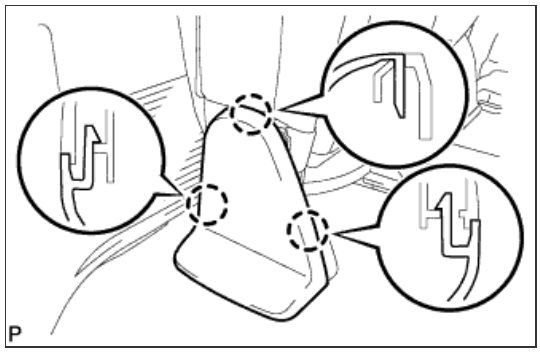
Make sure that the lock and striker are not engaged.




c. Using a screwdriver, detach the 3 claws and remove the cover.

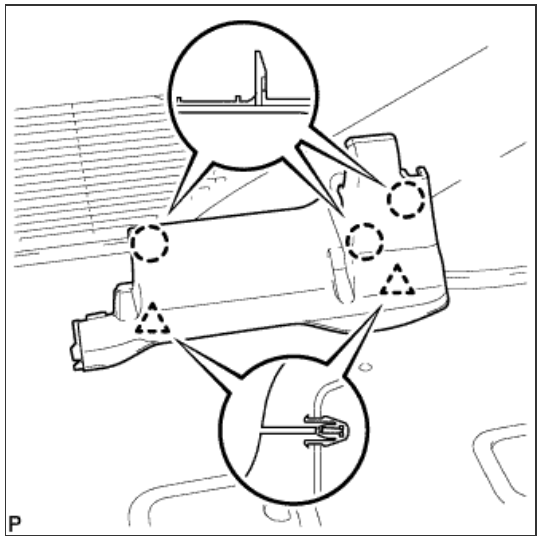
**HINT:**

Tape the screwdriver tip before use.




## 3. REMOVE REAR NO. 2 SEAT HINGE COVER RH

a. Detach the 3 claws and 2 clips, and then remove the cover.




## 4. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

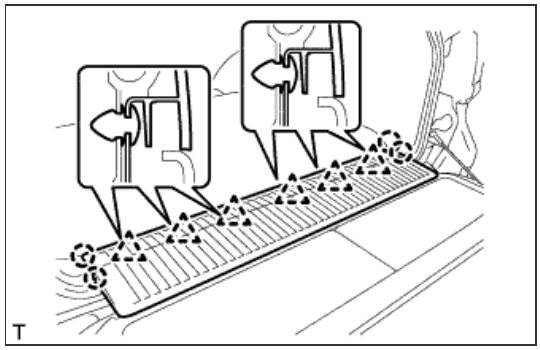
## 5. REMOVE REAR NO. 2 SEAT ASSEMBLY

a. w/ Automatic Folding-up Function:
Remove rear no. 2 seat assembly (Click here).

b. w/ Manual Folding-up Function:
Remove rear no. 2 seat assembly (Click here).

## 6. REMOVE REAR FLOOR MAT REAR SUPPORT PLATE

a. Detach the 6 clips and 4 claws, and remove the support plate.

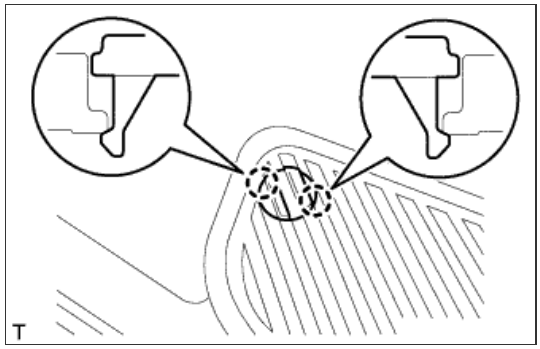



## 7. REMOVE REAR STEP COVER

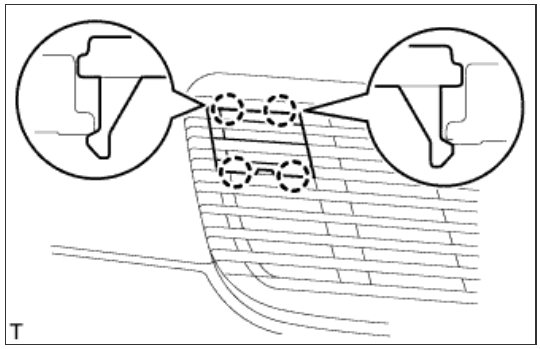
**HINT:**

Use the same procedure to remove the step cover on the other side.

a. w/o Illumination Type Front Door Scuff Plate:
Detach the 2 claws and remove the step cover.




b. w/ Illumination Type Front Door Scuff Plate:
Detach the 4 claws and remove the step cover.




## 8. REMOVE REAR DOOR SCUFF PLATE RH

**HINT:**

Use the same procedures described for the LH side.

## 9. REMOVE REAR SEAT COVER CAP (for Rear No. 2 Seat with Manual Folding-up Function)

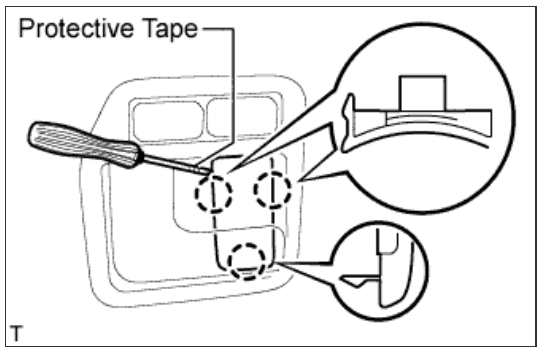
**HINT:**

Use the same procedure to remove the rear seat cover cap on the other side.

a. Using a screwdriver, detach the 3 claws and remove the rear seat cover cap.

**HINT:**

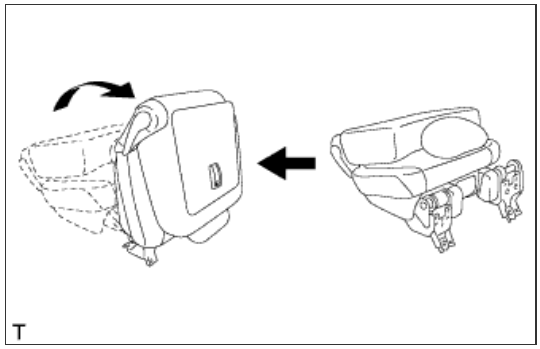
Tape the screwdriver tip before use.



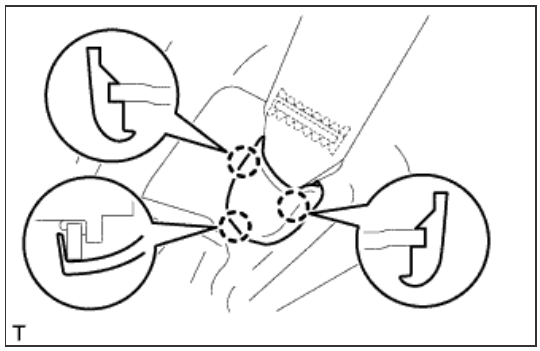

## 10. REMOVE FRONT QUARTER TRIM PANEL ASSEMBLY RH

**HINT:**

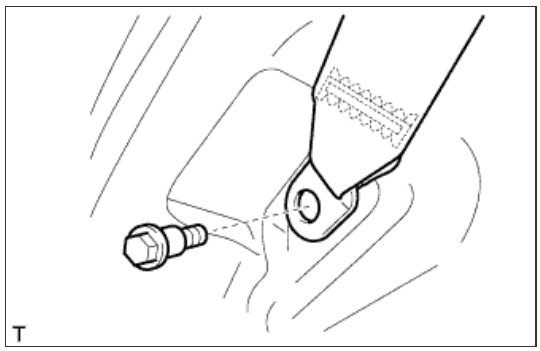
When removing the front quarter trim panel, operate the reclining adjuster release handle and move the No. 1 rear seat to the position shown in the illustration.



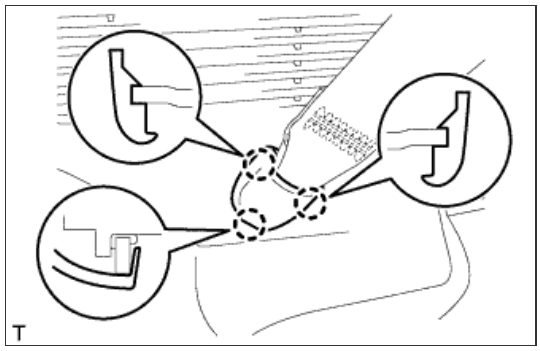

a. Detach the 3 claws and remove the cover.



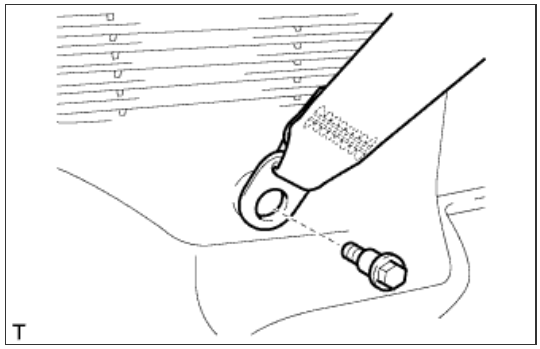

b. Remove the bolt and rear No. 1 seat belt anchor.




c. Detach the 3 claws and remove the cover.




d. Remove the bolt and rear No. 2 seat belt anchor.

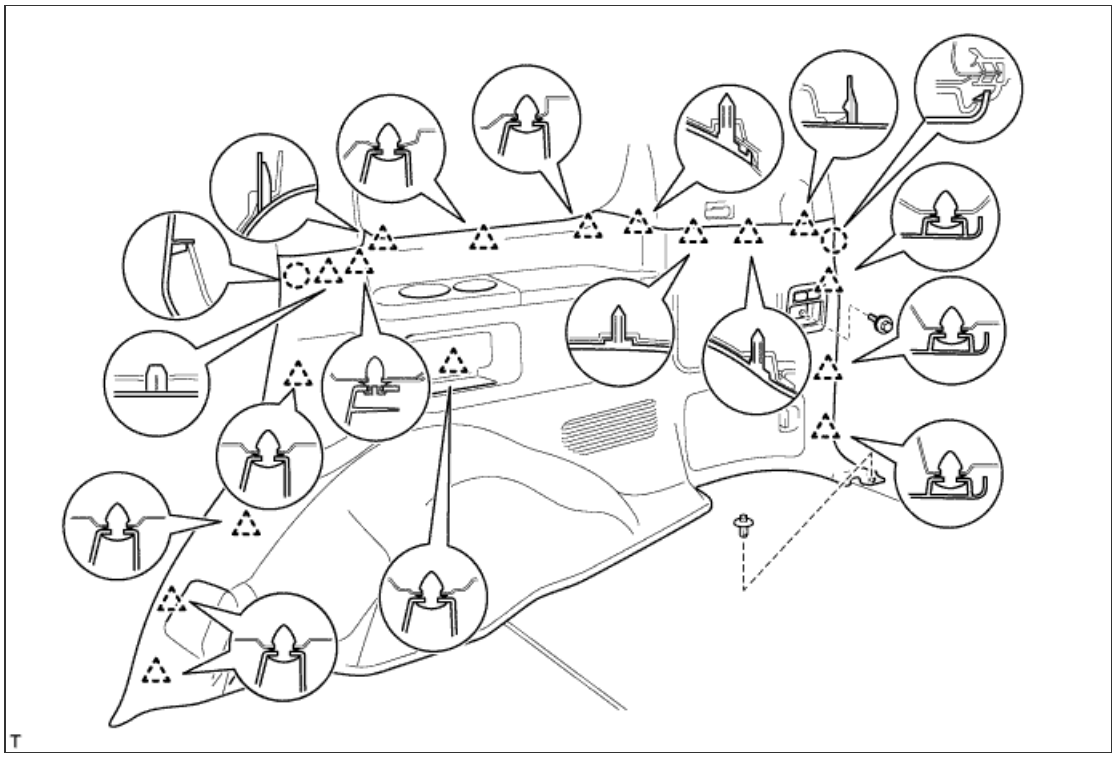



e. for Rear No. 2 Seat with Manual Folding-up Function:

i. Remove the clip and bolt.

ii. Detach the 17 clips and 2 claws.

iii. Disconnect the thermistor connector and rear seat lock control lever cable, and then remove the quarter trim panel.

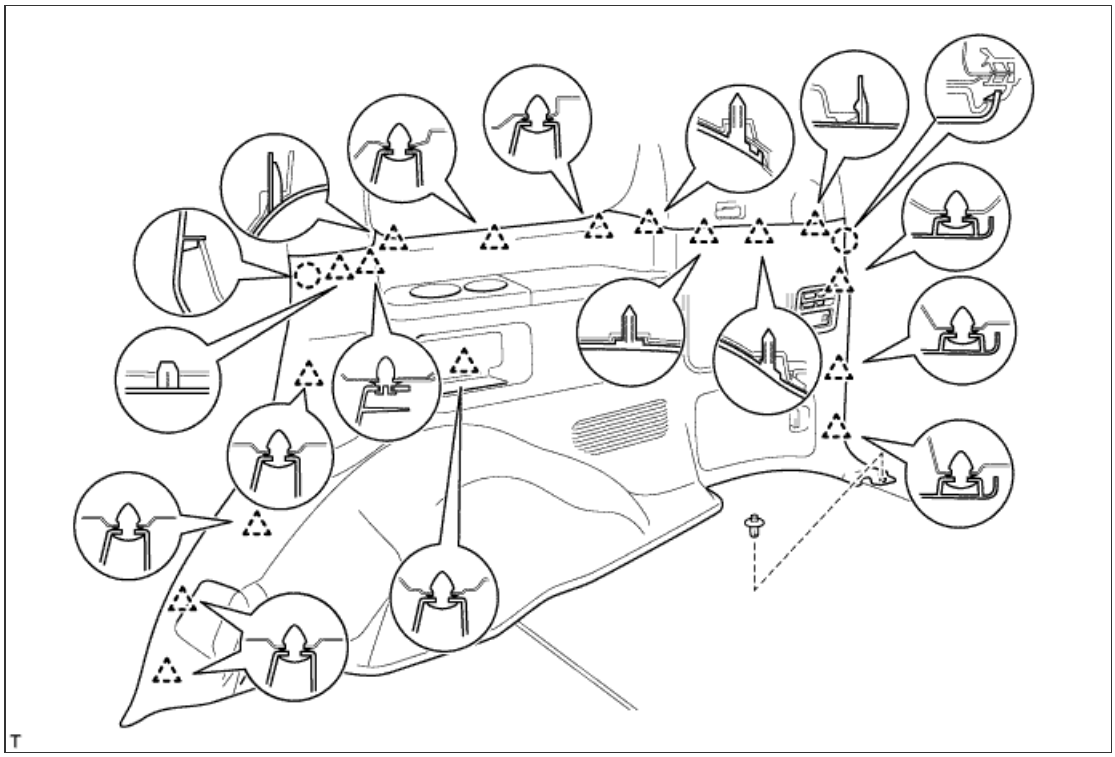



f. for Rear No. 2 Seat with Automatic Folding-up Function:

i. Remove the clip.

ii. Detach the 17 clips and 2 claws.

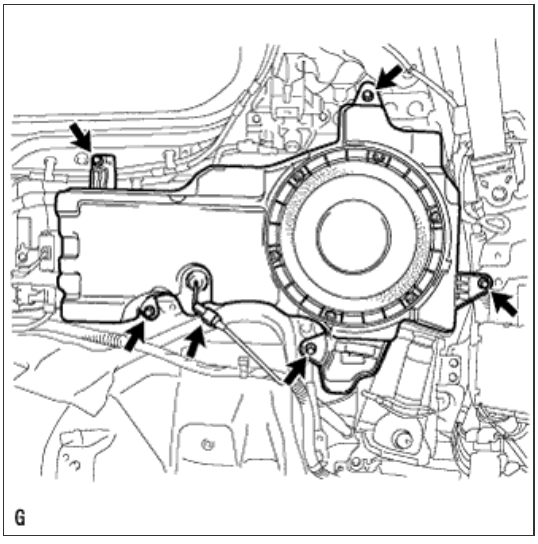
iii. Disconnect the thermistor connector and then remove the quarter trim panel.




**11. REMOVE NO. 1 WOOFER BOX SPEAKER ASSEMBLY**

a. Disconnect the connector.

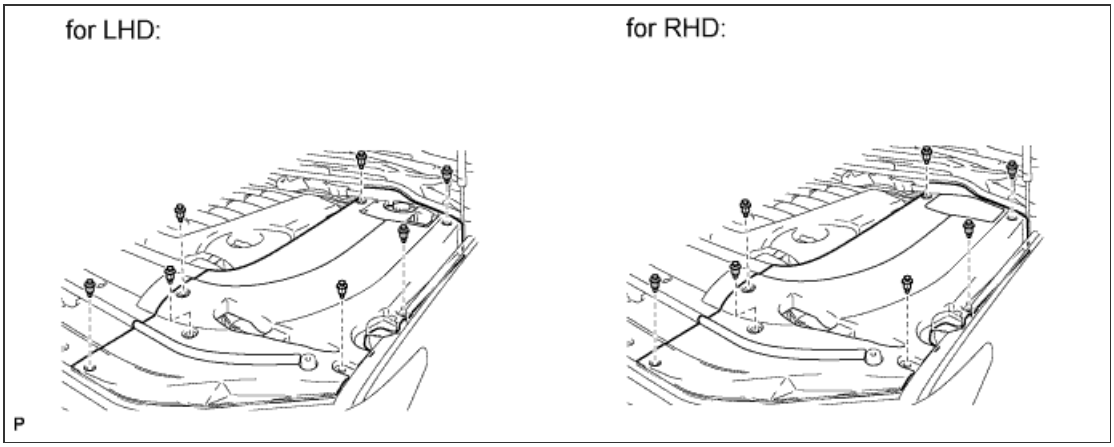
b. Remove the 5 bolts and box speaker.



**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover LH.



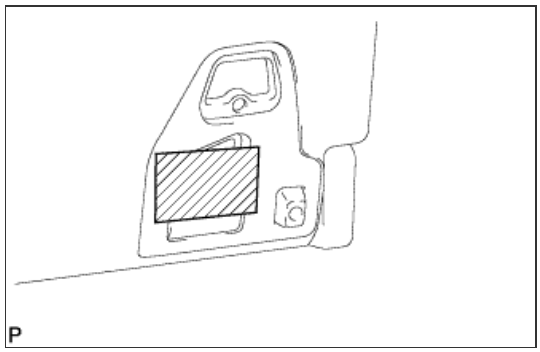

## 2. REMOVE REAR SEAT CUSHION HINGE COVER RH

a. Apply protective tape to the rear seatback lock striker as shown in the illustration to prevent the seat from locking.

b. Operate the power seat switch and move the seat to the storage position.

**HINT:**

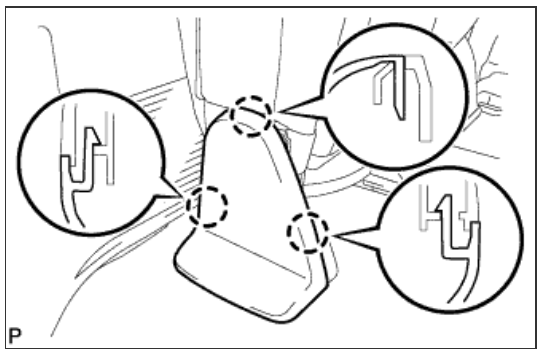
Make sure that the lock and striker are not engaged.




c. Using a screwdriver, detach the 3 claws and remove the cover.

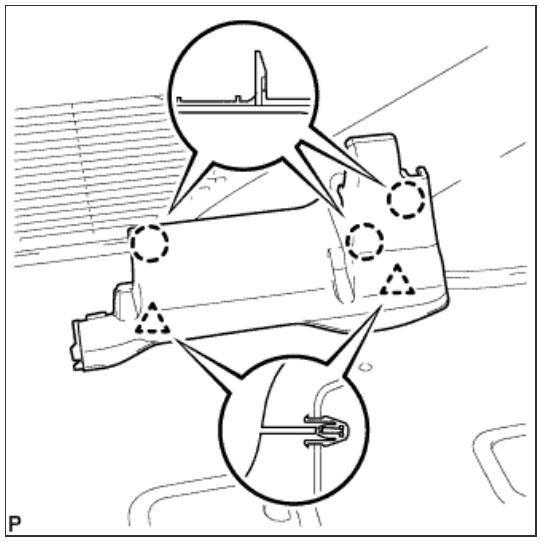
**HINT:**

Tape the screwdriver tip before use.




## 3. REMOVE REAR NO. 2 SEAT HINGE COVER RH

a. Detach the 3 claws and 2 clips, and then remove the cover.




### 4. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

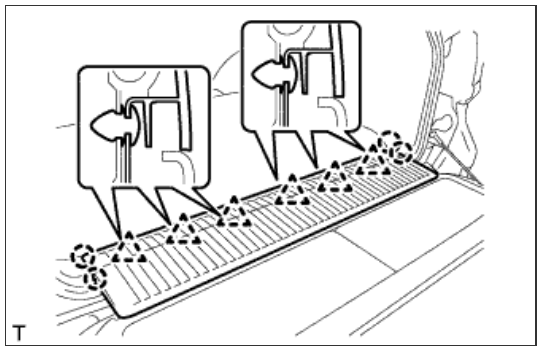
When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

### 5. REMOVE REAR NO. 2 SEAT ASSEMBLY

Remove rear no. 2 seat assembly (Click here).

### 6. REMOVE REAR FLOOR MAT REAR SUPPORT PLATE

a. Detach the 6 clips and 4 claws, and remove the support plate.

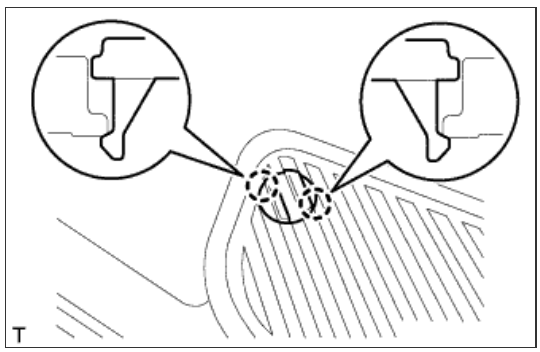



### 7. REMOVE REAR STEP COVER

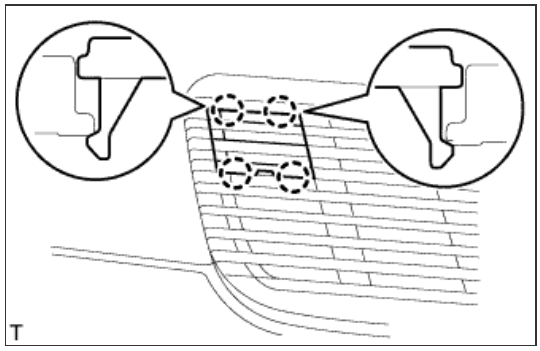
**HINT:**

Use the same procedure to remove the step cover on the other side.

a. w/o Illumination Type Front Door Scuff Plate:
Detach the 2 claws and remove the step cover.



b. w/ Illumination Type Front Door Scuff Plate:
Detach the 4 claws and remove the step cover.




## 8. REMOVE REAR DOOR SCUFF PLATE RH

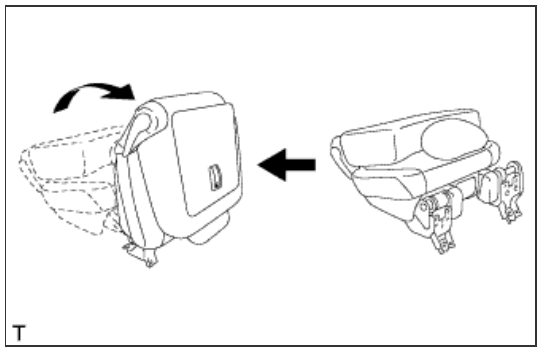
**HINT:**

Use the same procedures described for the LH side.

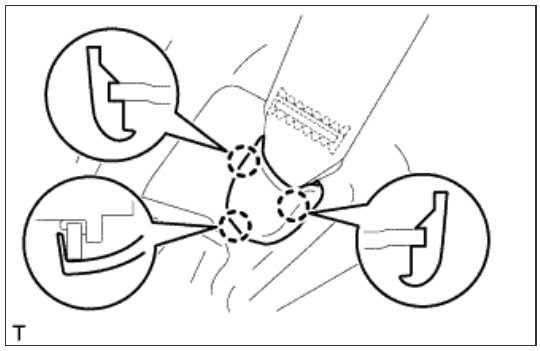
## 9. REMOVE FRONT QUARTER TRIM PANEL ASSEMBLY RH

**HINT:**

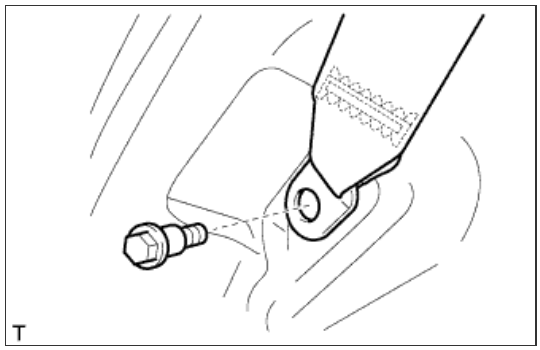
When removing the front quarter trim panel, operate the reclining adjuster release handle and move the No. 1 rear seat to the position shown in the illustration.



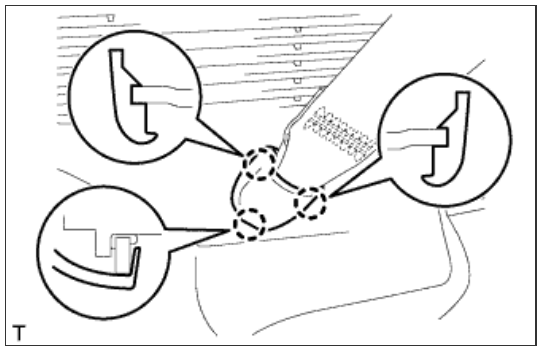

a. Detach the 3 claws and remove the cover.




b. Remove the bolt and rear No. 1 seat belt anchor.



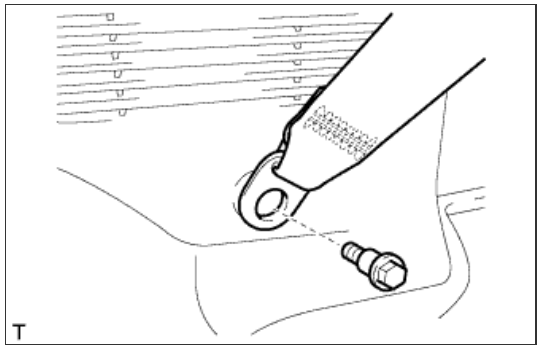

c. Detach the 3 claws and remove the cover.



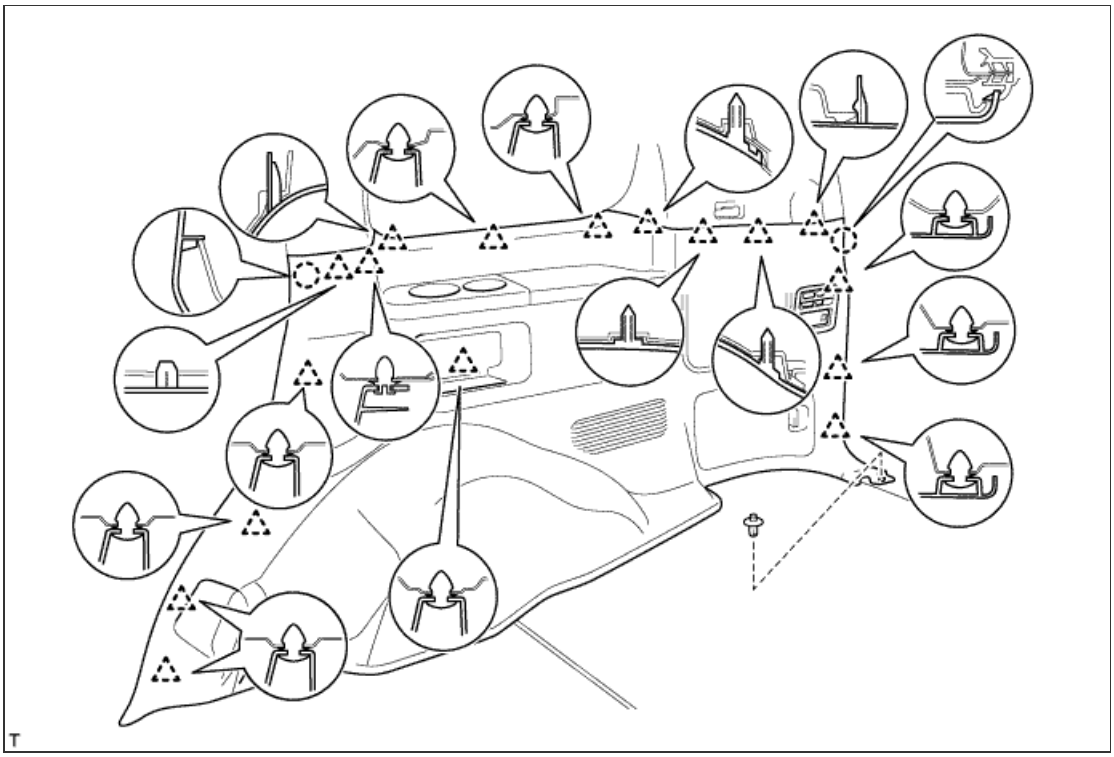

d. Remove the bolt and rear No. 2 seat belt anchor.

e. Remove the clip.

f. Detach the 17 clips and 2 claws.



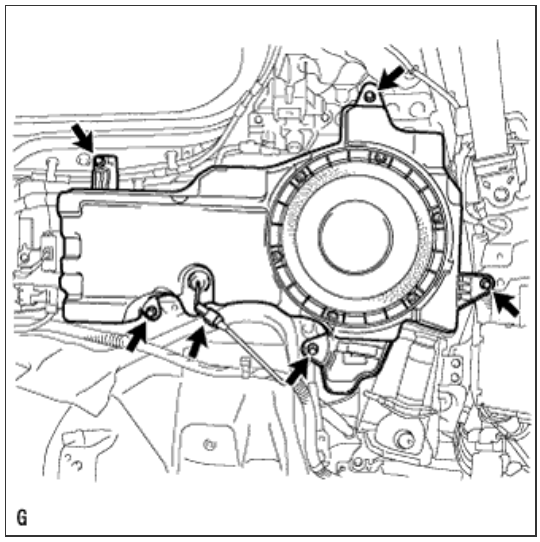

g. Disconnect the thermistor connector and then remove the quarter trim panel.




## 10. REMOVE NO. 1 WOOFER BOX SPEAKER ASSEMBLY

a. Disconnect the connector.

b. Remove the 5 bolts and box speaker.



G

**for Preparation** Click here

## 1. INSPECT NO. 1 WOOFER BOX SPEAKER ASSEMBLY

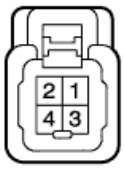
a. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 8.0 Ω |

If the result is not as specified, replace the No. 1 woofer box speaker assembly.

Component without harness connected:
(No. 1 Woofer Box Speaker)

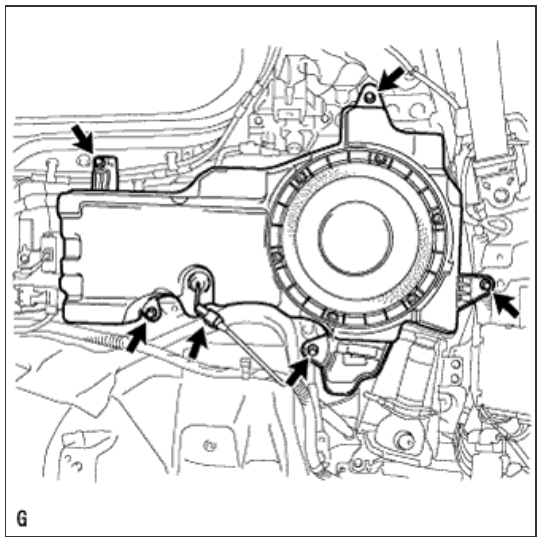


**for Preparation** Click here

## 1. INSTALL NO. 1 WOOFER BOX SPEAKER ASSEMBLY

a. Install the box speaker with the 5 bolts.

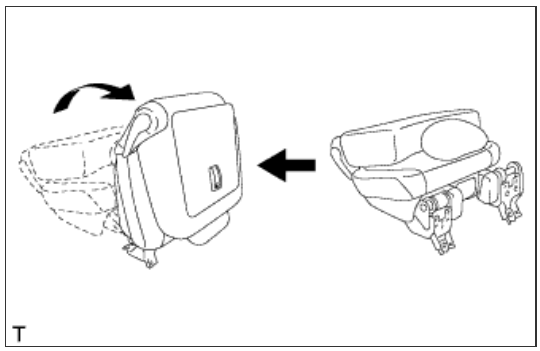
b. Connect the connector.




## 2. INSTALL FRONT QUARTER TRIM PANEL ASSEMBLY RH

**HINT:**

When installing the front quarter trim panel, operate the reclining adjuster release handle and move the No. 1 rear seat to the position shown in the illustration.



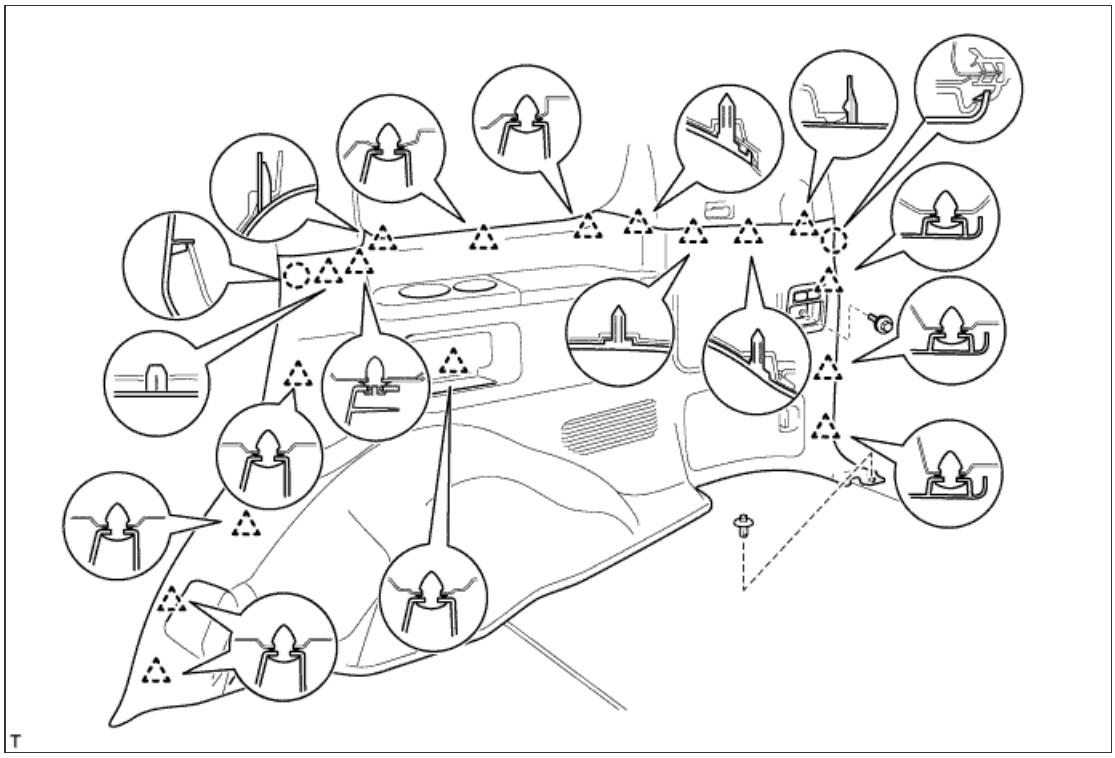

a. for Rear No. 2 Seat with Manual Folding-up Function:

i. Connect the thermistor connector and rear seat lock control lever cable.

ii. Attach the 17 clips and 2 claws to install the quarter trim panel.

iii. Install the clip and bolt.

**Torque:**
**for bolt:**
**12 N*m{ 122 kgf*cm , 9 ft.*lbf }**

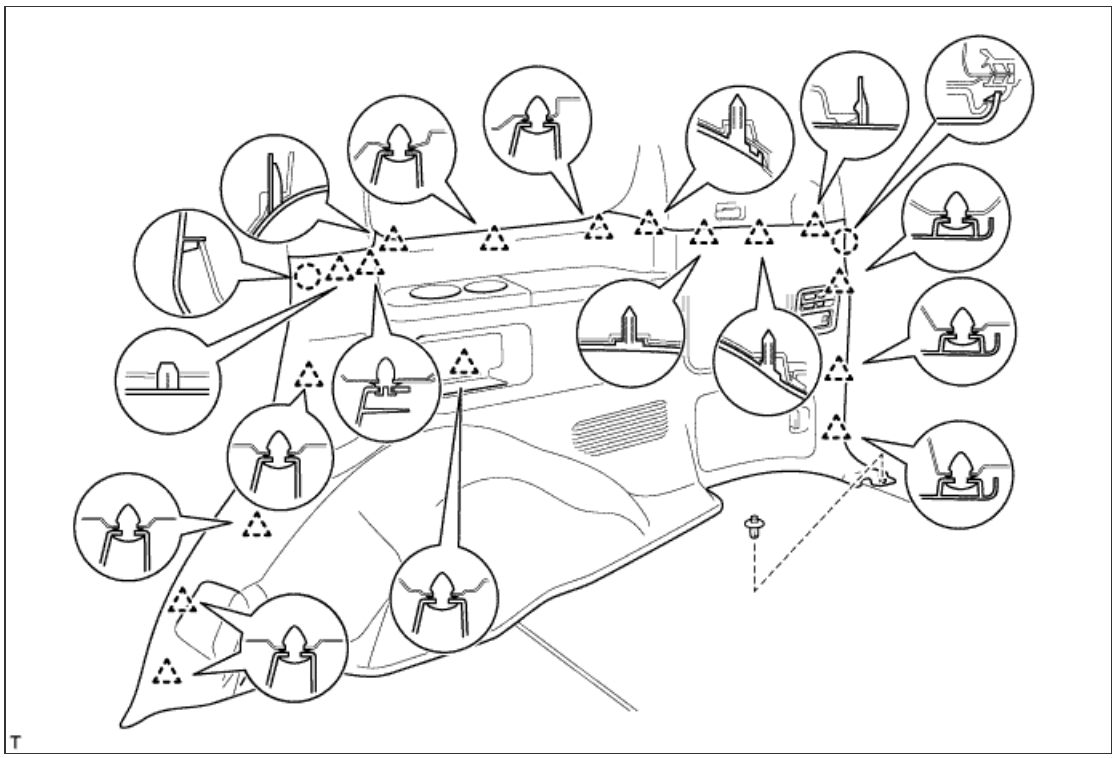



b. for Rear No. 2 Seat with Automatic Folding-up Function:

i. Connect the thermistor connector.

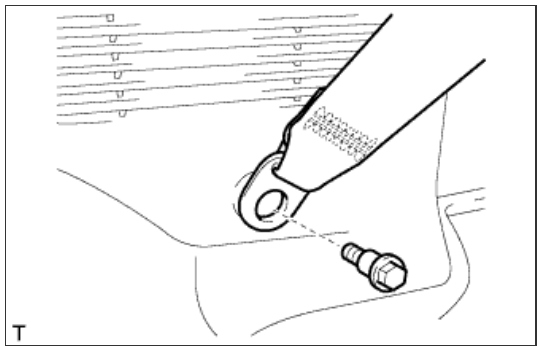
ii. Attach the 17 clips and 2 claws to install the quarter trim panel.

iii. Install the clip.

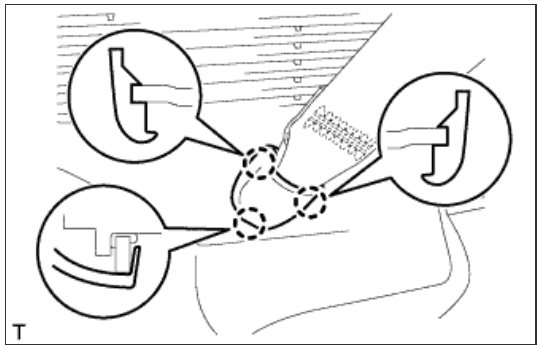


c. Install the rear No. 2 seat belt anchor with the bolt.

**Torque:**
**42 N*m{ 428 kgf*cm , 31 ft.*lbf }**

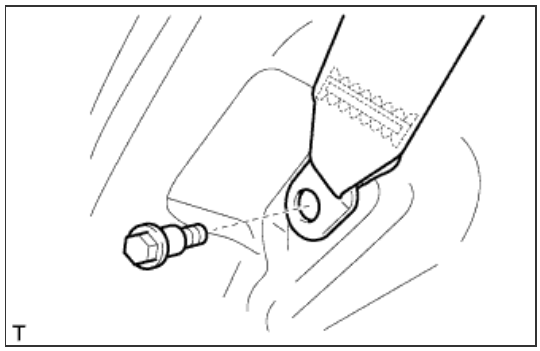



d. Attach the 3 claws to install the cover.

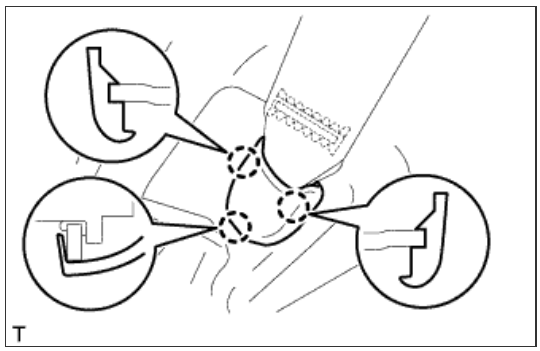



e. Install the rear No. 1 seat belt anchor with the bolt.

**Torque:**
**42 N*m{ 428 kgf*cm , 31 ft.*lbf }**




f. Attach the 3 claws to install the cover.

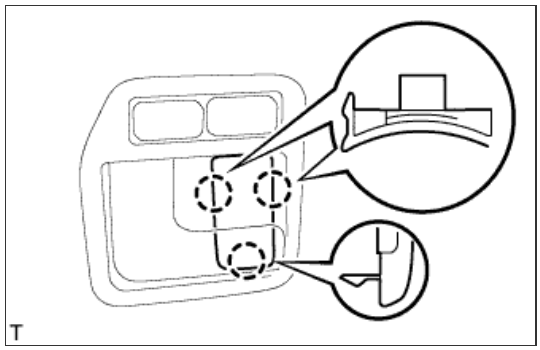



## 3. INSTALL REAR SEAT COVER CAP (for Rear No. 2 Seat with Manual Folding-up Function)

**HINT:**

Use the same procedures to install the rear seat cover cap on the other side.

a. Attach the 3 claws to install the rear seat cover cap.




## 4. INSTALL REAR DOOR SCUFF PLATE RH

**HINT:**

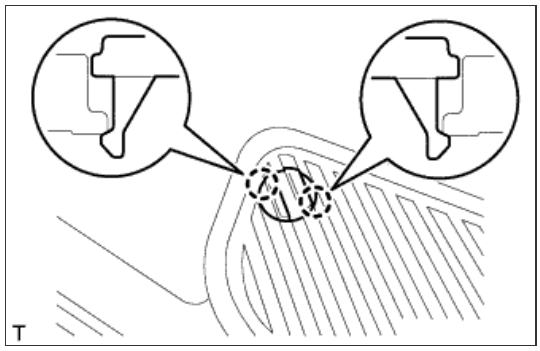
Use the same procedures described for the LH side.

## 5. INSTALL REAR STEP COVER

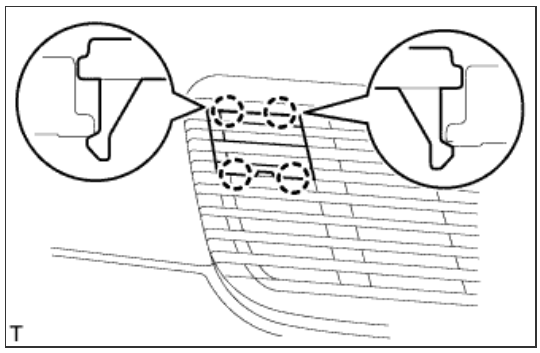
**HINT:**

Use the same procedure to install the step cover on the other side.

a. w/o Illumination Type Front Door Scuff Plate:
Attach the 2 claws to install the step cover.

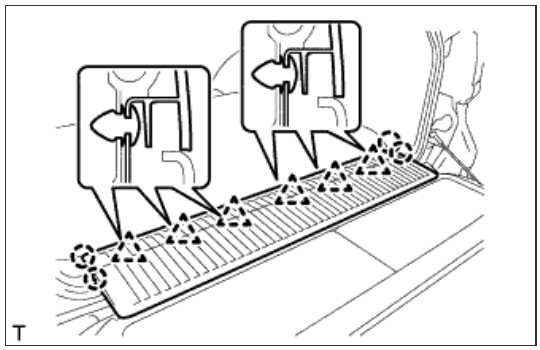



b. w/ Illumination Type Front Door Scuff Plate:
Attach the 4 claws to install the step cover.




## 6. INSTALL REAR FLOOR MAT REAR SUPPORT PLATE

a. Attach the 6 clips and 4 claws to install the support plate.



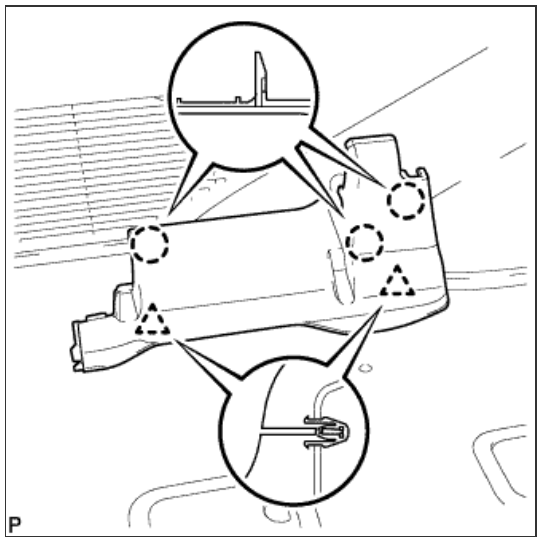

## 7. INSTALL REAR NO. 2 SEAT ASSEMBLY

a. w/ Automatic Folding-up Function:
Install the rear No. 2 seat assembly ( Click here).

b. w/ Manual Folding-up Function:
Install the rear No. 2 seat assembly ( Click here).

## 8. INSTALL REAR SEAT CUSHION HINGE COVER RH

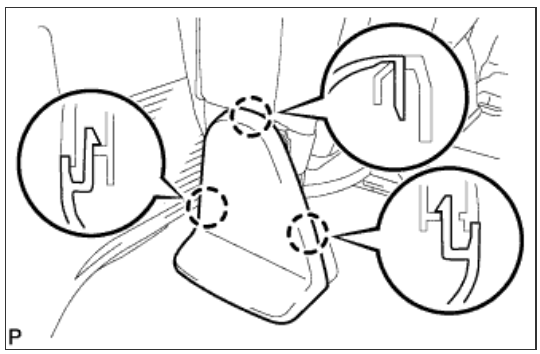
a. Attach the 3 claws and 2 clips to install the cover.




## 9. INSTALL REAR NO. 2 SEAT HINGE COVER RH

a. Attach the 3 claws to install the cover.

b. Return the seat to the upright position.



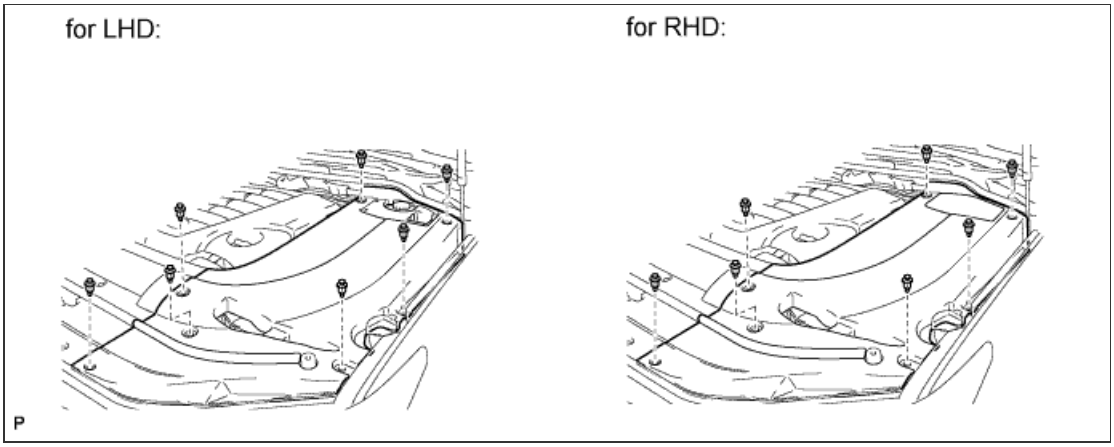

## 10. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 11. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover with the 7 clips.

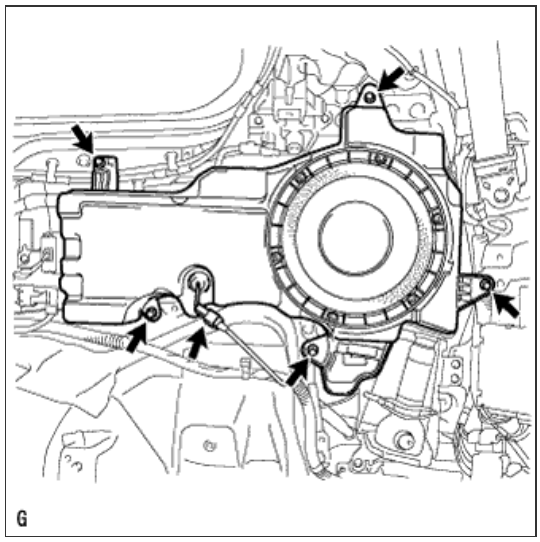


**for Preparation** Click here

## 1. INSTALL NO. 1 WOOFER BOX SPEAKER ASSEMBLY

a. Install the box speaker with the 5 bolts.

b. Connect the connector.



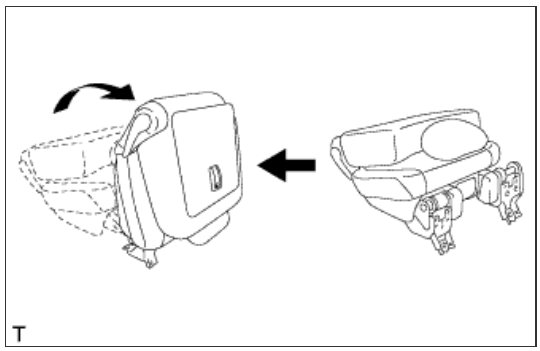

## 2. INSTALL FRONT QUARTER TRIM PANEL ASSEMBLY RH

**HINT:**

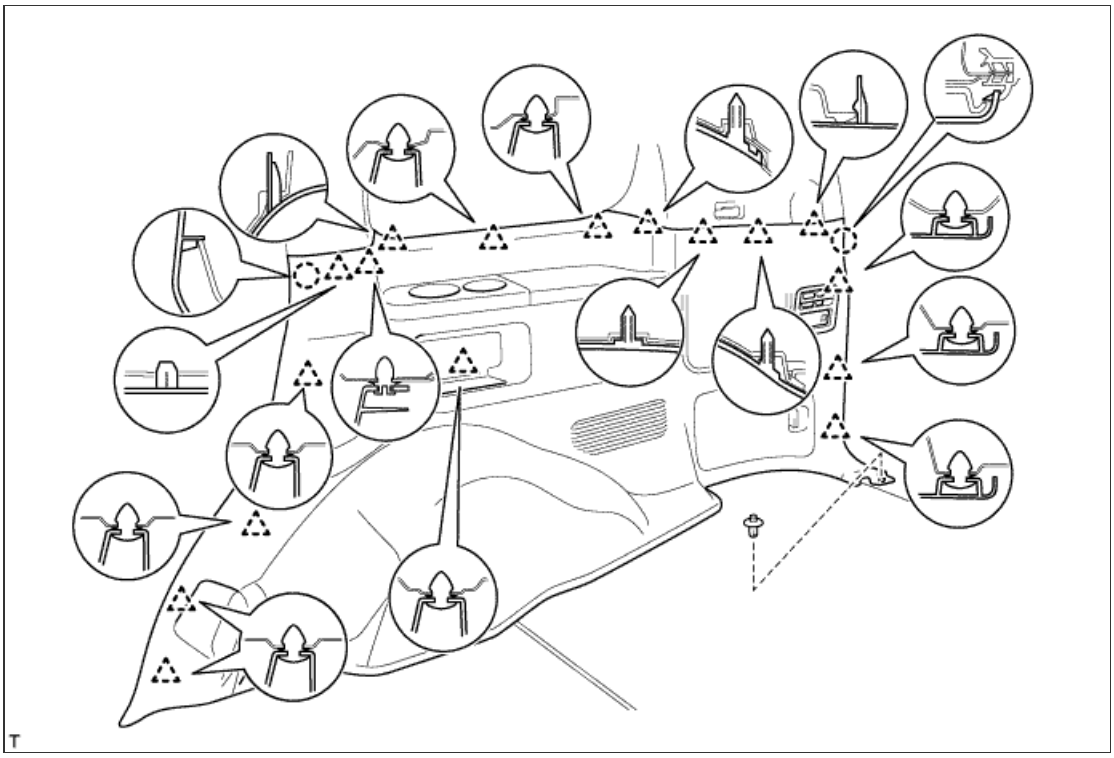
When installing the front quarter trim panel, operate the reclining adjuster release handle and move the No. 1 rear seat to the position shown in the illustration.

a. Connect the thermistor connector.

b. Attach the 17 clips and 2 claws to install the quarter trim panel.

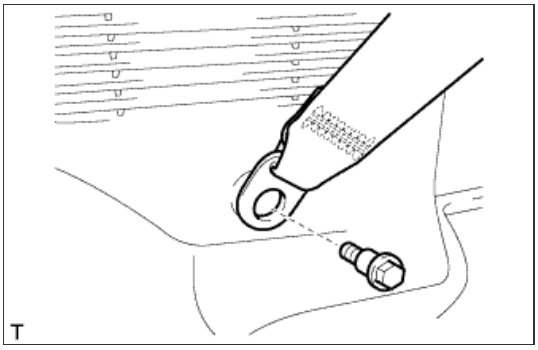



c. Install the clip.

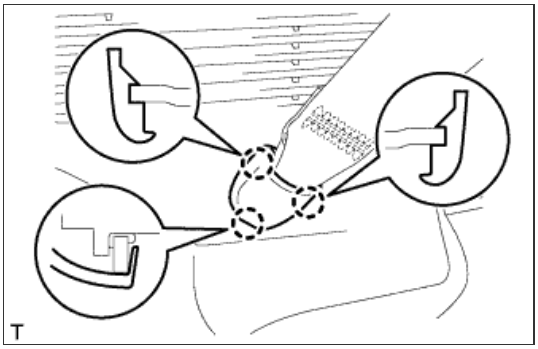



d. Install the rear No. 2 seat belt anchor with the bolt.

**Torque:**
**42 N*m{ 428 kgf*cm , 31 ft.*lbf }**

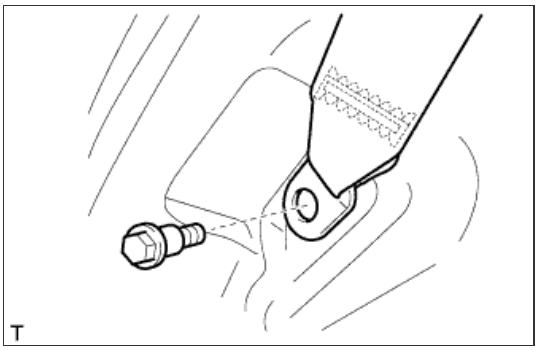



e. Attach the 3 claws to install the cover.

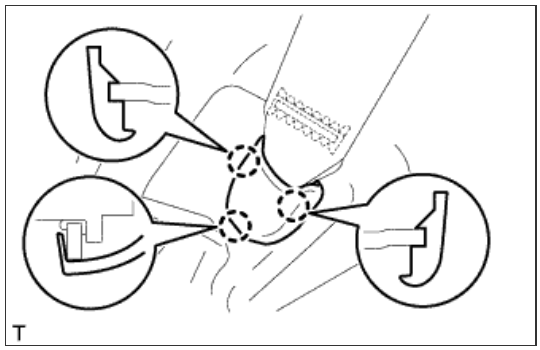



f. Install the rear No. 1 seat belt anchor with the bolt.

**Torque:**
**42 N*m{ 428 kgf*cm , 31 ft.*lbf }**



g. Attach the 3 claws to install the cover.




## 3. INSTALL REAR DOOR SCUFF PLATE RH

**HINT:**

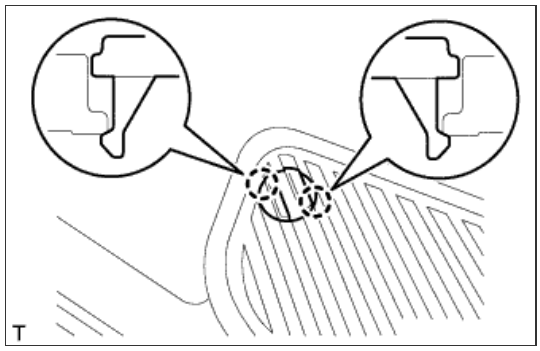
Use the same procedures described for the LH side.

## 4. INSTALL REAR STEP COVER

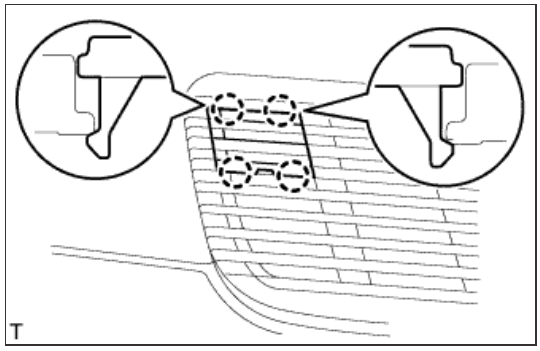
**HINT:**

Use the same procedure to install the step cover on the other side.

a. w/o Illumination Type Front Door Scuff Plate:
Attach the 2 claws to install the step cover.

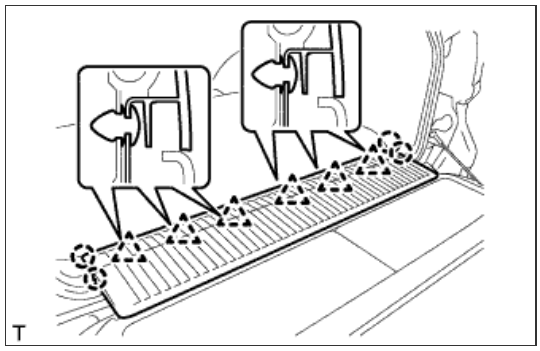



b. w/ Illumination Type Front Door Scuff Plate:
Attach the 4 claws to install the step cover.




## 5. INSTALL REAR FLOOR MAT REAR SUPPORT PLATE

a. Attach the 6 clips and 4 claws to install the support plate.




### 6. INSTALL REAR NO. 2 SEAT ASSEMBLY

Install the rear No. 2 seat assembly ( Click here).

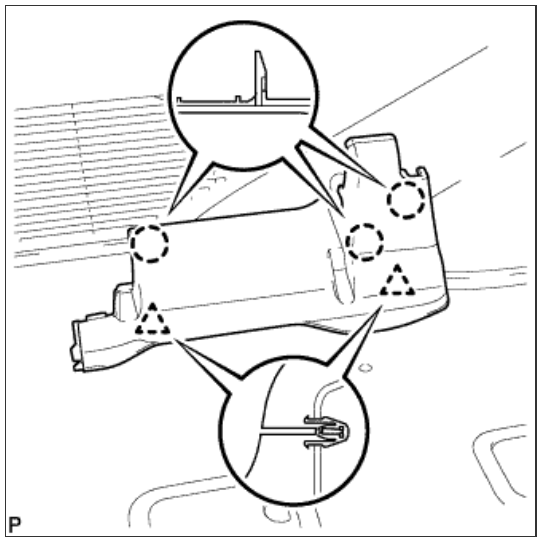
### 7. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

### 8. INSTALL REAR NO. 2 SEAT HINGE COVER RH

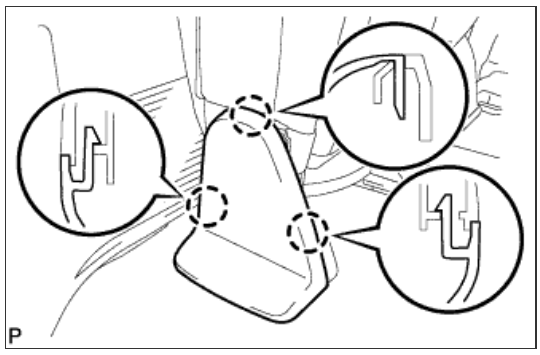
a. Attach the 3 claws and 2 clips to install the cover.




### 9. INSTALL REAR SEAT CUSHION HINGE COVER RH

a. Attach the 3 claws to install the cover.

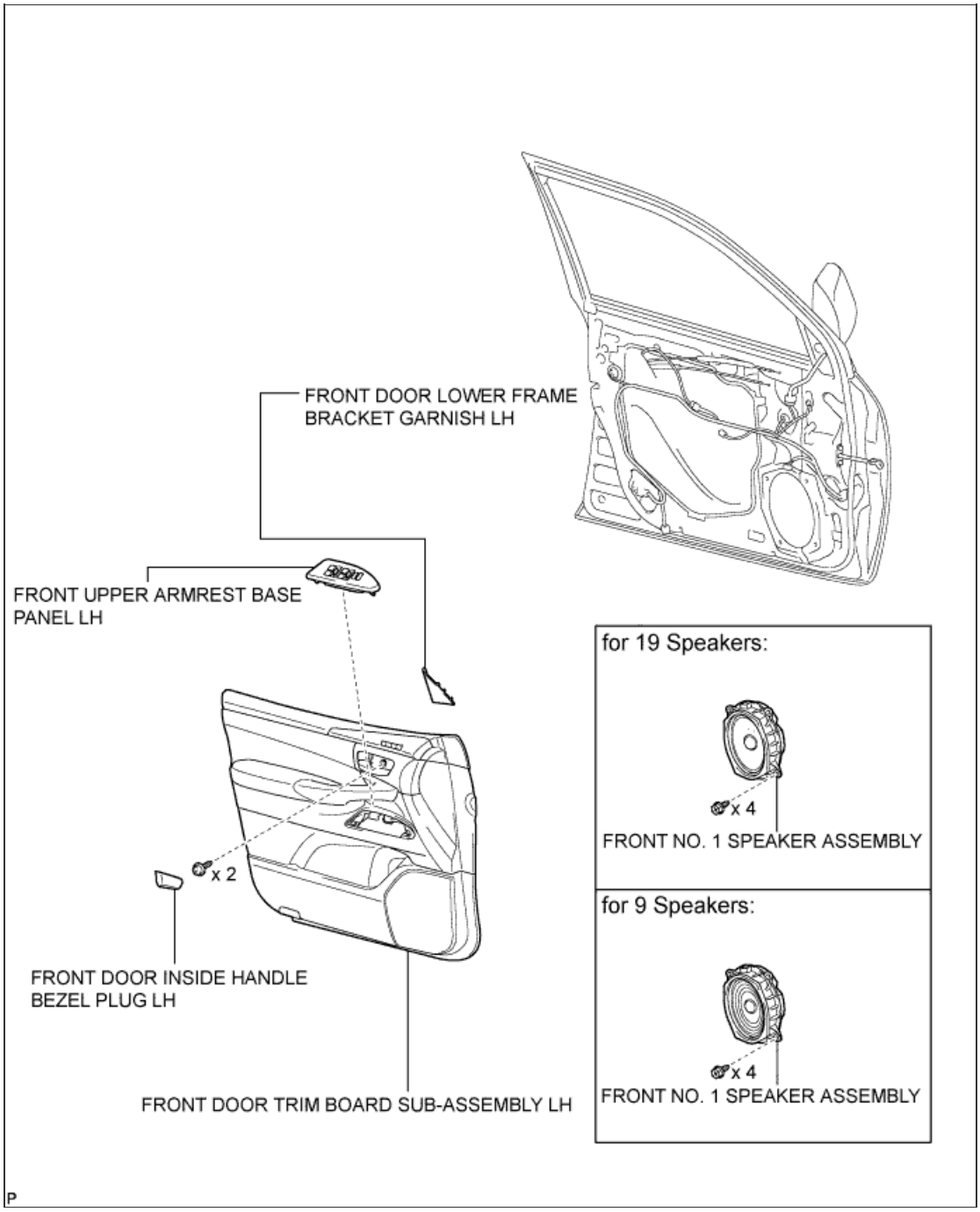
b. Return the seat to the upright position.




### 10. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover LH with the 7 clips.

**for Preparation** Click here



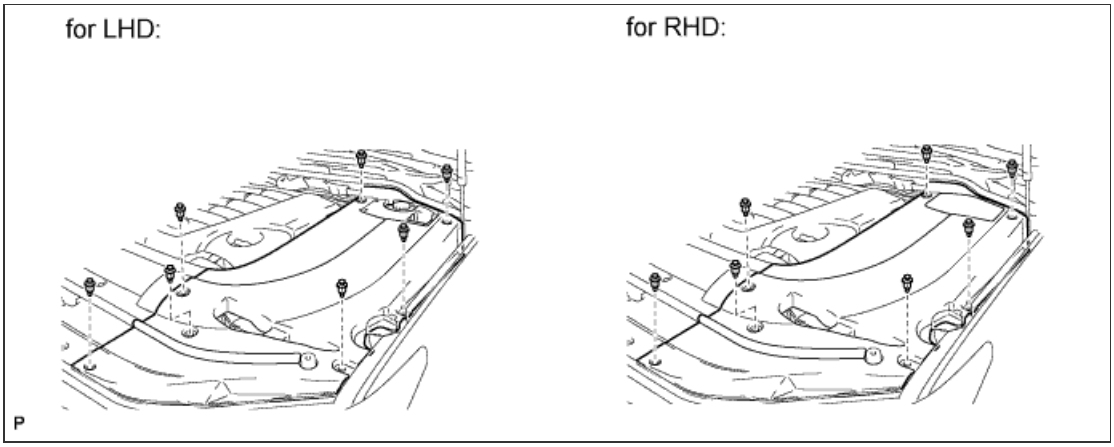
**for Preparation** Click here

**HINT:**

- **Use the same procedures for the LH side and RH side.**
- **The procedures listed below are for the LH side.**

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover.



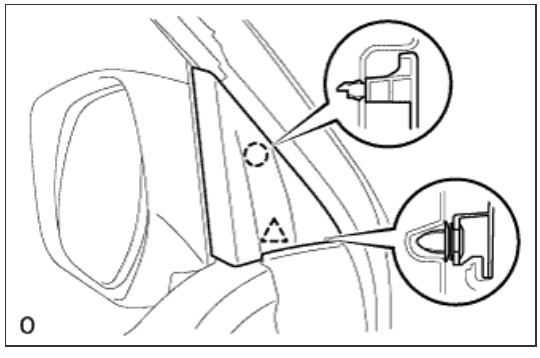

## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 3. REMOVE FRONT LOWER DOOR FRAME BRACKET GARNISH LH

a. Detach the clip and claw, and remove the front lower door frame bracket garnish.

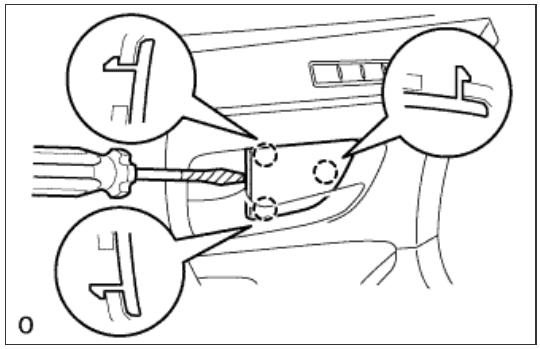



## 4. REMOVE FRONT DOOR INSIDE HANDLE BEZEL PLUG LH

a. Using a screwdriver, detach the 3 claws and remove the inside handle bezel plug.

**HINT:**

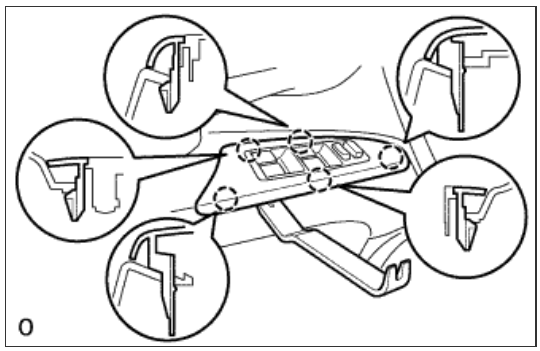
Tape the screwdriver tip before use.



## 5. REMOVE FRONT UPPER ARMREST BASE PANEL LH

a. Using a moulding remover, detach the 5 claws.

b. Disconnect the connector and remove the front upper armrest base panel and multiplex network master switch.

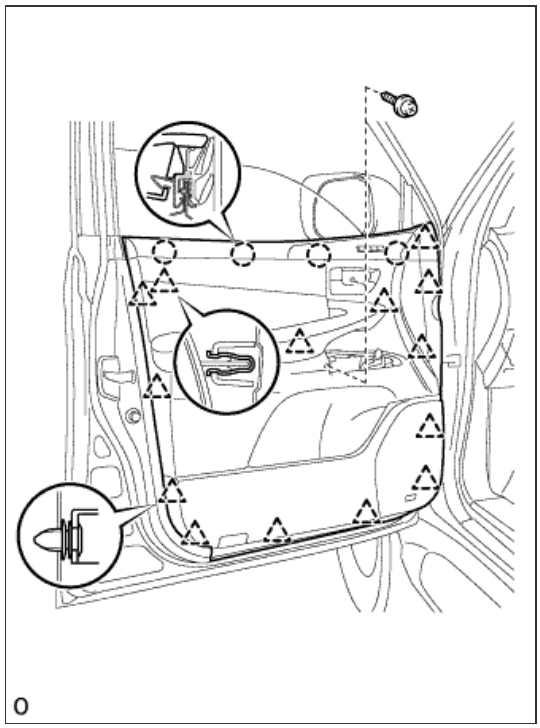


## 6. REMOVE FRONT DOOR TRIM BOARD SUB-ASSEMBLY LH

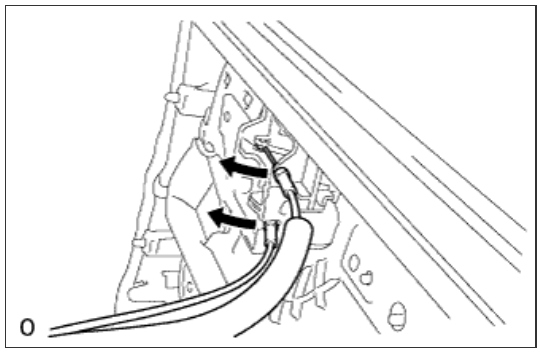
a. Remove the 2 screws.

b. Detach the 14 clips and 4 claws.

c. Disconnect the connector and remove the trim board.



d. Disconnect the 2 cables from the inside handle.



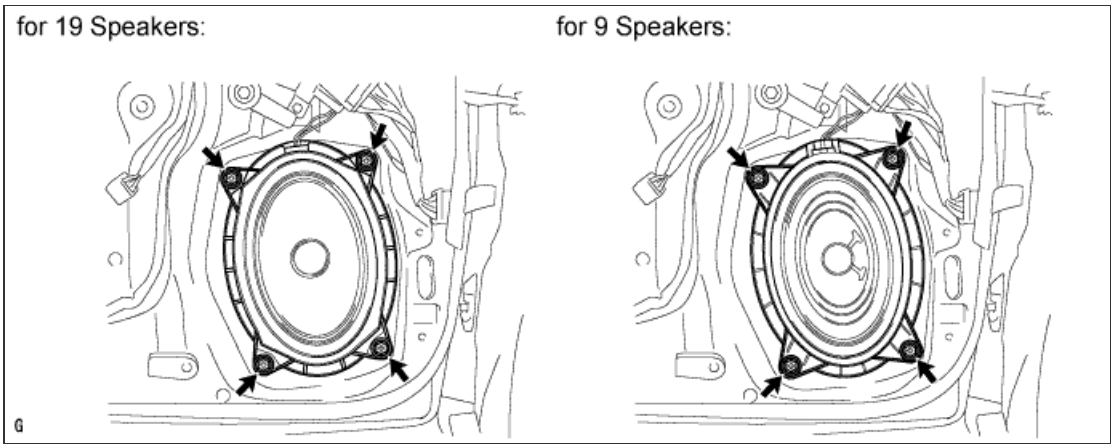
## 7. REMOVE FRONT NO. 1 SPEAKER ASSEMBLY

a. Disconnect the speaker connector.

b. Remove the 4 screws and speaker.

**NOTICE:**

Do not touch the cone part of the speaker.



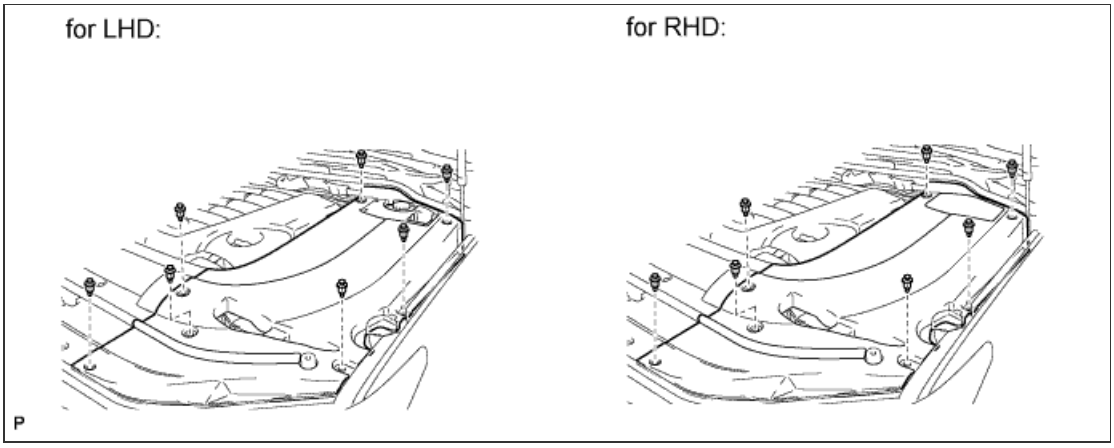
**for Preparation** Click here

**HINT:**

- **Use the same procedures for the LH side and RH side.**
- **The procedures listed below are for the LH side.**

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover LH.



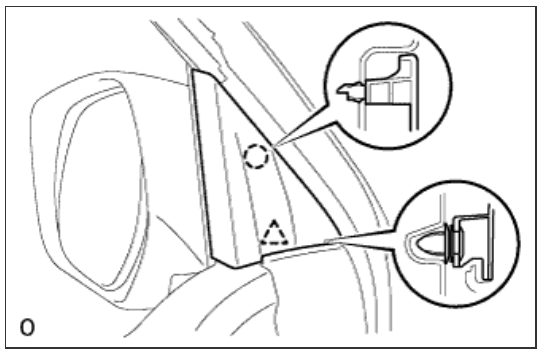

## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 3. REMOVE FRONT LOWER DOOR FRAME BRACKET GARNISH LH

a. Detach the clip and claw, and remove the front lower door frame bracket garnish LH.




## 4. REMOVE FRONT DOOR INSIDE HANDLE BEZEL PLUG LH

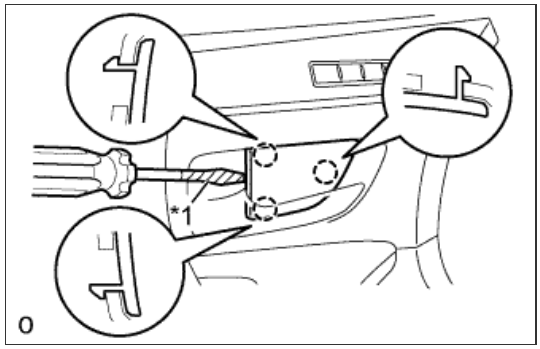
a. Using a screwdriver, detach the 3 claws and remove the front door inside handle bezel plug LH.

**HINT:**

Tape the screwdriver tip before use.

**Text in Illustration**

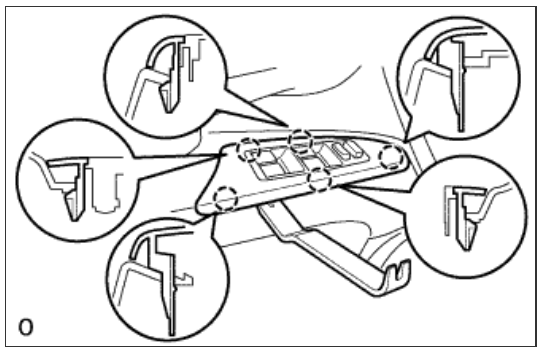
| | |
|---|---|
| *1 | Protective Tape |




## 5. REMOVE FRONT UPPER ARMREST BASE PANEL LH

a. Using a moulding remover, detach the 5 claws.

b. Disconnect the connector and remove the front upper armrest base panel LH and multiplex network master switch assembly.




## 6. REMOVE FRONT DOOR TRIM BOARD SUB-ASSEMBLY LH

a. Remove the 2 screws.

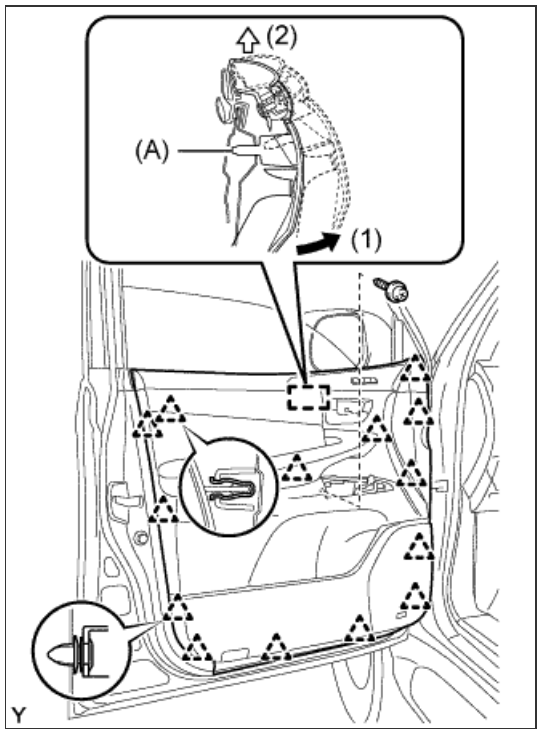
b. Detach the 14 clips.

c. Remove the front inner door glass weatherstrip LH together with the front door trim board sub-assembly LH by pulling them upward in the order shown in the illustration.

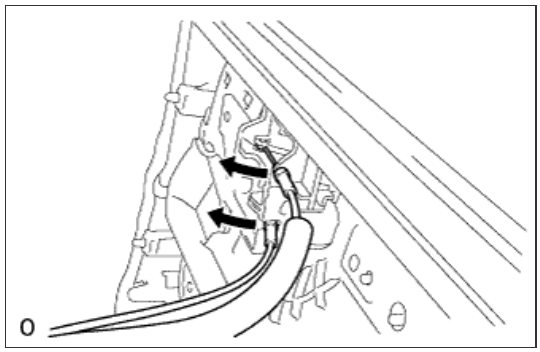
**HINT:**

Make sure that the pin labeled A in the illustration is detached from the door panel.

d. Disconnect the connector.




e. Disconnect the 2 cables from the front door inside handle sub-assembly LH.



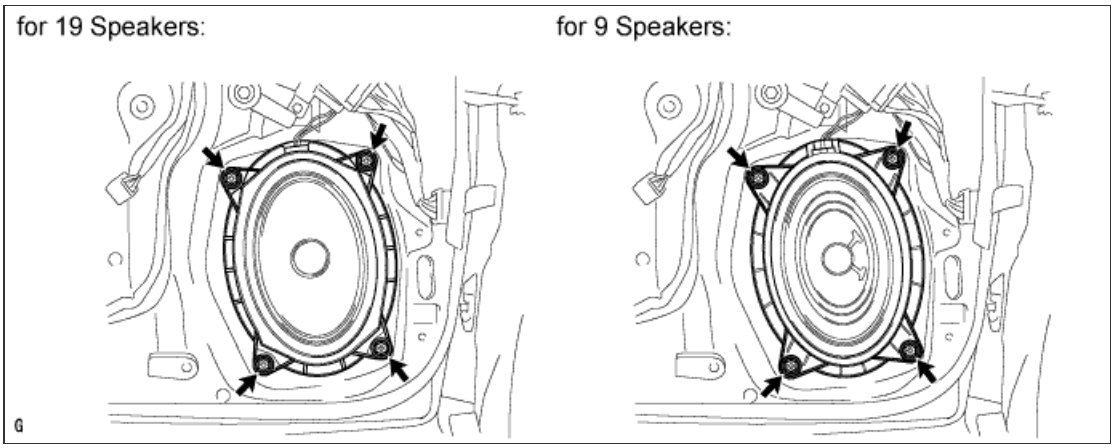
## 7. REMOVE FRONT NO. 1 SPEAKER ASSEMBLY

a. Disconnect the speaker connector.

b. Remove the 4 screws and speaker.

**NOTICE:**

Do not touch the cone part of the speaker.



**for Preparation** Click here

## 1. INSPECT FRONT NO. 1 SPEAKER ASSEMBLY

a. Measure the resistance according to the value(s) in the table below.

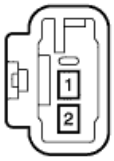
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 1.9 +/-0.4 Ω*1 |
| 1 - 2 | Always | 3 Ω*2 |

*1: for 19 Speakers
*2: for 9 Speakers

If the result is not as specified, replace the front No. 1 speaker assembly.

Component without harness connected:
(Front No. 1 Speaker)




N

**for Preparation** Click here

**HINT:**

- **Use the same procedures for the LH side and RH side.**
- **The procedures listed below are for the LH side.**

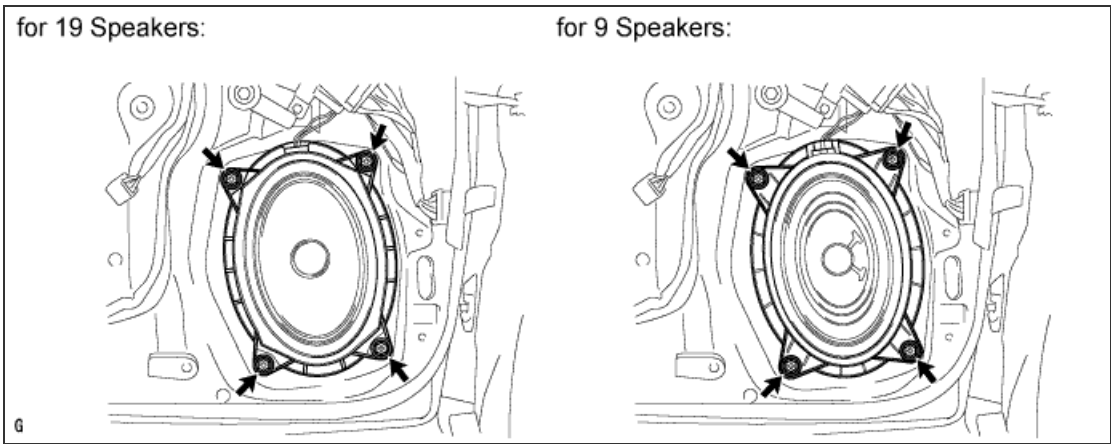
## 1. INSTALL FRONT NO. 1 SPEAKER ASSEMBLY

a. Connect the speaker connector.

b. Install the speaker with the 4 screws.

**NOTICE:**

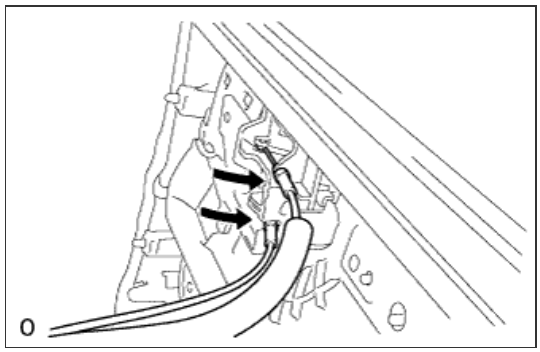
Do not touch the cone part of the speaker.




## 2. INSTALL FRONT DOOR TRIM BOARD SUB-ASSEMBLY LH

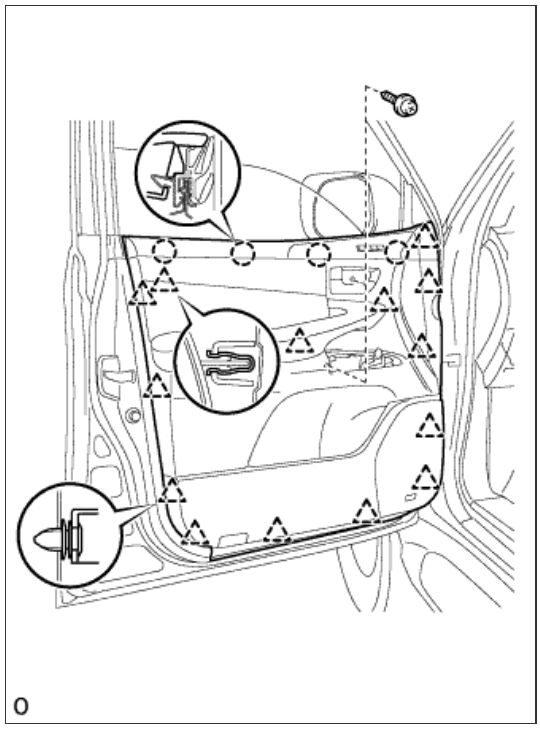
a. Connect the connector.

b. Connect the front door lock remote control cable and front door inside locking cable to the front door inside handle sub-assembly.




c. Attach the 4 claws and 14 clips to install the trim board.

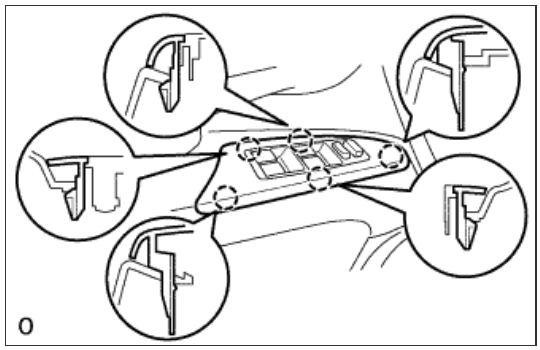
d. Install the 2 screws.



### 3. INSTALL FRONT UPPER ARMREST BASE PANEL LH

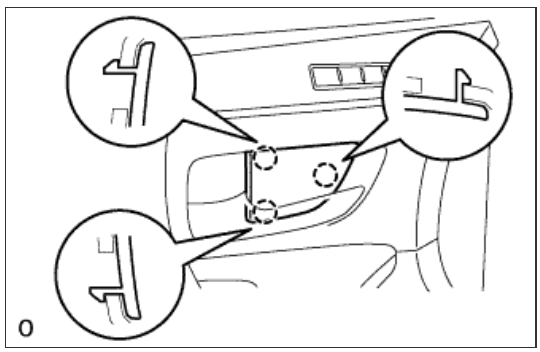
a. Connect the connector.

b. Attach the 5 claws to install the front upper armrest base panel.



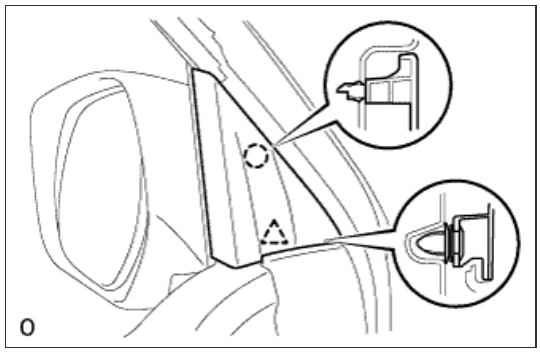
### 4. INSTALL FRONT DOOR INSIDE HANDLE BEZEL PLUG LH

a. Attach the 3 claws to install the inside handle bezel plug.



### 5. INSTALL FRONT LOWER DOOR FRAME BRACKET GARNISH LH

a. Attach the clip and claw to install the front door lower frame bracket garnish.



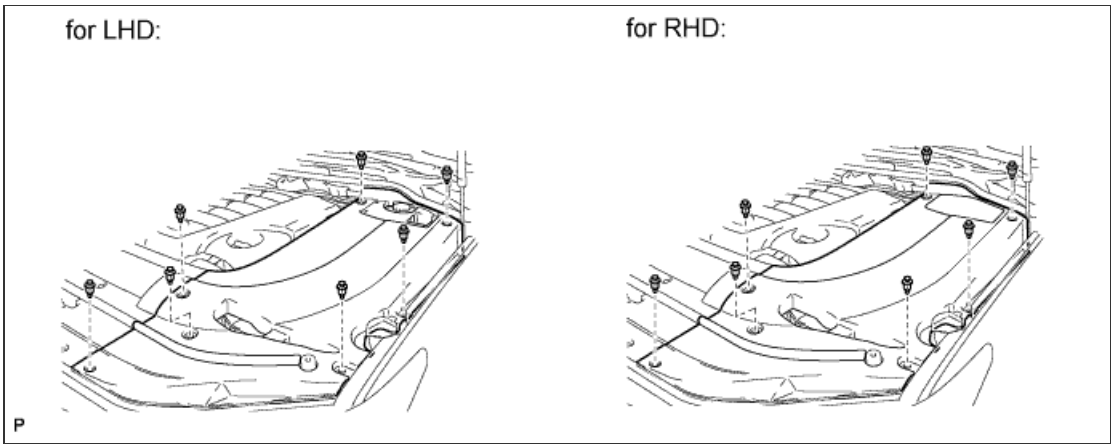

## 6. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 7. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover with the 7 clips.



**for Preparation** Click here

**HINT:**

- **Use the same procedures for the LH side and RH side.**
- **The procedures listed below are for the LH side.**

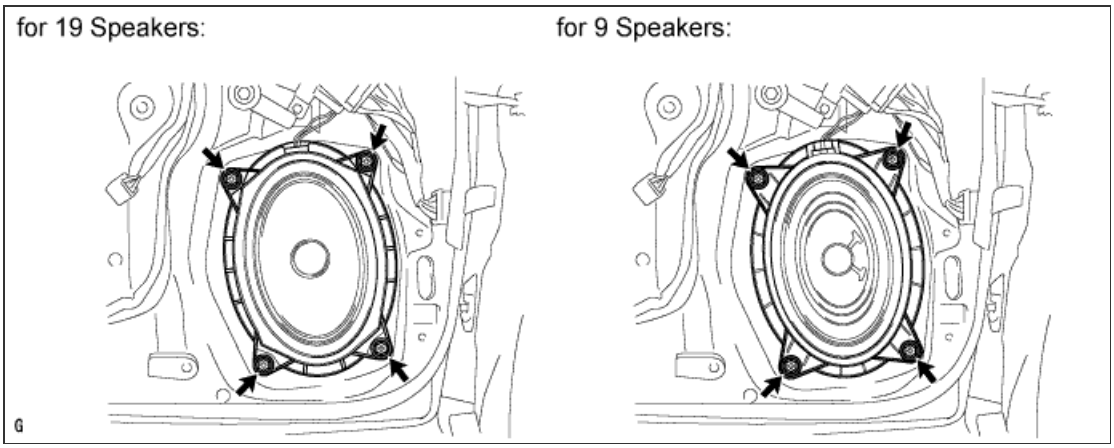
## 1. INSTALL FRONT NO. 1 SPEAKER ASSEMBLY

a. Connect the speaker connector.

b. Install the speaker with the 4 screws.

**NOTICE:**

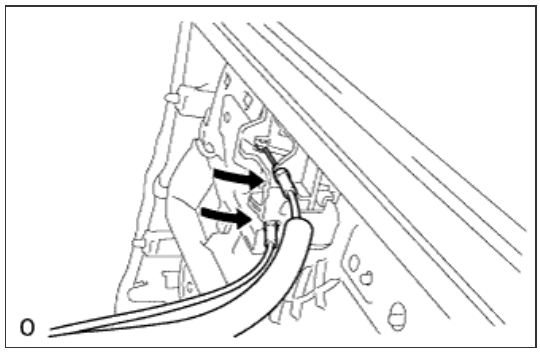
Do not touch the cone part of the speaker.




## 2. INSTALL FRONT DOOR TRIM BOARD SUB-ASSEMBLY LH

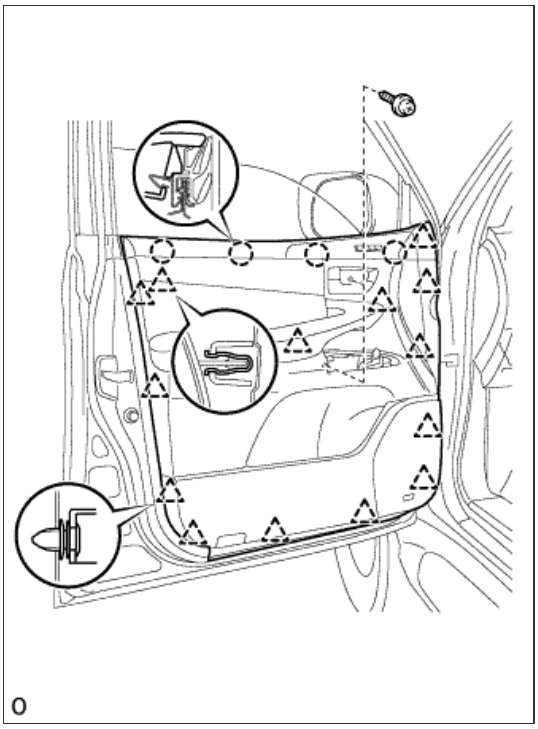
a. Connect the connector.

b. Connect the front door lock remote control cable assembly LH and front door inside locking cable assembly LH to the front door inside handle sub-assembly LH.




c. Attach the 4 claws and 14 clips to install the front door trim board sub-assembly LH.

d. Install the 2 screws.



### 3. INSTALL FRONT UPPER ARMREST BASE PANEL LH

a. Connect the connector.

b. Attach the 5 claws to install the front upper armrest base panel LH.

### 4. INSTALL FRONT DOOR INSIDE HANDLE BEZEL PLUG LH

a. Attach the 3 claws to install the front door inside handle bezel plug LH.

### 5. INSTALL FRONT LOWER DOOR FRAME BRACKET GARNISH LH

a. Attach the clip and claw to install the front lower door frame bracket garnish LH.

### 6. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

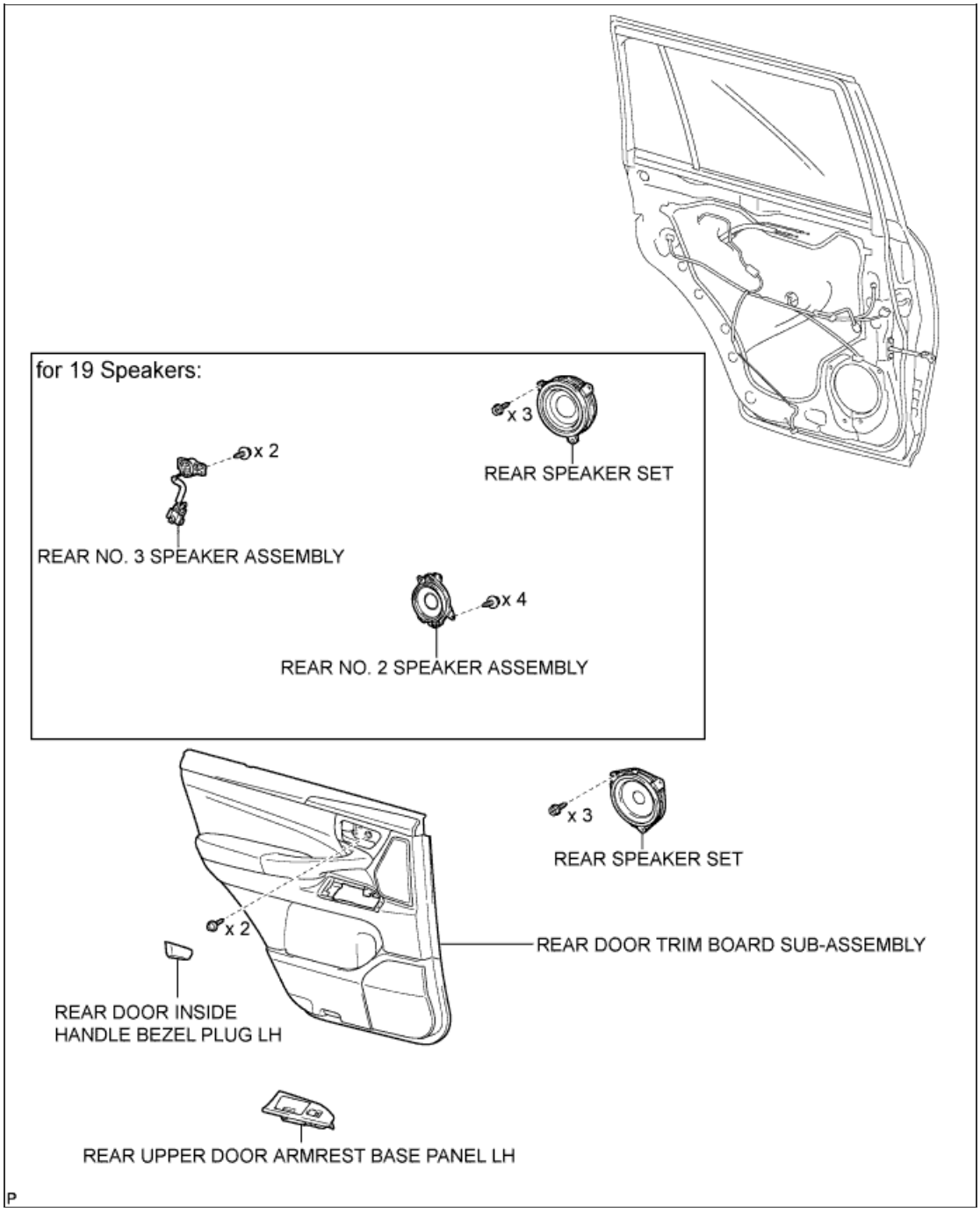
**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

### 7. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover LH with the 7 clips.

**for Preparation** Click here



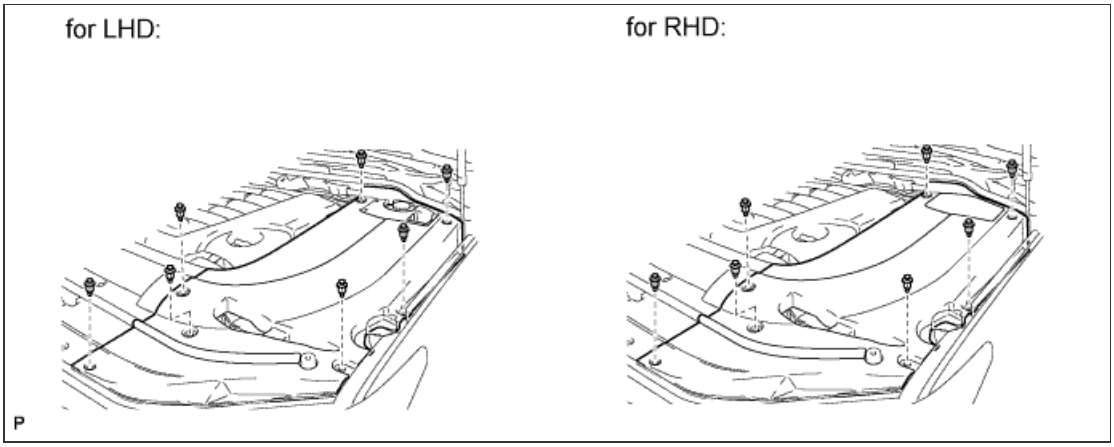
**for Preparation** Click here

**HINT:**

- **Use the same procedures for the LH side and RH side.**
- **The procedures listed below are for the LH side.**

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover.




## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

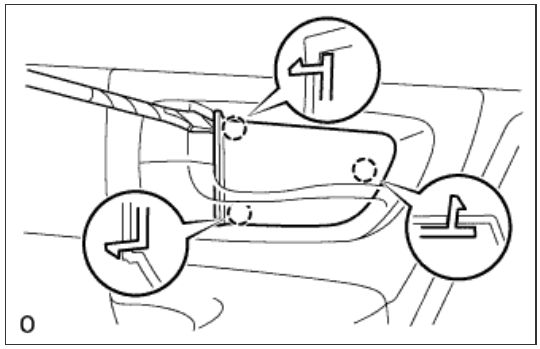
When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 3. REMOVE REAR DOOR INSIDE HANDLE BEZEL PLUG LH

a. Using a screwdriver, detach the 3 claws and remove the inside handle bezel plug.

**HINT:**

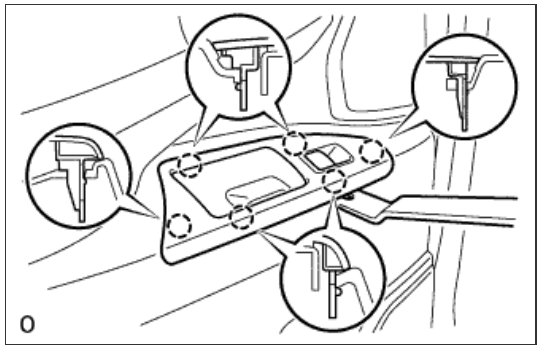
Tape the screwdriver tip before use.




## 4. REMOVE REAR UPPER DOOR ARMREST BASE PANEL LH

a. Using a moulding remover, detach the 6 claws.

b. Disconnect the connector and remove the rear upper door armrest base panel and rear power window regulator switch assembly.

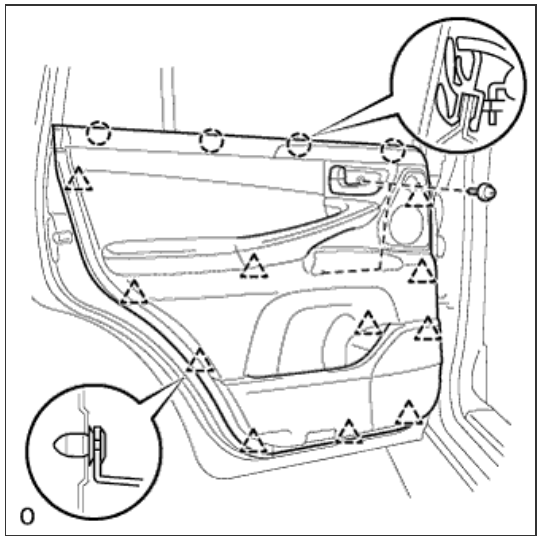


## 5. REMOVE REAR DOOR TRIM BOARD SUB-ASSEMBLY

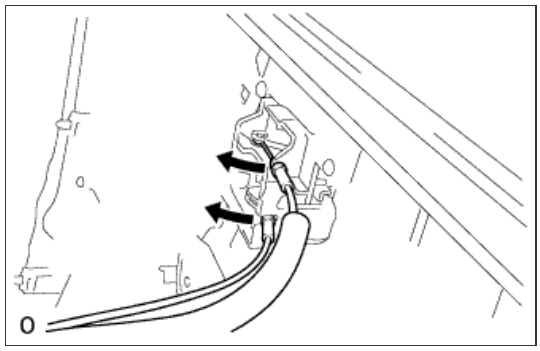
a. Remove the 2 screws.

b. Detach the 11 clips and 4 claws.

c. Disconnect the connector and remove the trim board.



d. Disconnect the 2 cables from the inside handle.



## 6. REMOVE REAR SPEAKER SET

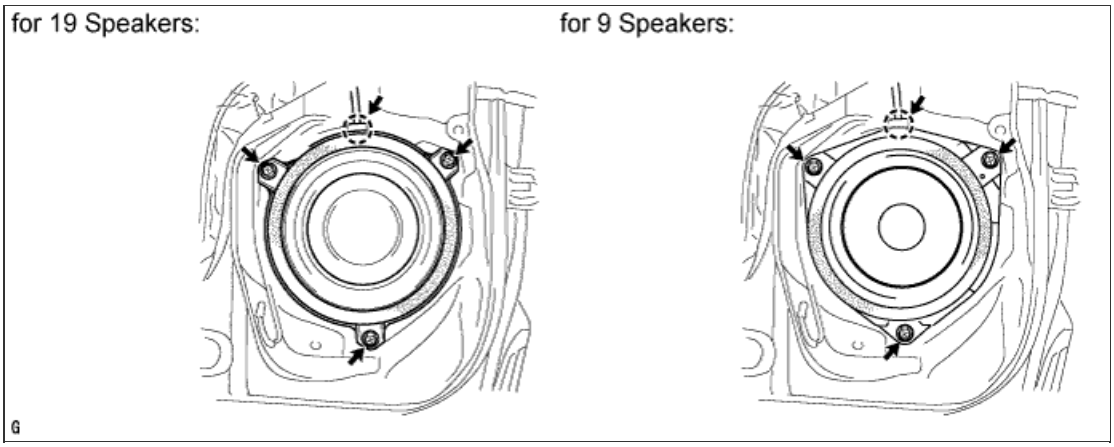
a. Disconnect the speaker connector.

b. Remove the 3 screws.

c. Detach the claw and remove the speaker.

**NOTICE:**

Do not touch the cone part of the speaker.



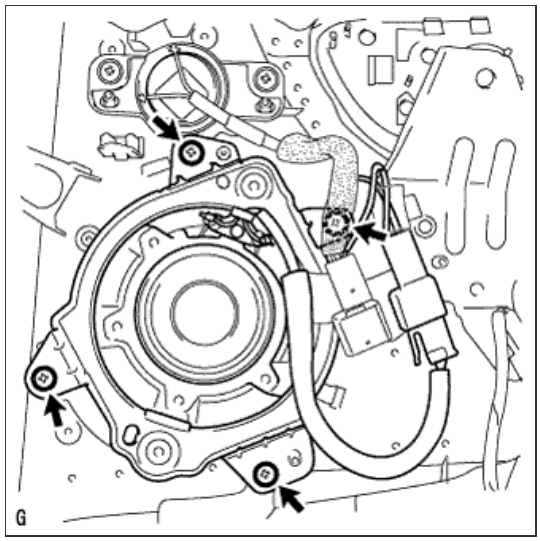

## 7. REMOVE REAR NO. 2 SPEAKER ASSEMBLY (for 19 Speakers)

a. Disconnect the connector.

b. Remove the 4 screws and speaker.

**NOTICE:**

Do not touch the cone part of the speaker.




## 8. REMOVE REAR NO. 3 SPEAKER ASSEMBLY (for 19 Speakers)

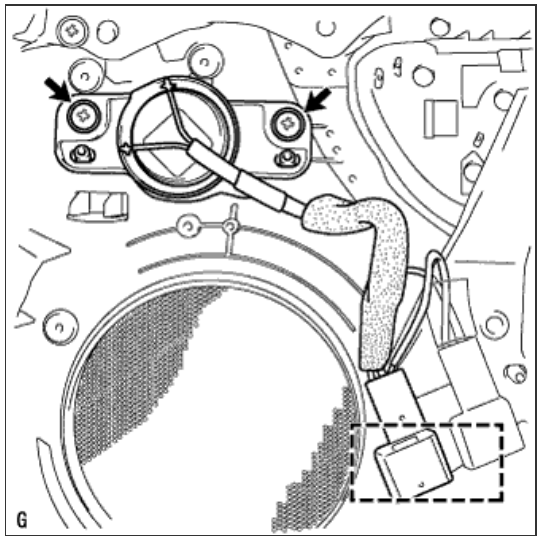
a. Disconnect the connector.

b. Detach the clamp.

c. Remove the 2 screws and speaker.

**NOTICE:**

Do not touch the cone part of the speaker.



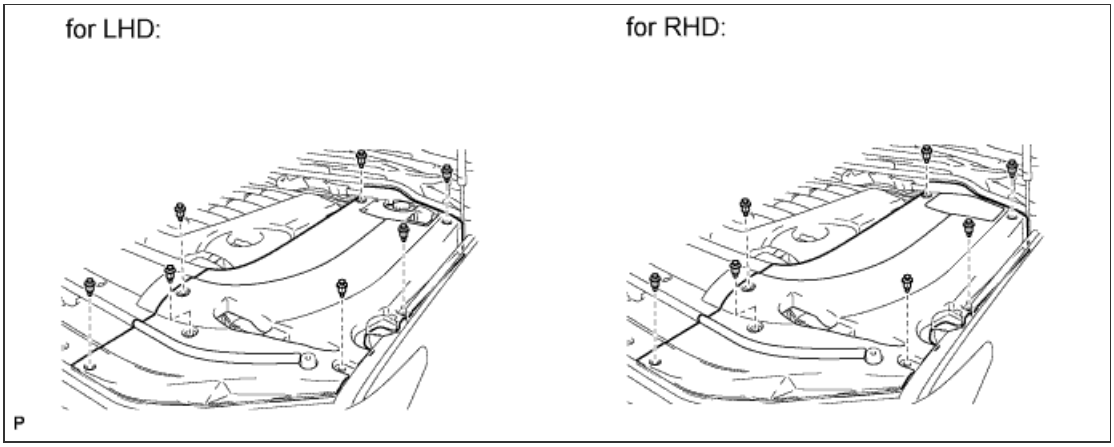
**for Preparation** Click here

**HINT:**

- **Use the same procedures for the LH side and RH side.**
- **The procedures listed below are for the LH side.**

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover LH.




## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 3. REMOVE REAR DOOR INSIDE HANDLE BEZEL PLUG LH

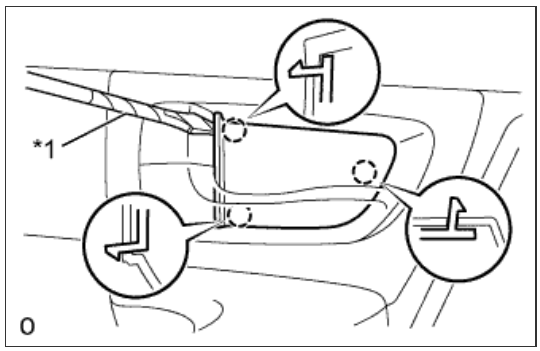
a. Using a screwdriver, detach the 3 claws and remove the rear door inside handle bezel plug LH.

**HINT:**

Tape the screwdriver tip before use.

**Text in Illustration**

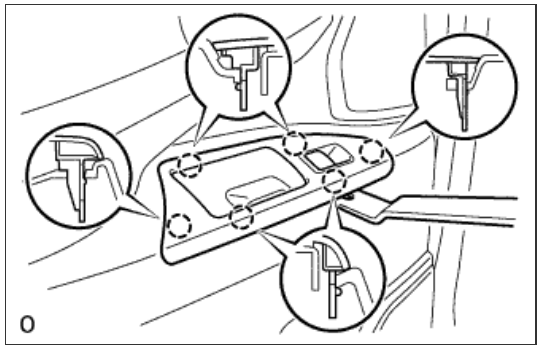
| | |
|---|---|
| *1 | Protective Tape |




## 4. REMOVE REAR UPPER DOOR ARMREST BASE PANEL LH

a. Using a moulding remover, detach the 6 claws.

b. Disconnect the connector and remove the rear upper door armrest base panel LH and rear power window regulator switch assembly.




## 5. REMOVE REAR DOOR TRIM BOARD SUB-ASSEMBLY

a. Remove the 2 screws.

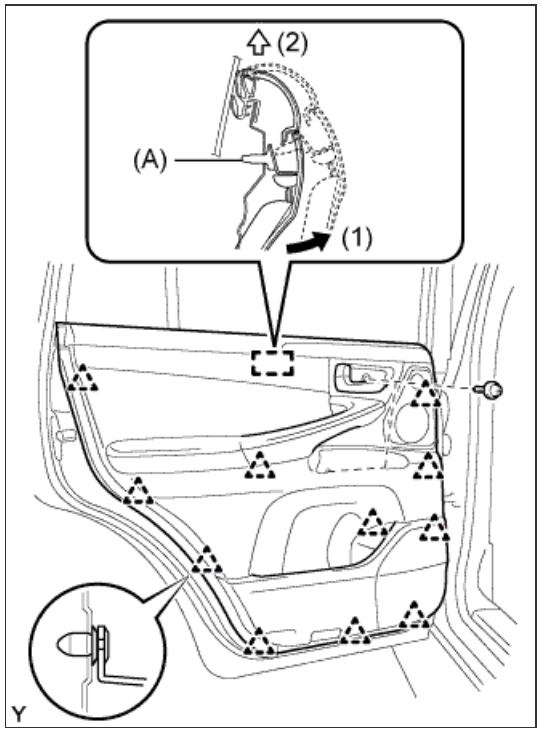
b. Detach the 11 clips.

c. Remove the rear inner door glass weatherstrip LH together with the rear door trim board sub-assembly LH by pulling them upward in the order shown in the illustration.

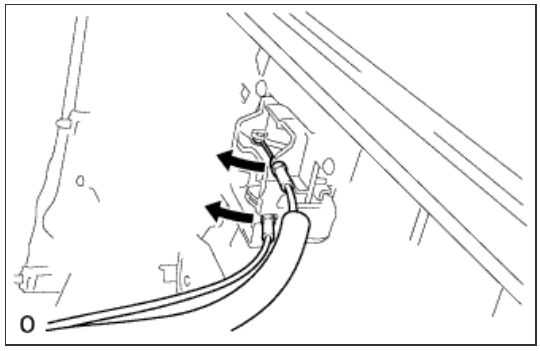
**HINT:**

Make sure that the pin labeled A in the illustration is detached from the door panel.

d. Disconnect the connector.




e. Disconnect the 2 cables from the rear door inside handle sub-assembly LH.




## 6. REMOVE REAR SPEAKER SET

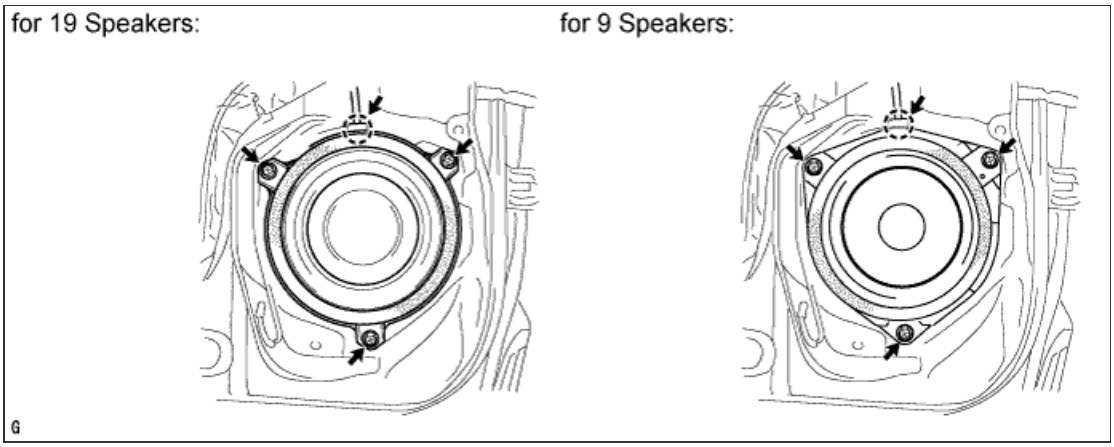
a. Disconnect the speaker connector.

b. Remove the 3 screws.

c. Detach the claw and remove the speaker.

**NOTICE:**

Do not touch the cone part of the speaker.



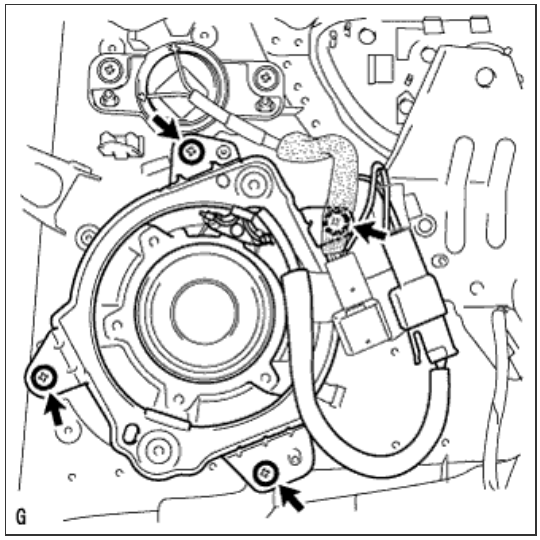

## 7. REMOVE REAR NO. 2 SPEAKER ASSEMBLY (for 19 Speakers)

a. Disconnect the connector.

b. Remove the 4 screws and speaker.

**NOTICE:**

Do not touch the cone part of the speaker.




## 8. REMOVE REAR NO. 3 SPEAKER ASSEMBLY (for 19 Speakers)

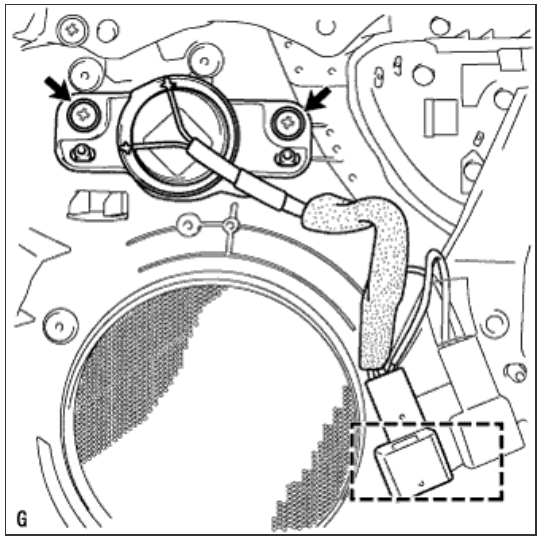
a. Disconnect the connector.

b. Detach the clamp.

c. Remove the 2 screws and speaker.

**NOTICE:**

Do not touch the cone part of the speaker.



**for Preparation** Click here

## 1. INSPECT REAR SPEAKER SET

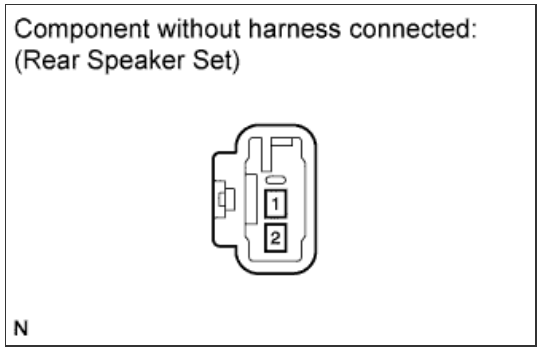
a. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 6.0 +/-1.2 Ω*1 |
| 1 - 2 | Always | 4 Ω*2 |

*1: for 19 Speakers
*2: for 9 Speakers

If the result is not as specified, replace the rear speaker set.



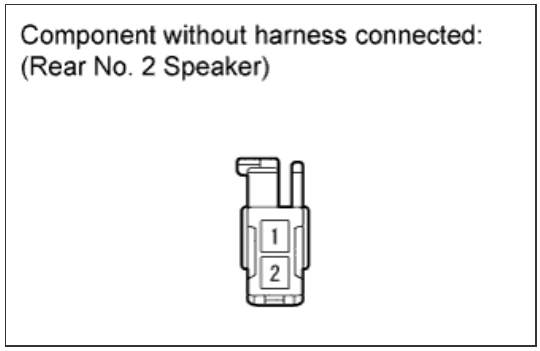

## 2. INSPECT REAR NO. 2 SPEAKER ASSEMBLY (for 19 Speakers)

a. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 6.0 +/-1.0 Ω |

If the result is not as specified, replace the rear No. 2 speaker assembly.




## 3. INSPECT REAR NO. 3 SPEAKER ASSEMBLY (for 19 Speakers)

a. When there is a malfunction such as noise from a speaker or no sound at all, replace the speaker with a new one and check that the malfunction disappears.

**OK:**
**Malfunction disappears.**

**HINT:**

- **Connect all the connectors to the rear No. 3 speakers.**
- **When there is a possibility that either the right or left rear speaker is defective, inspect by interchanging the right one with the left one.**
- **Perform the inspection above on both LH and RH sides.**

**for Preparation** Click here

**HINT:**

- **Use the same procedures for the LH side and RH side.**
- **The procedures listed below are for the LH side.**

## 1. INSTALL REAR NO. 3 SPEAKER ASSEMBLY (for 19 Speakers)

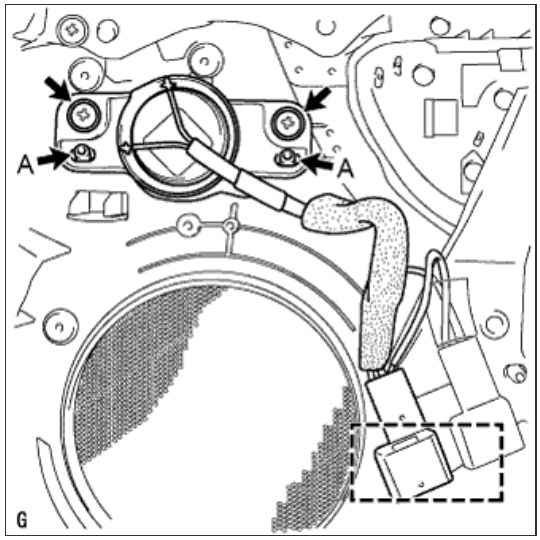
a. Align the speaker to the door position pins labeled A.

b. Install the speaker with the 2 screws.

**NOTICE:**

Do not touch the cone part of the speaker.

c. Attach the clamp and connect the connector.




## 2. INSTALL REAR NO. 2 SPEAKER ASSEMBLY (for 19 Speakers)

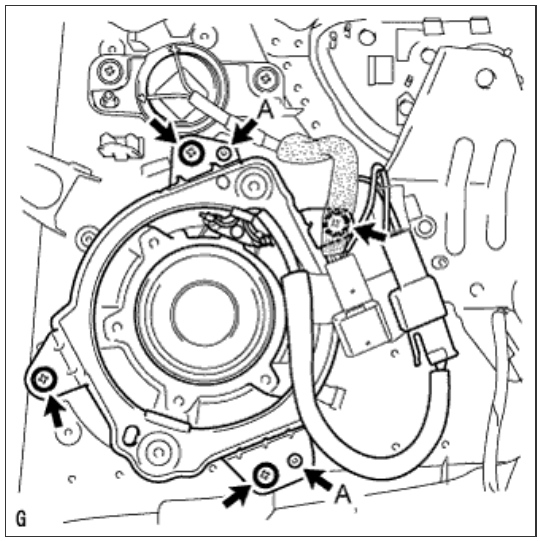
a. Align the speaker to the door position pins labeled A.

b. Install the speaker with the 4 screws.

**NOTICE:**

Do not touch the cone part of the speaker.

c. Connect the connector.




## 3. INSTALL REAR SPEAKER SET

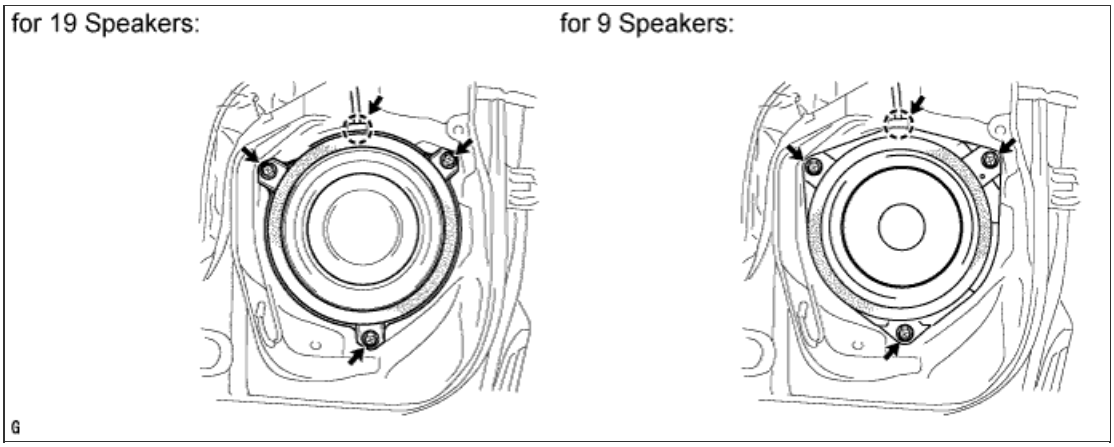
a. Temporarily install the speaker by attaching the claw of the speaker to the door panel.

b. Install the speaker with the 3 screws.

**NOTICE:**

Do not touch the cone part of the speaker.

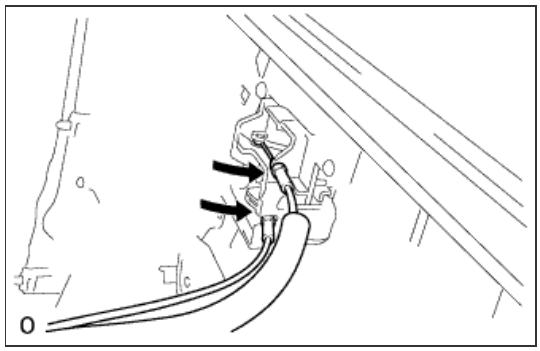
c. Connect the connector.




## 4. INSTALL REAR DOOR TRIM BOARD SUB-ASSEMBLY

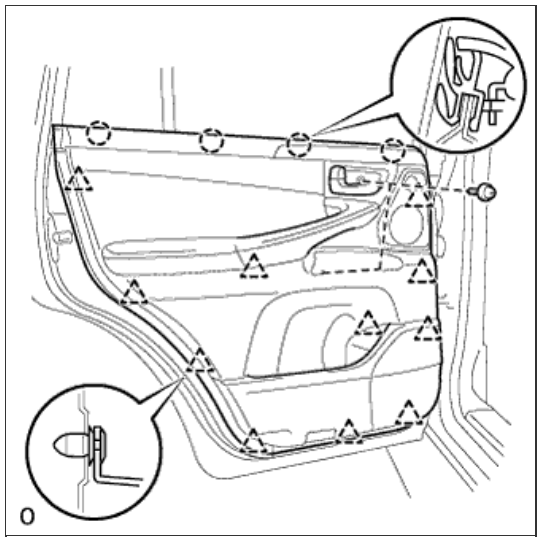
a. Connect the connector.

b. Connect the rear door lock remote control cable and rear door inside locking cable to the rear door inside handle sub-assembly.



c. Attach the 4 claws and 11 clips to install the rear door trim board sub-assembly.

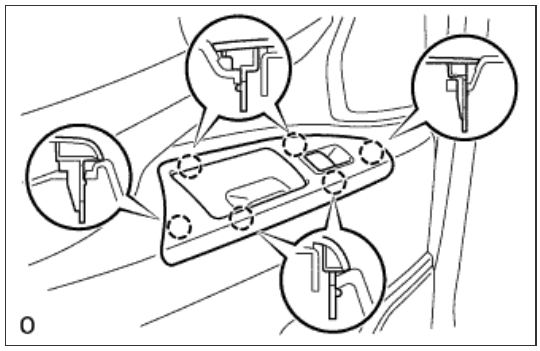
d. Install the 2 screws.



## 5. INSTALL REAR UPPER DOOR ARMREST BASE PANEL LH

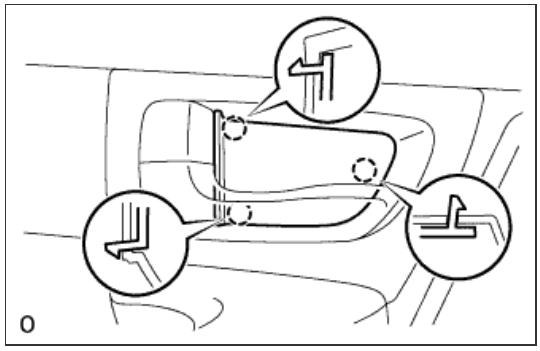
a. Connect the connector.

b. Attach the 6 claws to install the rear upper door armrest base panel.




## 6. INSTALL REAR DOOR INSIDE HANDLE BEZEL PLUG LH

a. Attach the 3 claws to install the bezel plug.



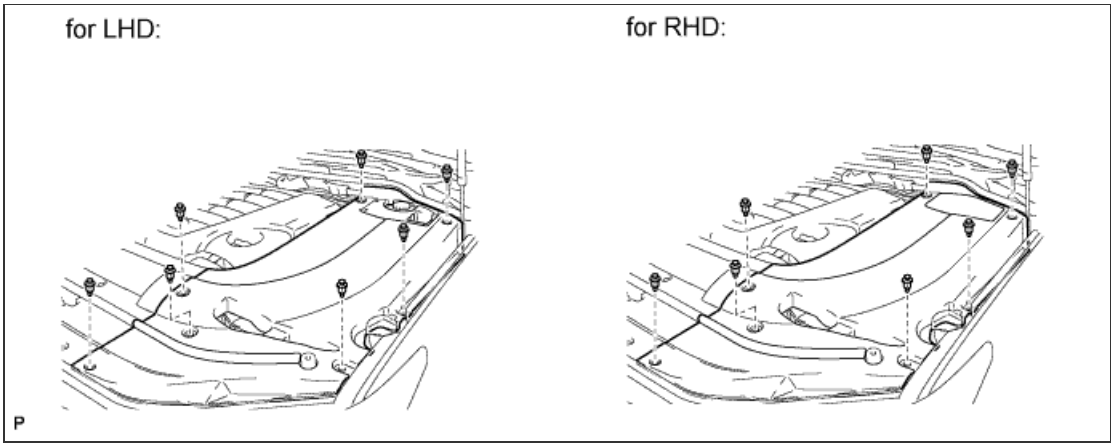

## 7. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 8. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover with the 7 clips.



**for Preparation** Click here

**HINT:**

- **Use the same procedures for the LH side and RH side.**
- **The procedures listed below are for the LH side.**

## 1. INSTALL REAR NO. 3 SPEAKER ASSEMBLY (for 19 Speakers)

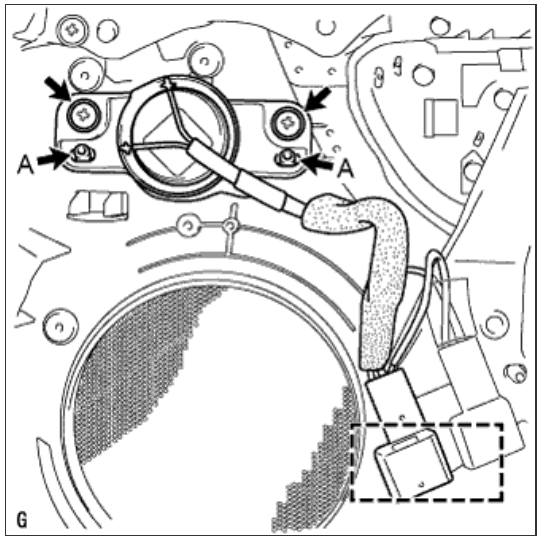
a. Align the speaker to the door position pins labeled A.

b. Install the speaker with the 2 screws.

**NOTICE:**

Do not touch the cone part of the speaker.

c. Attach the clamp and connect the connector.




## 2. INSTALL REAR NO. 2 SPEAKER ASSEMBLY (for 19 Speakers)

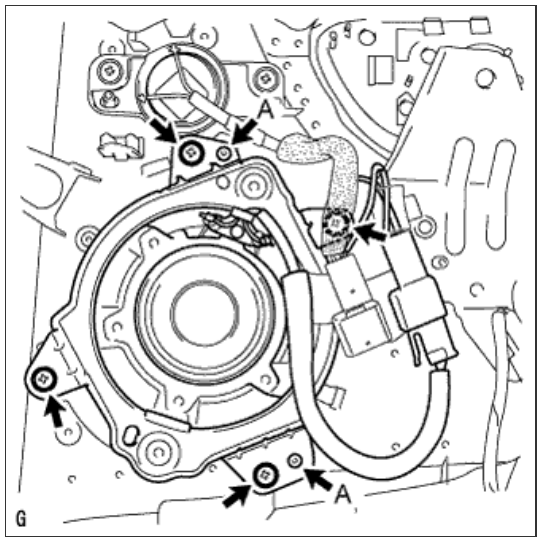
a. Align the speaker to the door position pins labeled A.

b. Install the speaker with the 4 screws.

**NOTICE:**

Do not touch the cone part of the speaker.

c. Connect the connector.




## 3. INSTALL REAR SPEAKER SET

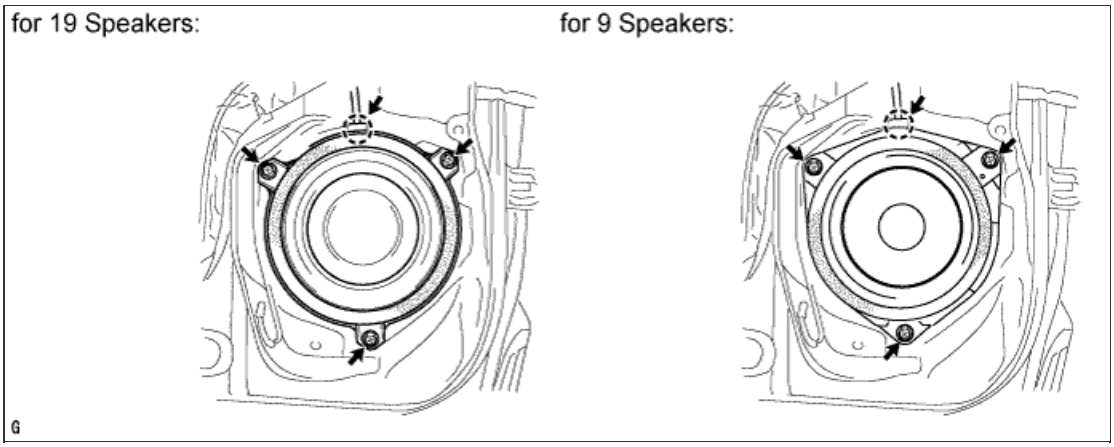
a. Temporarily install the speaker by attaching the claw of the speaker to the door panel.

b. Install the speaker with the 3 screws.

**NOTICE:**

Do not touch the cone part of the speaker.

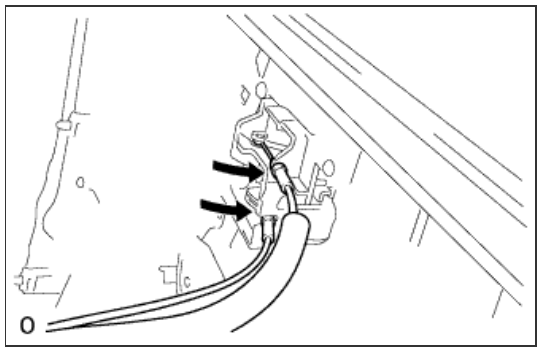
c. Connect the connector.




## 4. INSTALL REAR DOOR TRIM BOARD SUB-ASSEMBLY

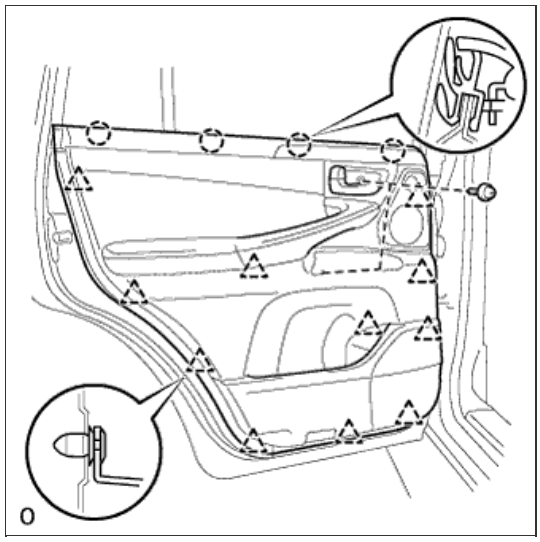
a. Connect the connector.

b. Connect the rear door lock remote control cable assembly LH and rear door inside locking cable assembly LH to the rear door inside handle sub-assembly LH.



c. Attach the 4 claws and 11 clips to install the rear door trim board sub-assembly LH.

d. Install the 2 screws.



## 5. INSTALL REAR UPPER DOOR ARMREST BASE PANEL LH

a. Connect the connector.

b. Attach the 6 claws to install the rear upper door armrest base panel LH.

## 6. INSTALL REAR DOOR INSIDE HANDLE BEZEL PLUG LH

a. Attach the 3 claws to install the rear door inside handle bezel plug LH.

## 7. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

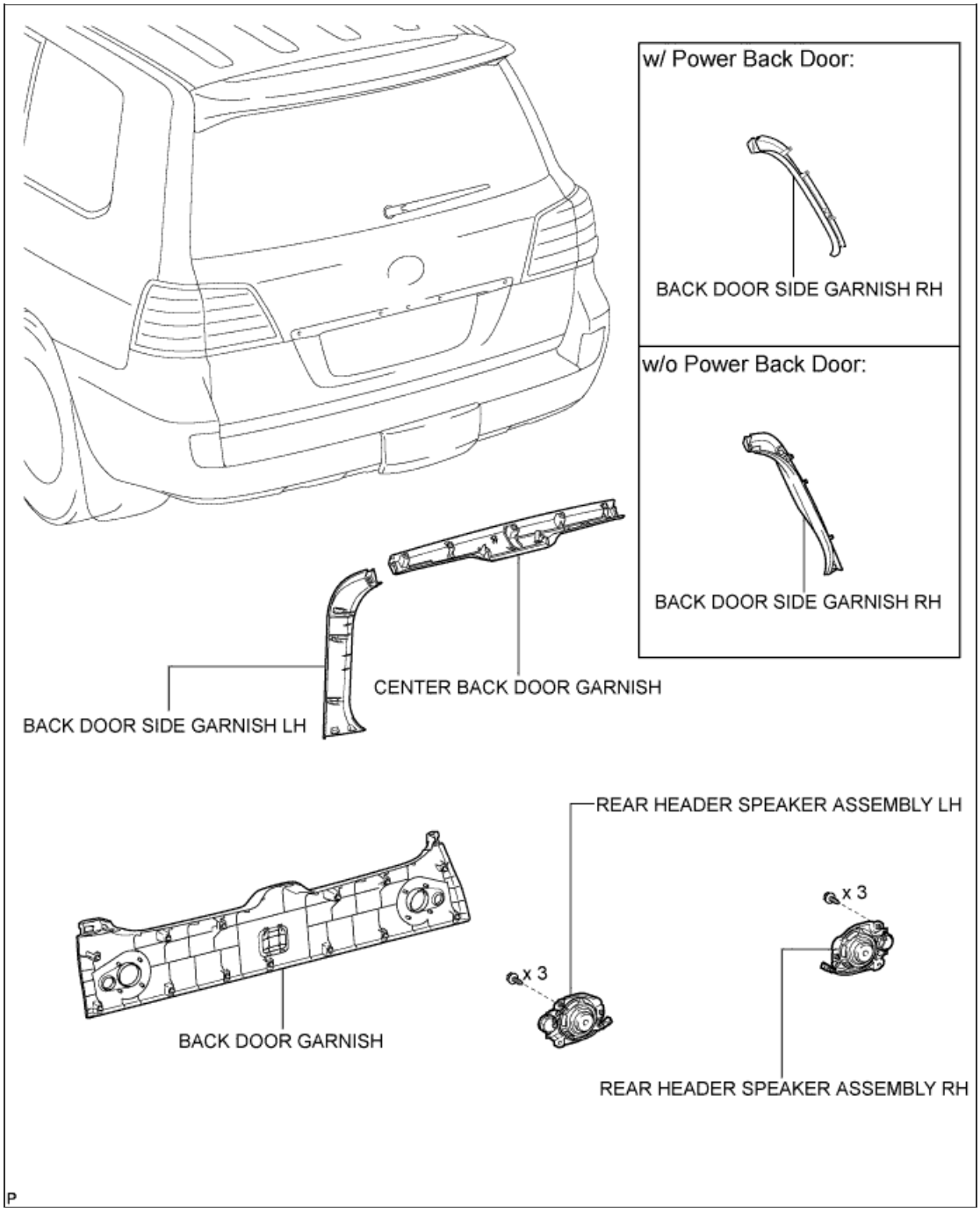
**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 8. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover LH with the 7 clips.

**for Preparation** Click here



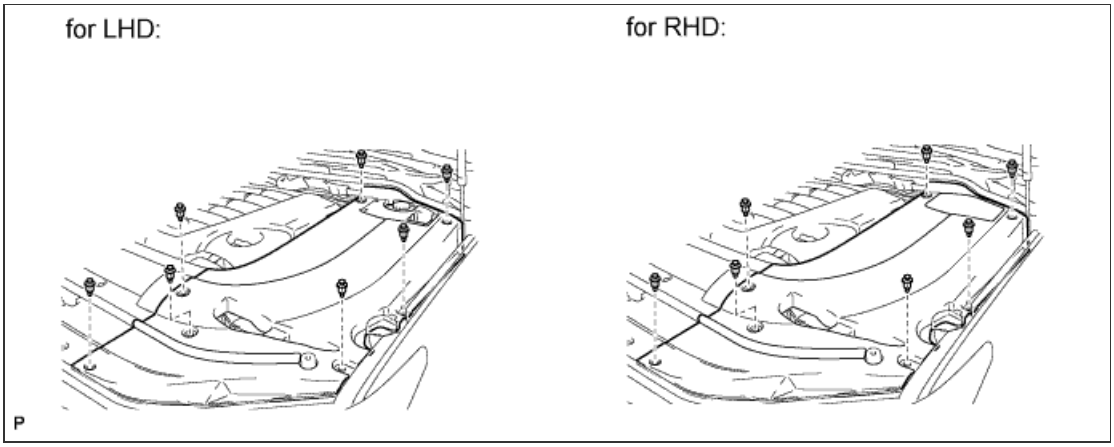
**for Preparation** Click here

**HINT:**

- **Use the same procedures for the LH side and RH side.**
- **The procedures listed below are for the LH side.**

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover.



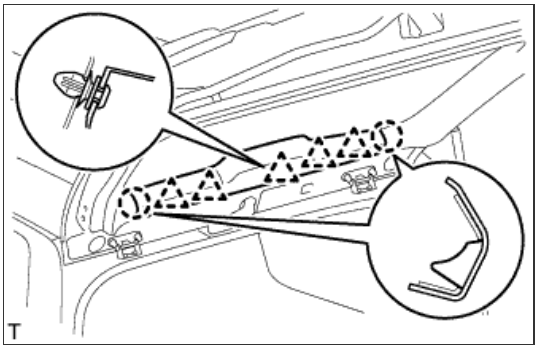

## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

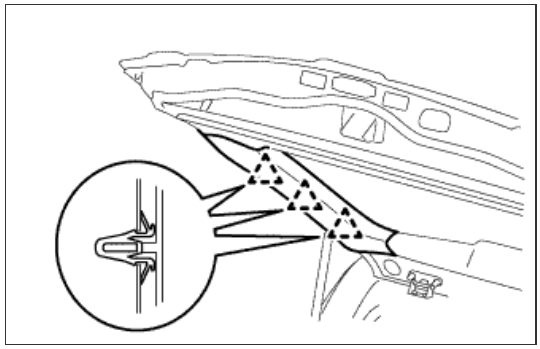
## 3. REMOVE CENTER BACK DOOR GARNISH

a. Detach the 5 clips and 2 claws, and remove the back door garnish.




## 4. REMOVE BACK DOOR SIDE GARNISH LH

a. Detach the 3 clips and remove the back door side garnish.



## 5. REMOVE BACK DOOR SIDE GARNISH RH

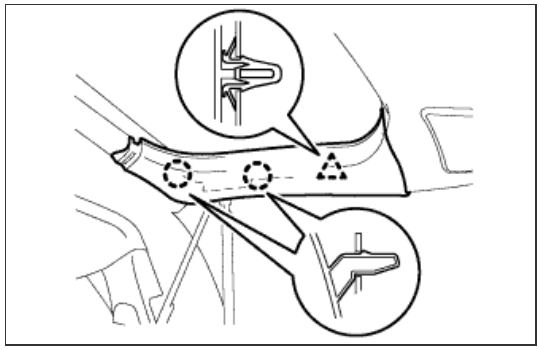
a. w/o Power Back Door:

**HINT:**

Use the same procedures described for the LH side.

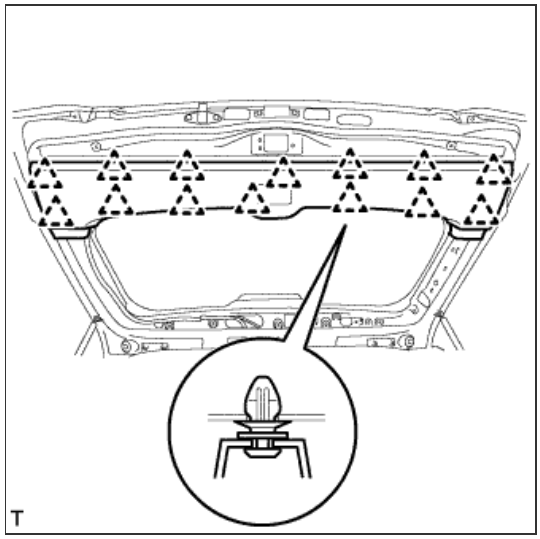
b. w/ Power Back Door:

i. Detach the clip and 2 claws and remove the back door side garnish.



## 6. REMOVE BACK DOOR GARNISH

a. Using a screwdriver, detach the 14 clips and remove the back door garnish.



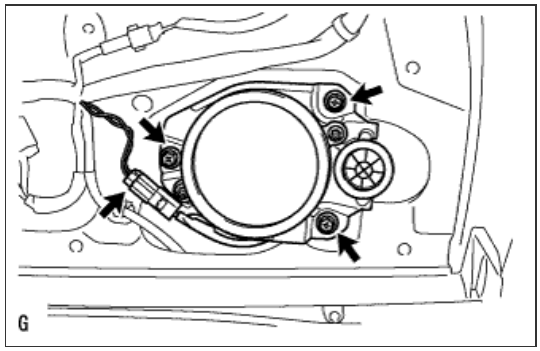

## 7. REMOVE REAR HEADER SPEAKER ASSEMBLY

a. Remove the 3 screws.

b. Disconnect the connector and remove the speaker.

**NOTICE:**

Do not touch the cone part of the speaker.



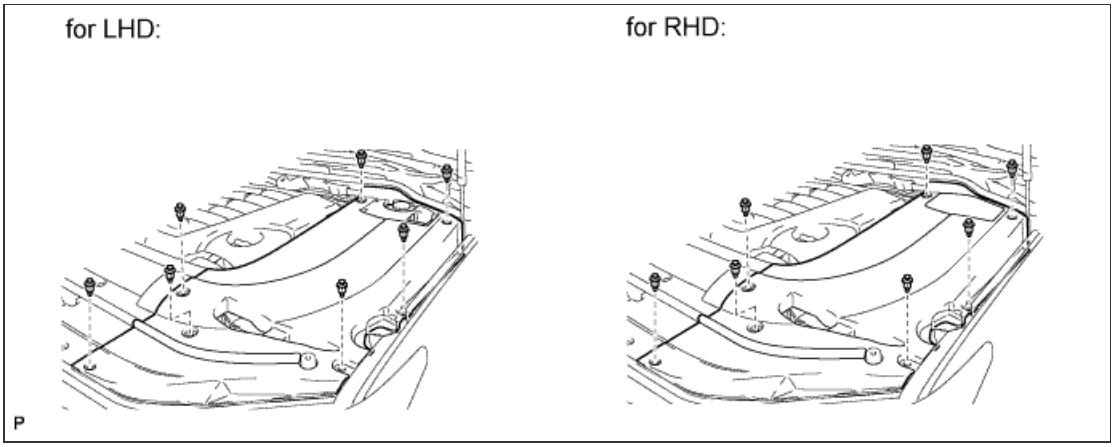
**for Preparation** Click here

**HINT:**

- **Use the same procedures for the LH side and RH side.**
- **The procedures listed below are for the LH side.**

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover LH.



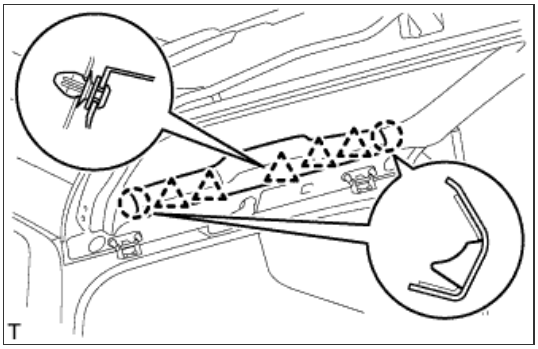

## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

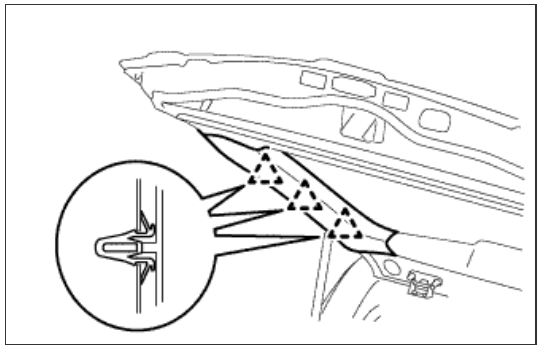
## 3. REMOVE CENTER BACK DOOR GARNISH

a. Detach the 5 clips and 2 claws, and remove the back door garnish.




## 4. REMOVE BACK DOOR SIDE GARNISH LH

a. Detach the 3 clips and remove the back door side garnish.



## 5. REMOVE BACK DOOR SIDE GARNISH RH

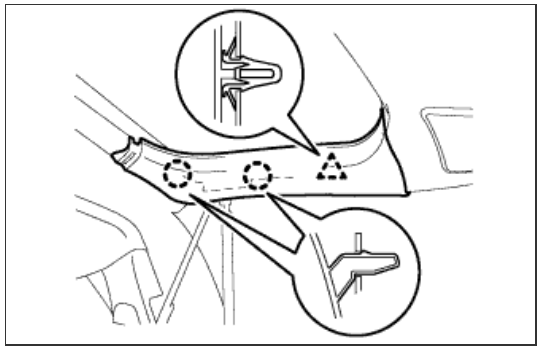
a. w/o Power Back Door:

**HINT:**

Use the same procedures described for the LH side.

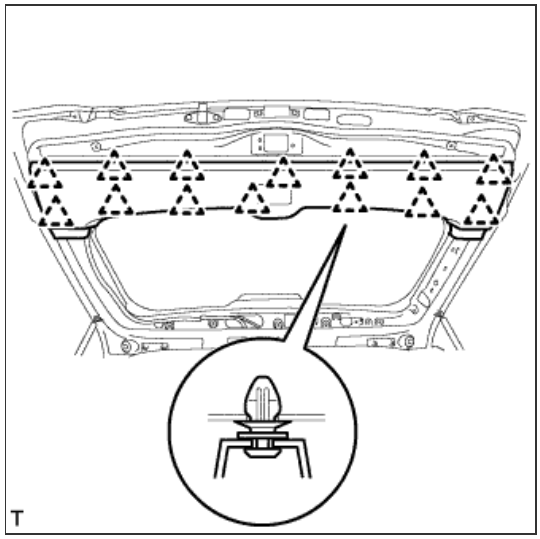
b. w/ Power Back Door:

i. Detach the clip and 2 claws and remove the back door side garnish.



## 6. REMOVE BACK DOOR GARNISH

a. Using a screwdriver, detach the 14 clips and remove the back door garnish.



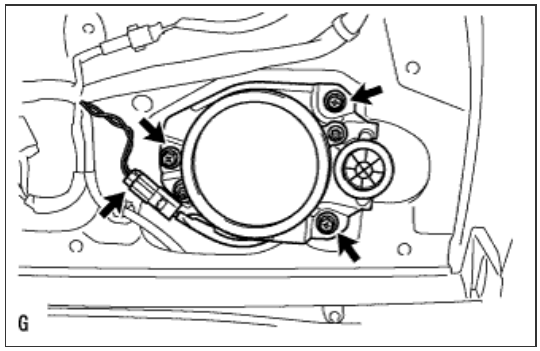

## 7. REMOVE REAR HEADER SPEAKER ASSEMBLY

a. Remove the 3 screws.

b. Disconnect the connector and remove the speaker.

**NOTICE:**

Do not touch the cone part of the speaker.



**for Preparation** Click here

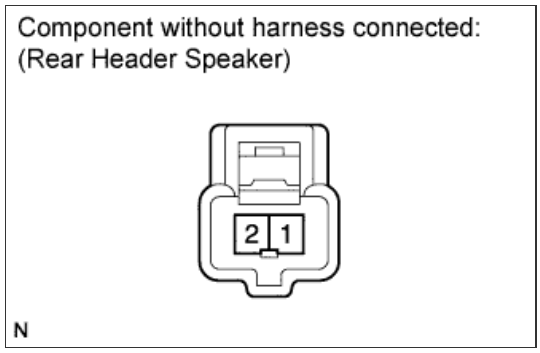
## 1. INSPECT REAR HEADER SPEAKER ASSEMBLY

a. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 6.0 +/-1.0 Ω |

If the result is not as specified, replace the rear header speaker assembly.



**for Preparation** Click here

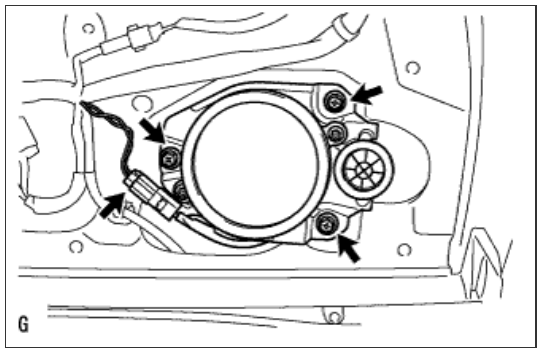
## 1. INSTALL REAR HEADER SPEAKER ASSEMBLY

a. Connect the connector.

b. Install the speaker with the 3 screws.

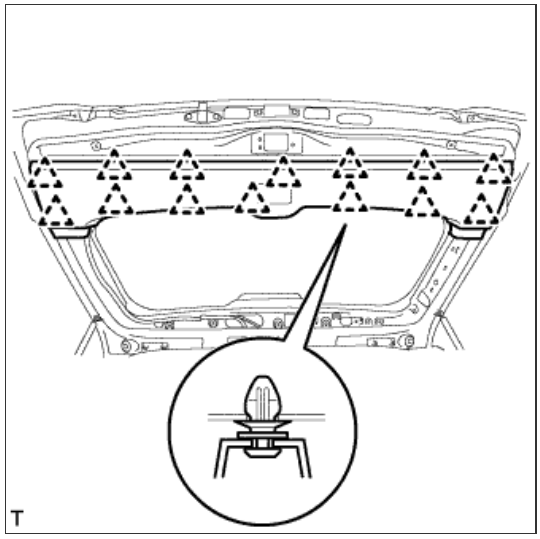
**NOTICE:**

Do not touch the cone part of the speaker.




## 2. INSTALL BACK DOOR GARNISH

a. Attach the 14 clips to install the back door garnish.




## 3. INSTALL BACK DOOR SIDE GARNISH RH

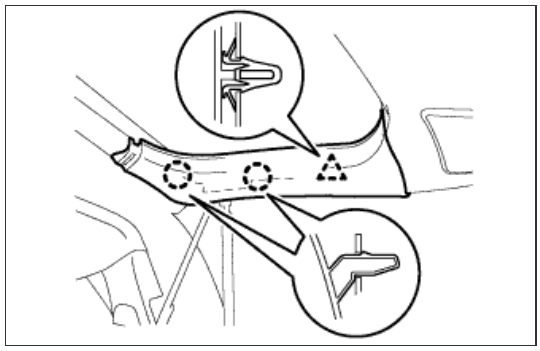
a. w/o Power Back Door:

**HINT:**

Use the same procedures described for the LH side.

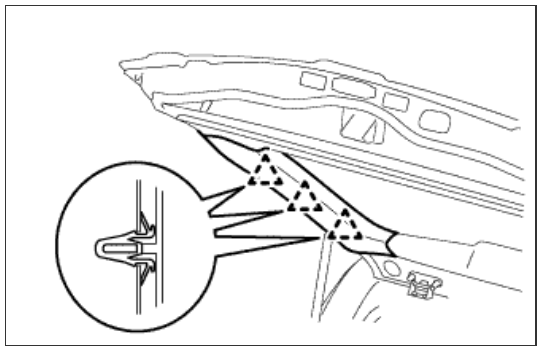
b. w/ Power Back Door:

i. Attach the clip and 2 claws to install the back door side garnish.



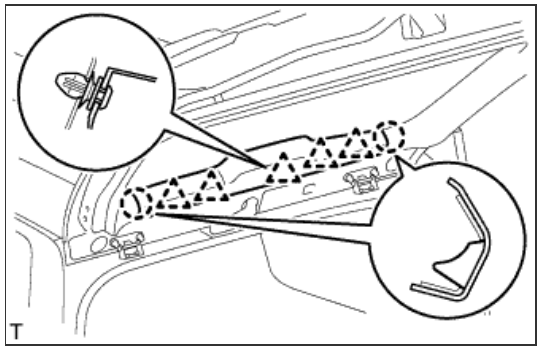
## 4. INSTALL BACK DOOR SIDE GARNISH LH

a. Attach the 3 clips to install the back door side garnish.



## 5. INSTALL CENTER BACK DOOR GARNISH

a. Attach the 5 clips and 2 claws to install the back door garnish.




## 6. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

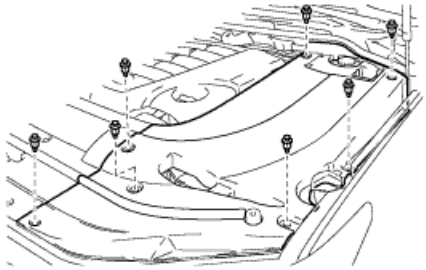
**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

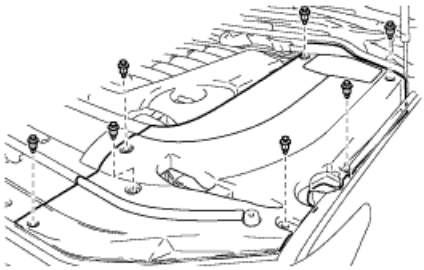
## 7. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover with the 7 clips.

for LHD:



for RHD:



P

**for Preparation** Click here

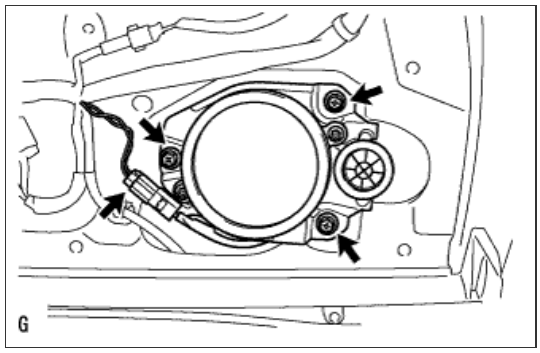
## 1. INSTALL REAR HEADER SPEAKER ASSEMBLY

a. Connect the connector.

b. Install the speaker with the 3 screws.

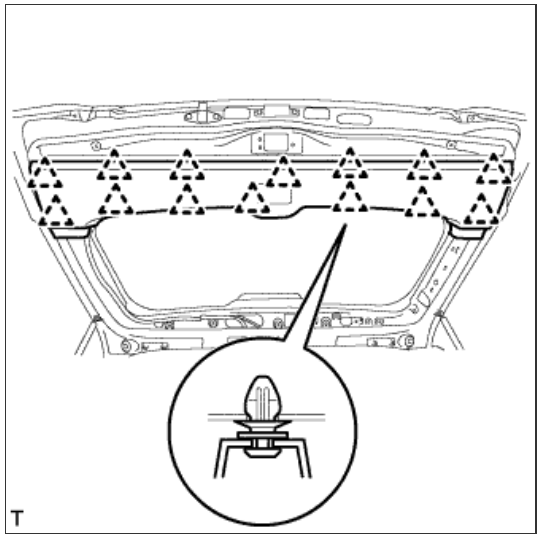
**NOTICE:**

Do not touch the cone part of the speaker.




## 2. INSTALL BACK DOOR GARNISH

a. Attach the 14 clips to install the back door garnish.




## 3. INSTALL BACK DOOR SIDE GARNISH RH

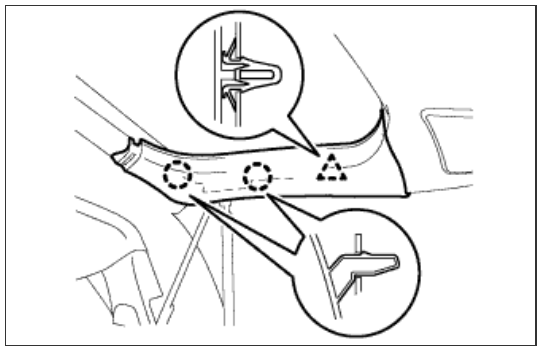
a. w/o Power Back Door:

**HINT:**

Use the same procedures described for the LH side.

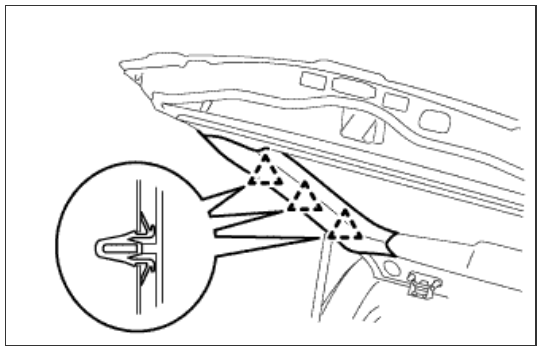
b. w/ Power Back Door:

i. Attach the clip and 2 claws to install the back door side garnish.



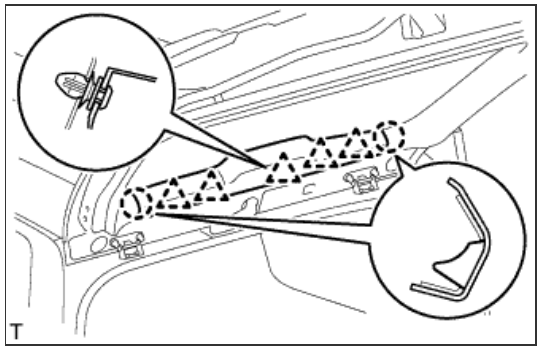
## 4. INSTALL BACK DOOR SIDE GARNISH LH

a. Attach the 3 clips to install the back door side garnish.



## 5. INSTALL CENTER BACK DOOR GARNISH

a. Attach the 5 clips and 2 claws to install the back door garnish.




## 6. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

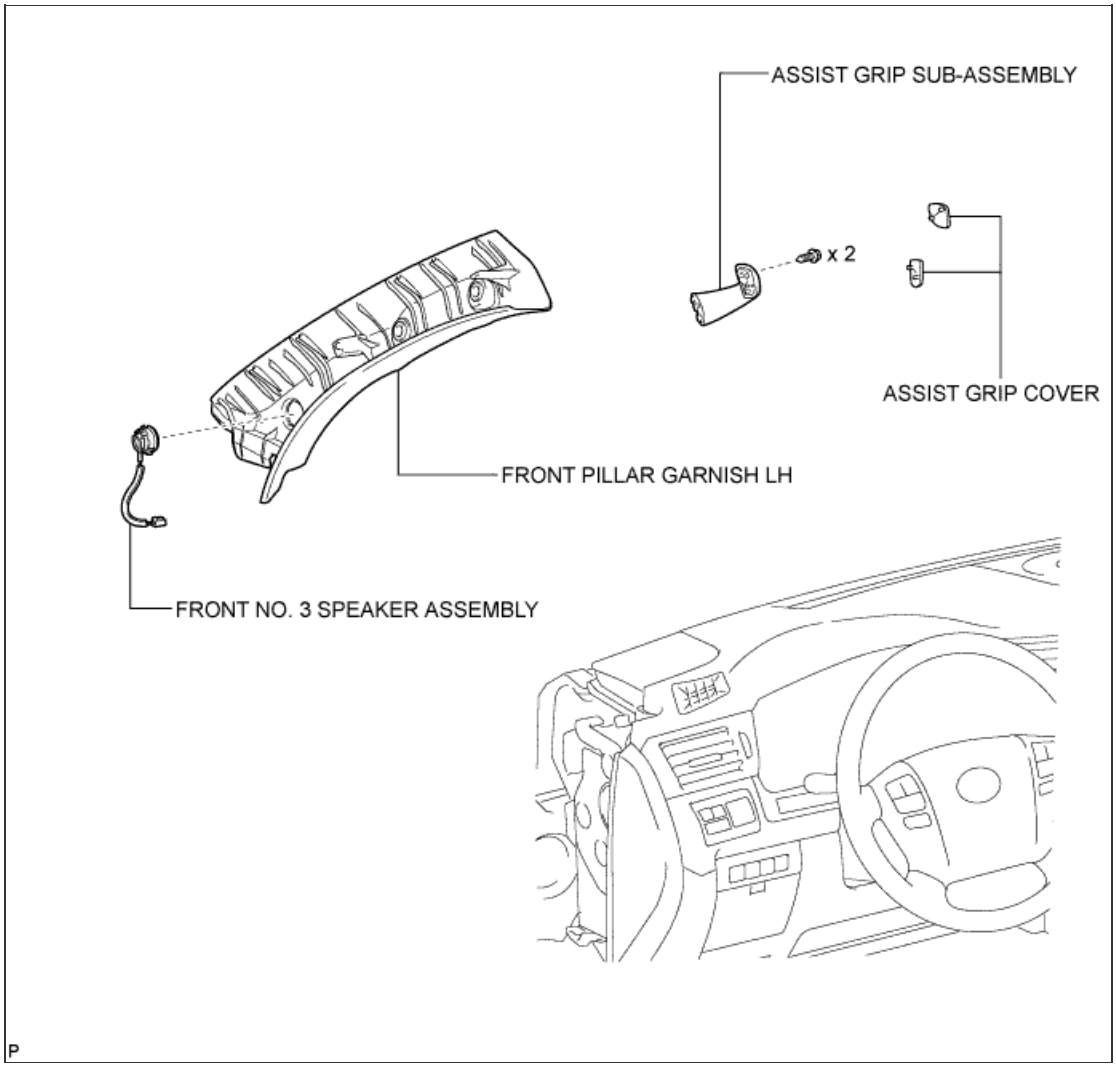
**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 7. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover LH with the 7 clips.

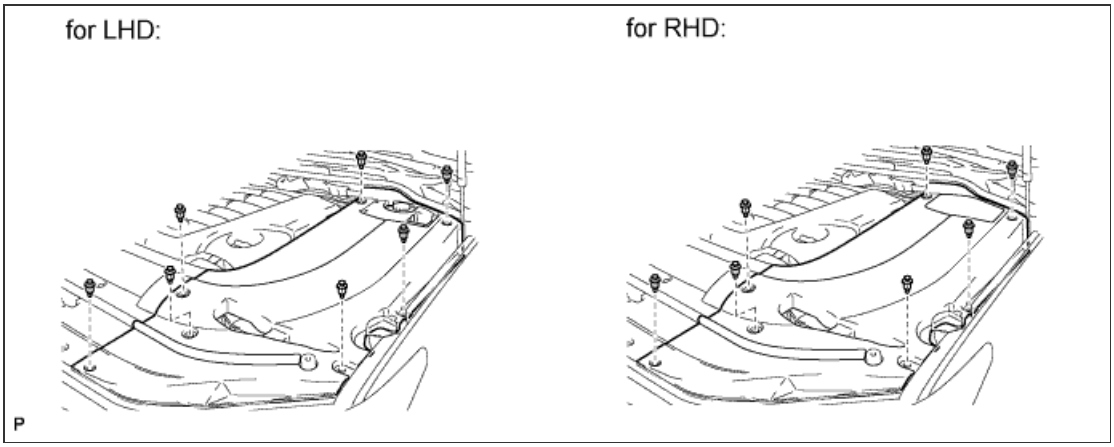
**for Preparation** Click here



**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover.




## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

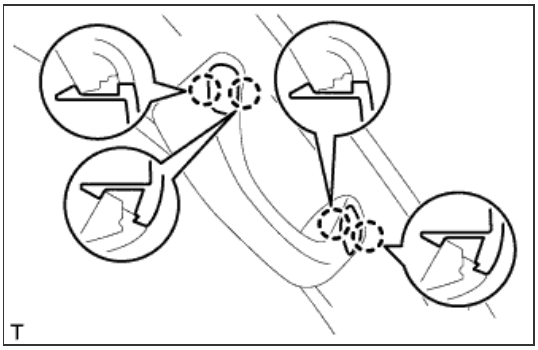
When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 3. REMOVE FRONT ASSIST GRIP SUB-ASSEMBLY

**HINT:**

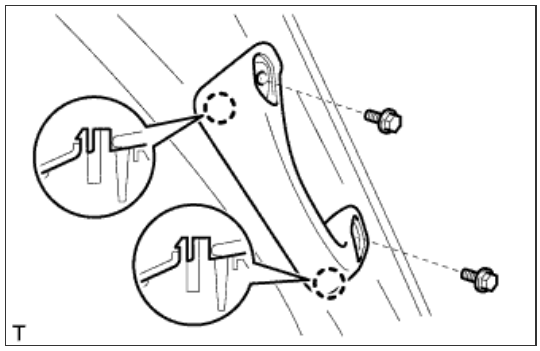
Use the same procedure to remove the front assist grip on the other side.

a. Detach the 4 claws and remove the 2 assist grip plugs.




b. Remove the 2 bolts.

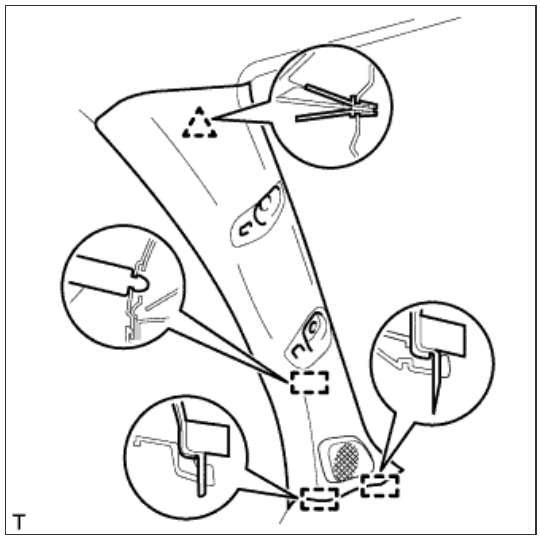
c. Detach the 2 claws and remove the front assist grip.




## 4. REMOVE FRONT PILLAR GARNISH LH

a. Detach the clip and 3 guides.

b. Disconnect the speaker connector and then remove the front pillar garnish.

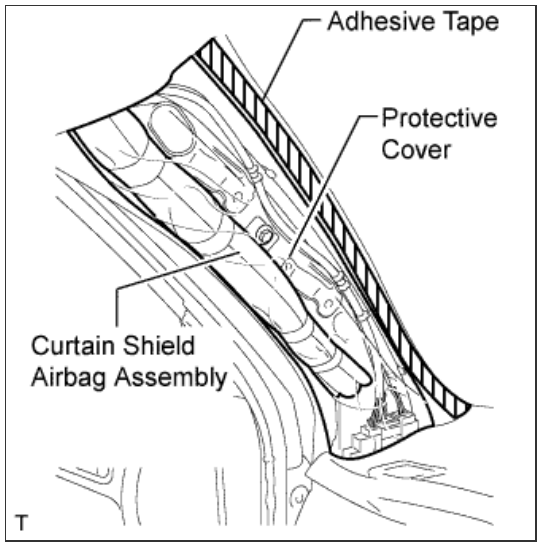



c. Protect the curtain shield airbag.

i. Thoroughly cover the airbag with a cloth or nylon sheet and fix the ends of the cover with adhesive tape, as shown in the illustration.

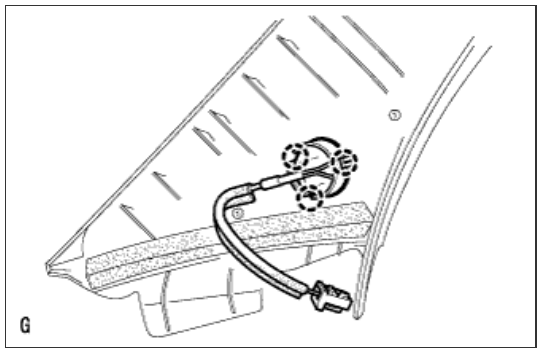
**NOTICE:**

Cover the curtain shield airbag with a protective cover as soon as the front pillar garnish is removed.




## 5. REMOVE FRONT NO. 3 SPEAKER ASSEMBLY

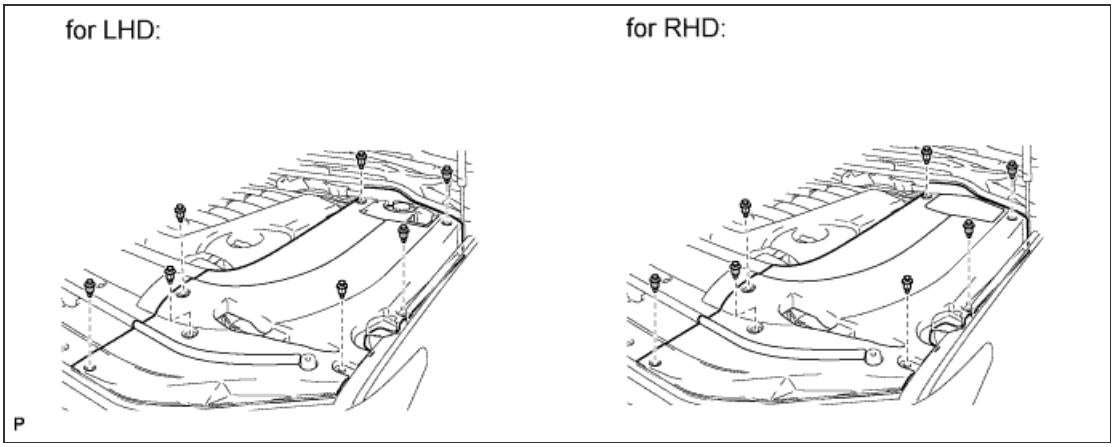
a. Detach the 3 claws and remove the speaker.


G

**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover LH.




## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

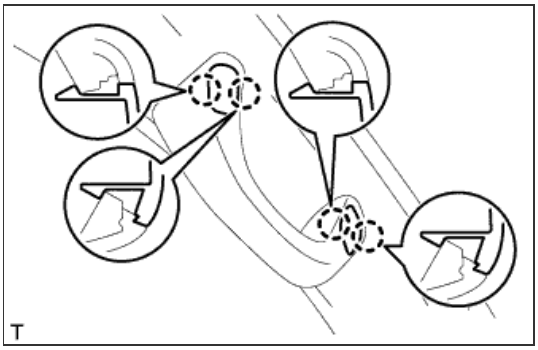
When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 3. REMOVE FRONT ASSIST GRIP SUB-ASSEMBLY

**HINT:**

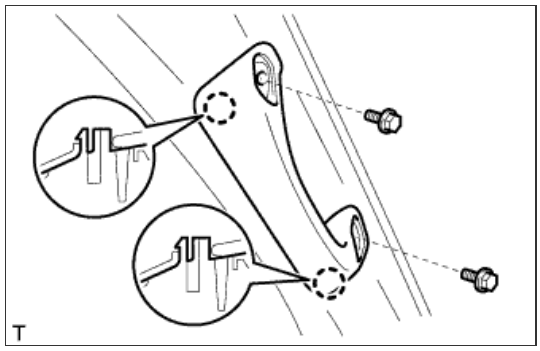
Use the same procedure to remove the front assist grip on the other side.

a. Detach the 4 claws and remove the 2 assist grip plugs.




b. Remove the 2 bolts.

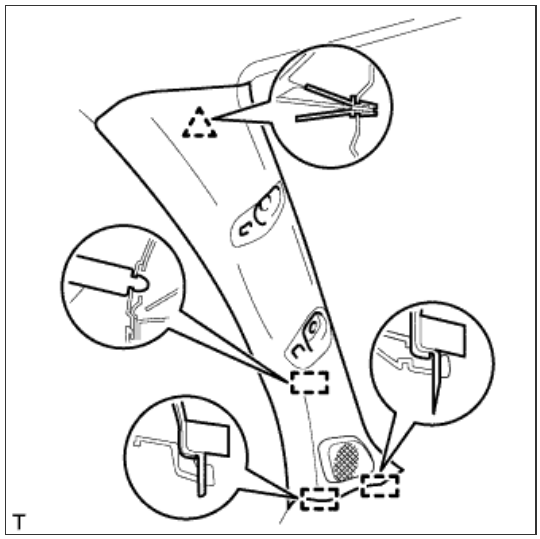
c. Detach the 2 claws and remove the front assist grip.




## 4. REMOVE FRONT PILLAR GARNISH LH

a. Detach the clip and 3 guides.

b. Disconnect the speaker connector and then remove the front pillar garnish.

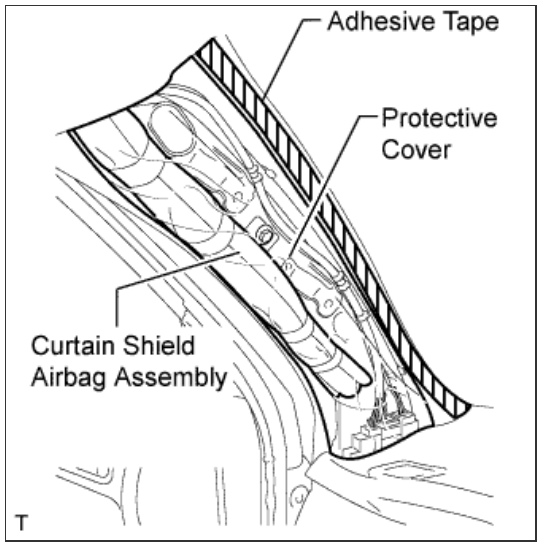



c. Protect the curtain shield airbag.

i. Thoroughly cover the airbag with a cloth or nylon sheet and fix the ends of the cover with adhesive tape, as shown in the illustration.

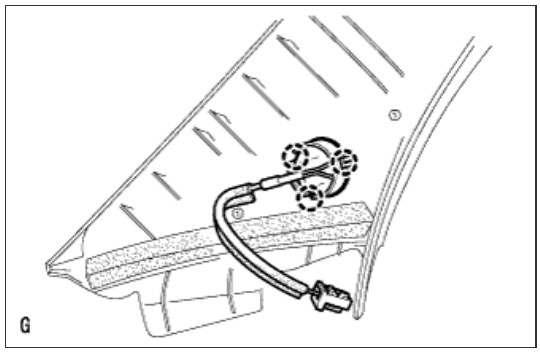
**NOTICE:**

Cover the curtain shield airbag with a protective cover as soon as the front pillar garnish is removed.




## 5. REMOVE FRONT NO. 3 SPEAKER ASSEMBLY

a. Detach the 3 claws and remove the speaker.


G

**for Preparation** Click here

## 1. INSPECT FRONT NO. 3 SPEAKER ASSEMBLY

a. When there is a malfunction such as noise from a speaker or no sound at all, replace the speaker with a new one and check that the malfunction disappears.

**OK:**

**Malfunction disappears.**

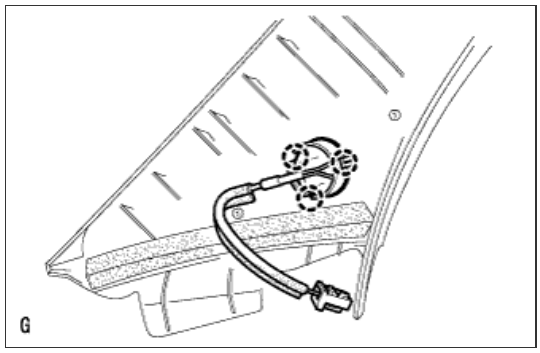
**HINT:**

- **Connect all the connectors to the front No. 3 speakers.**
- **When there is a possibility that either the right or left pillar speaker is defective, inspect by interchanging the right one with the left one.**
- **Perform the inspection above on both LH and RH sides.**

**for Preparation** Click here

## 1. INSTALL FRONT NO. 3 SPEAKER ASSEMBLY

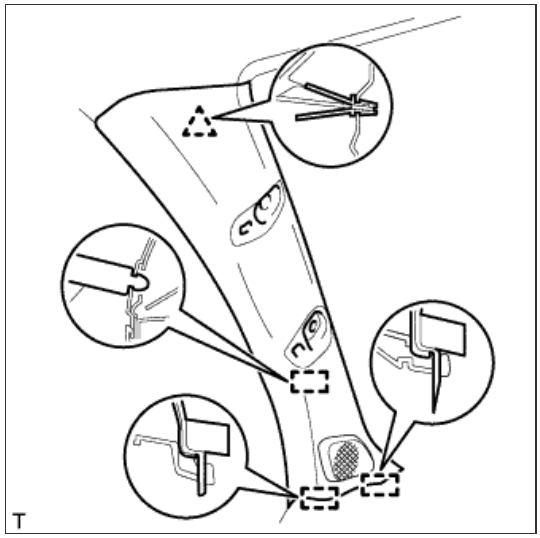
a. Attach the 3 claws to install the speaker to the pillar garnish.




## 2. INSTALL FRONT PILLAR GARNISH LH

a. Connect the speaker connector.

b. Attach the clip and 3 guides to install the front pillar garnish.



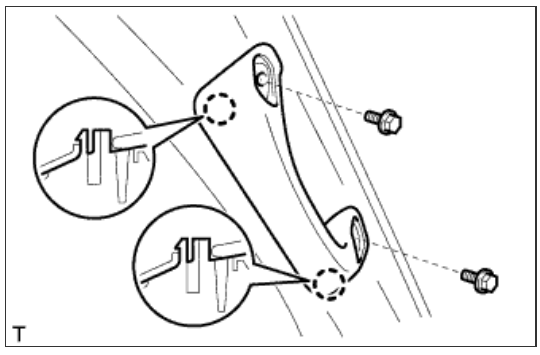

## 3. INSTALL FRONT ASSIST GRIP SUB-ASSEMBLY

**HINT:**

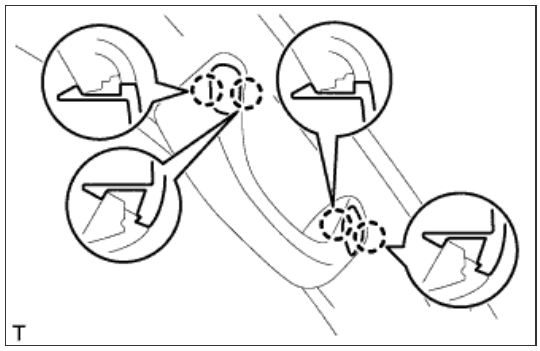
Use the same procedure to install the front assist grip on the other side.

a. Attach the 2 claws to install the front assist grip.

b. Install the 2 bolts.




c. Attach the 4 claws to install the 2 assist grip plugs.



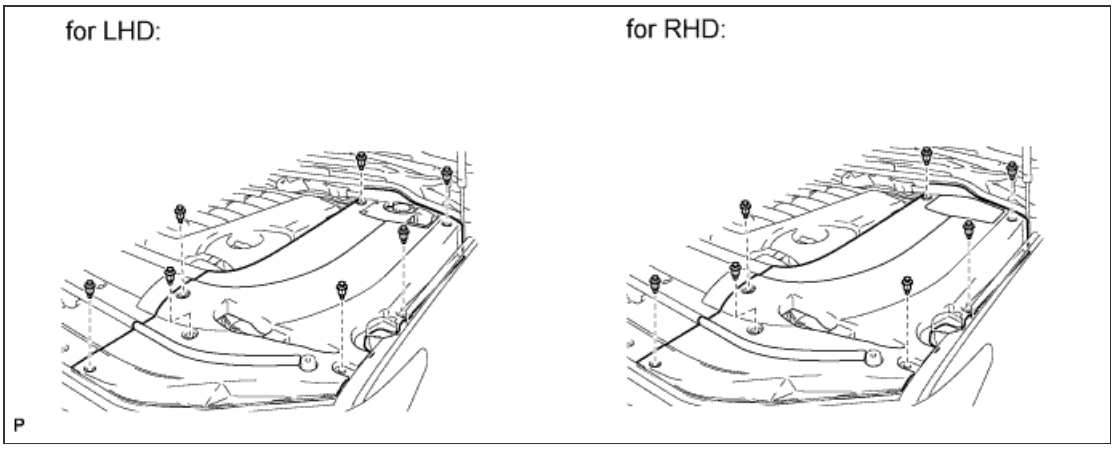

## 4. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 5. INSTALL ENGINE ROOM SIDE COVER LH

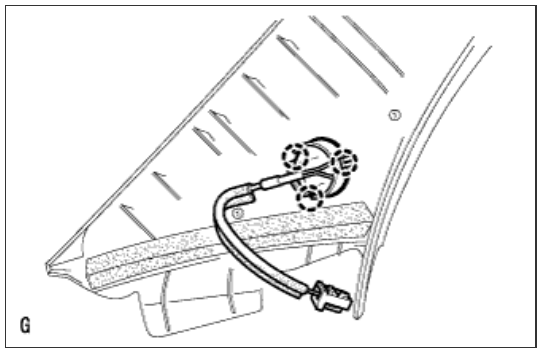
a. Install the engine room side cover with the 7 clips.



**for Preparation** Click here

## 1. INSTALL FRONT NO. 3 SPEAKER ASSEMBLY

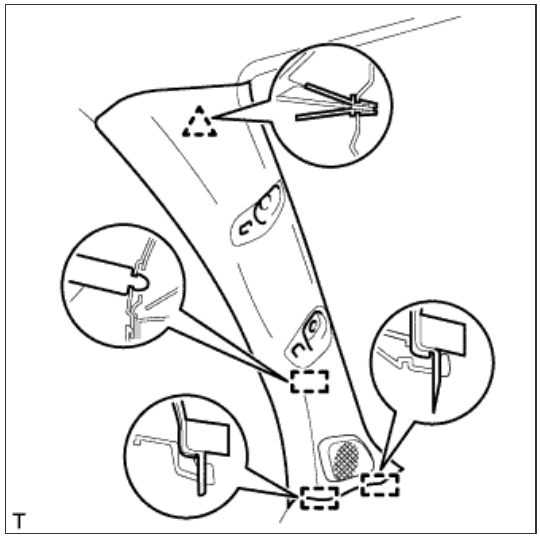
a. Attach the 3 claws to install the speaker to the pillar garnish.




## 2. INSTALL FRONT PILLAR GARNISH LH

a. Connect the speaker connector.

b. Attach the clip and 3 guides to install the front pillar garnish.



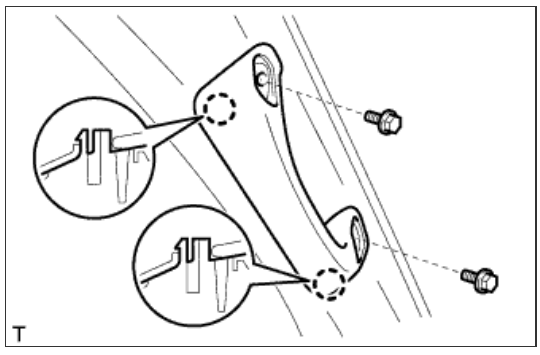

## 3. INSTALL FRONT ASSIST GRIP SUB-ASSEMBLY

**HINT:**

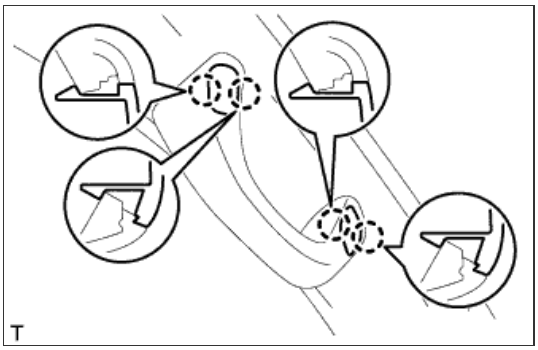
Use the same procedure to install the front assist grip on the other side.

a. Attach the 2 claws to install the front assist grip.

b. Install the 2 bolts.




c. Attach the 4 claws to install the 2 assist grip plugs.




### 4. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

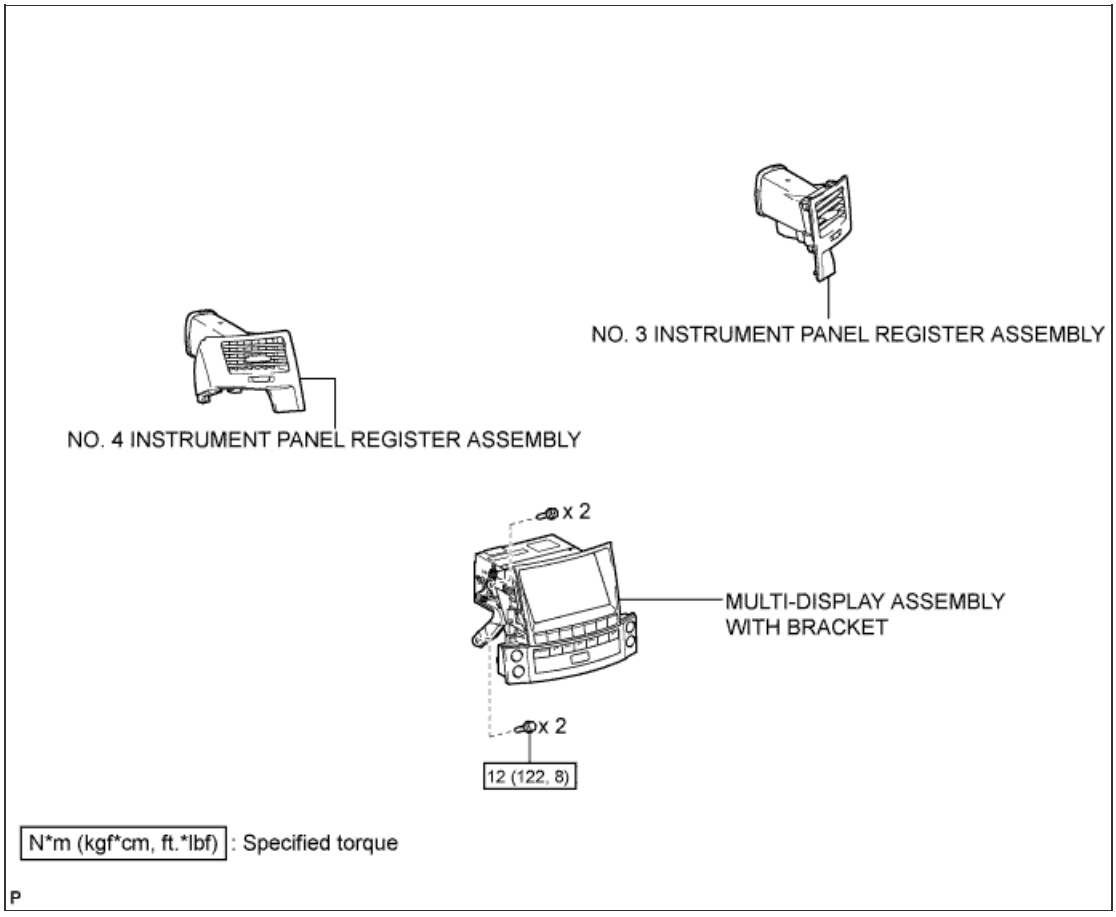
**NOTICE:**

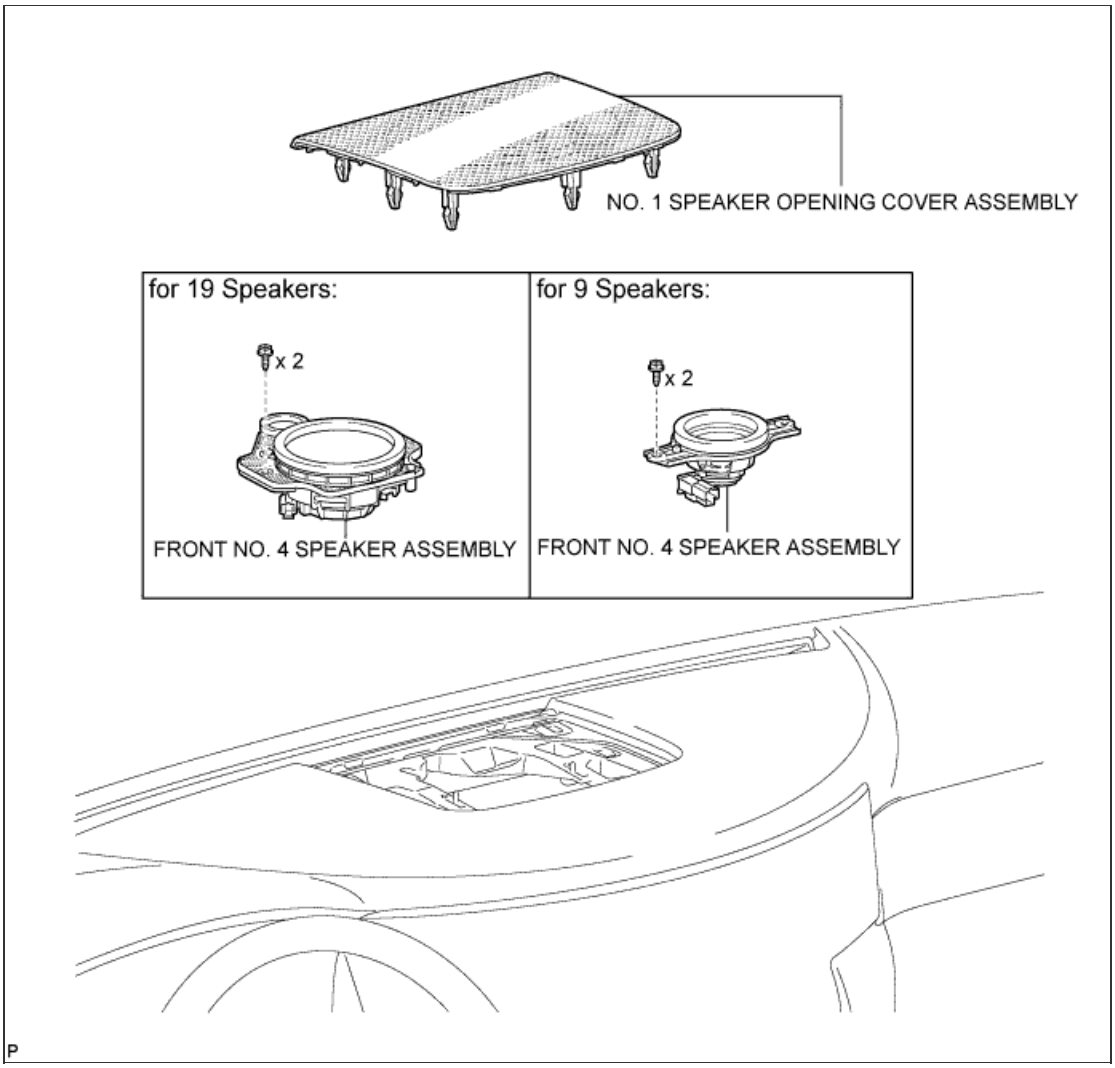
When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

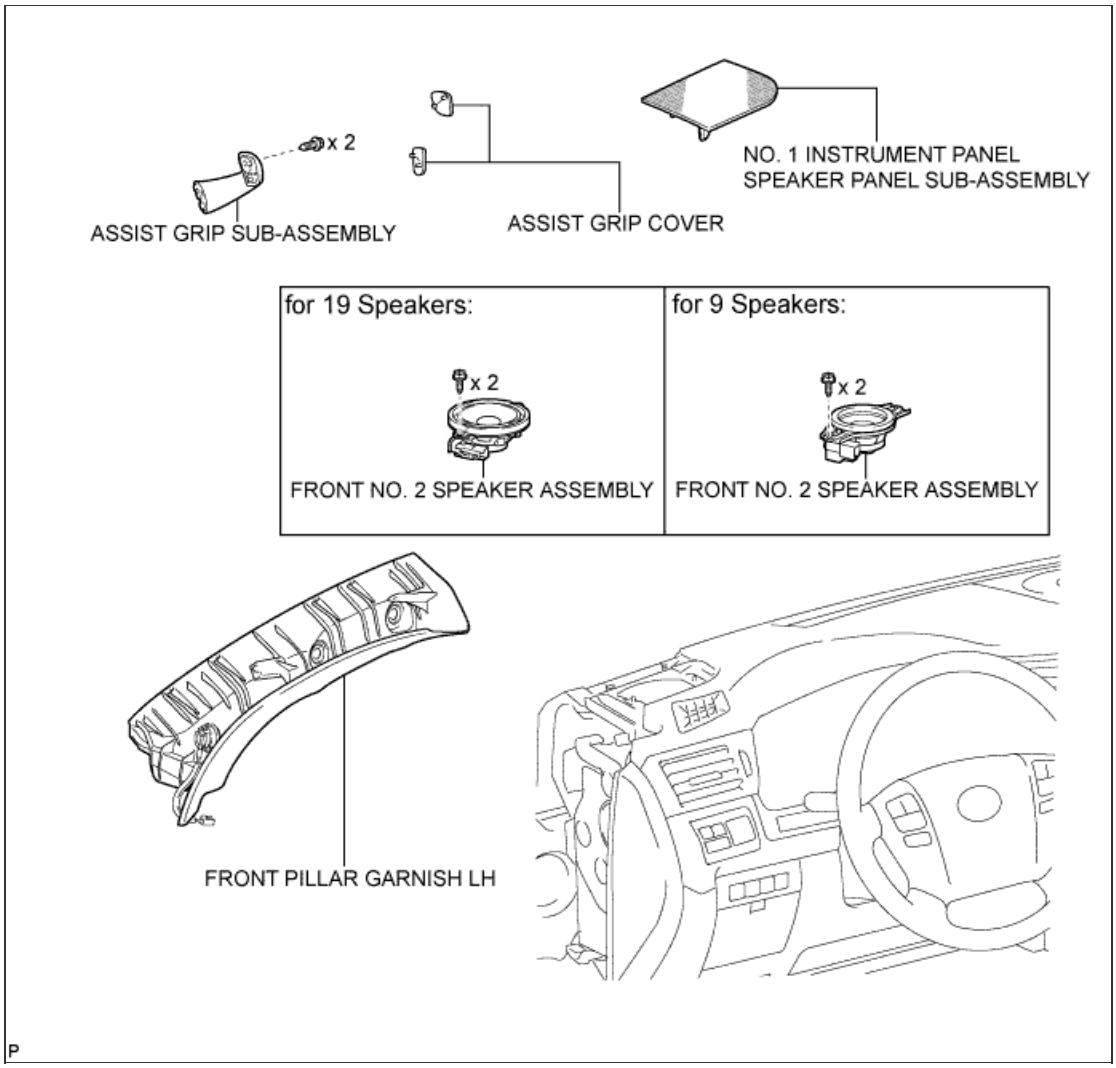
### 5. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover LH with the 7 clips.

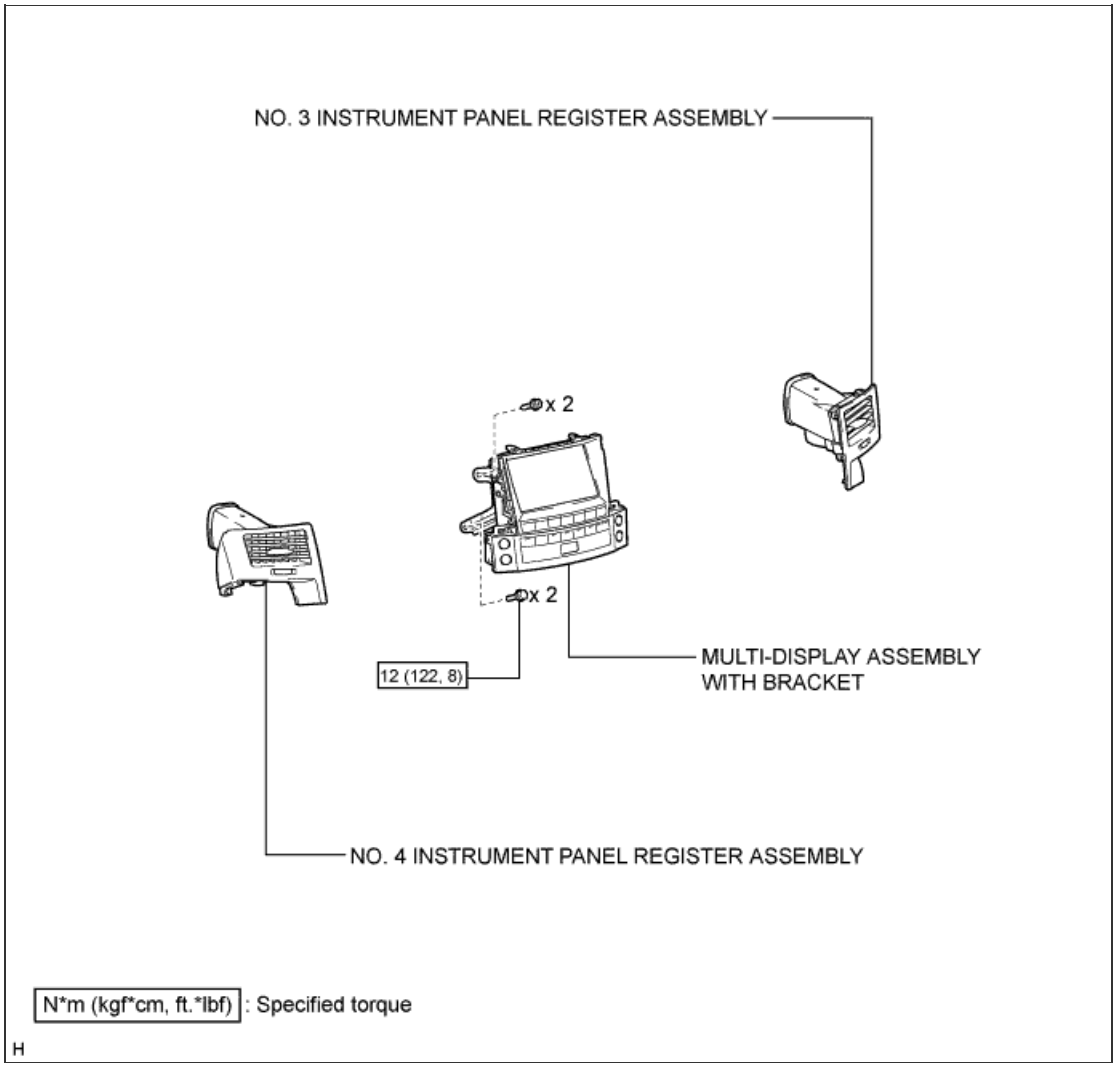
**for Preparation** Click here

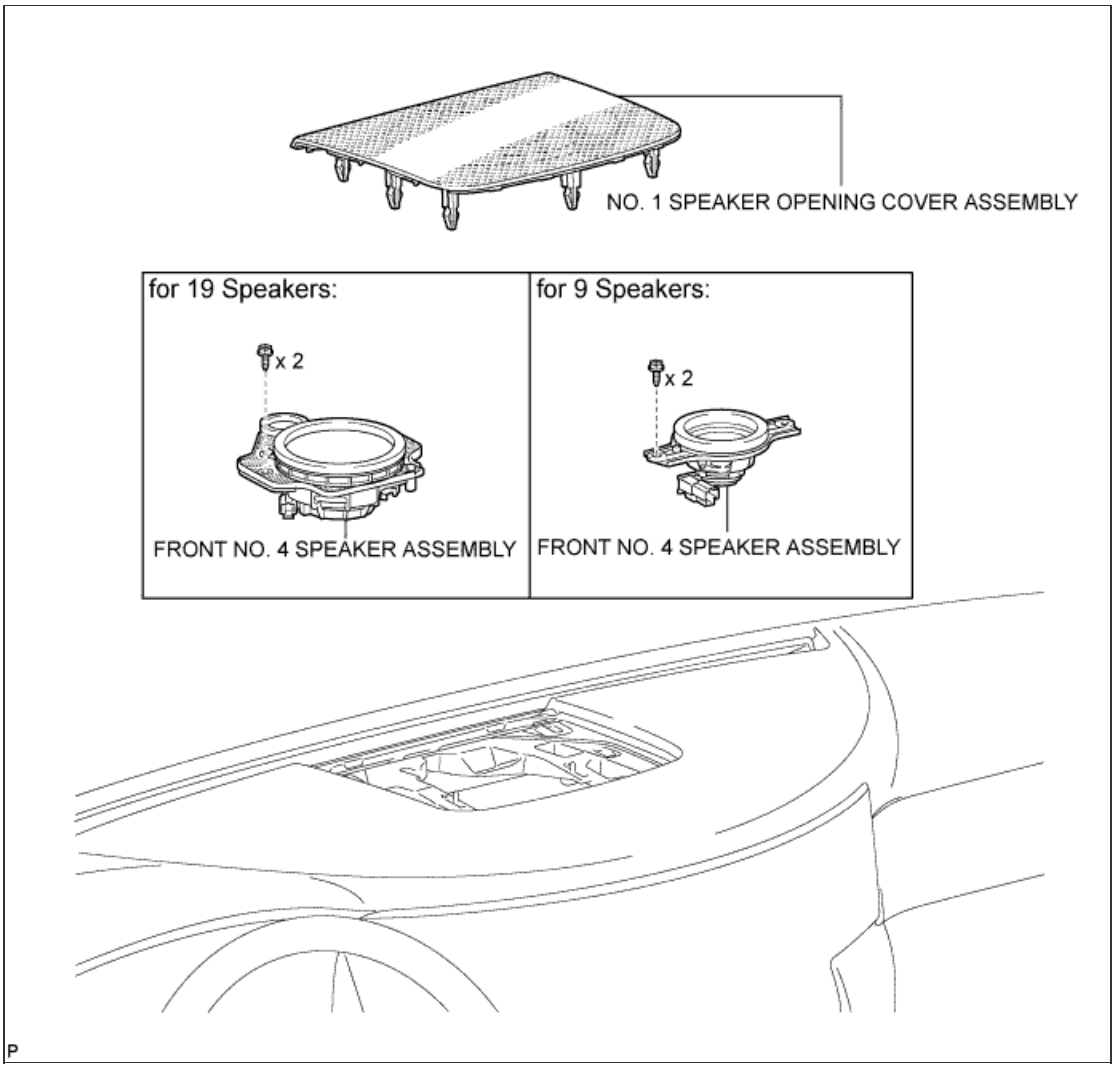


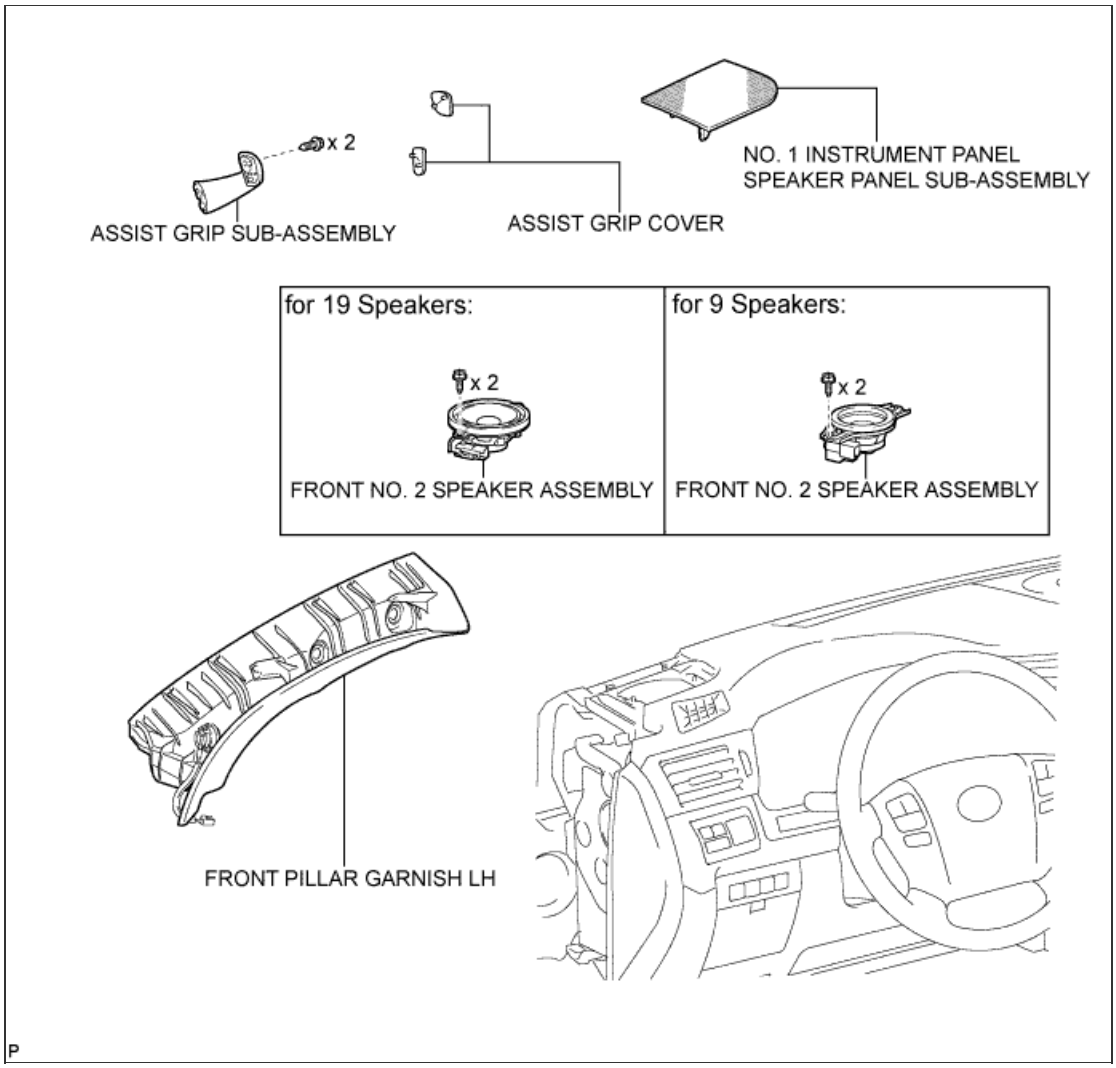

NO. 1 SPEAKER OPENING COVER ASSEMBLY
for 19 Speakers:
x 2
FRONT NO. 4 SPEAKER ASSEMBLY
for 9 Speakers:
x 2
FRONT NO. 4 SPEAKER ASSEMBLY
P


x 2
ASSIST GRIP SUB-ASSEMBLY
ASSIST GRIP COVER
NO. 1 INSTRUMENT PANEL
SPEAKER PANEL SUB-ASSEMBLY
for 19 Speakers:
x 2
FRONT NO. 2 SPEAKER ASSEMBLY
for 9 Speakers:
x 2
FRONT NO. 2 SPEAKER ASSEMBLY
FRONT PILLAR GARNISH LH
P

**for Preparation** Click here




NO. 1 SPEAKER OPENING COVER ASSEMBLY
for 19 Speakers:
x 2
FRONT NO. 4 SPEAKER ASSEMBLY
for 9 Speakers:
x 2
FRONT NO. 4 SPEAKER ASSEMBLY
P


x 2
ASSIST GRIP SUB-ASSEMBLY
ASSIST GRIP COVER
NO. 1 INSTRUMENT PANEL
SPEAKER PANEL SUB-ASSEMBLY
for 19 Speakers:
x 2
FRONT NO. 2 SPEAKER ASSEMBLY
for 9 Speakers:
x 2
FRONT NO. 2 SPEAKER ASSEMBLY
FRONT PILLAR GARNISH LH
P

# INSTRUMENT PANEL SPEAKER > REMOVAL

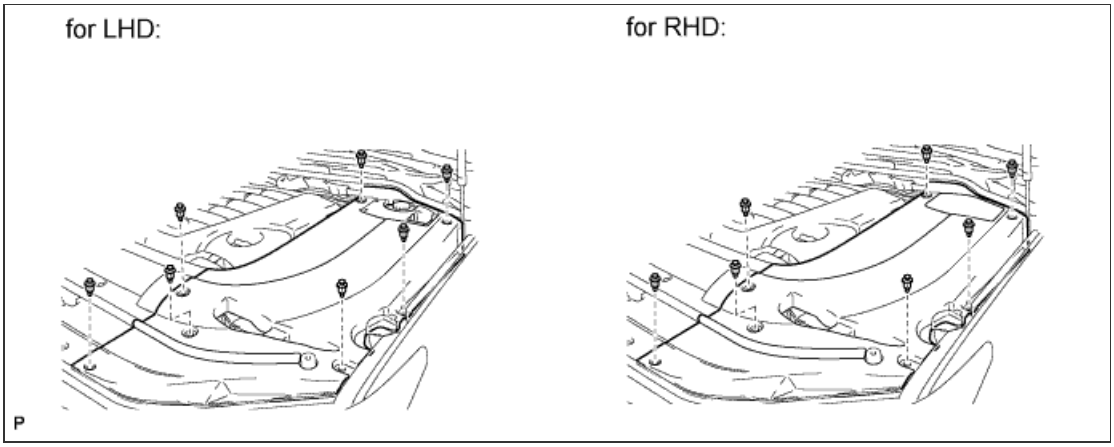
**for Preparation** Click here

**HINT:**

- **Use the same procedures for the LH side and RH side.**
- **The procedures listed below are for the LH side.**

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover.



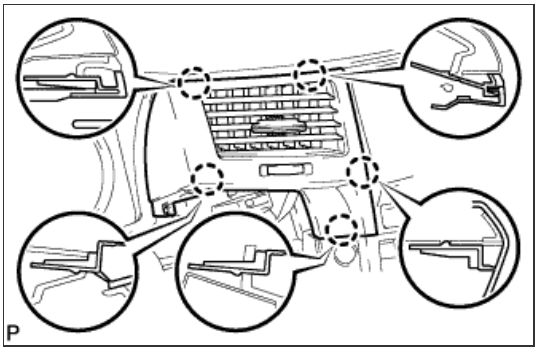

## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

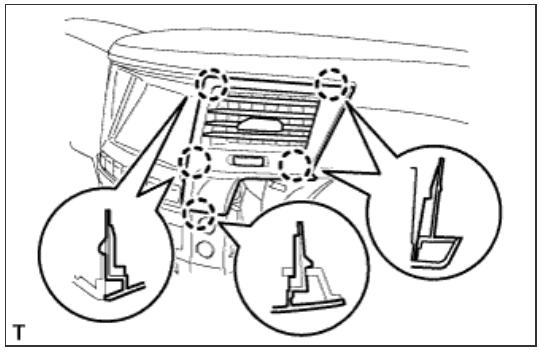
## 3. REMOVE NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Detach the 5 claws and remove the register.



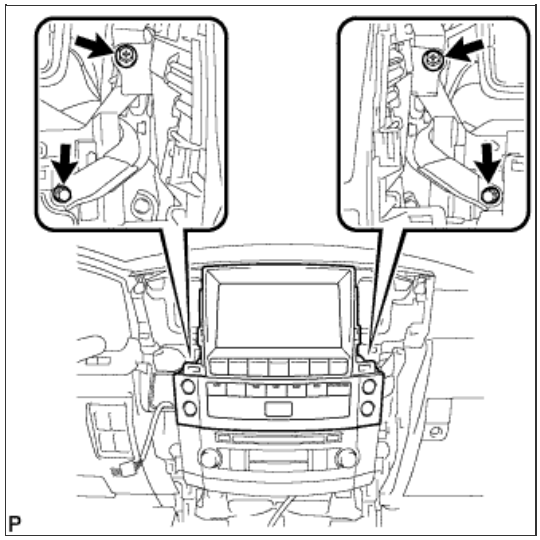

## 4. REMOVE NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Detach the 5 claws and remove the register.



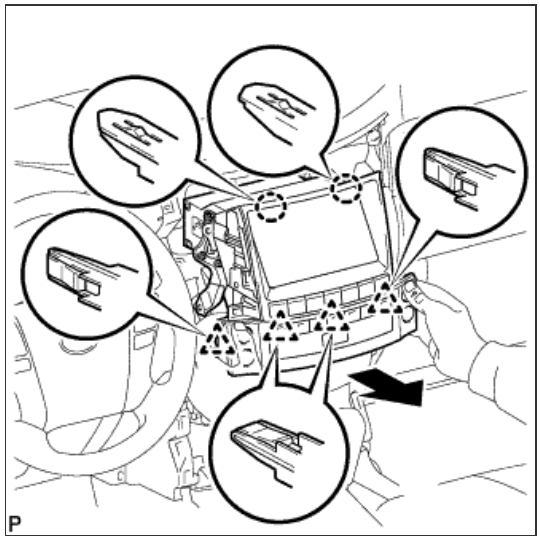

## 5. REMOVE MULTI-DISPLAY ASSEMBLY WITH BRACKET

a. Remove the 2 screws and 2 bolts.



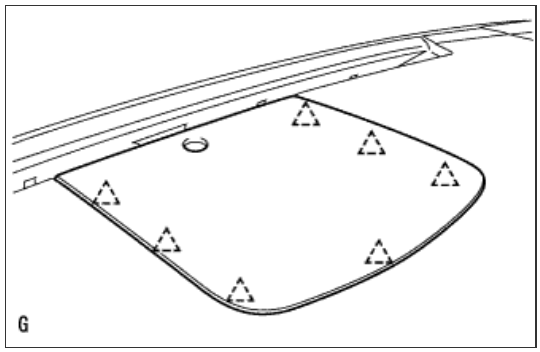

b. Pull the display to detach the 2 claws and 4 clips on the backside of the display.

c. Disconnect the connectors and remove the display.




## 6. REMOVE NO. 1 SPEAKER OPENING COVER ASSEMBLY

a. Detach the 7 clips and remove the opening cover.



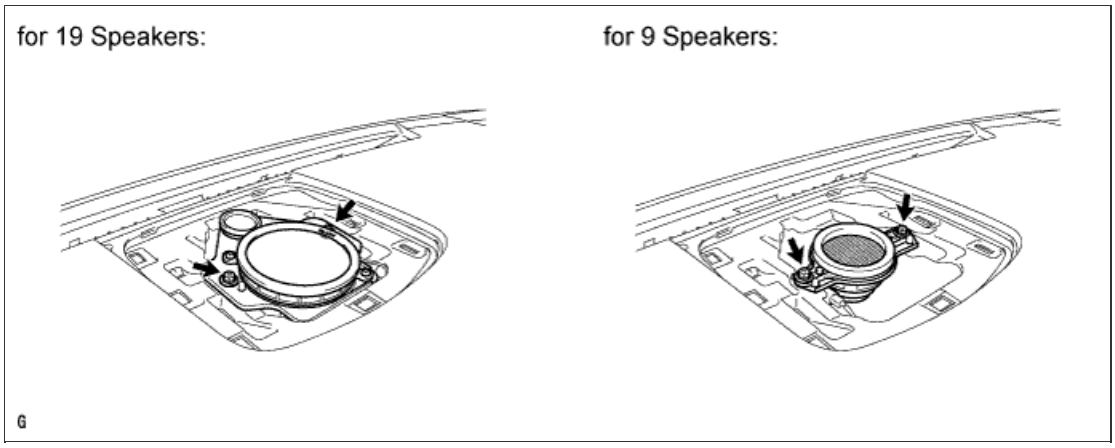

## 7. REMOVE FRONT NO. 4 SPEAKER ASSEMBLY

a. Remove the 2 bolts.

b. Remove the speaker and disconnect the speaker connector.

**NOTICE:**

Do not touch the cone part of the speaker.

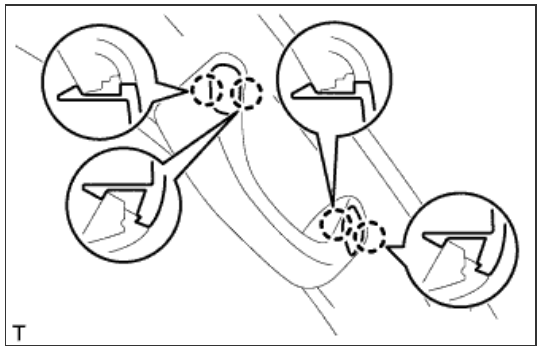



## 8. REMOVE FRONT ASSIST GRIP SUB-ASSEMBLY

**HINT:**

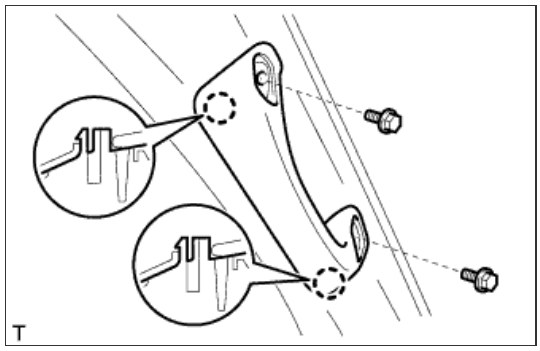
Use the same procedure to remove the front assist grip on the other side.

a. Detach the 4 claws and remove the 2 assist grip plugs.




b. Remove the 2 bolts.

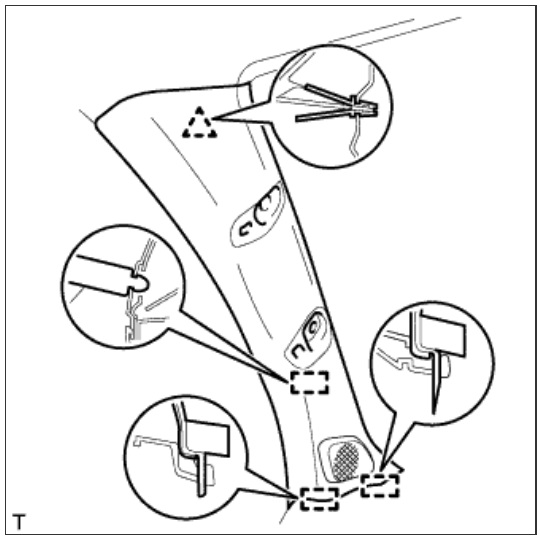
c. Detach the 2 claws and remove the front assist grip.




## 9. REMOVE FRONT PILLAR GARNISH LH

a. Detach the clip and 3 guides.

b. Disconnect the speaker connector and then remove the front pillar garnish.

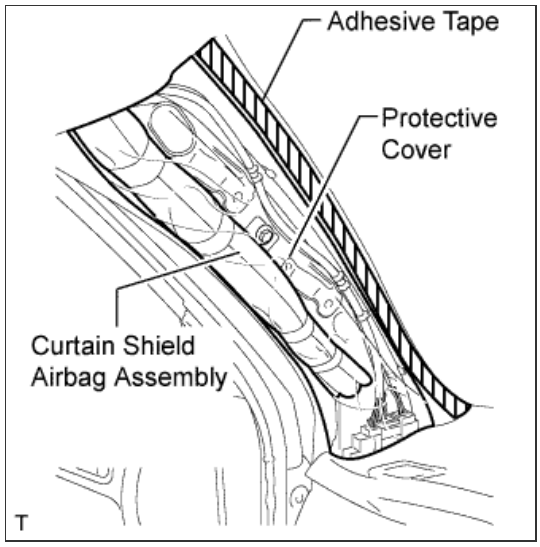



c. Protect the curtain shield airbag.

i. Thoroughly cover the airbag with a cloth or nylon sheet and fix the ends of the cover with adhesive tape, as shown in the illustration.

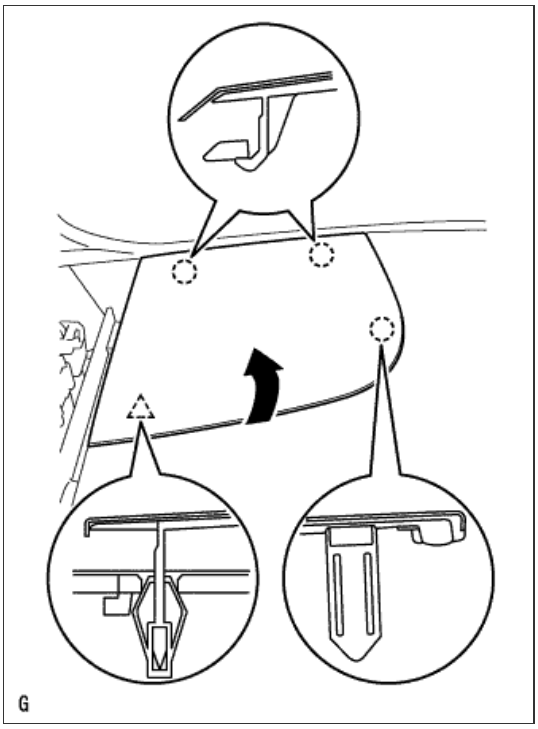
**NOTICE:**

Cover the curtain shield airbag with a protective cover as soon as the front pillar garnish is removed.




## 10. REMOVE NO. 1 INSTRUMENT PANEL SPEAKER PANEL SUB-ASSEMBLY

a. Detach the claw and clip on the near side. Then, raise the panel towards the front of the vehicle in the direction of the arrow and detach the 2 claws to remove the panel.



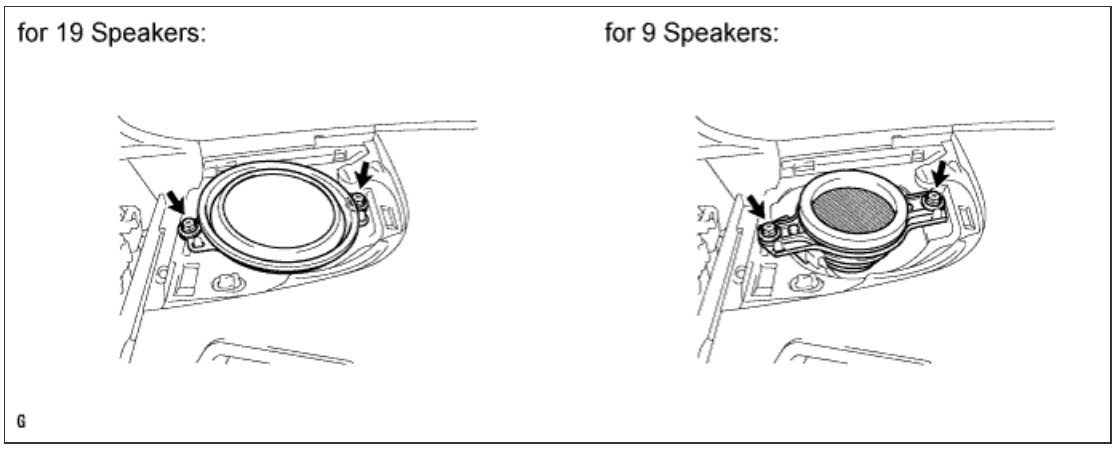

### 11. REMOVE FRONT NO. 2 SPEAKER ASSEMBLY

a. Remove the 2 bolts.

b. Remove the speaker and disconnect the speaker connector.

**NOTICE:**

Do not touch the cone part of the speaker.



# INSTRUMENT PANEL SPEAKER > REMOVAL

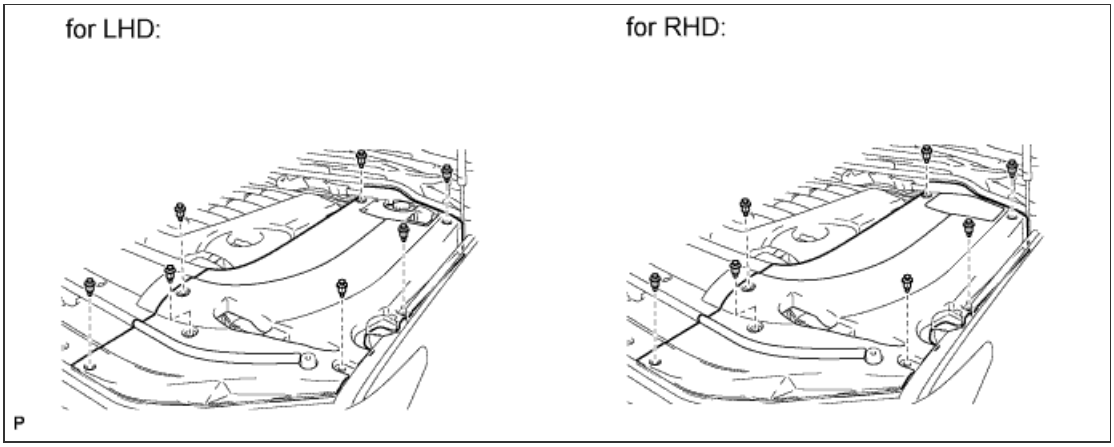
**for Preparation** Click here

**HINT:**

- **Use the same procedures for the LH side and RH side.**
- **The procedures listed below are for the LH side.**

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover LH.



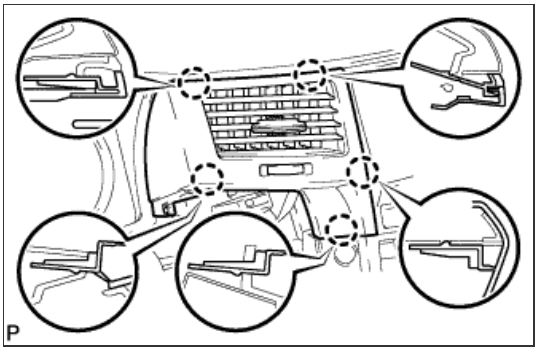

## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

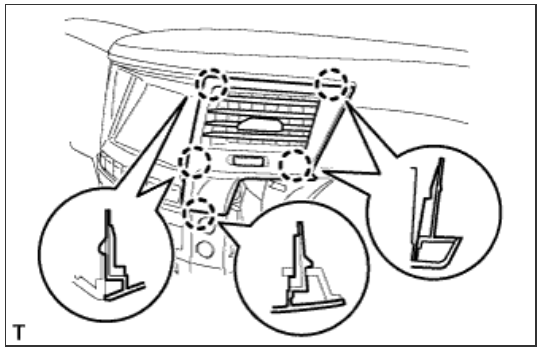
## 3. REMOVE NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Detach the 5 claws and remove the register.



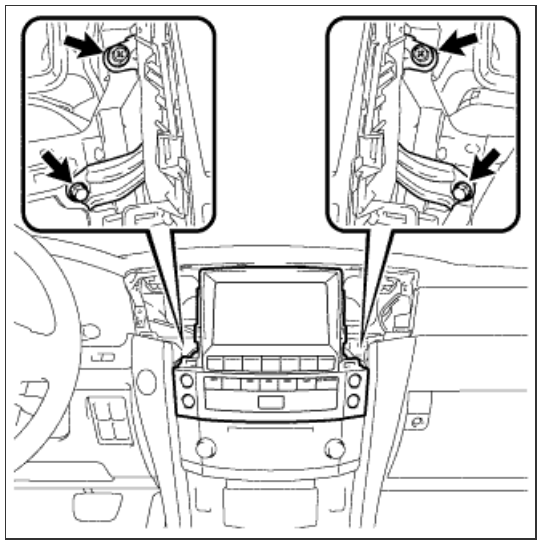

## 4. REMOVE NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Detach the 5 claws and remove the register.



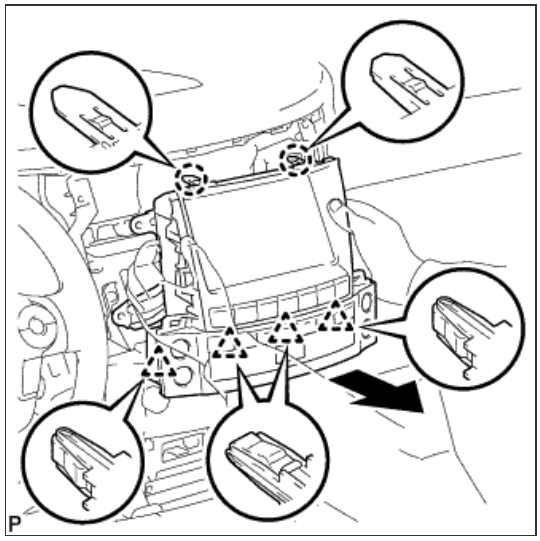

## 5. REMOVE MULTI-DISPLAY ASSEMBLY WITH BRACKET

a. Remove the 2 screws and 2 bolts.



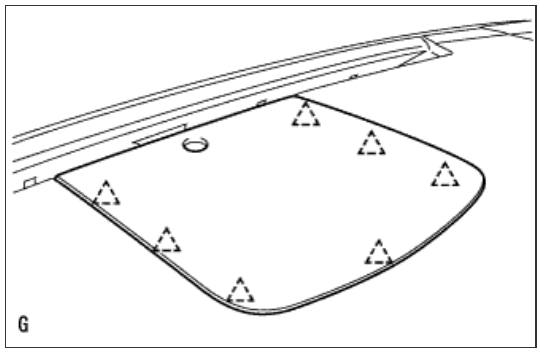
b. Pull the multi-display assembly with bracket to detach the 2 claws and 4 clips on the backside of the multi-display assembly.

c. Disconnect the connectors and remove the multi-display assembly.




## 6. REMOVE NO. 1 SPEAKER OPENING COVER ASSEMBLY

a. Detach the 7 clips and remove the opening cover.



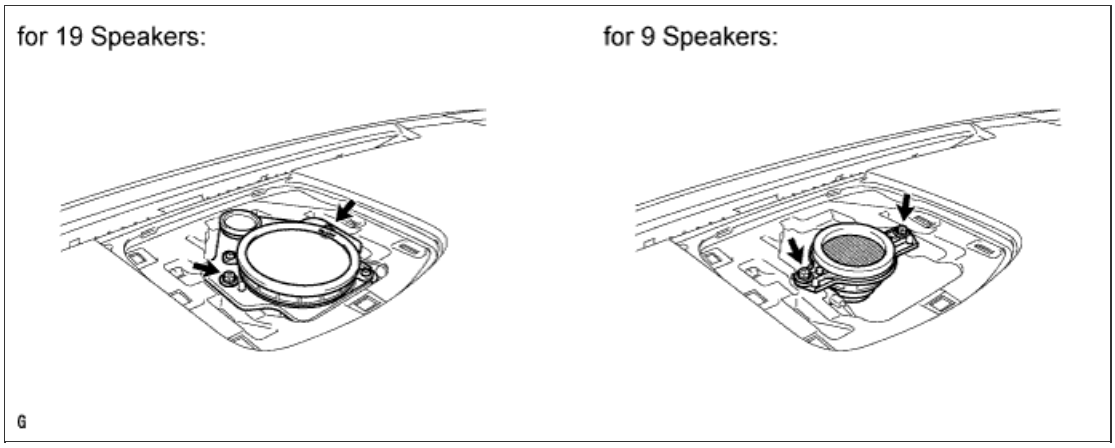

## 7. REMOVE FRONT NO. 4 SPEAKER ASSEMBLY

a. Remove the 2 bolts.

b. Remove the speaker and disconnect the speaker connector.

**NOTICE:**

Do not touch the cone part of the speaker.

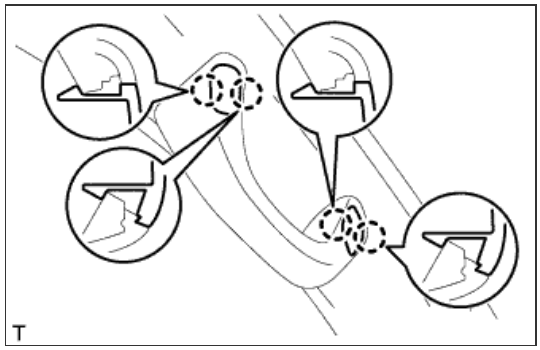



## 8. REMOVE FRONT ASSIST GRIP SUB-ASSEMBLY

**HINT:**

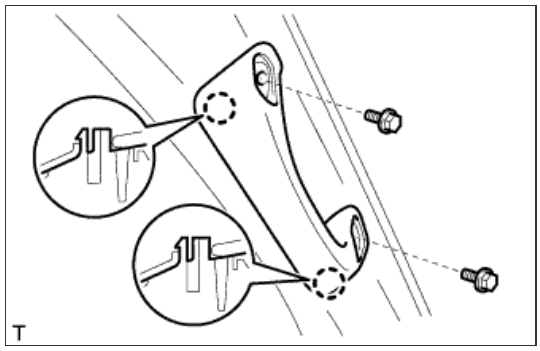
Use the same procedure to remove the front assist grip on the other side.

a. Detach the 4 claws and remove the 2 assist grip plugs.




b. Remove the 2 bolts.

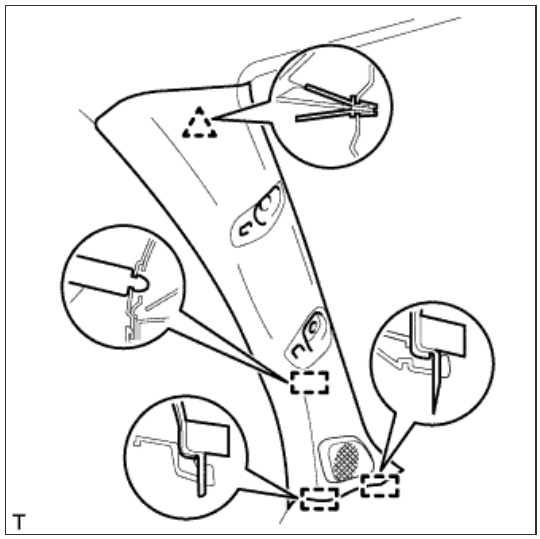
c. Detach the 2 claws and remove the front assist grip.




## 9. REMOVE FRONT PILLAR GARNISH LH

a. Detach the clip and 3 guides.

b. Disconnect the speaker connector and then remove the front pillar garnish.

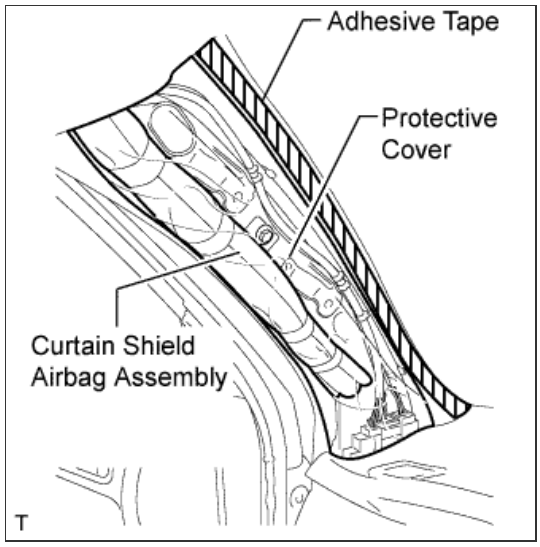



c. Protect the curtain shield airbag.

i. Thoroughly cover the airbag with a cloth or nylon sheet and fix the ends of the cover with adhesive tape, as shown in the illustration.

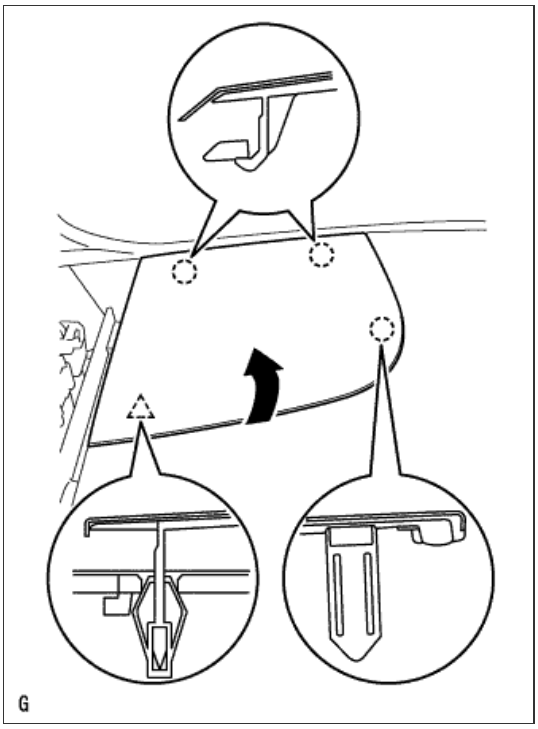
**NOTICE:**

Cover the curtain shield airbag with a protective cover as soon as the front pillar garnish is removed.




## 10. REMOVE NO. 1 INSTRUMENT PANEL SPEAKER PANEL SUB-ASSEMBLY

a. Detach the claw and clip on the near side. Then, raise the panel towards the front of the vehicle in the direction of the arrow and detach the 2 claws to remove the panel.



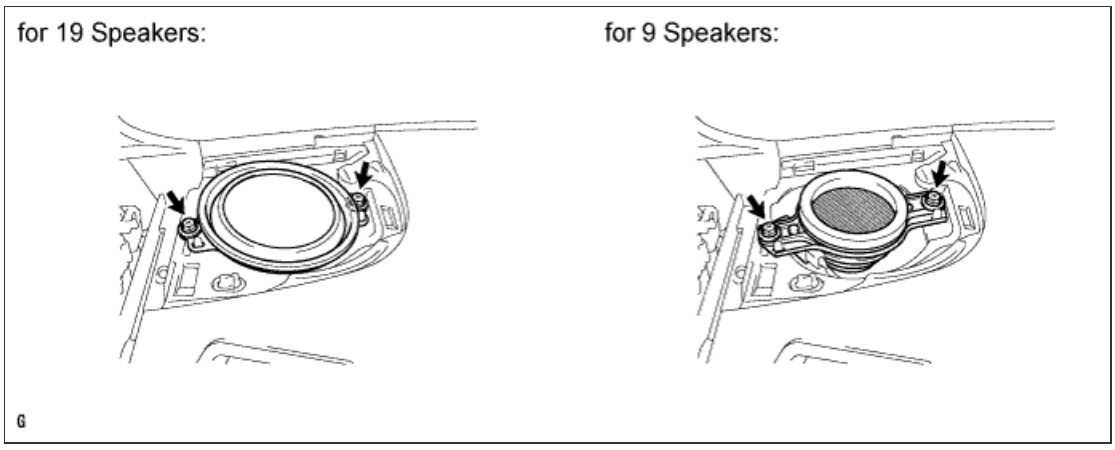

### 11. REMOVE FRONT NO. 2 SPEAKER ASSEMBLY

a. Remove the 2 bolts.

b. Remove the speaker and disconnect the speaker connector.

**NOTICE:**

Do not touch the cone part of the speaker.



**for Preparation** Click here

## 1. INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

a. Measure the resistance according to the value(s) in the table below.

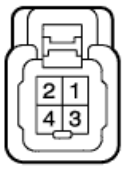
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | Below 1 Ω*1 |
| 3 - 4 | Always | Below 1 Ω*1 |
| 2 - 4 | Always | 6.0 +/-1.0 Ω*1 |
| 1 - 2 | Always | Below 1 Ω*2 |
| 3 - 4 | Always | Below 1 Ω*2 |
| 2 - 4 | Always | 4 Ω*2 |

*1: for 19 Speakers
*2: for 9 Speakers

If the result is not as specified, replace the front No. 2 speaker assembly.

Component without harness connected:
(Front No. 2 Speaker)




## 2. INSPECT FRONT NO. 4 SPEAKER ASSEMBLY

a. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 6.0 +/-1.0 Ω*1 |
| 1 - 2 | Always | 6 Ω*2 |

*1: for 19 Speakers
*2: for 9 Speakers

If the result is not as specified, replace the front No. 4 speaker assembly.

Component without harness connected:
(Front No. 4 Speaker)




N

**for Preparation** Click here

**HINT:**

- **Use the same procedures for the LH side and RH side.**
- **The procedures listed below are for the LH side.**
- **A bolt without a torque specification is shown in the standard bolt chart ( Click here).**

## 1. INSTALL FRONT NO. 2 SPEAKER ASSEMBLY

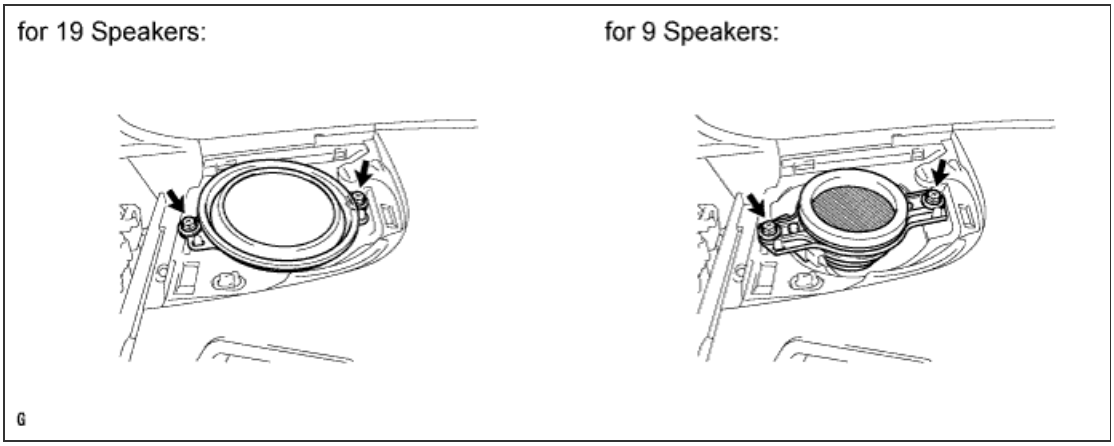
a. Connect the connector.

b. Temporarily install the speaker by aligning speaker with the positioning pins of the instrument panel.

c. Install the speaker with the 2 bolts.

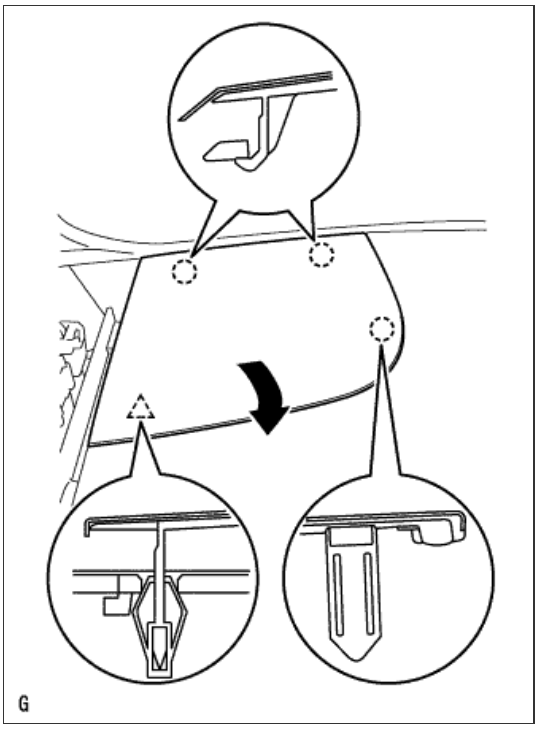
**NOTICE:**

- **Do not touch the cone part of the speaker.**
- **When installing the speaker to the instrument panel, be careful that the wires do not get caught between parts.**




## 2. INSTALL NO. 1 INSTRUMENT PANEL SPEAKER PANEL SUB-ASSEMBLY

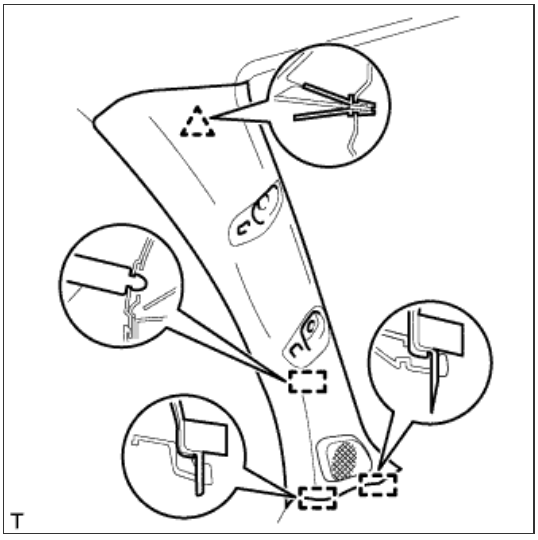
a. Hook the 2 claws on the far side to the instrument panel to attach them. Then, lower the panel towards the rear of the vehicle in the direction of the arrow, and attach the claw and clip on the front side to install the panel.




### 3. INSTALL FRONT PILLAR GARNISH LH

a. Connect the speaker connector.

b. Attach the clip and 3 guides to install the front pillar garnish.



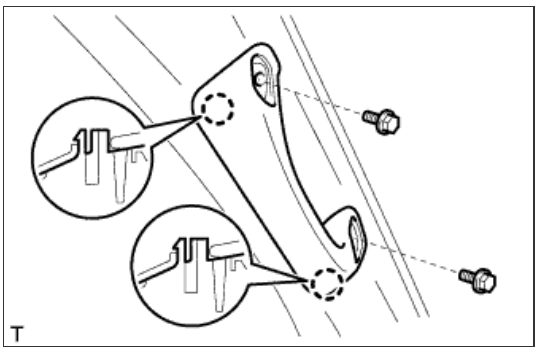

### 4. INSTALL FRONT ASSIST GRIP SUB-ASSEMBLY

**HINT:**

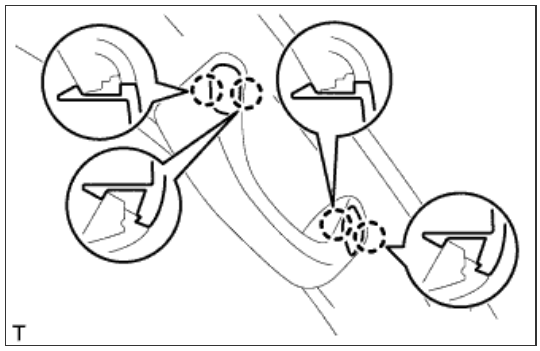
Use the same procedure to install the front assist grip on the other side.

a. Attach the 2 claws to install the front assist grip.

b. Install the 2 bolts.




c. Attach the 4 claws to install the 2 assist grip plugs.




## 5. INSTALL FRONT NO. 4 SPEAKER ASSEMBLY

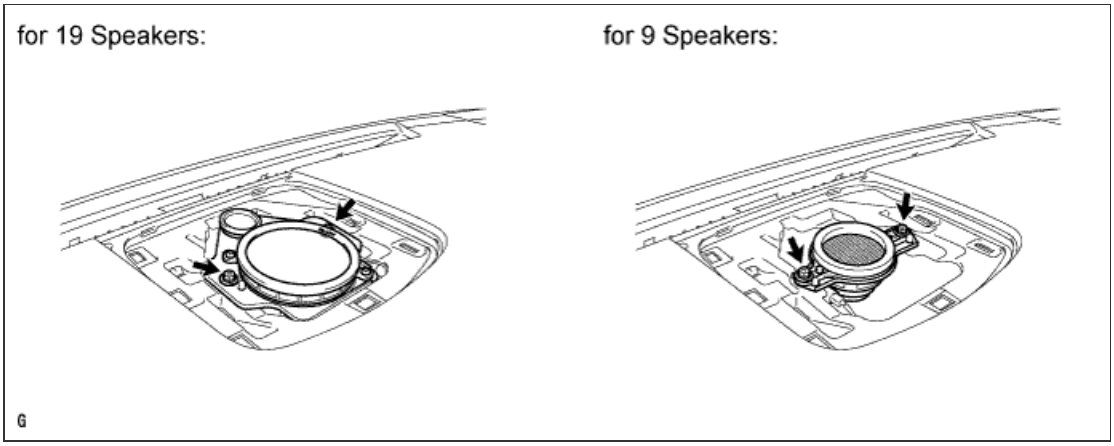
a. Connect the speaker connector.

b. Temporarily install the speaker by aligning speaker with the positioning pins of the instrument panel.

c. Install the speaker with the 2 bolts.

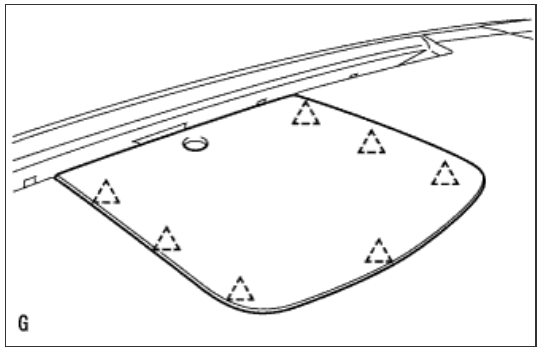
**NOTICE:**

- **Do not touch the cone part of the speaker.**
- **When installing the speaker to the instrument panel, be careful that the wires do not get caught between parts.**




## 6. INSTALL NO. 1 SPEAKER OPENING COVER ASSEMBLY

a. Attach the 7 clips to install the opening cover.



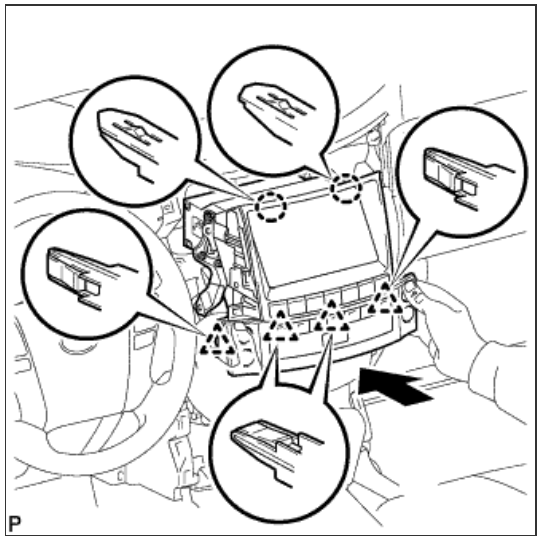

## 7. INSTALL MULTI-DISPLAY ASSEMBLY WITH BRACKET

a. Connect the connectors.

b. Insert the display to attach the 2 claws and 4 clips on its backside.

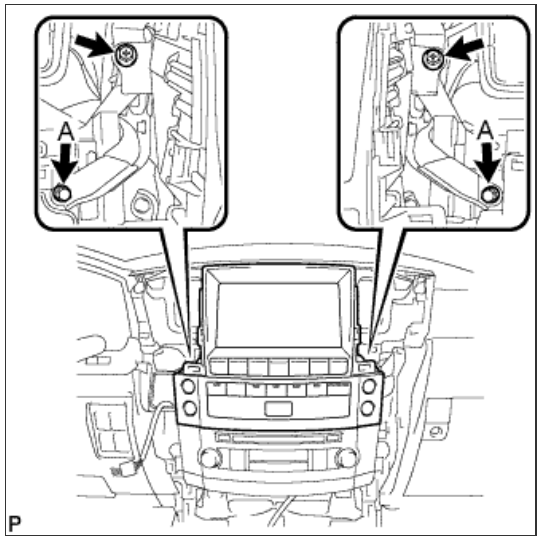
**NOTICE:**

When inserting the display, do not press the knobs on it.



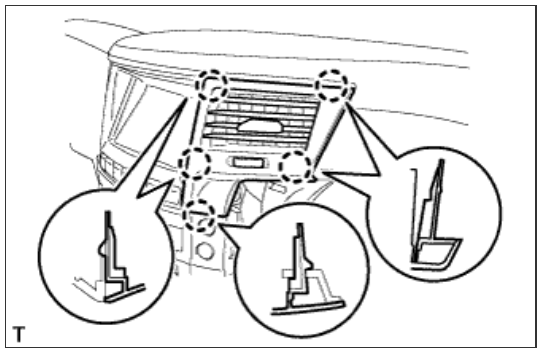

c. Install the display with the 2 screws and 2 bolts.

**Torque:**
**for bolts labeled A:**
**12 N*m{ 122 kgf*cm , 8 ft.*lbf }**



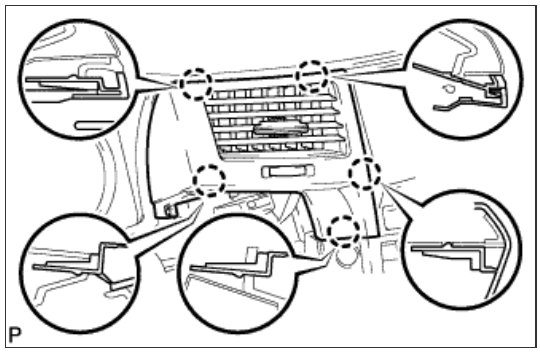

## 8. INSTALL NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Attach the 5 claws to install the register.




## 9. INSTALL NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Attach the 5 claws to install the register.



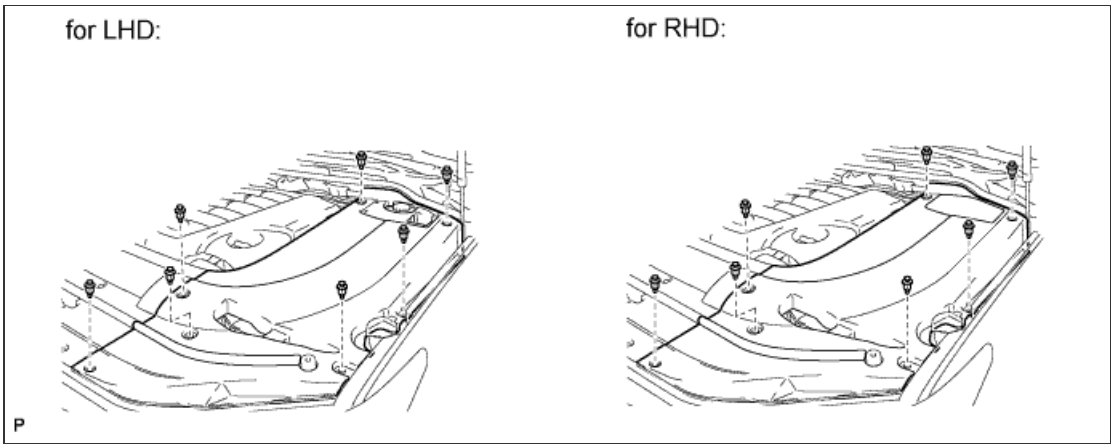

## 10. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 11. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover with the 7 clips.



**for Preparation** Click here

**HINT:**

- **Use the same procedures for the LH side and RH side.**
- **The procedures listed below are for the LH side.**
- **A bolt without a torque specification is shown in the standard bolt chart ( Click here).**

## 1. INSTALL FRONT NO. 2 SPEAKER ASSEMBLY

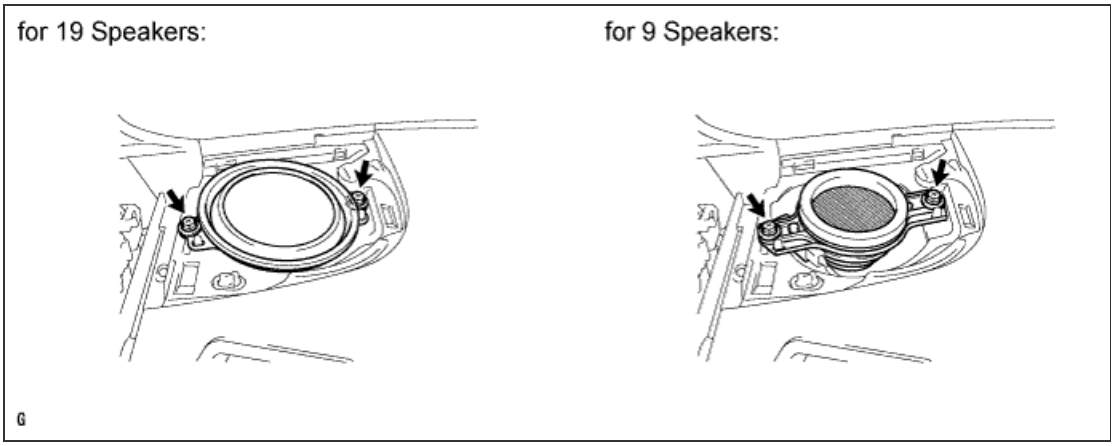
a. Connect the connector.

b. Temporarily install the speaker by aligning speaker with the positioning pins of the instrument panel.

c. Install the speaker with the 2 bolts.

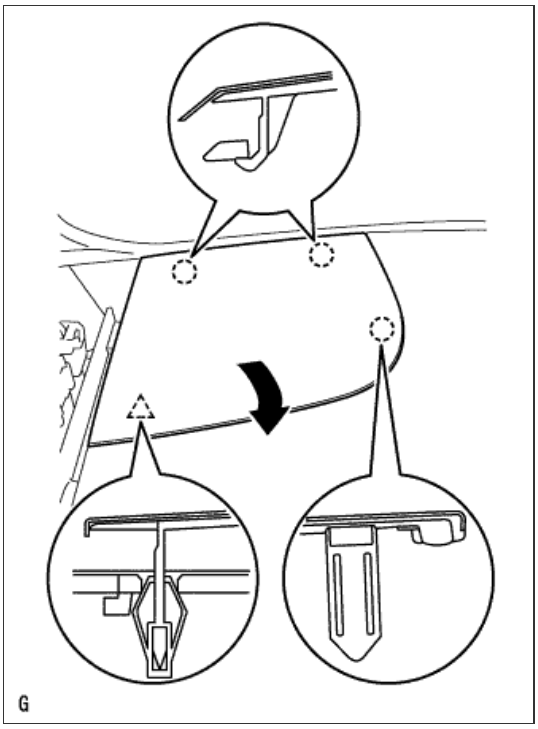
**NOTICE:**

- **Do not touch the cone part of the speaker.**
- **When installing the speaker to the instrument panel, be careful that the wires do not get caught between parts.**




## 2. INSTALL NO. 1 INSTRUMENT PANEL SPEAKER PANEL SUB-ASSEMBLY

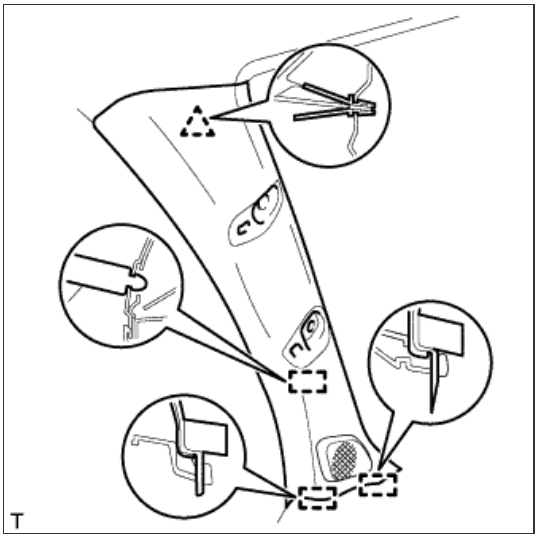
a. Hook the 2 claws on the far side to the instrument panel to attach them. Then, lower the panel towards the rear of the vehicle in the direction of the arrow, and attach the claw and clip on the front side to install the panel.




### 3. INSTALL FRONT PILLAR GARNISH LH

a. Connect the speaker connector.

b. Attach the clip and 3 guides to install the front pillar garnish.



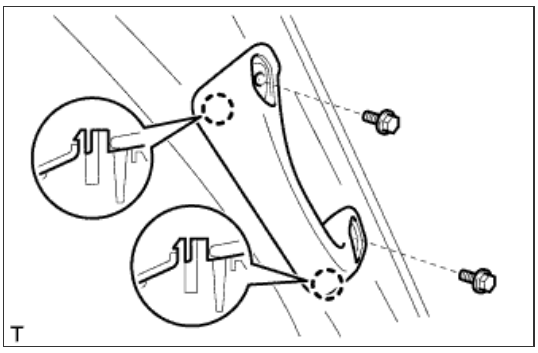

### 4. INSTALL FRONT ASSIST GRIP SUB-ASSEMBLY

**HINT:**

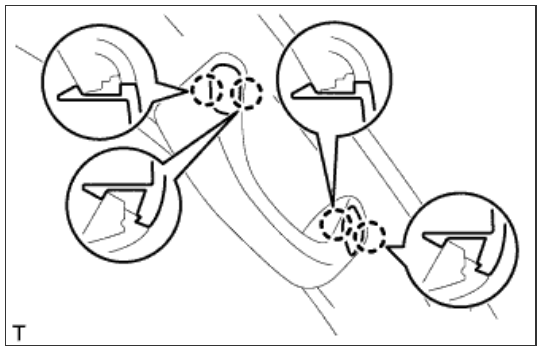
Use the same procedure to install the front assist grip on the other side.

a. Attach the 2 claws to install the front assist grip.

b. Install the 2 bolts.




c. Attach the 4 claws to install the 2 assist grip plugs.




## 5. INSTALL FRONT NO. 4 SPEAKER ASSEMBLY

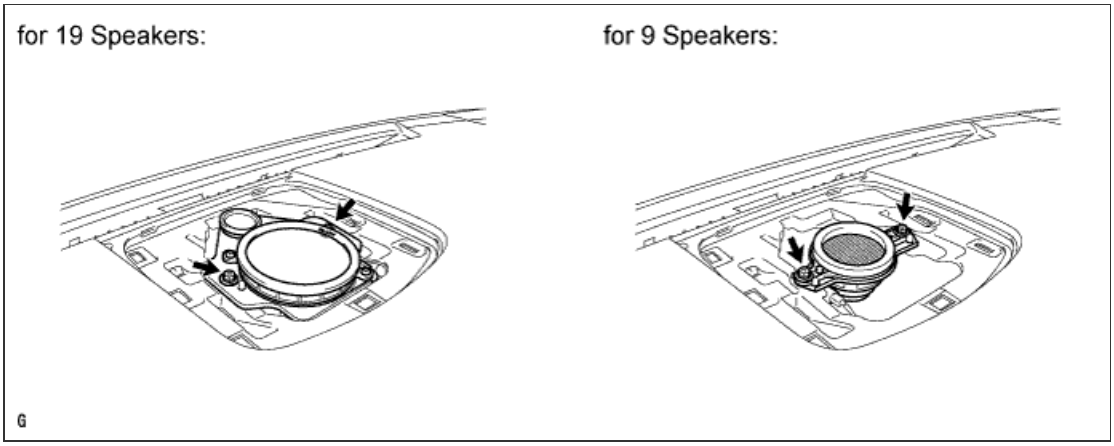
a. Connect the speaker connector.

b. Temporarily install the speaker by aligning speaker with the positioning pins of the instrument panel.

c. Install the speaker with the 2 bolts.

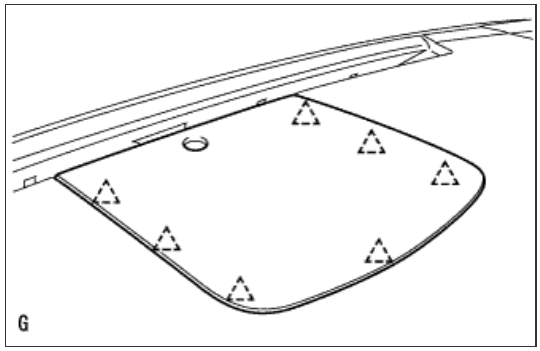
**NOTICE:**

- **Do not touch the cone part of the speaker.**
- **When installing the speaker to the instrument panel, be careful that the wires do not get caught between parts.**




## 6. INSTALL NO. 1 SPEAKER OPENING COVER ASSEMBLY

a. Attach the 7 clips to install the opening cover.



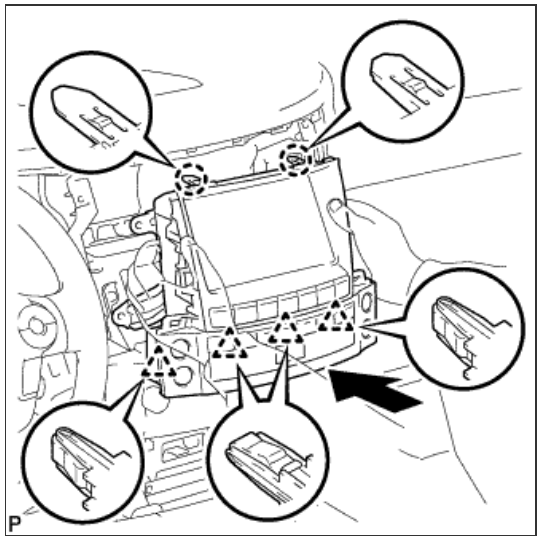

## 7. INSTALL MULTI-DISPLAY ASSEMBLY WITH BRACKET

a. Connect the connectors.

b. Insert the multi-display assembly with bracket to attach the 2 claws and 4 clips on its backside.

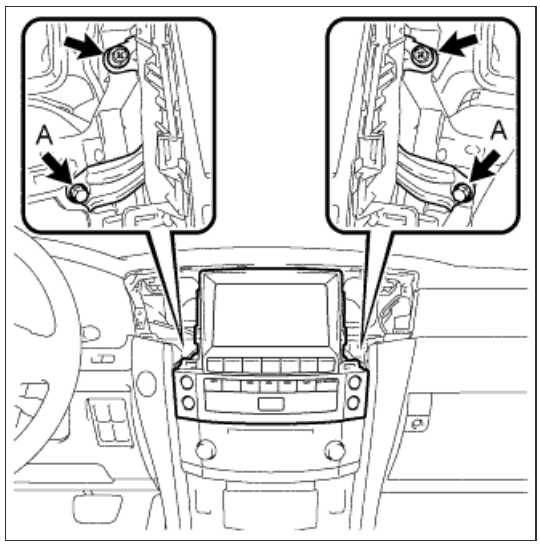
**NOTICE:**

When inserting the multi-display assembly, do not press the knobs on it.



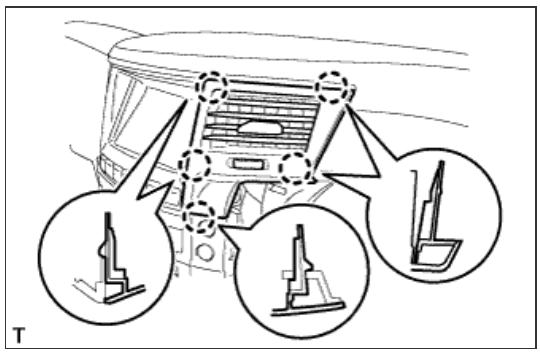

c. Install the multi-display assembly with the 2 screws and 2 bolts.

**Torque:**
**for bolts labeled A:**
**12 N*m{ 122 kgf*cm , 8 ft.*lbf }**



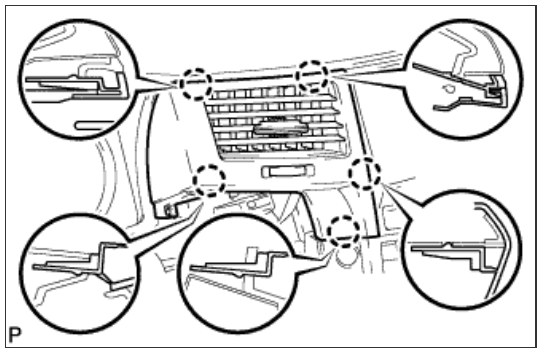

## 8. INSTALL NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Attach the 5 claws to install the register.




## 9. INSTALL NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Attach the 5 claws to install the register.




### 10. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

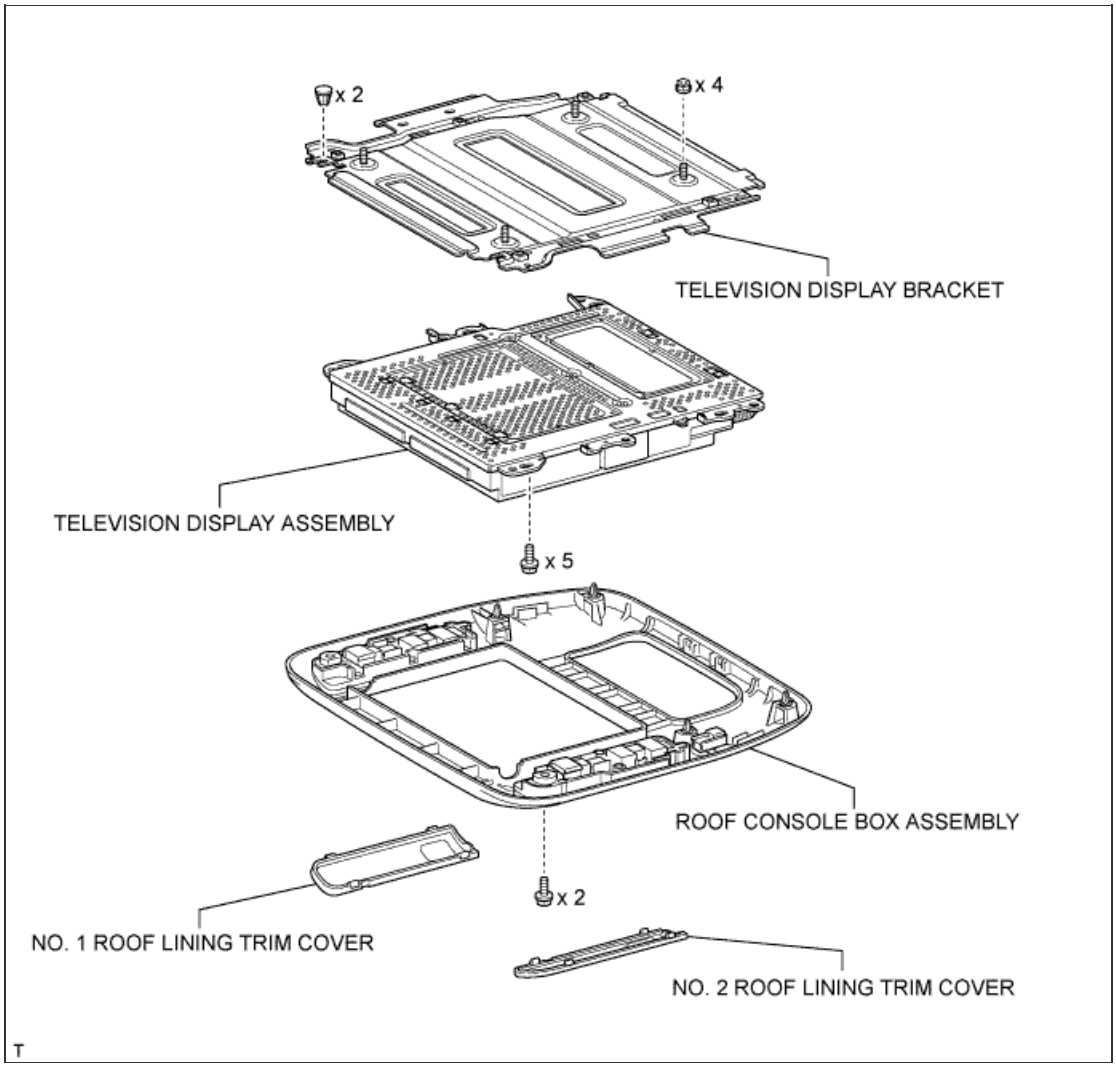
**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

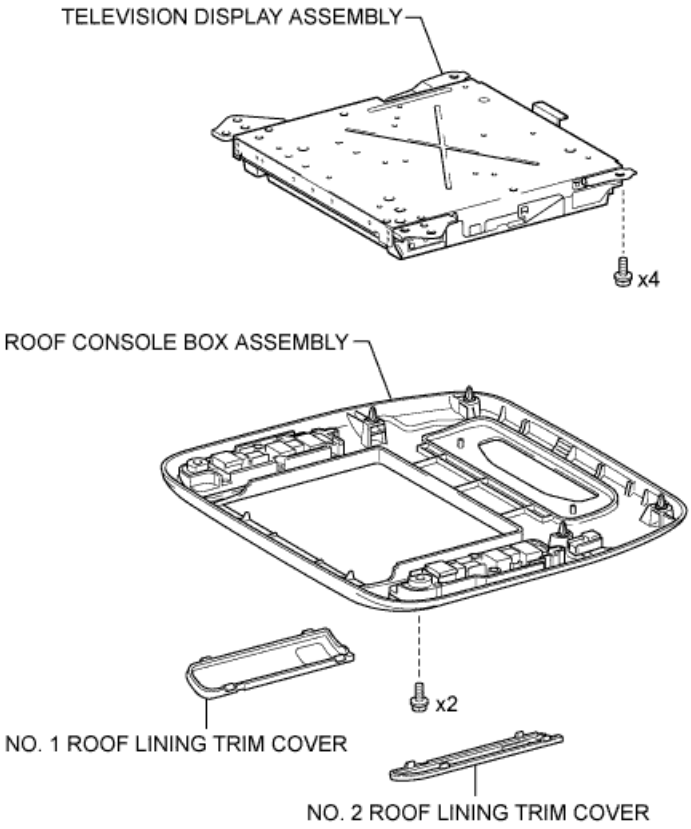
### 11. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover LH with the 7 clips.

**for Preparation** Click here

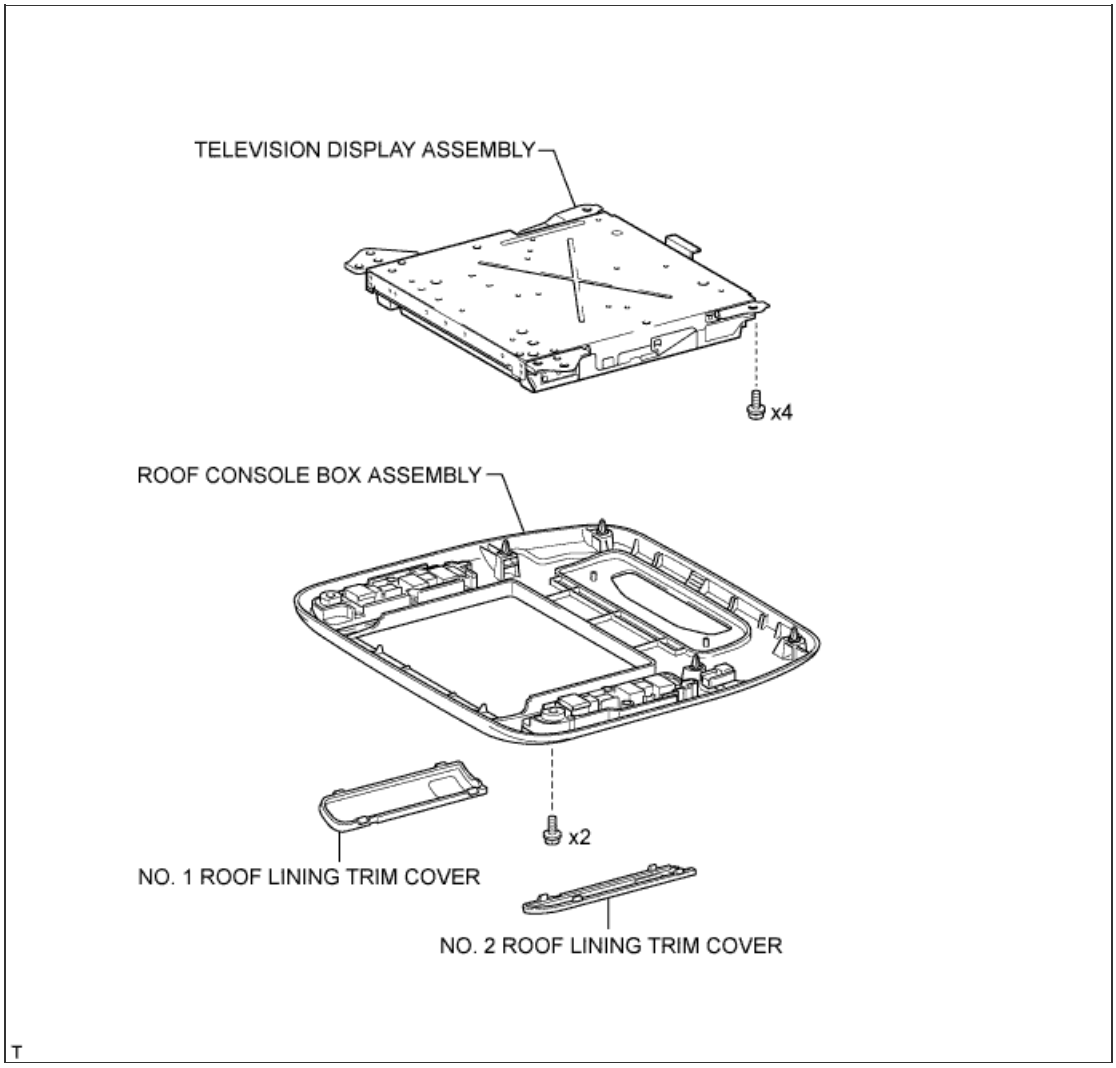


w/ Multi-Media Interface ECU:




T

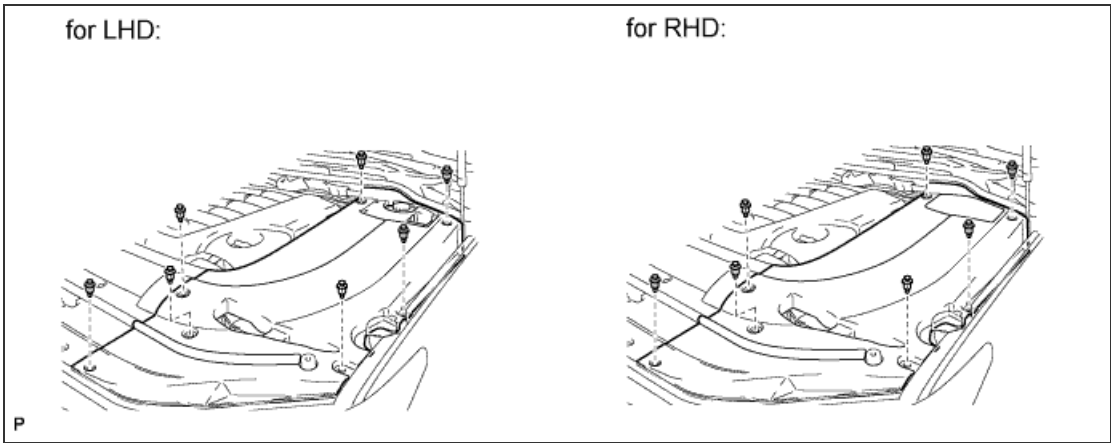
**for Preparation** Click here



**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover.



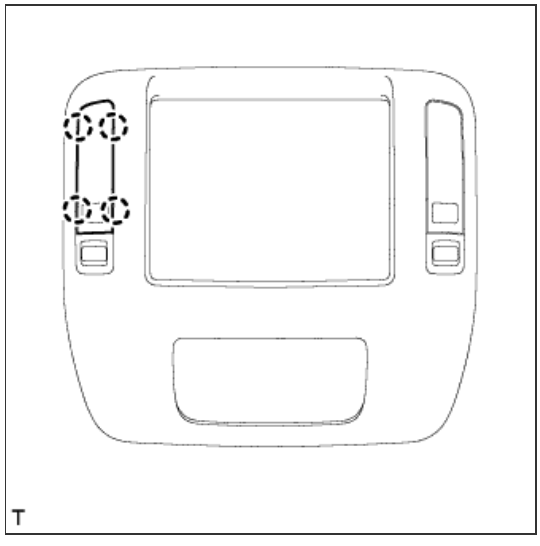

## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

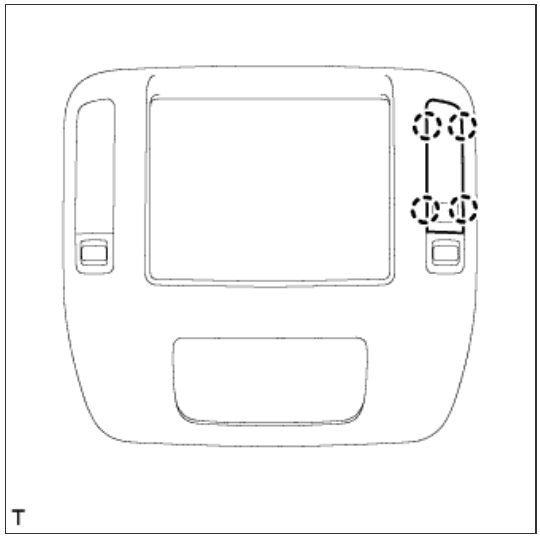
## 3. REMOVE NO. 1 ROOF LINING TRIM COVER

a. Detach the 4 claws and remove the cover.




## 4. REMOVE NO. 2 ROOF LINING TRIM COVER

a. Detach the 4 claws and remove the cover.

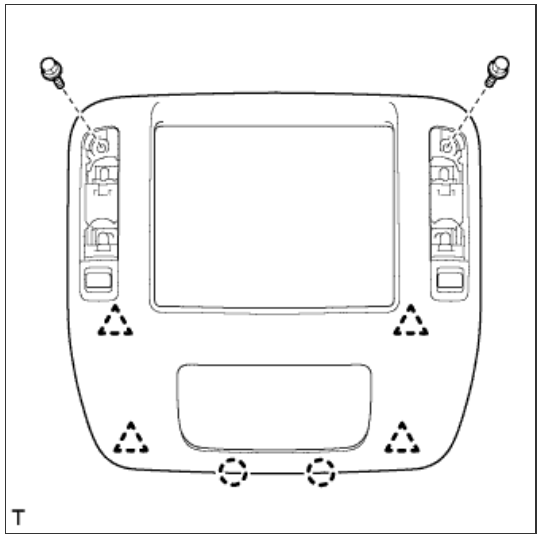



## 5. REMOVE ROOF CONSOLE BOX ASSEMBLY

a. Remove the 2 bolts.

b. Detach the 4 clips and 2 claws.

c. Disconnect the connector and remove the roof console box.

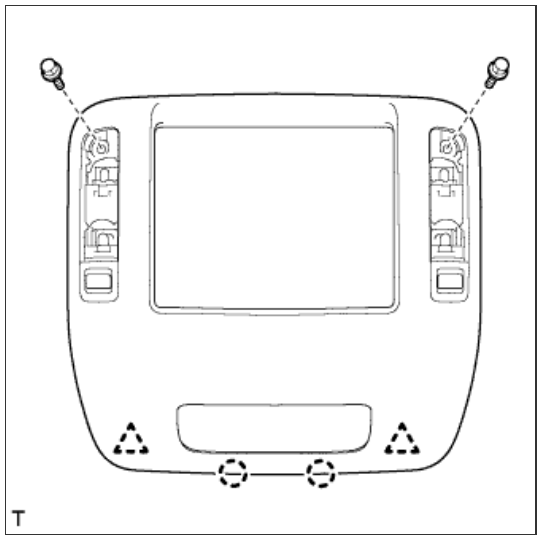



## 6. REMOVE ROOF CONSOLE BOX ASSEMBLY (w/ Multi-Media Interface ECU)

a. Remove the 2 bolts.

b. Detach the 2 clips and 2 claws.

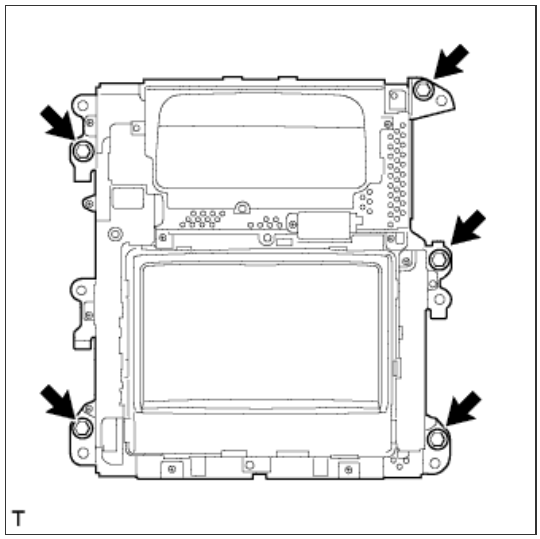
c. Disconnect the connector and remove the roof console box.



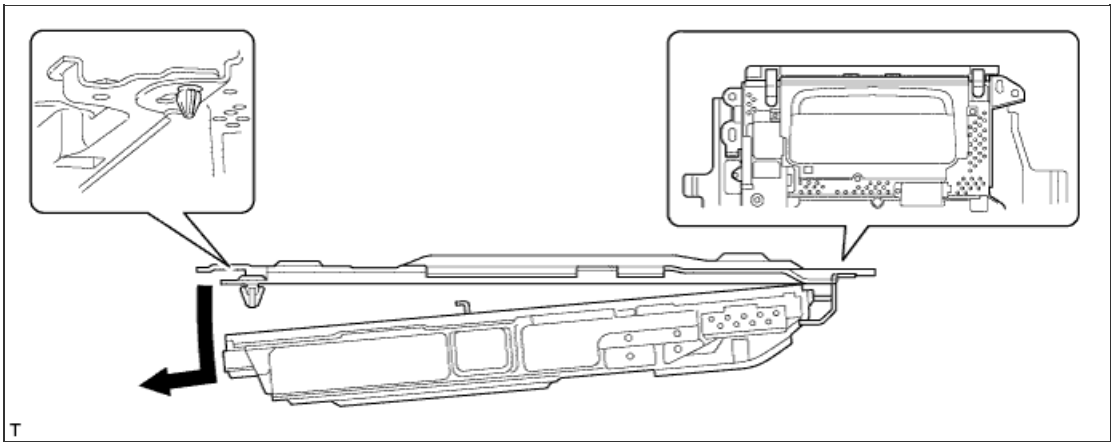

## 7. REMOVE TELEVISION DISPLAY ASSEMBLY

a. Disconnect the connectors.

b. Remove the 5 bolts.



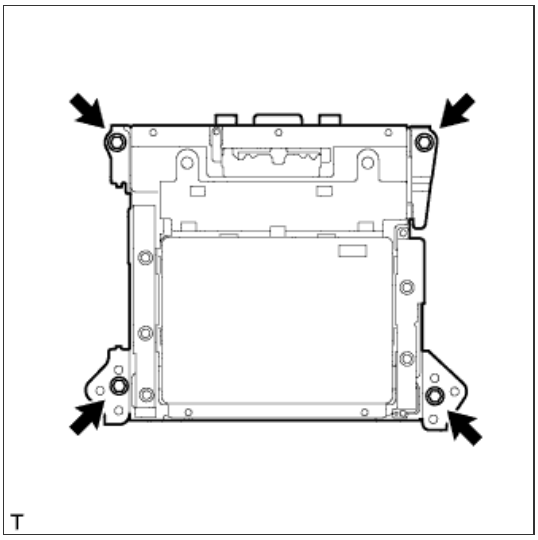

c. Detach the clips and move the television display as shown in the illustration to detach the claws and remove it.



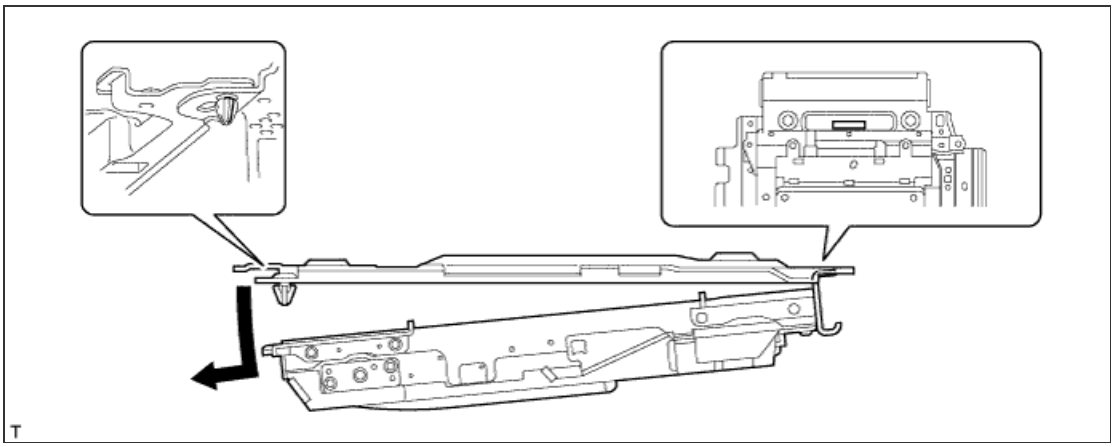

**8. REMOVE TELEVISION DISPLAY ASSEMBLY (w/ Multi-Media Interface ECU)**

a. Disconnect the connectors.

b. Remove the 4 bolts.




c. Detach the clips and move the television display as shown in the illustration to detach the claws and remove it.

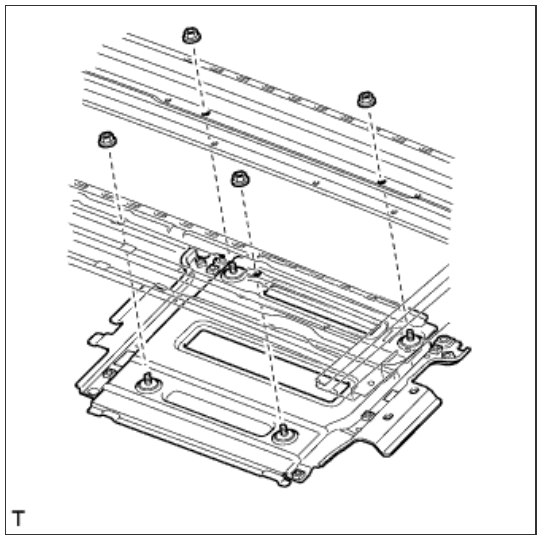



## 9. REMOVE SLIDING ROOF HOUSING SUB-ASSEMBLY

a. Remove the sliding roof housing (Click here).

## 10. REMOVE TELEVISION DISPLAY BRACKET

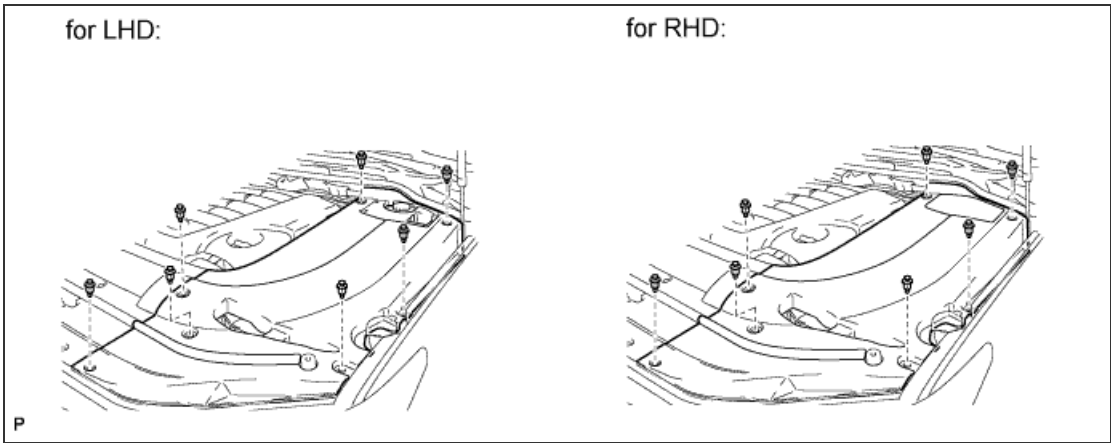
a. Remove the 4 nuts and bracket.


T

**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover LH.



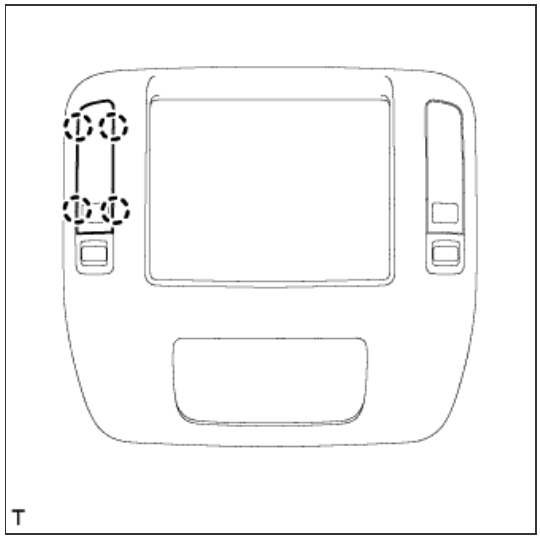

## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

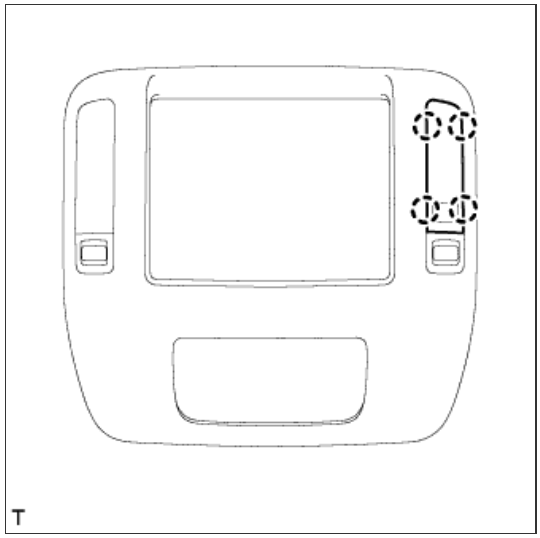
## 3. REMOVE NO. 1 ROOF LINING TRIM COVER

a. Detach the 4 claws and remove the cover.




## 4. REMOVE NO. 2 ROOF LINING TRIM COVER

a. Detach the 4 claws and remove the cover.

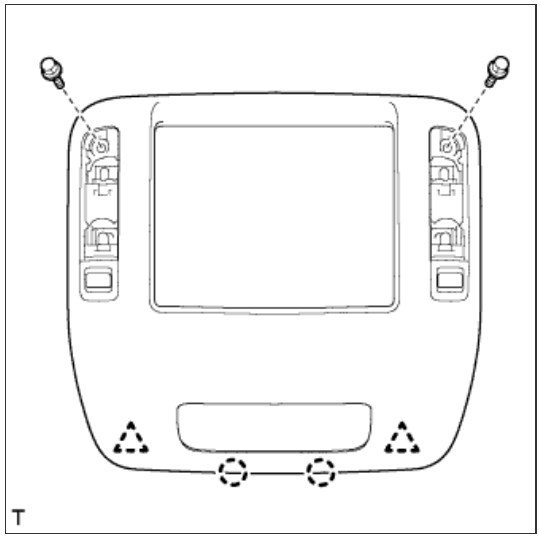



## 5. REMOVE ROOF CONSOLE BOX ASSEMBLY

a. Remove the 2 bolts.

b. Detach the 2 clips and 2 claws.

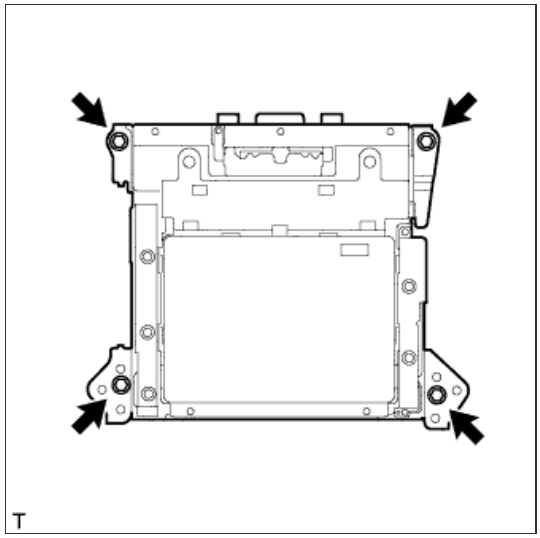
c. Disconnect the connector and remove the roof console box.



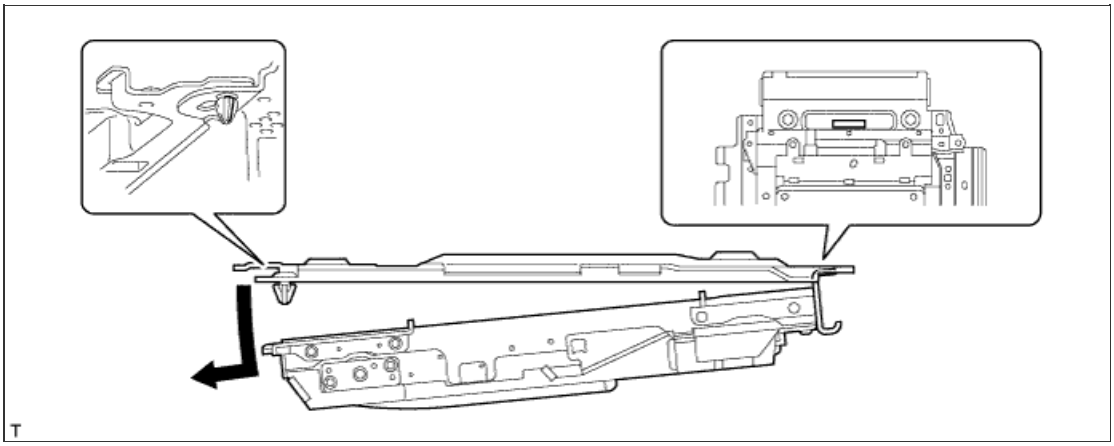

## 6. REMOVE TELEVISION DISPLAY ASSEMBLY

a. Disconnect the connectors.

b. Remove the 4 bolts.



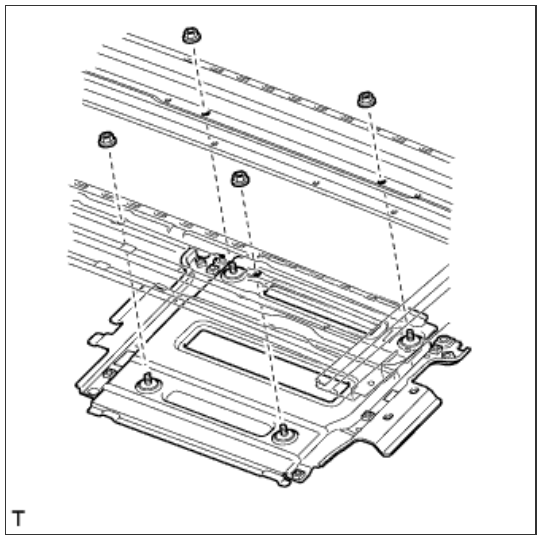
c. Detach the clips and move the television display as shown in the illustration to detach the claws and remove it.



**for Preparation** Click here

## 1. INSTALL TELEVISION DISPLAY BRACKET

a. Install the bracket with the 4 nuts.

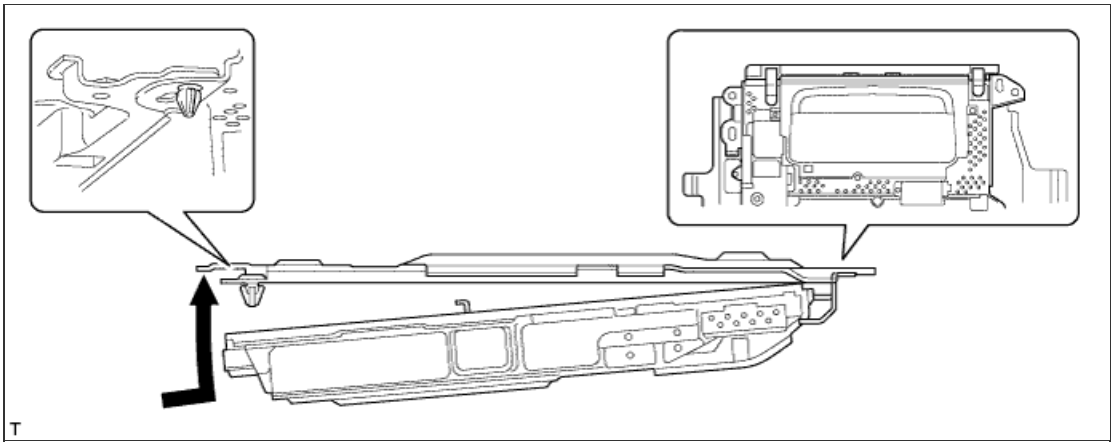



## 2. INSTALL SLIDING ROOF HOUSING SUB-ASSEMBLY

a. Install the sliding roof housing (Click here).

## 3. INSTALL TELEVISION DISPLAY ASSEMBLY

a. Attach the display to the claws on the front side of the bracket by moving it in the direction of the arrow in the illustration, and then attach the clips to temporarily install the display.

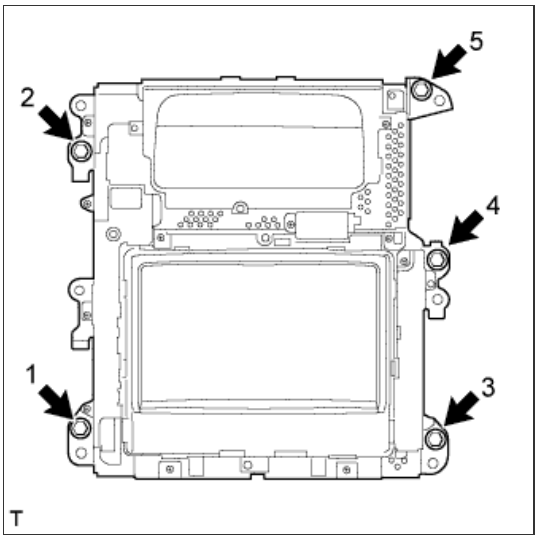



b. Install the television display with the 5 bolts.

**HINT:**

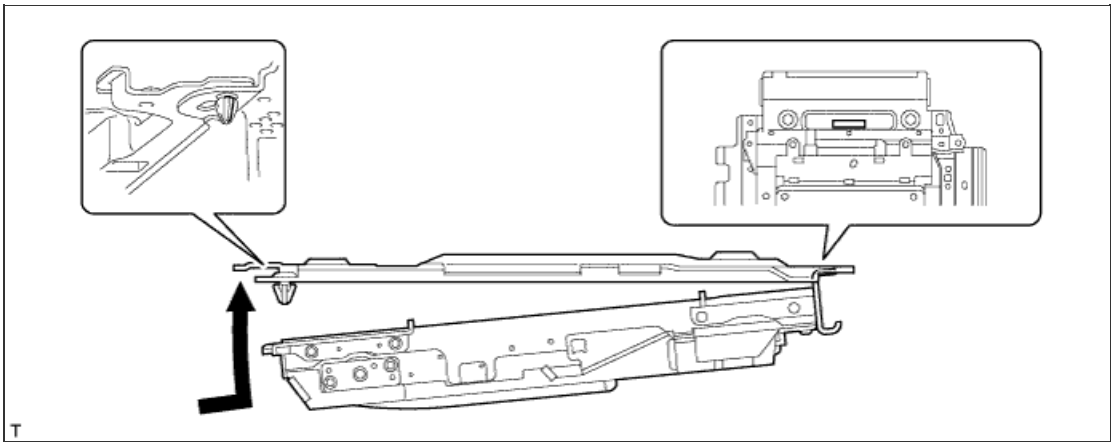
Install the bolts in the order shown in the illustration.

c. Connect the connectors.




## 4. INSTALL TELEVISION DISPLAY ASSEMBLY (w/ Multi-Media Interface ECU)

a. Attach the display to the claws on the front side of the bracket by moving it in the direction of the arrow in the illustration, and then attach the clips to temporarily install the display.

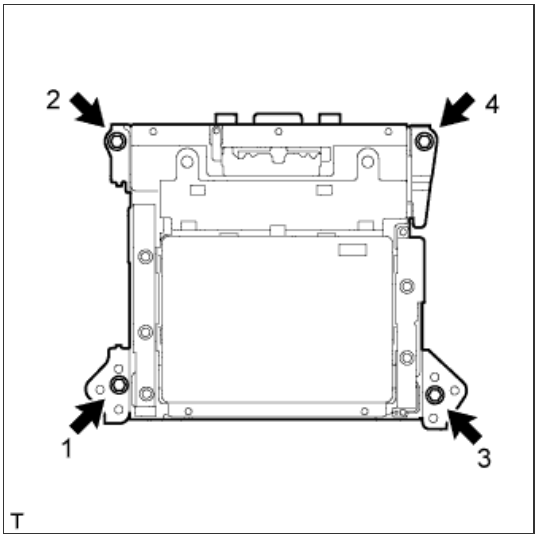



b. Install the television display with the 4 bolts.

**HINT:**

Install the bolts in the order shown in the illustration.

c. Connect the connectors.

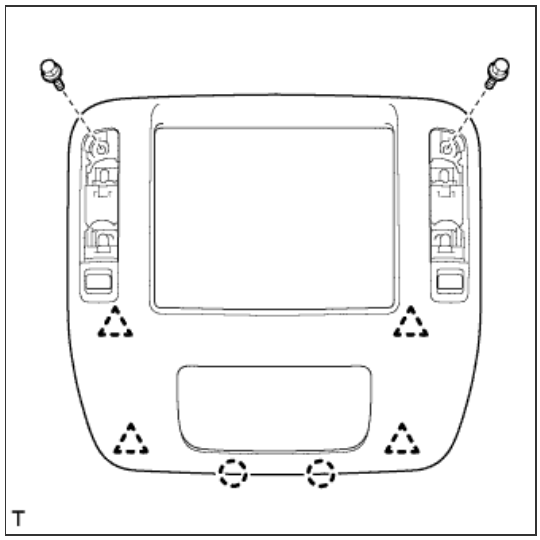



## 5. INSTALL ROOF CONSOLE BOX ASSEMBLY

a. Connect the connector.

b. Attach the 4 clips and 2 claws to install the roof console box.

c. Install the 2 bolts.

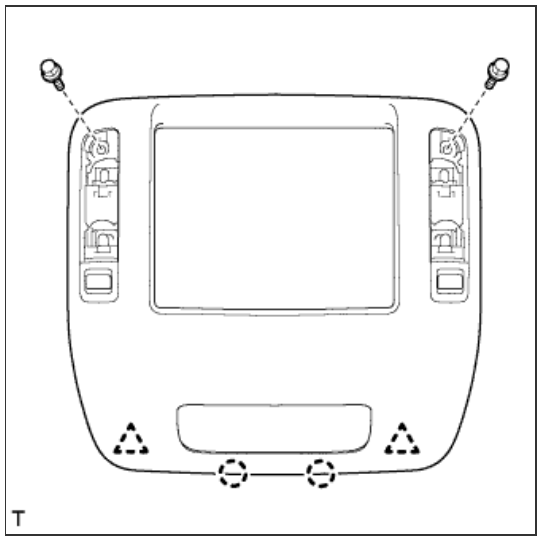



### 6. INSTALL ROOF CONSOLE BOX ASSEMBLY (w/ Multi-Media Interface ECU)

a. Connect the connector.

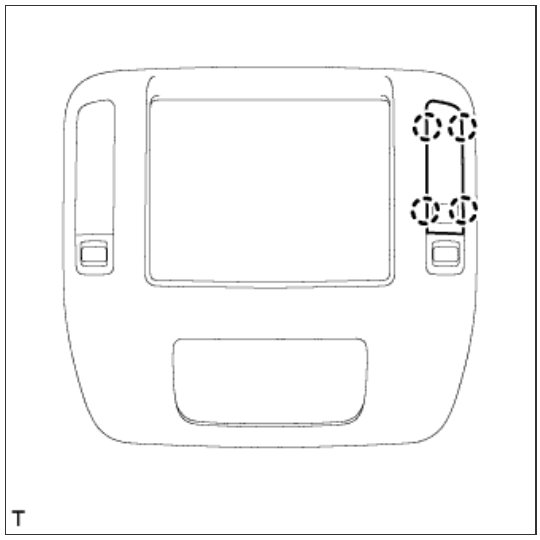
b. Attach the 2 clips and 2 claws to install the roof console box.

c. Install the 2 bolts.



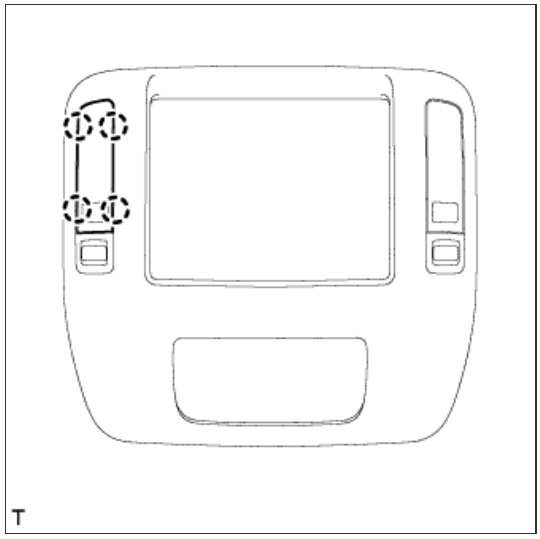

### 7. INSTALL NO. 2 ROOF LINING TRIM COVER

a. Attach the 4 claws to install the cover.




## 8. INSTALL NO. 1 ROOF LINING TRIM COVER

a. Attach the 4 claws to install the cover.




## 9. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

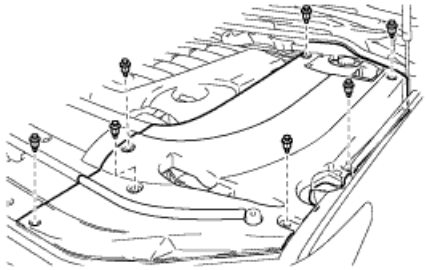
**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

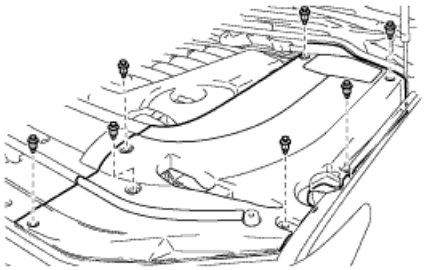
## 10. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover with the 7 clips.

for LHD:



for RHD:

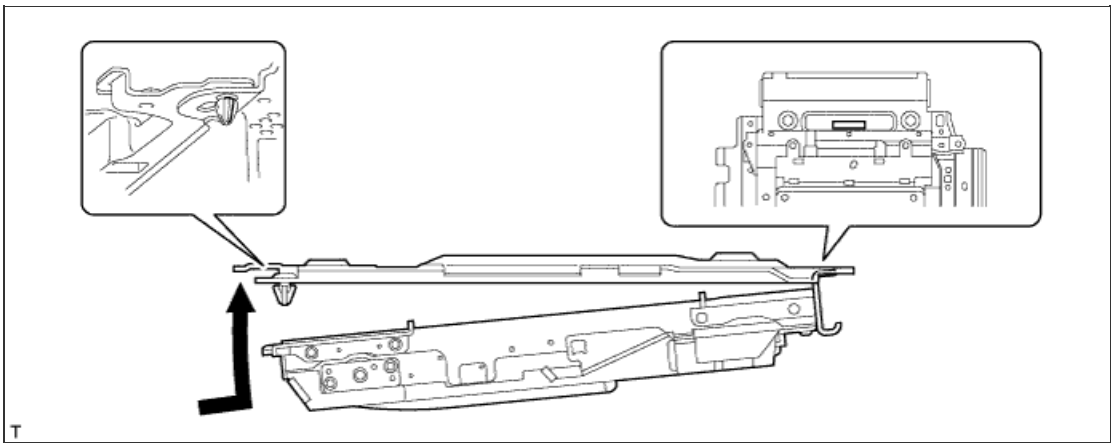


P

**for Preparation** Click here

## 1. INSTALL TELEVISION DISPLAY ASSEMBLY

a. Attach the display to the claws on the front side of the bracket by moving it in the direction of the arrow in the illustration, and then attach the clips to temporarily install the display.

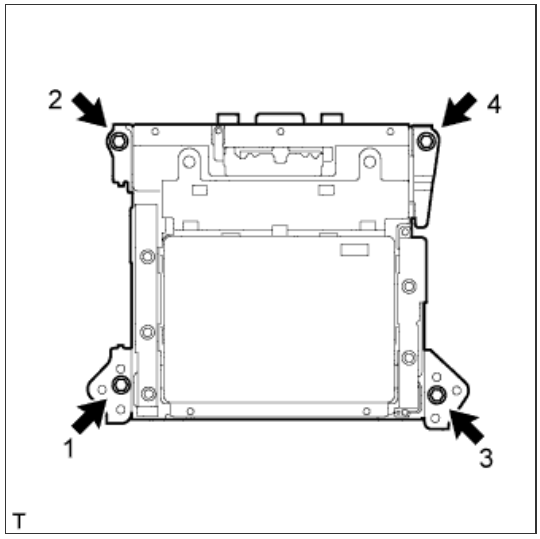



b. Install the television display with the 4 bolts.

**HINT:**

Install the bolts in the order shown in the illustration.

c. Connect the connectors.

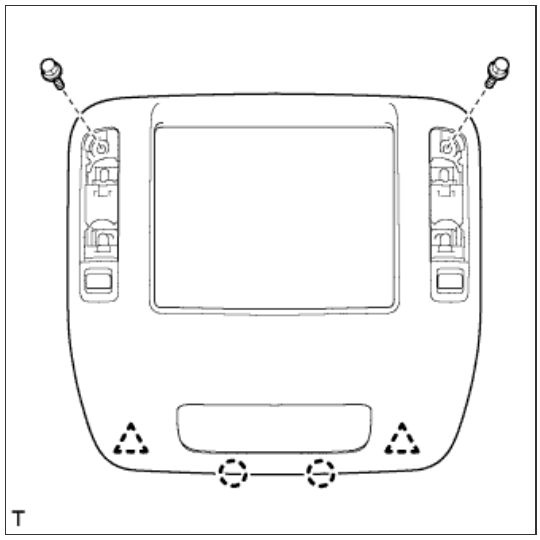



## 2. INSTALL ROOF CONSOLE BOX ASSEMBLY

a. Connect the connector.

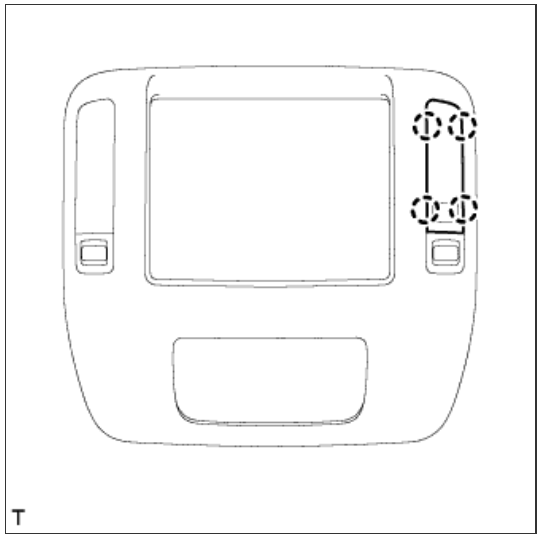
b. Attach the 2 clips and 2 claws to install the roof console box.

c. Install the 2 bolts.



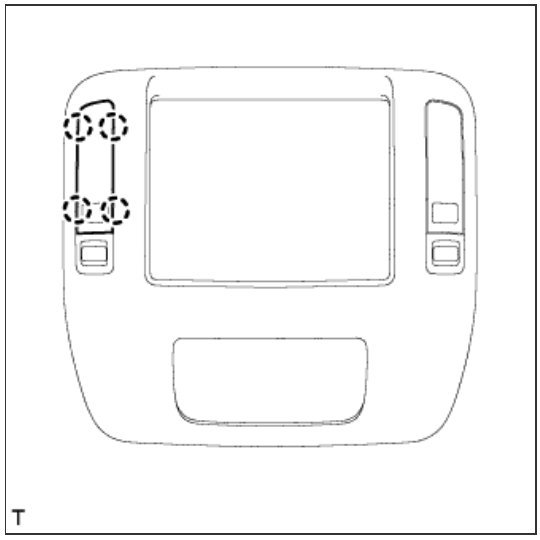

### 3. INSTALL NO. 2 ROOF LINING TRIM COVER

a. Attach the 4 claws to install the cover.




### 4. INSTALL NO. 1 ROOF LINING TRIM COVER

a. Attach the 4 claws to install the cover.




### 5. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

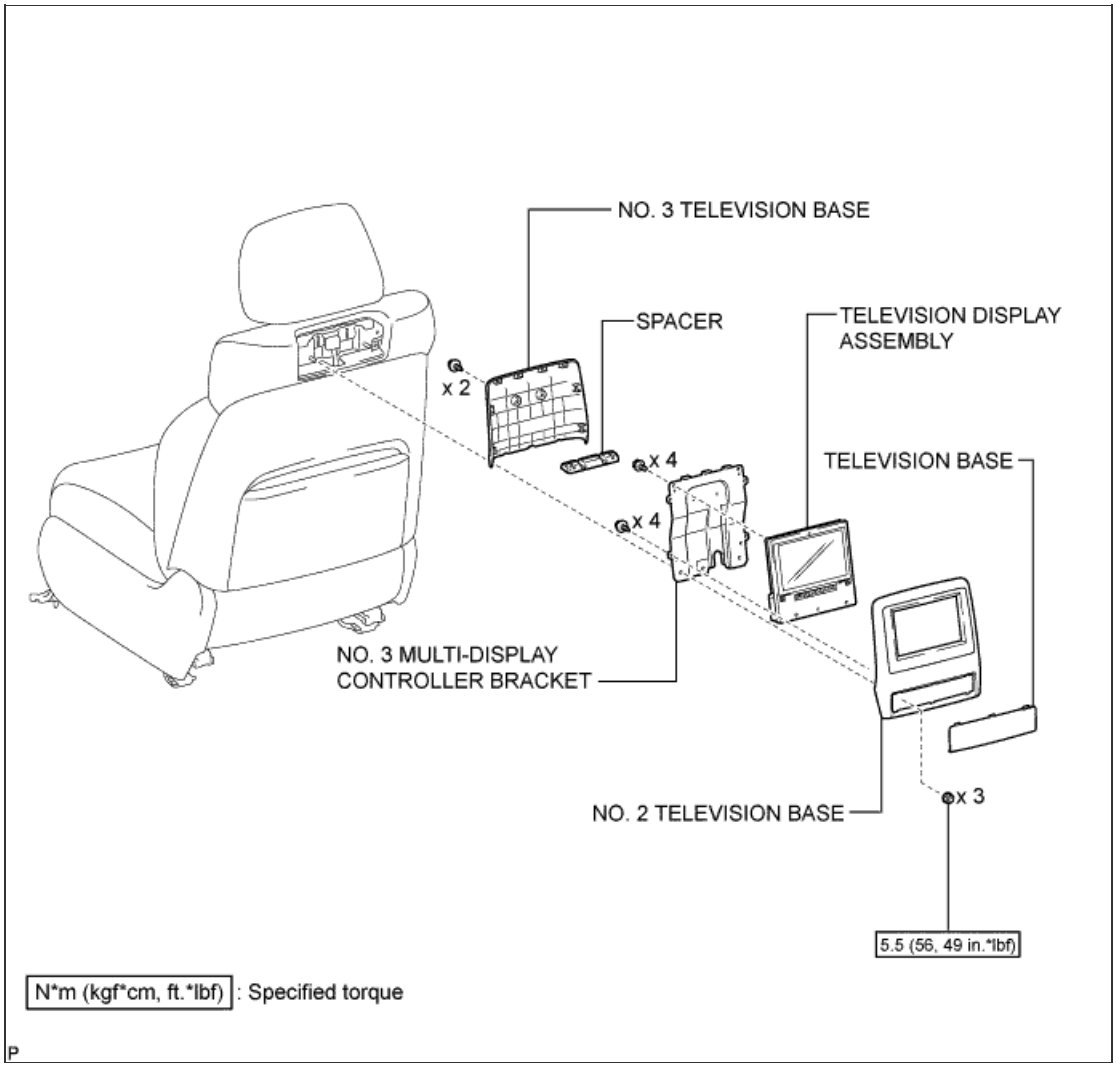
**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

### 6. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover LH with the 7 clips.

**for Preparation** Click here



**for Preparation** Click here

**HINT:**

- **Use the same procedure for the RH and LH sides.**
- **The procedure listed below is for the LH side.**

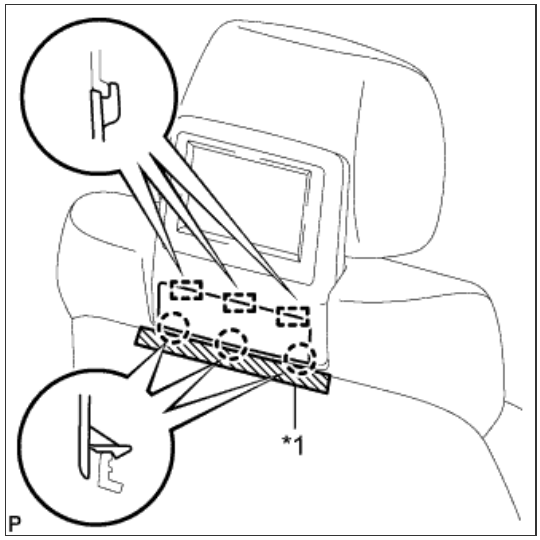
## 1. REMOVE TELEVISION BASE

a. Put protective tape around the No. 1 instrument panel garnish sub-assembly.

**Text in Illustration**

| | |
|---|---|
| *1 | Protective tape |

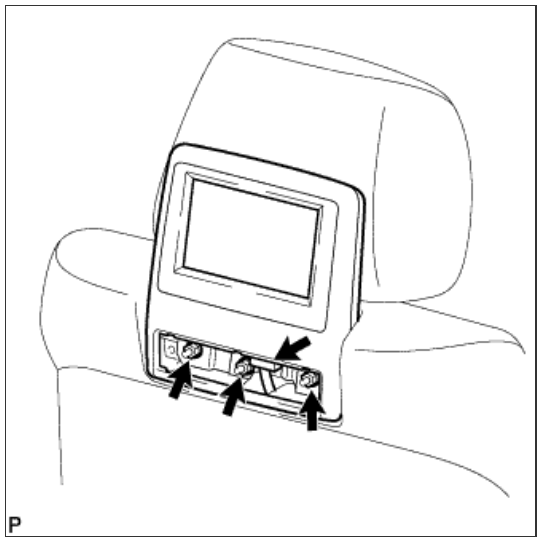
b. Using a moulding remover A, detach the 3 claws and 3 guides and remove the television base.




## 2. REMOVE TELEVISION DISPLAY ASSEMBLY

a. Disconnect the connector.

b. Remove the 3 nuts and television display assembly.

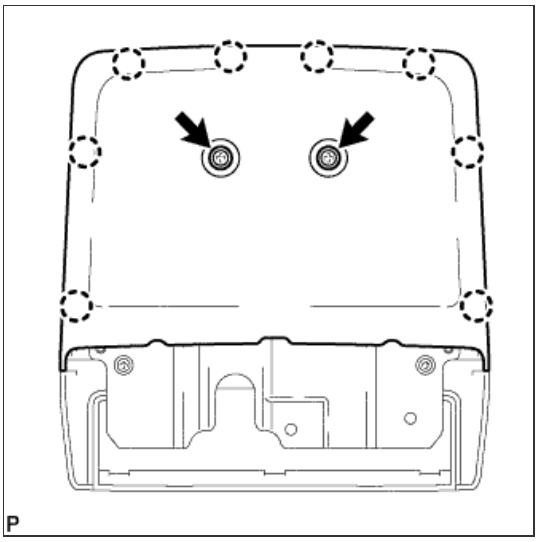



## 3. REMOVE NO. 3 TELEVISION BASE

a. Remove the 2 screws.

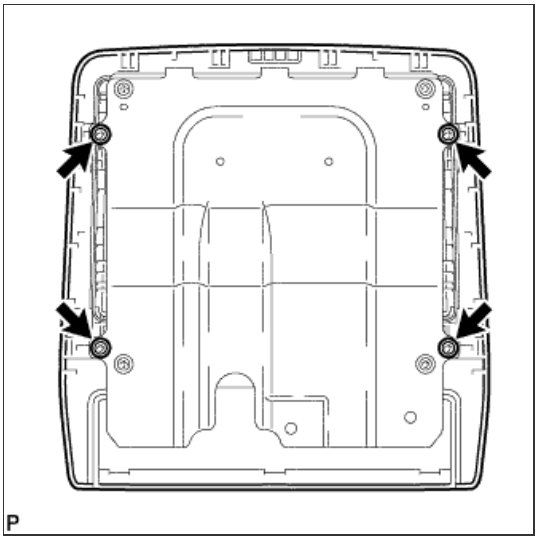
b. Using a moulding remover A, detach the 8 claws and remove the No. 3

television base.



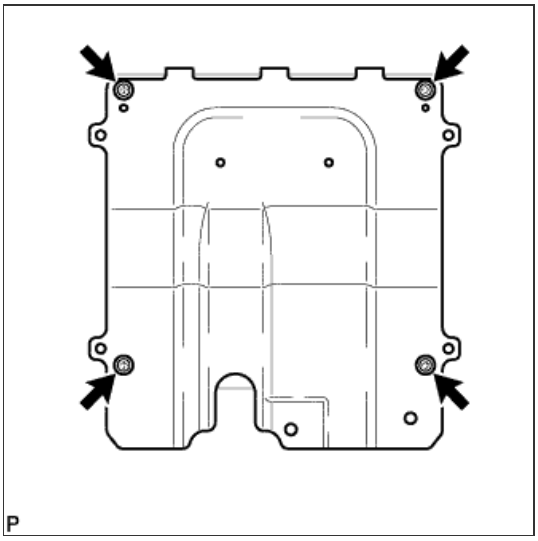

### 4. REMOVE NO. 2 TELEVISION BASE

a. Remove 4 screws and No. 2 television base.




### 5. REMOVE NO. 3 MULTI-DISPLAY CONTROLLER BRACKET

a. Remove the 4 screws and No. 3 multi-display controller bracket from the television display assembly.



**for Preparation** Click here

**HINT:**

- **Use the same procedure for the RH and LH sides.**
- **The procedure listed below is for the LH side.**

## 1. INSTALL NO. 3 MULTI-DISPLAY CONTROLLER BRACKET

a. Install the No. 3 multi-display controller bracket with the 4 screws.

## 2. INSTALL NO. 2 TELEVISION BASE

a. Install the No. 2 television base with the 4 screws.

## 3. INSTALL NO. 3 TELEVISION BASE

a. Attach the 8 claws to install the No. 3 television base.

b. Install the 2 screws.

## 4. INSTALL TELEVISION DISPLAY ASSEMBLY

a. Install the television display assembly with the 3 nuts.

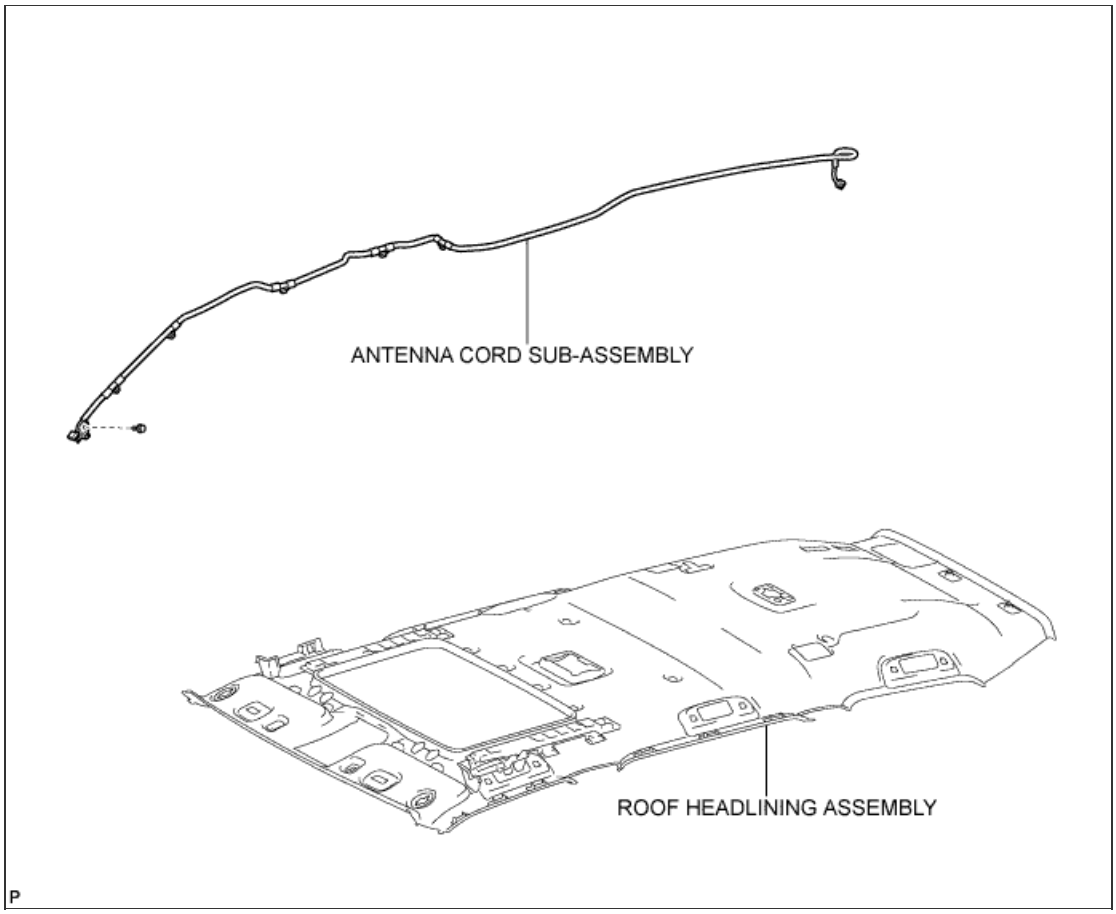
**Torque:**
**5.5 N*m{ 56 kgf*cm , 49 in.*lbf }**

b. Connect the connector.

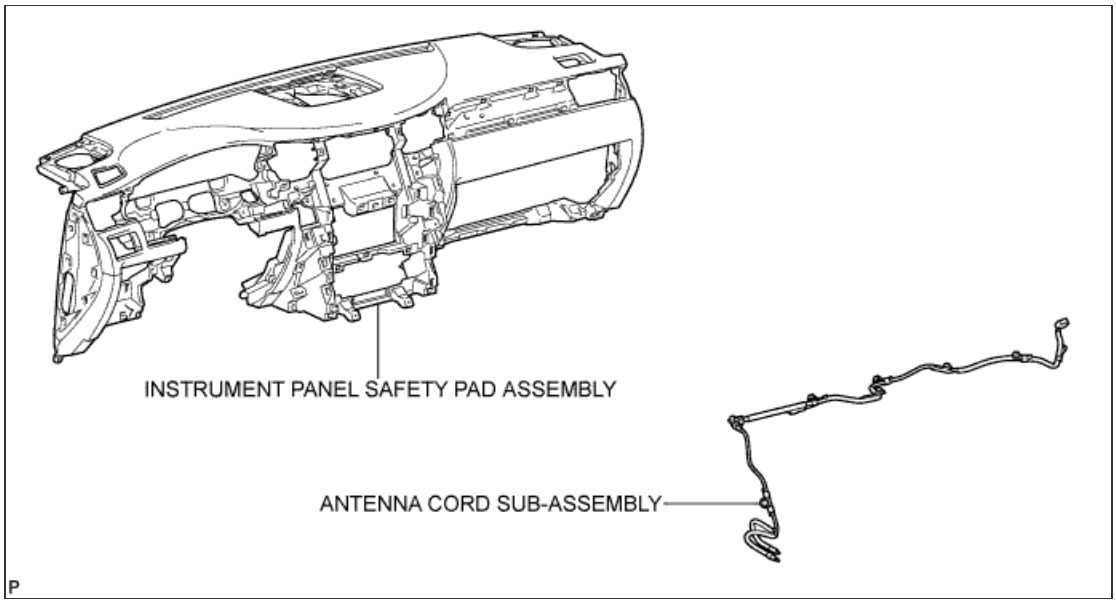
## 5. INSTALL TELEVISION BASE

a. Attach the 3 guides and 3 claws to install the television base.

**for Preparation** Click here



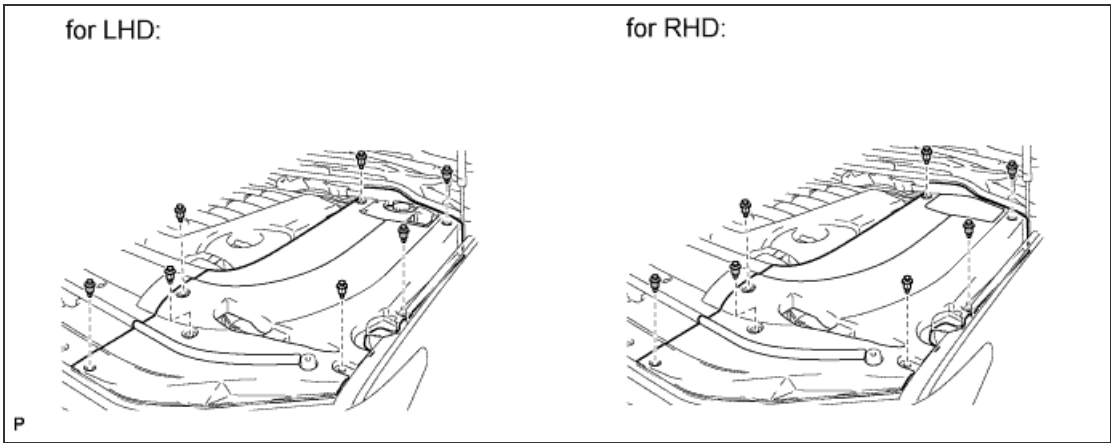


**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover.




## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**CAUTION:**

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

**NOTICE:**

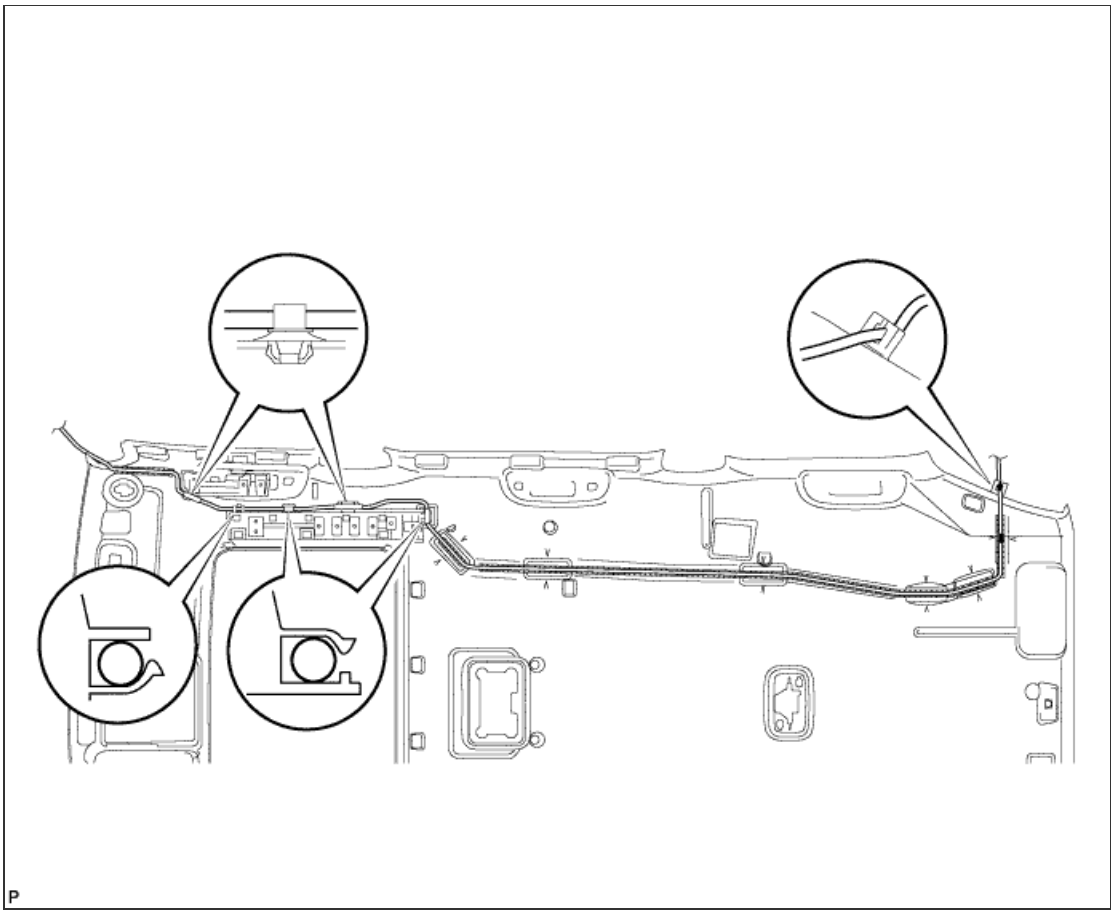
When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 3. REMOVE ROOF HEADLINING ASSEMBLY

a. Remove the roof headlining assembly (Click here).

## 4. REMOVE ANTENNA CORD SUB-ASSEMBLY

a. Detach the 2 clamps and remove the antenna from the 3 ribs and notch on the rear of the roof headlining.




b. Remove the antenna cord from the roof headlining.

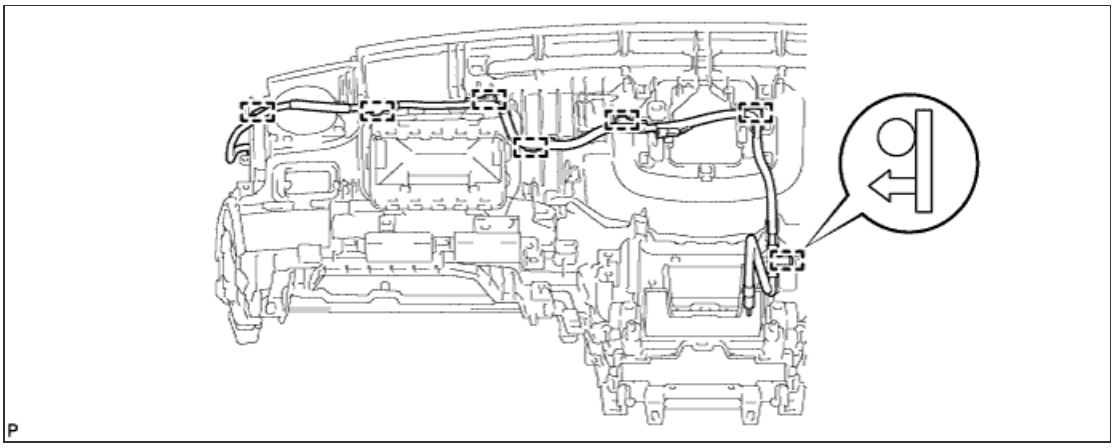
c. Remove the double-sided tape from the roof headlining.

### 5. REMOVE INSTRUMENT PANEL SAFETY PAD ASSEMBLY

a. Remove the instrument panel safety pad ( Click here).

### 6. REMOVE ANTENNA CORD SUB-ASSEMBLY

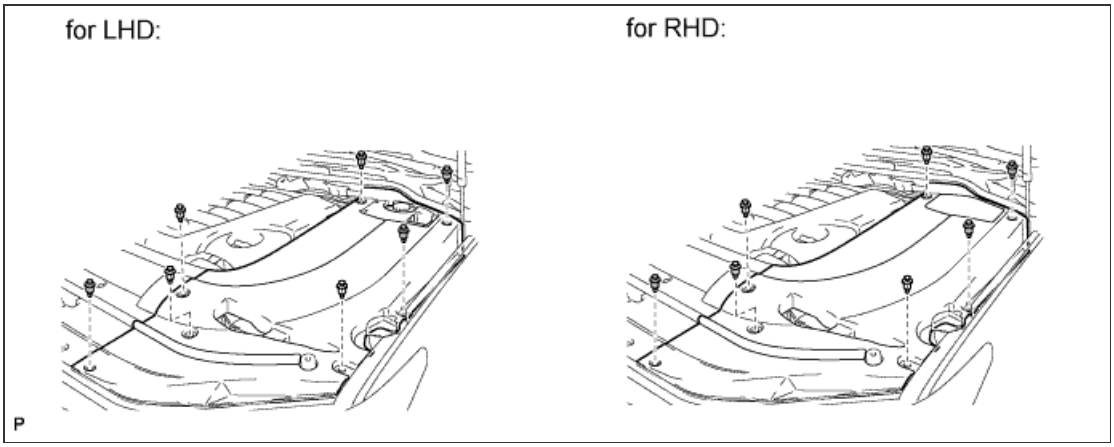
a. Detach the 7 clamps and remove the antenna cord.



**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover LH.




## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**CAUTION:**

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

**NOTICE:**

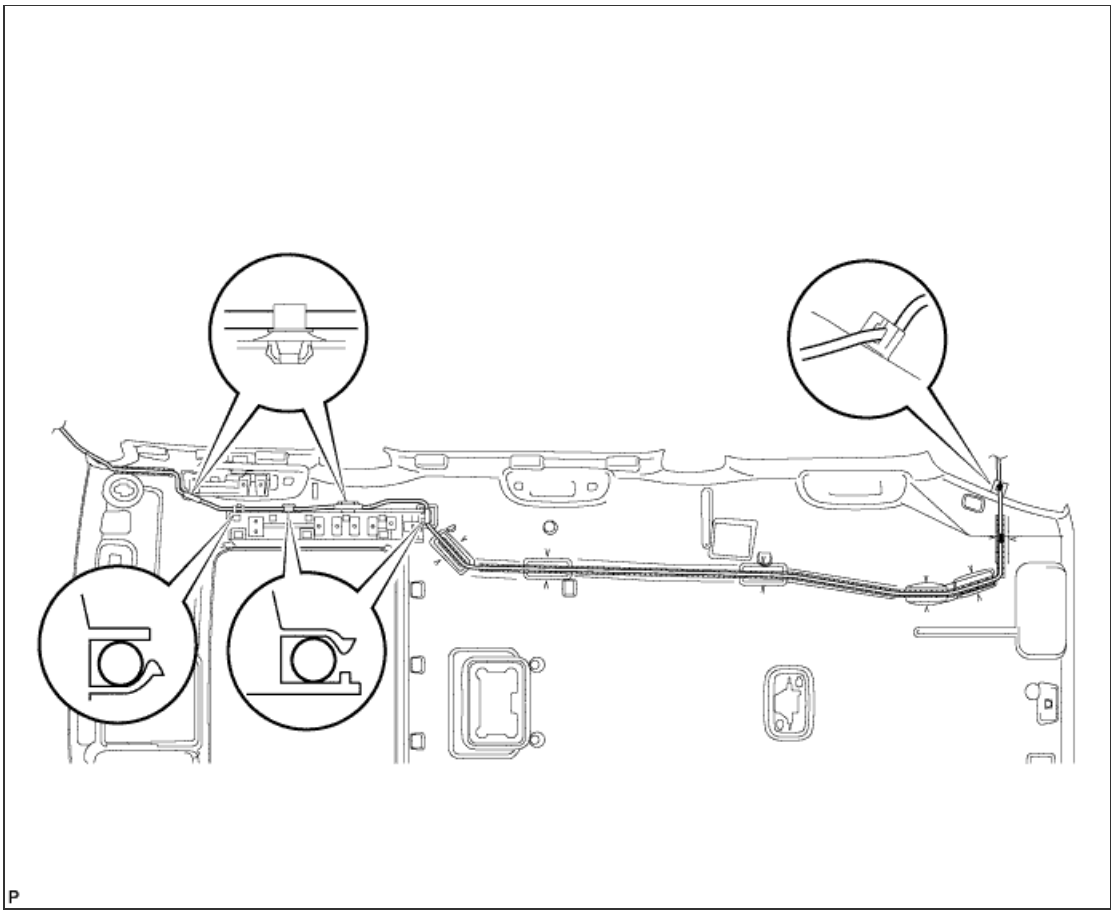
When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 3. REMOVE ROOF HEADLINING ASSEMBLY

a. Remove the roof headlining assembly (Click here).

## 4. REMOVE ANTENNA CORD SUB-ASSEMBLY

a. Detach the 2 clamps and remove the antenna from the 3 ribs and notch on the rear of the roof headlining.




b. Remove the antenna cord from the roof headlining.

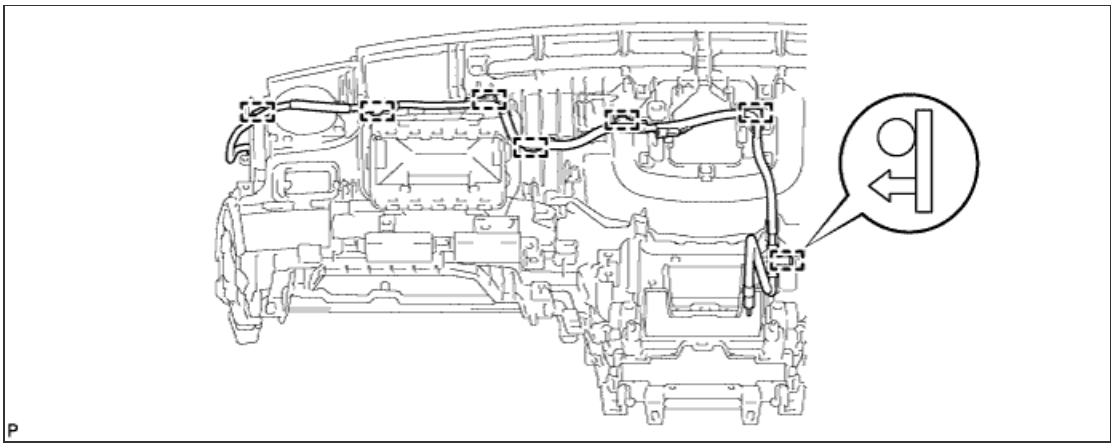
c. Remove the double-sided tape from the roof headlining.

### 5. REMOVE INSTRUMENT PANEL SAFETY PAD ASSEMBLY

a. Remove the instrument panel safety pad ( Click here).

### 6. REMOVE ANTENNA CORD SUB-ASSEMBLY

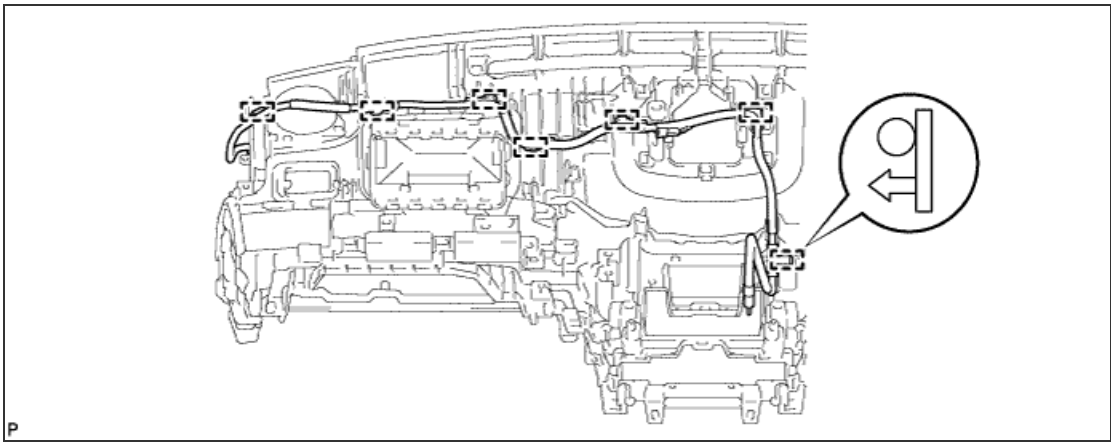
a. Detach the 7 clamps and remove the antenna cord.



**for Preparation** Click here

## 1. INSTALL ANTENNA CORD SUB-ASSEMBLY

a. Attach the 7 clamps to install the antenna cord.




## 2. INSTALL INSTRUMENT PANEL SAFETY PAD ASSEMBLY

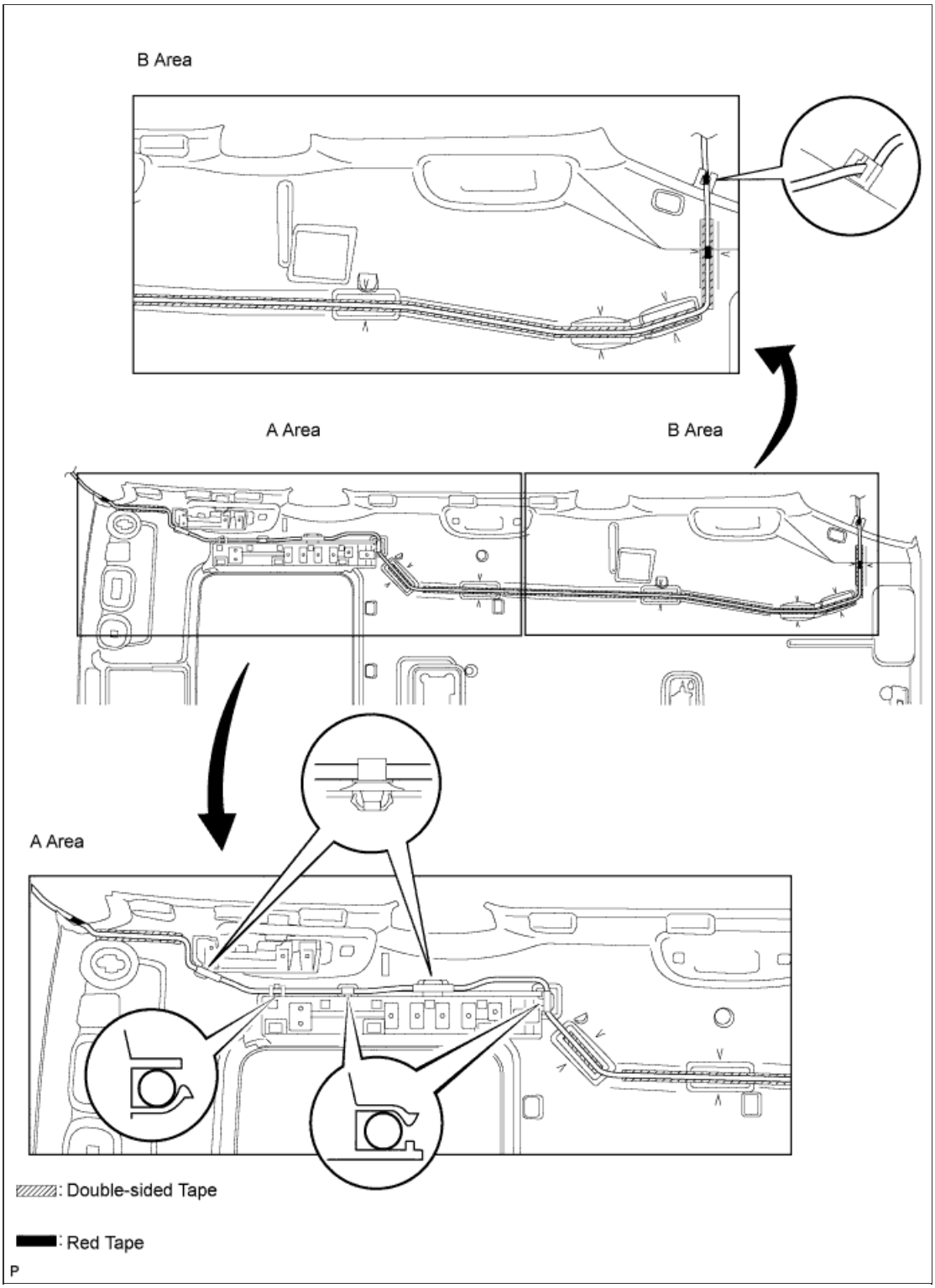
a. Install the instrument panel safety pad ( Click here).

## 3. INSTALL ANTENNA CORD SUB-ASSEMBLY

a. Apply new double-sided tape as shown in the illustration.

**HINT:**

Attach double-sided tape to the hatched areas shown in the illustration below.




b. Align the red tape wound around the antenna cord with the V markings on the roof headlining and the notch at the rear of the headlining, and attach the antenna cord to the double-sided tape.

c. Attach the 2 clamps and fit the antenna into the 3 ribs and the notch.

## 4. INSTALL ROOF HEADLINING ASSEMBLY

a. Install the roof headlining (Click here).

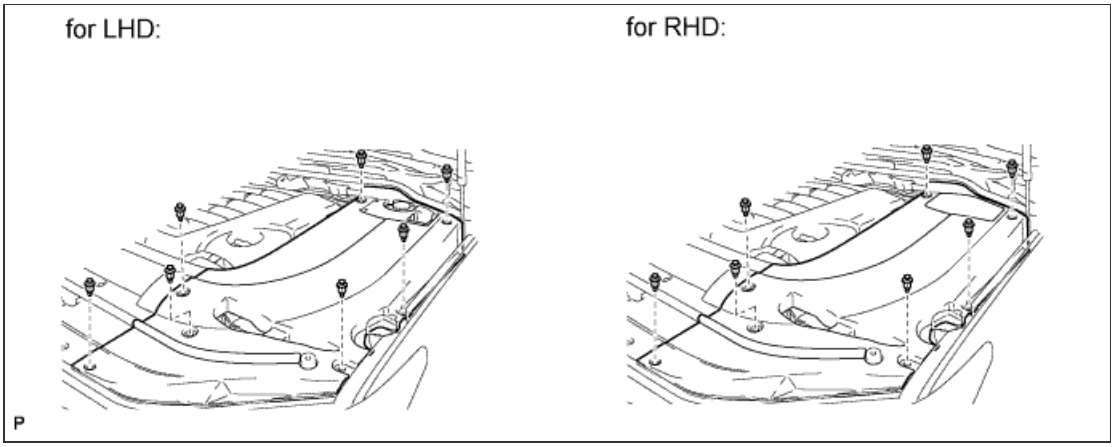
## 5. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 6. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover with the 7 clips.



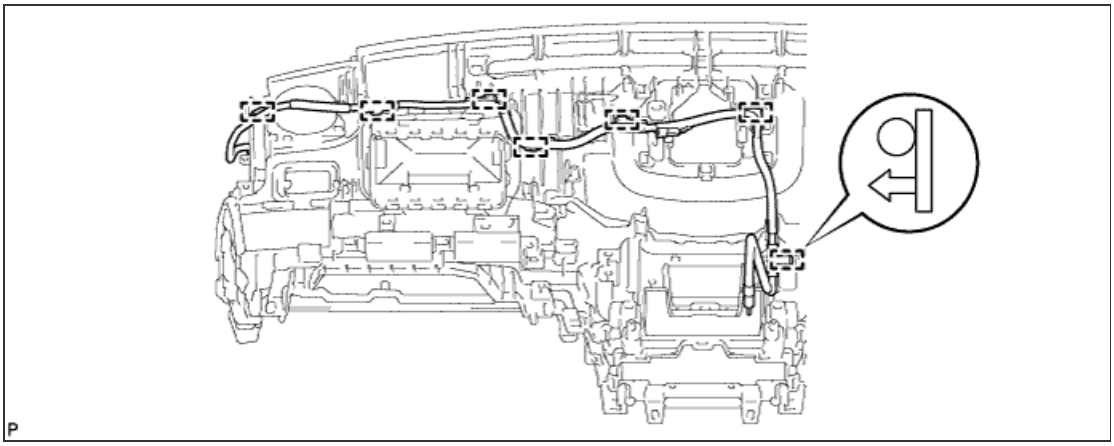

## 7. CHECK SRS WARNING LIGHT

a. Check the SRS warning light (Click here).

**for Preparation** Click here

## 1. INSTALL ANTENNA CORD SUB-ASSEMBLY

a. Attach the 7 clamps to install the antenna cord.




## 2. INSTALL INSTRUMENT PANEL SAFETY PAD ASSEMBLY

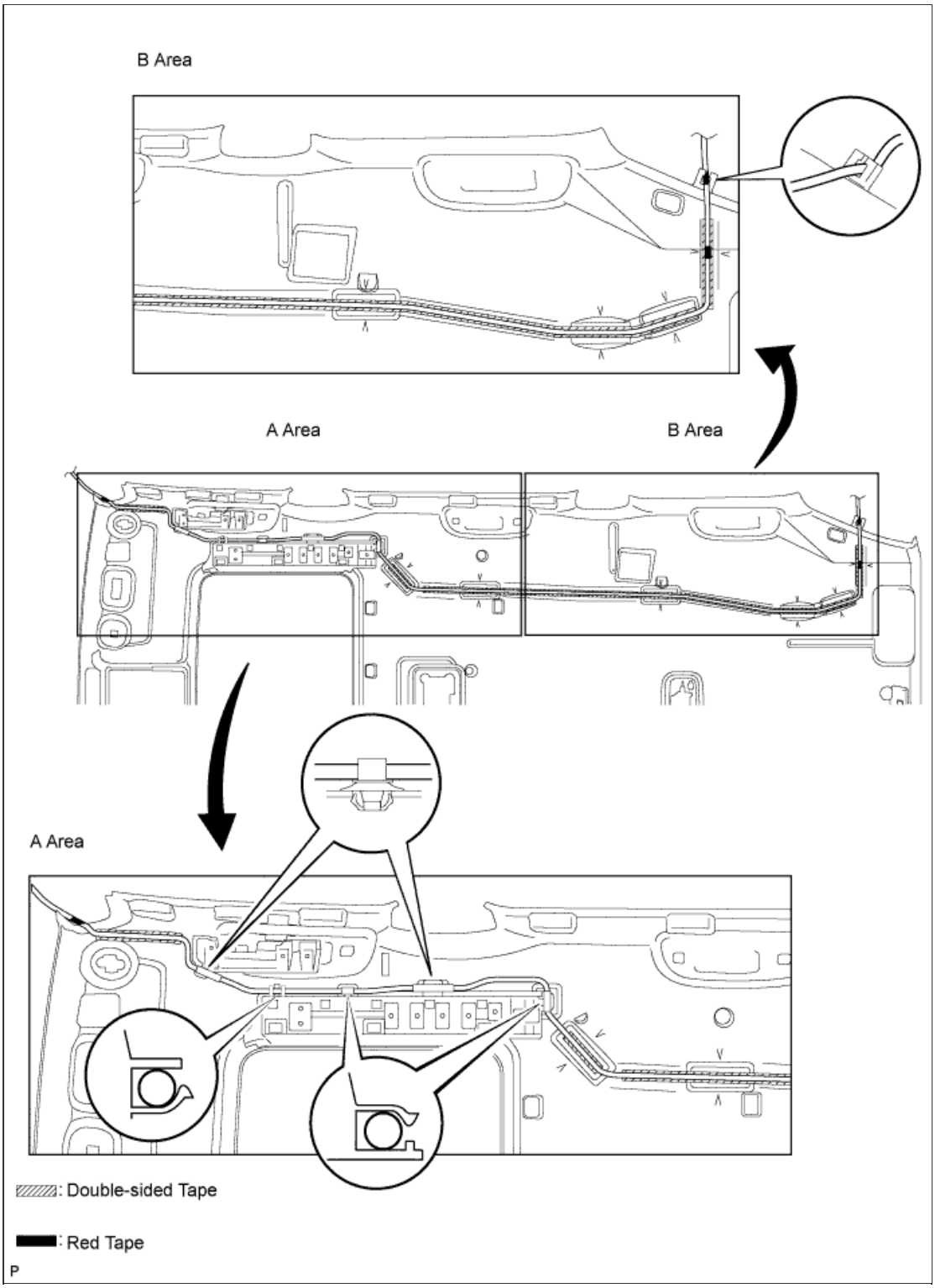
a. Install the instrument panel safety pad ( Click here).

## 3. INSTALL ANTENNA CORD SUB-ASSEMBLY

a. Apply new double-sided tape as shown in the illustration.

**HINT:**

Attach double-sided tape to the hatched areas shown in the illustration below.




b. Align the red tape wound around the antenna cord with the V markings on the roof headlining and the notch at the rear of the headlining, and attach the antenna cord to the double-sided tape.

c. Attach the 2 clamps and fit the antenna into the 3 ribs and the notch.

## 4. INSTALL ROOF HEADLINING ASSEMBLY

a. Install the roof headlining (Click here).

## 5. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

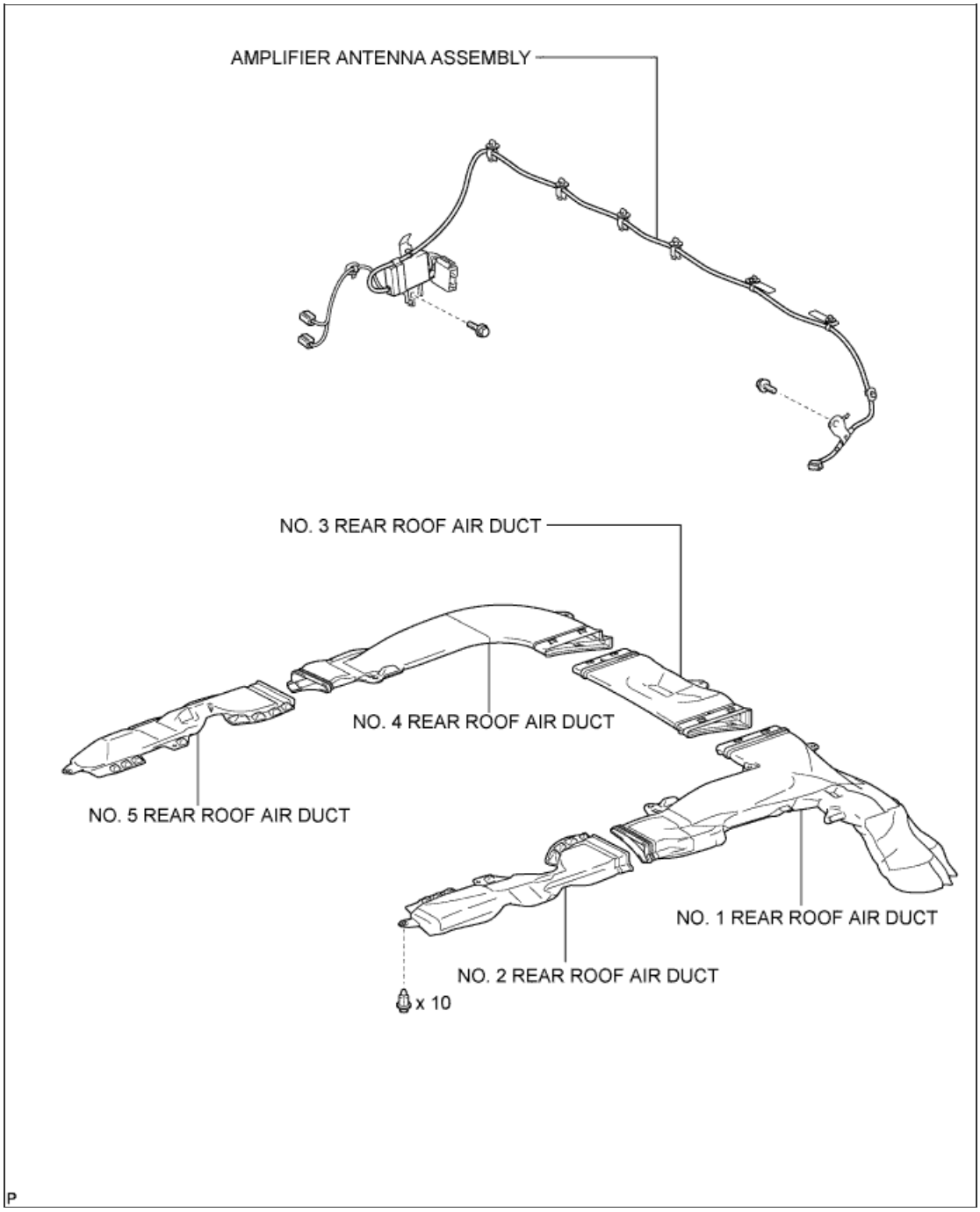
### 6. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover LH with the 7 clips.

### 7. CHECK SRS WARNING LIGHT

a. Check the SRS warning light (Click here).

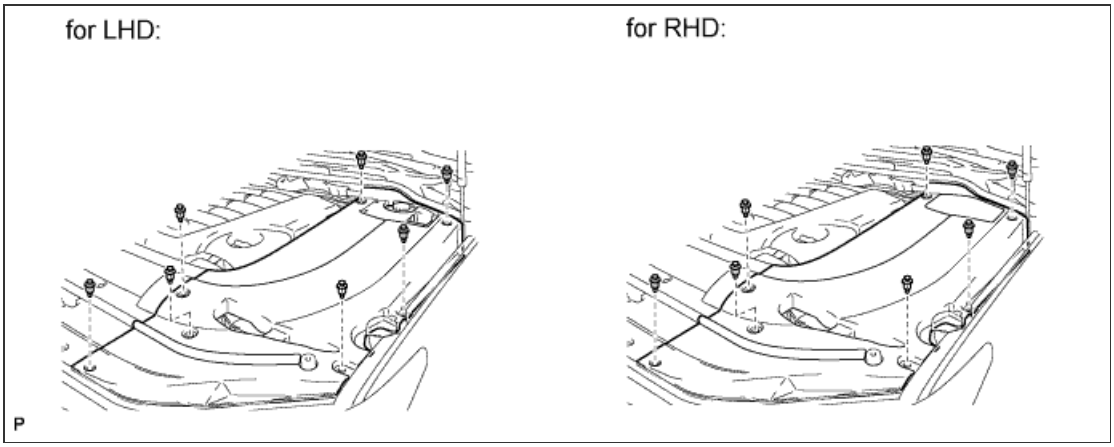
**for Preparation** Click here



**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover.




## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

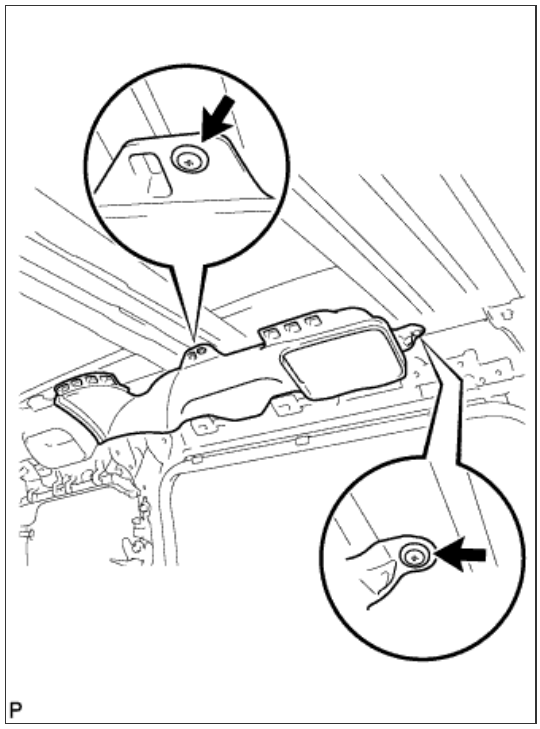
When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 3. REMOVE ROOF HEADLINING ASSEMBLY

a. Remove the roof headlining (Click here).

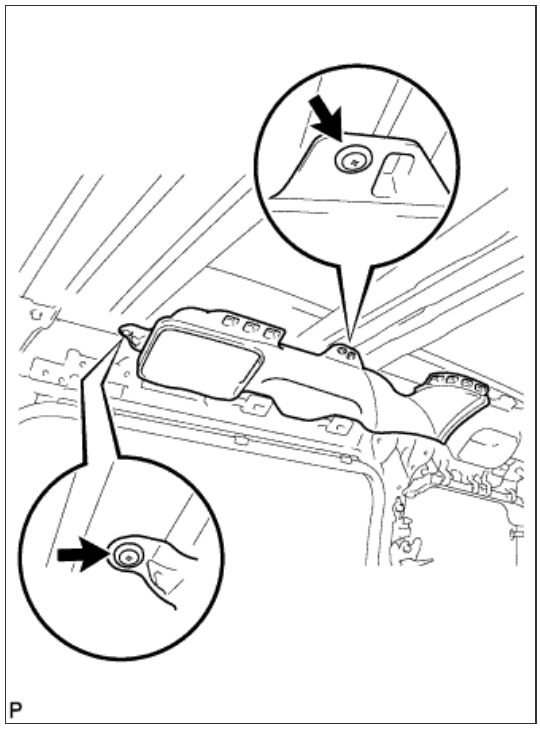
## 4. REMOVE NO. 2 REAR ROOF AIR DUCT

a. Remove the 2 clips and duct.




### 5. REMOVE NO. 5 REAR ROOF AIR DUCT

a. Remove the 2 clips and duct.



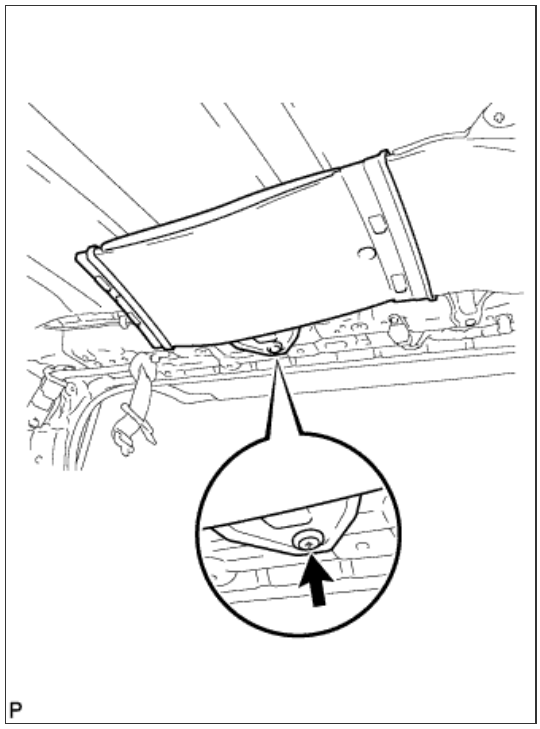

### 6. REMOVE NO. 4 REAR ROOF AIR DUCT

a. Remove the 2 clips and duct.



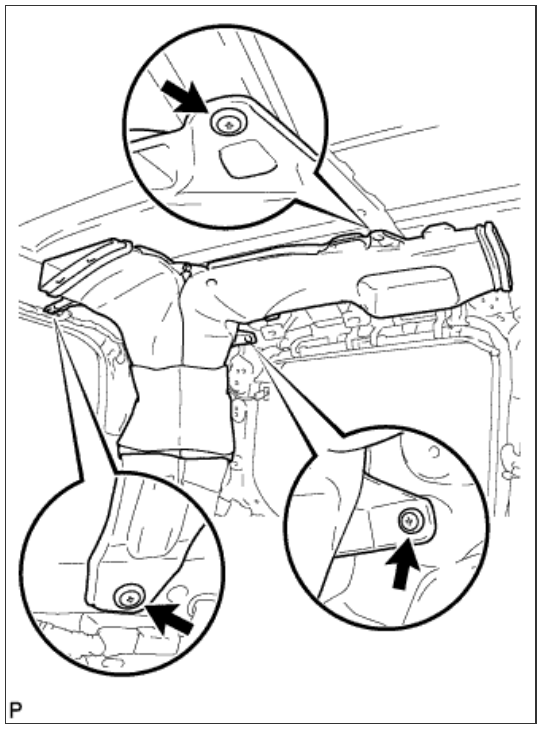

**7. REMOVE NO. 3 REAR ROOF AIR DUCT**

a. Remove the clip and duct.




**8. REMOVE NO. 1 REAR ROOF AIR DUCT**

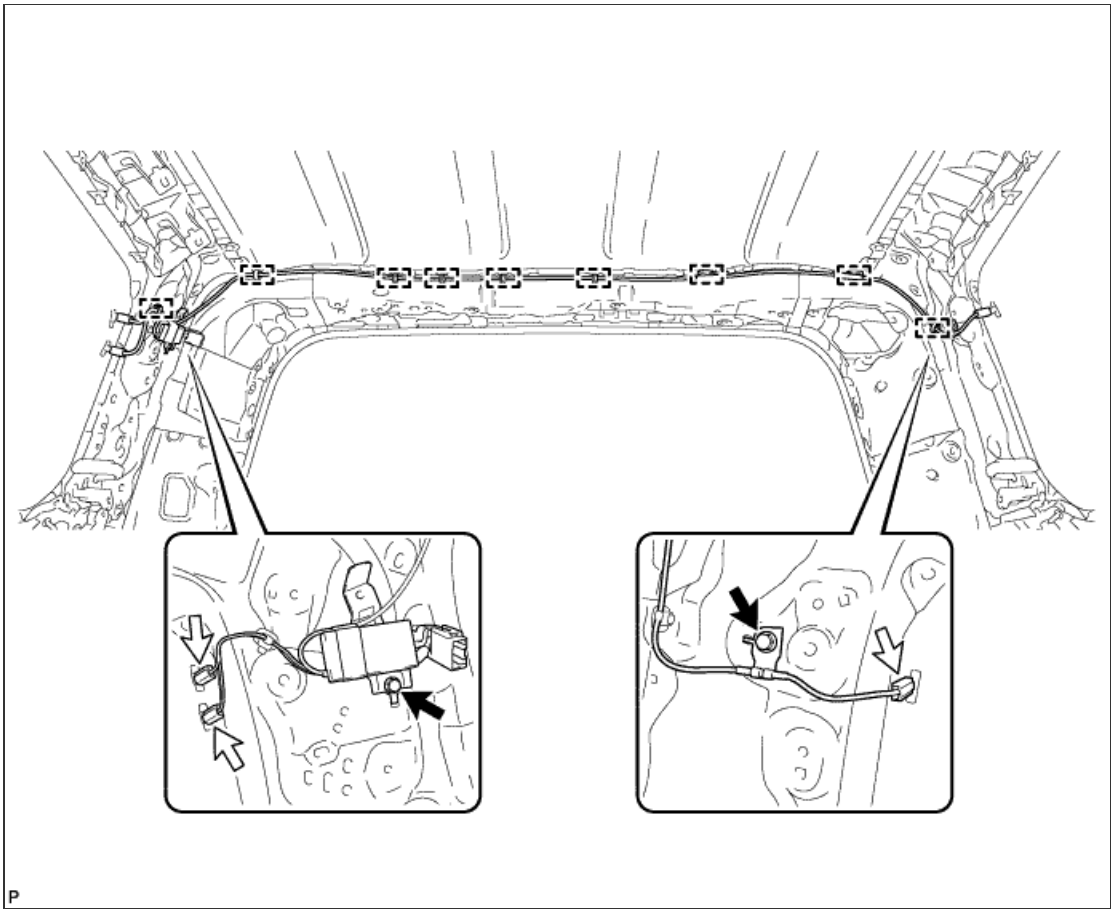
a. Remove the 3 clips and duct.




### 9. REMOVE AMPLIFIER ANTENNA ASSEMBLY

a. Disconnect the 3 connectors and remove the 2 bolts.

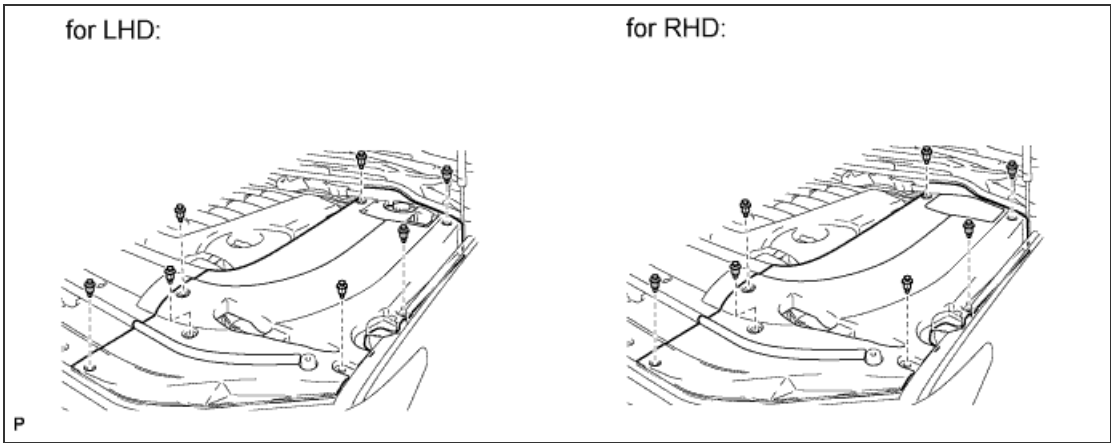
b. Detach the 9 clamps and remove the antenna.



**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover LH.




## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

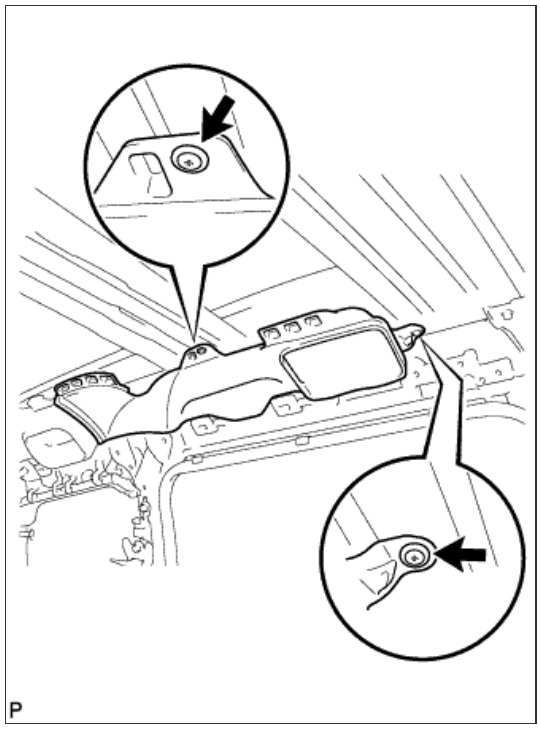
When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 3. REMOVE ROOF HEADLINING ASSEMBLY

a. Remove the roof headlining (Click here).

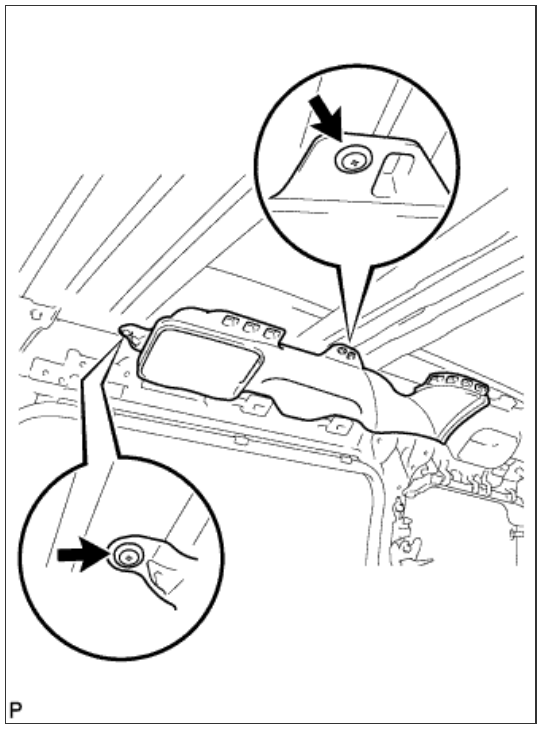
## 4. REMOVE NO. 2 REAR ROOF AIR DUCT

a. Remove the 2 clips and duct.




### 5. REMOVE NO. 5 REAR ROOF AIR DUCT

a. Remove the 2 clips and duct.



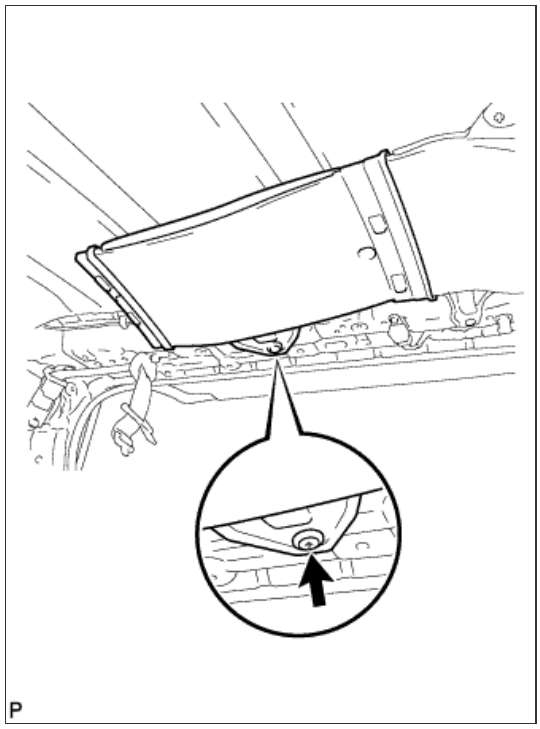

### 6. REMOVE NO. 4 REAR ROOF AIR DUCT

a. Remove the 2 clips and duct.



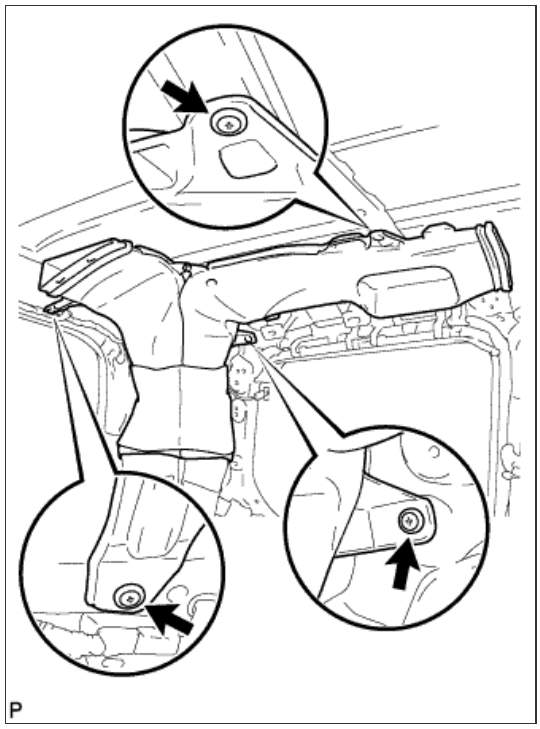

**7. REMOVE NO. 3 REAR ROOF AIR DUCT**

a. Remove the clip and duct.




**8. REMOVE NO. 1 REAR ROOF AIR DUCT**

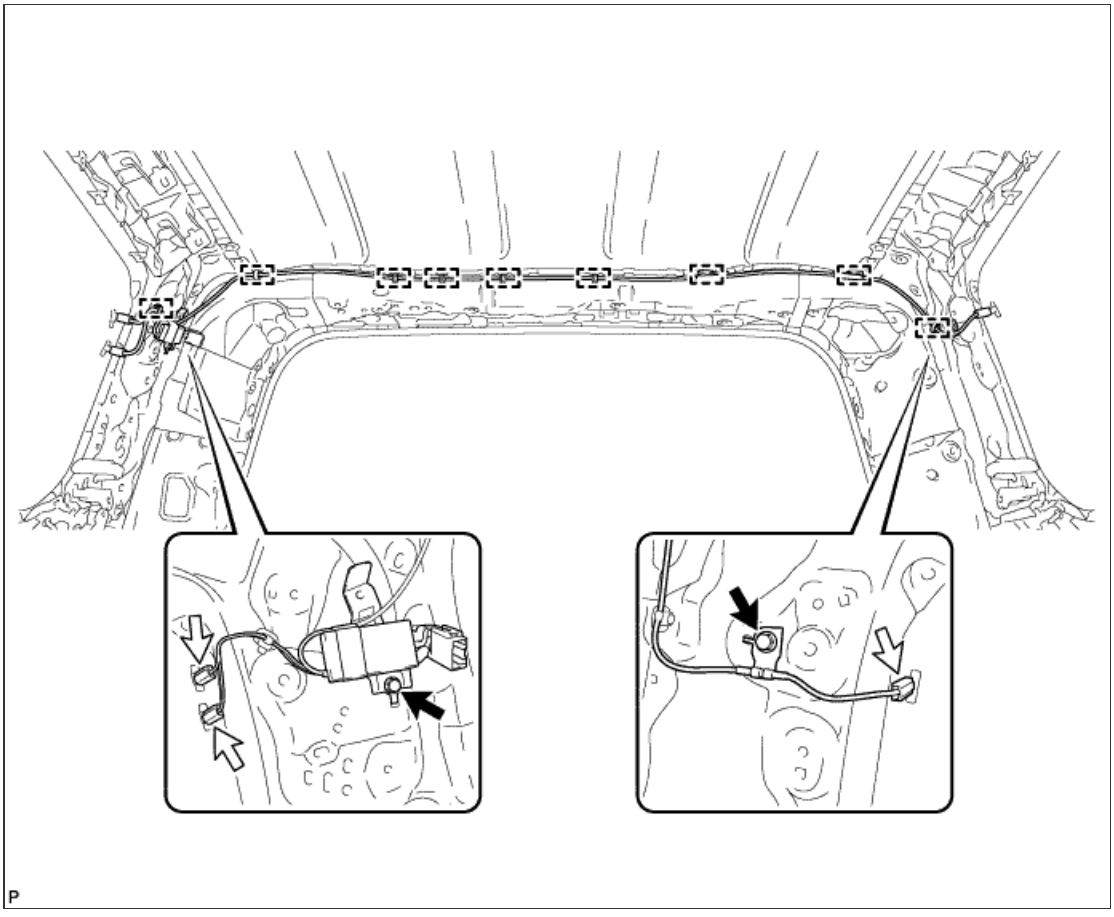
a. Remove the 3 clips and duct.




### 9. REMOVE AMPLIFIER ANTENNA ASSEMBLY

a. Disconnect the 3 connectors and remove the 2 bolts.

b. Detach the 9 clamps and remove the antenna.

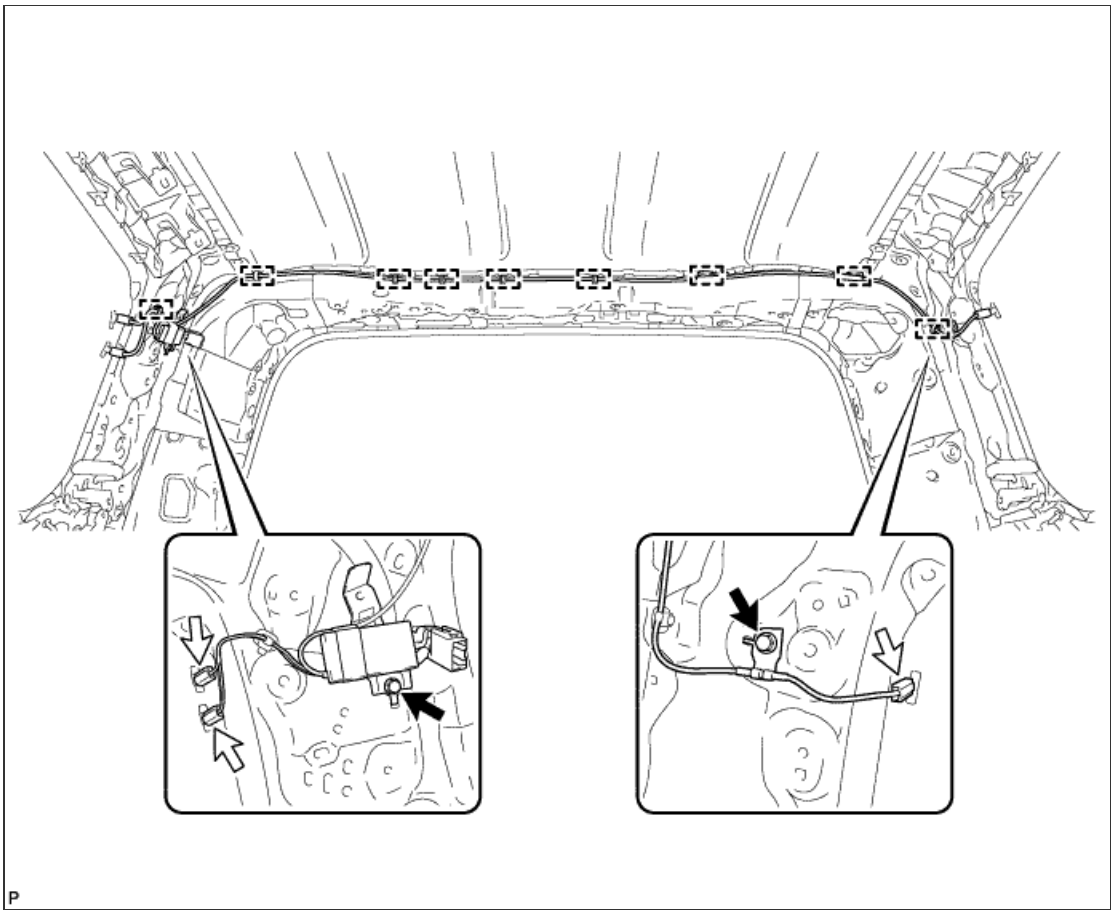


**for Preparation** Click here

## 1. INSTALL AMPLIFIER ANTENNA ASSEMBLY

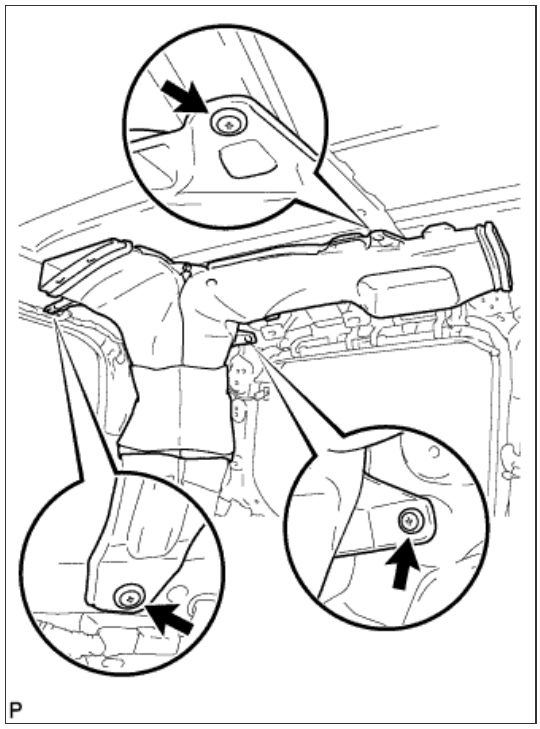
a. Attach the 9 clamps and install the 2 bolts.

b. Connect the 3 connectors to install the antenna.



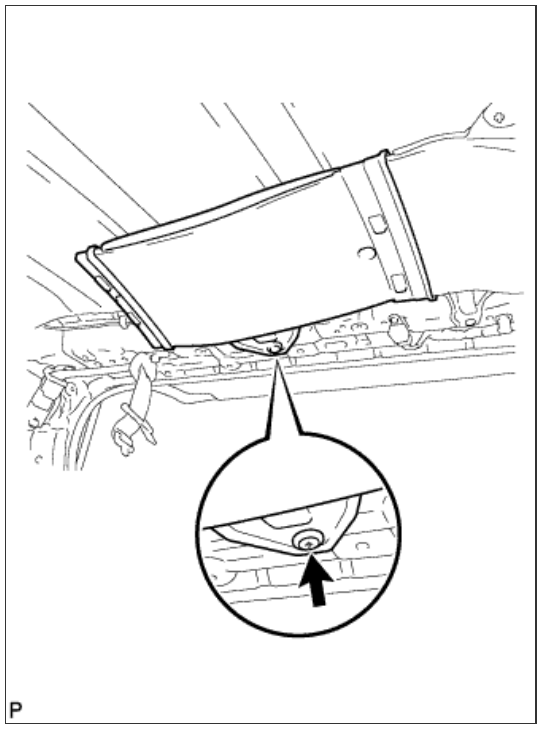

## 2. INSTALL NO. 1 REAR ROOF AIR DUCT

a. Install the duct with the 3 clips.




### 3. INSTALL NO. 3 REAR ROOF AIR DUCT

a. Install the duct with the clip.



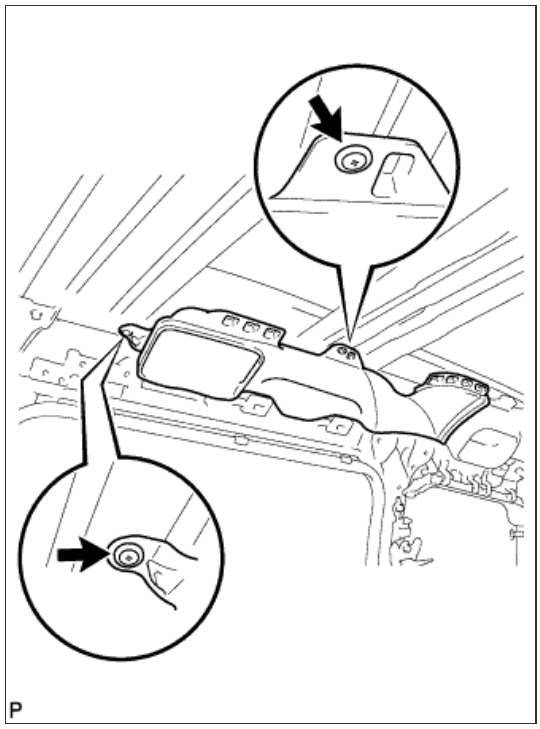

### 4. INSTALL NO. 4 REAR ROOF AIR DUCT

a. Install the duct with the 2 clips.



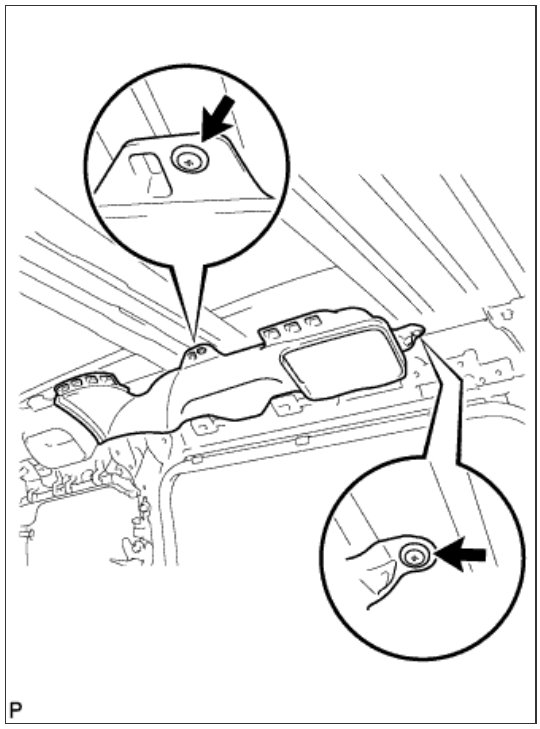

### 5. INSTALL NO. 5 REAR ROOF AIR DUCT

a. Install the duct with the 2 clips.




### 6. INSTALL NO. 2 REAR ROOF AIR DUCT

a. Install the duct with the 2 clips.




## 7. INSTALL ROOF HEADLINING ASSEMBLY

a. Install the roof headlining (Click here).

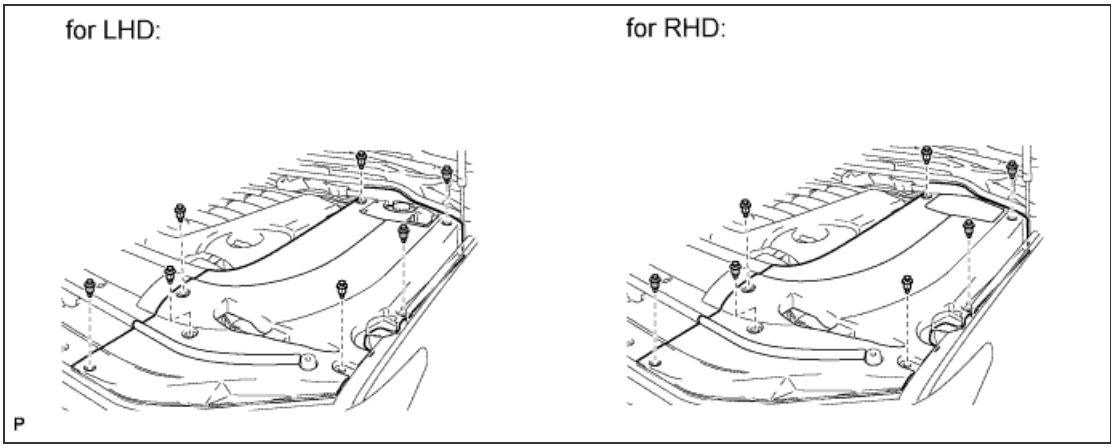
## 8. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 9. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover with the 7 clips.

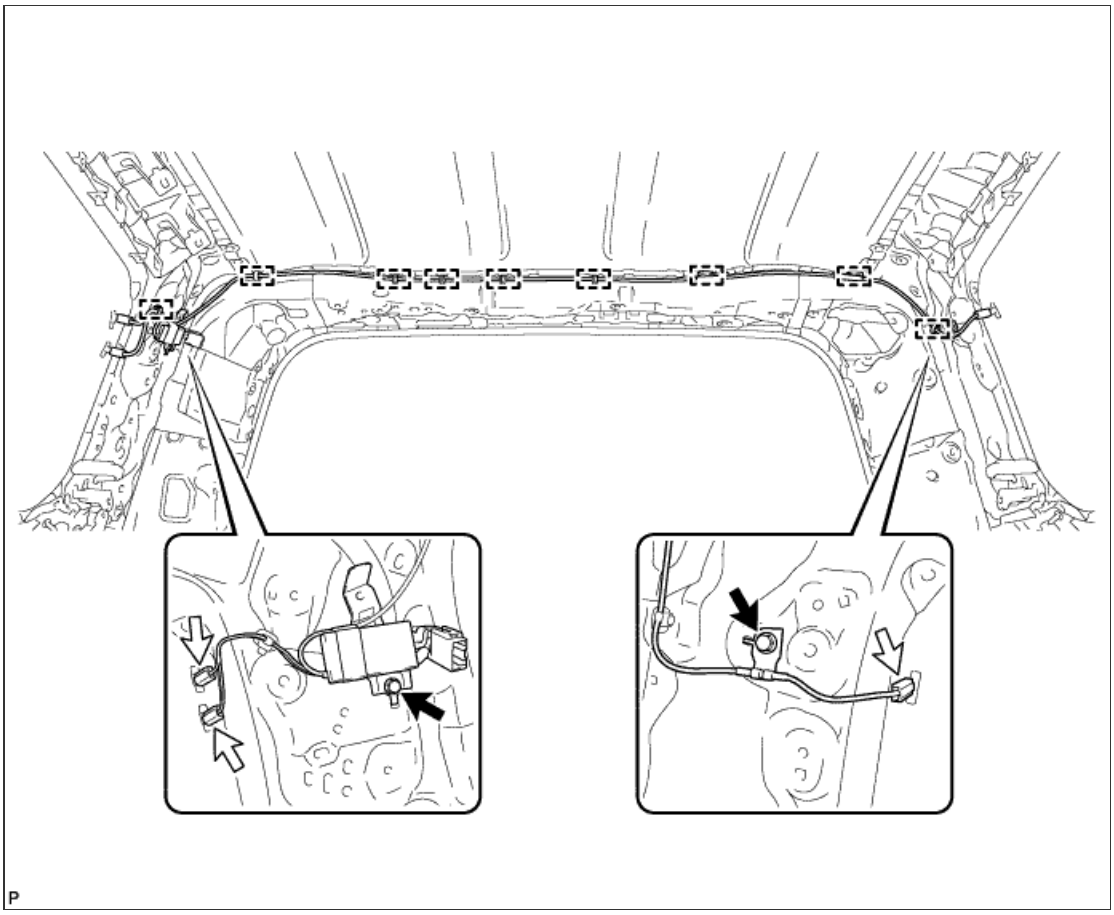


**for Preparation** Click here

## 1. INSTALL AMPLIFIER ANTENNA ASSEMBLY

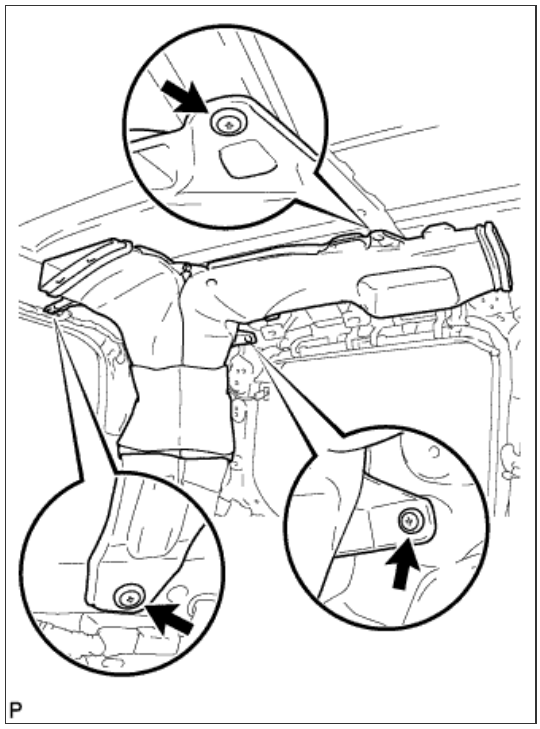
a. Attach the 9 clamps and install the 2 bolts.

b. Connect the 3 connectors to install the antenna.



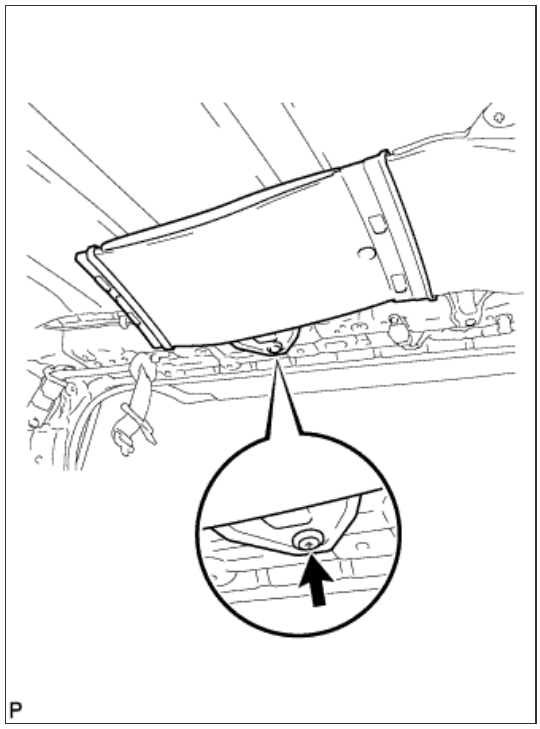

## 2. INSTALL NO. 1 REAR ROOF AIR DUCT

a. Install the duct with the 3 clips.




### 3. INSTALL NO. 3 REAR ROOF AIR DUCT

a. Install the duct with the clip.



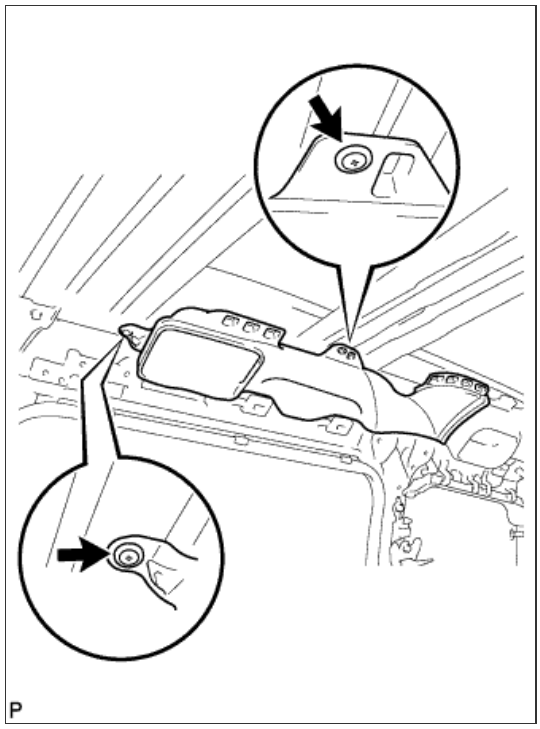

### 4. INSTALL NO. 4 REAR ROOF AIR DUCT

a. Install the duct with the 2 clips.



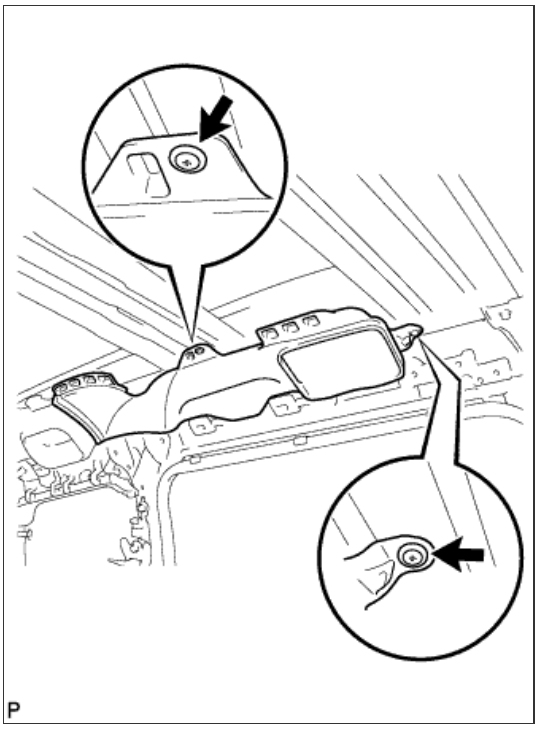

### 5. INSTALL NO. 5 REAR ROOF AIR DUCT

a. Install the duct with the 2 clips.




### 6. INSTALL NO. 2 REAR ROOF AIR DUCT

a. Install the duct with the 2 clips.




## 7. INSTALL ROOF HEADLINING ASSEMBLY

a. Install the roof headlining (Click here).

## 8. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

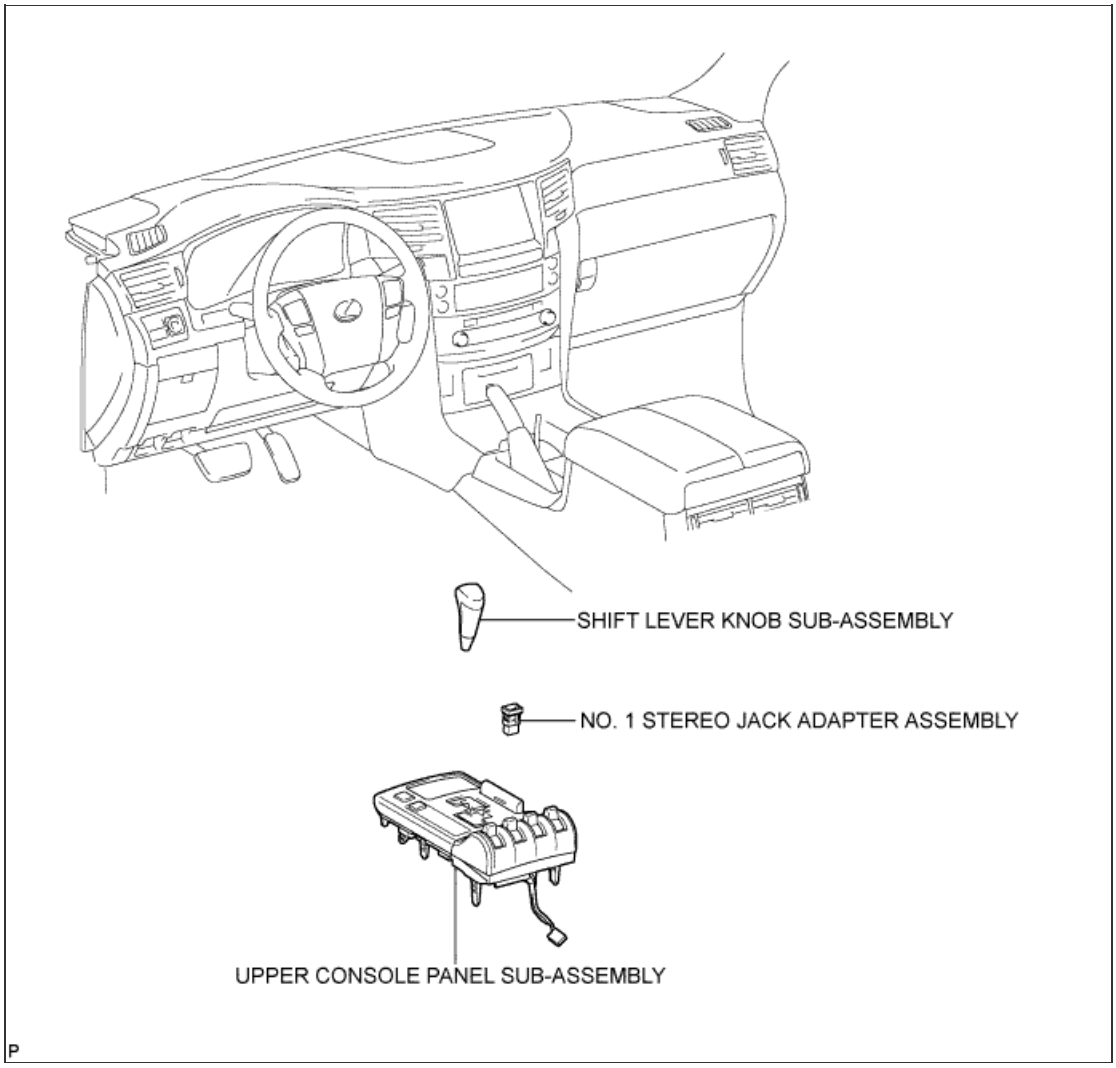
**NOTICE:**

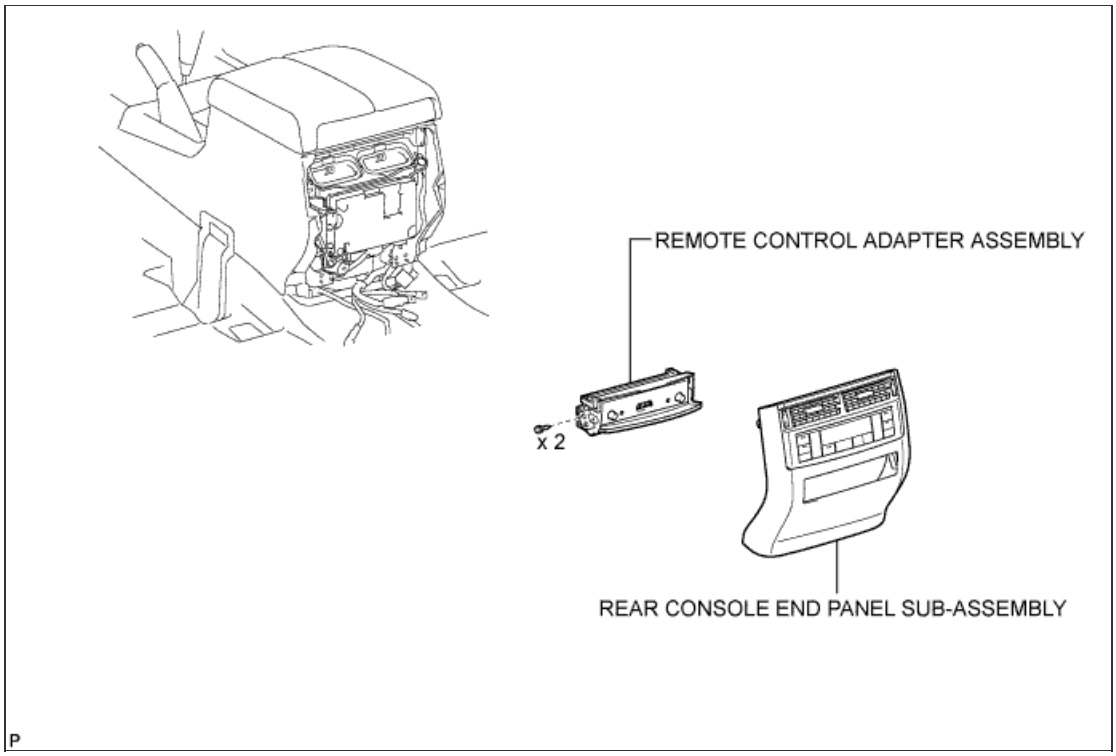
When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 9. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover LH with the 7 clips.

**for Preparation** Click here

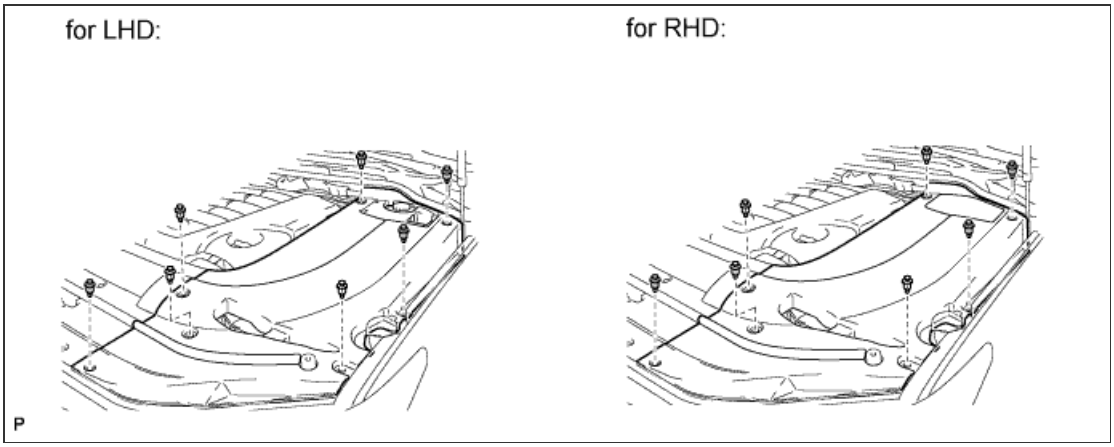



REMOTE CONTROL ADAPTER ASSEMBLY
x 2
REAR CONSOLE END PANEL SUB-ASSEMBLY
P

**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover.



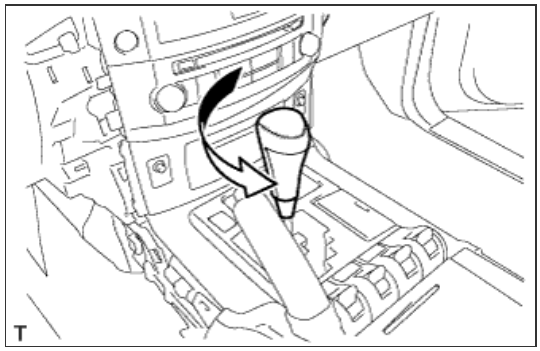

## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 3. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY

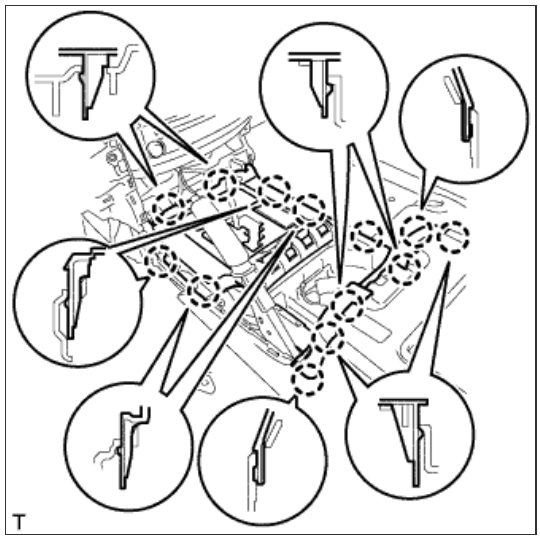
a. Twist the shift lever knob in the direction indicated by the arrow and remove it.




## 4. REMOVE UPPER CONSOLE PANEL SUB-ASSEMBLY

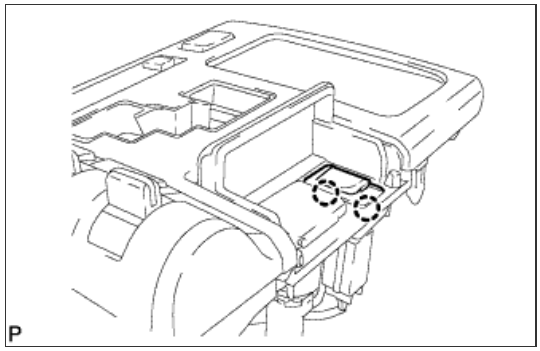
a. Detach the 13 claws.

b. Disconnect the connectors and remove the console panel.




### 5. REMOVE NO. 1 STEREO JACK ADAPTER ASSEMBLY

a. Detach the 2 claws and remove the stereo jack adapter.

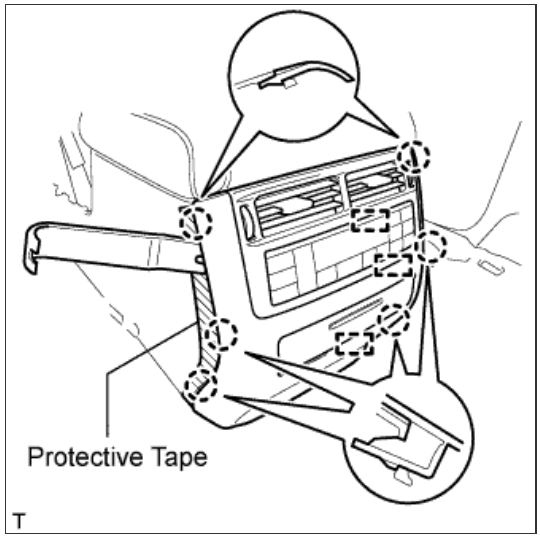



### 6. REMOVE REAR CONSOLE END PANEL SUB-ASSEMBLY

a. Place protective tape as shown in the illustration.

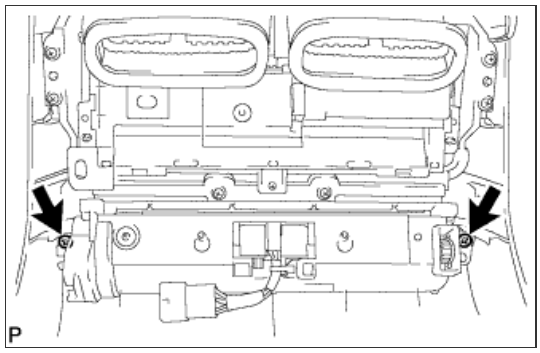
b. Using a moulding remover, detach the 6 claws.

c. Remove the end panel and disconnect the connectors and 3 clamps.




### 7. REMOVE REMOTE CONTROL ADAPTER ASSEMBLY

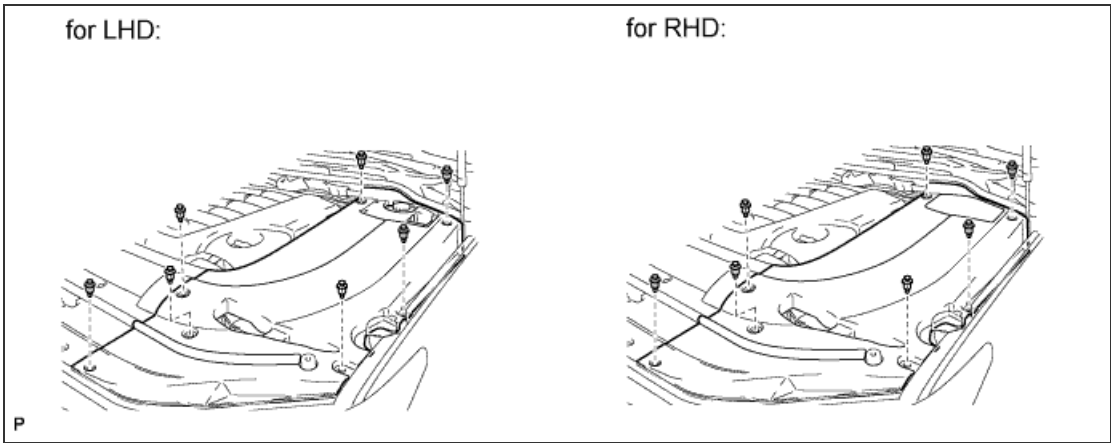
a. Remove the 2 screws and adapter.


P

**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover LH.



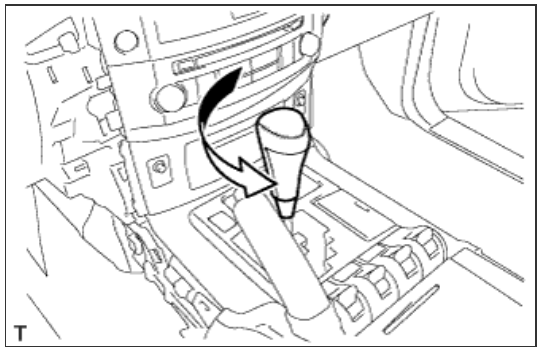

## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 3. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY

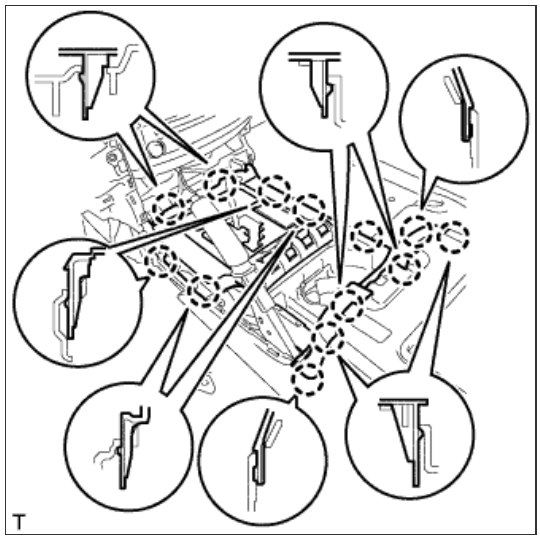
a. Twist the shift lever knob in the direction indicated by the arrow and remove it.




## 4. REMOVE UPPER CONSOLE PANEL SUB-ASSEMBLY

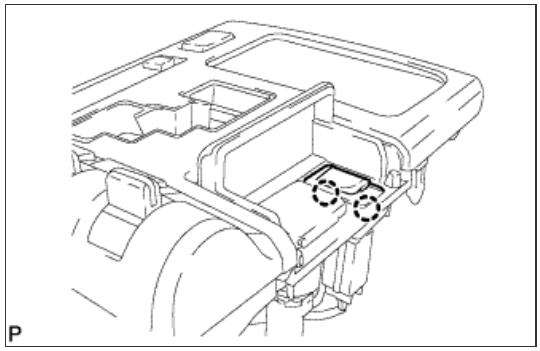
a. Detach the 13 claws.

b. Disconnect the connectors and remove the console panel.




### 5. REMOVE NO. 1 STEREO JACK ADAPTER ASSEMBLY

a. Detach the 2 claws and remove the stereo jack adapter.

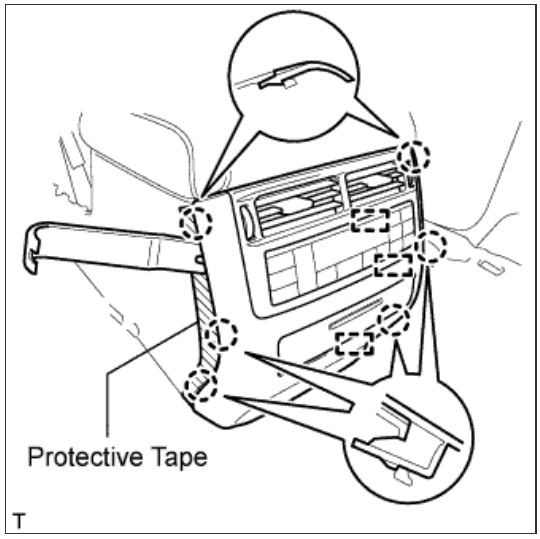



### 6. REMOVE REAR CONSOLE END PANEL SUB-ASSEMBLY

a. Place protective tape as shown in the illustration.

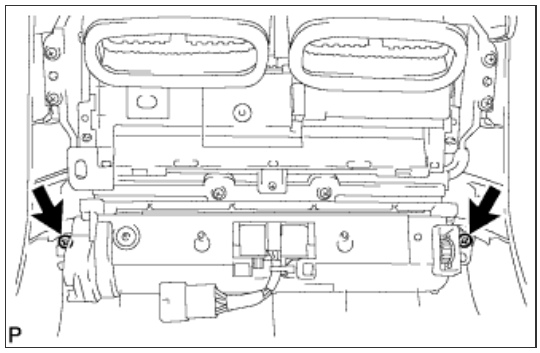
b. Using a moulding remover, detach the 6 claws.

c. Remove the end panel and disconnect the connectors and 3 clamps.




### 7. REMOVE REMOTE CONTROL ADAPTER ASSEMBLY

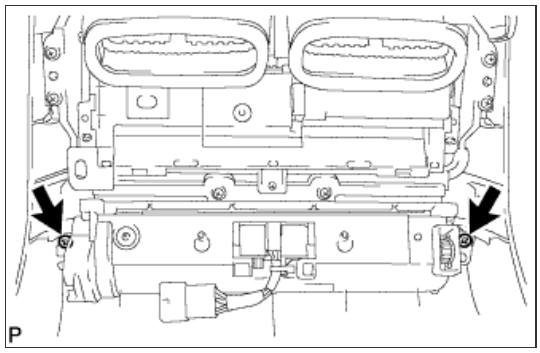
a. Remove the 2 screws and adapter.


P

**for Preparation** Click here

## 1. INSTALL REMOTE CONTROL ADAPTER ASSEMBLY

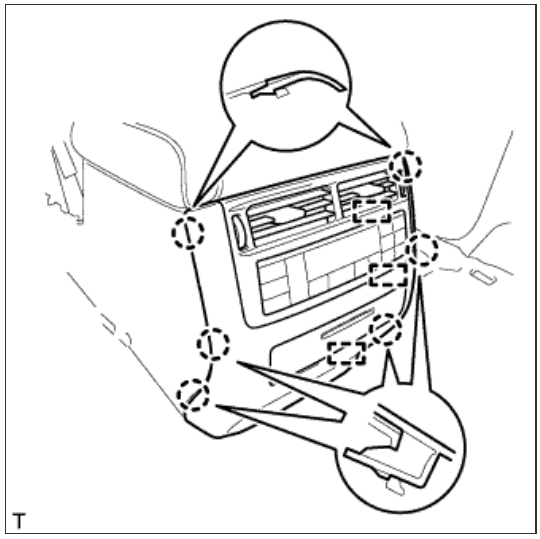
a. Install the adapter with the 2 screws.




## 2. INSTALL REAR CONSOLE END PANEL SUB-ASSEMBLY

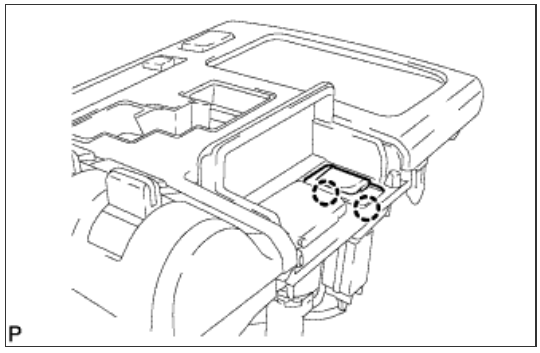
a. Connect the connectors and 3 clamps.

b. Attach the 6 claws to install the end panel.




## 3. INSTALL NO. 1 STEREO JACK ADAPTER ASSEMBLY

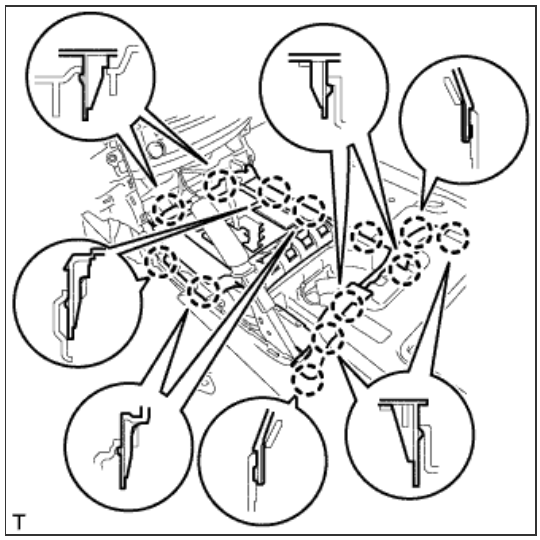
a. Attach the 2 claws to install the stereo jack adapter.




## 4. INSTALL UPPER CONSOLE PANEL SUB-ASSEMBLY

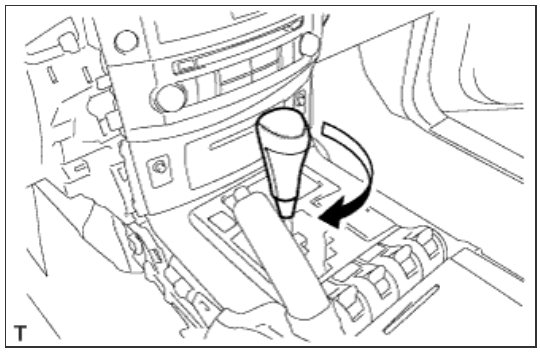
a. Connect the connectors.

b. Attach the 13 claws to install the console panel.




## 5. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY

a. Install the shift lever knob and twist it in the direction indicated by the arrow.




## 6. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

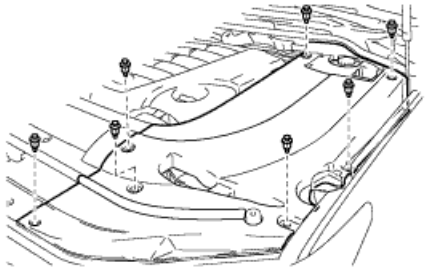
**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

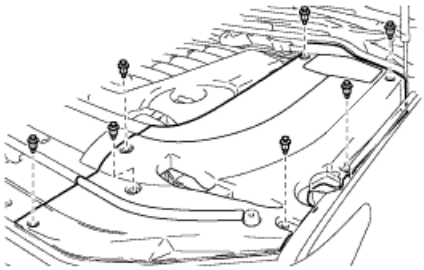
## 7. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover with the 7 clips.

for LHD:



for RHD:

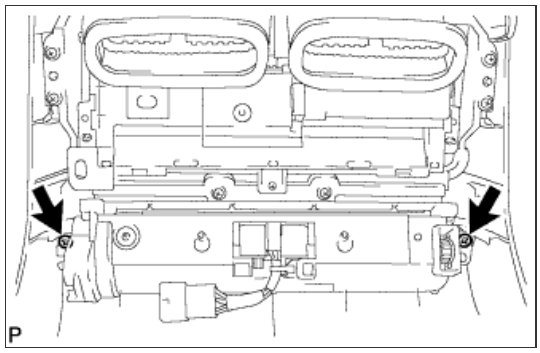


P

**for Preparation** Click here

## 1. INSTALL REMOTE CONTROL ADAPTER ASSEMBLY

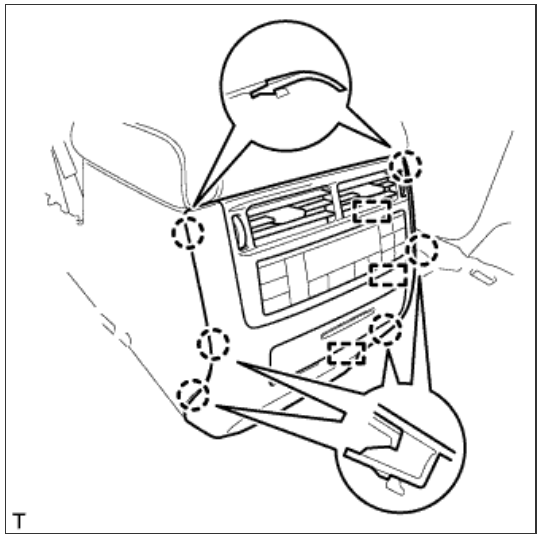
a. Install the adapter with the 2 screws.




## 2. INSTALL REAR CONSOLE END PANEL SUB-ASSEMBLY

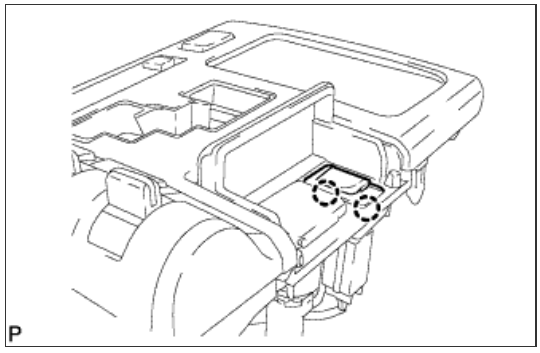
a. Connect the connectors and 3 clamps.

b. Attach the 6 claws to install the end panel.




## 3. INSTALL NO. 1 STEREO JACK ADAPTER ASSEMBLY

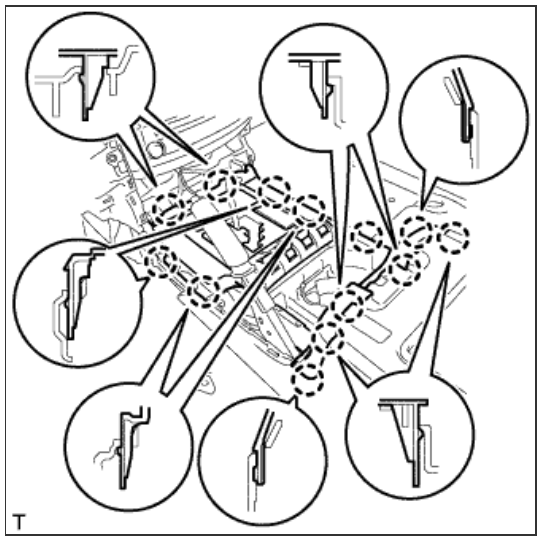
a. Attach the 2 claws to install the stereo jack adapter.




## 4. INSTALL UPPER CONSOLE PANEL SUB-ASSEMBLY

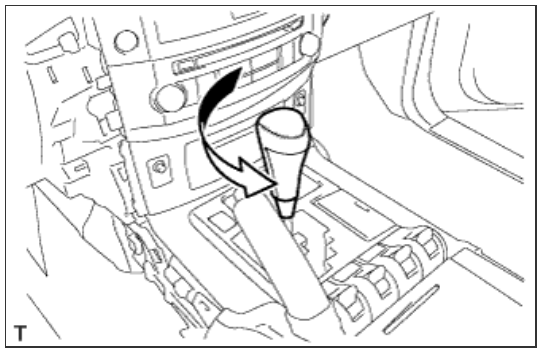
a. Connect the connectors.

b. Attach the 13 claws to install the console panel.




## 5. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY

a. Twist the shift lever knob in the direction indicated by the arrow and remove it.




## 6. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

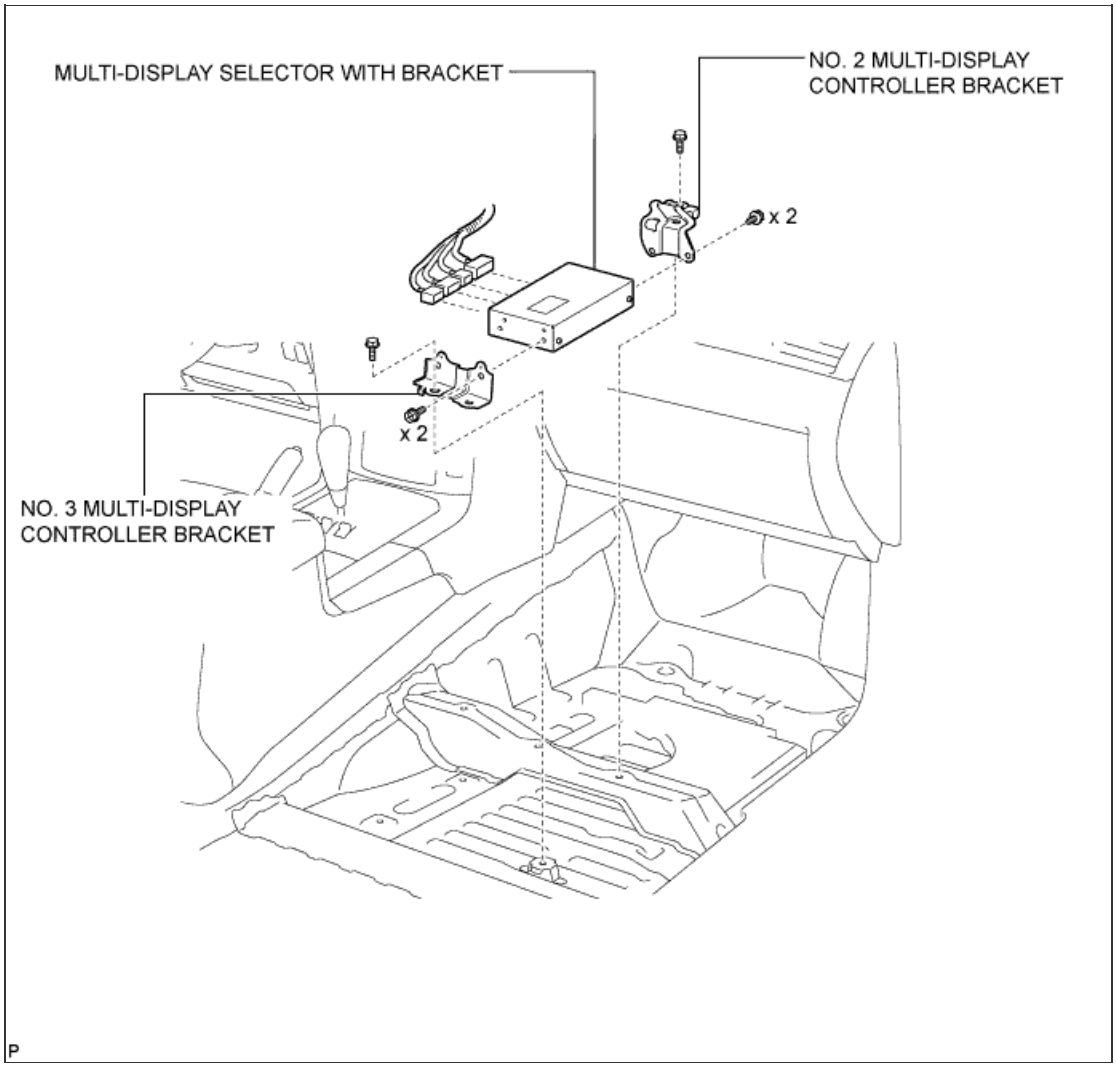
**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

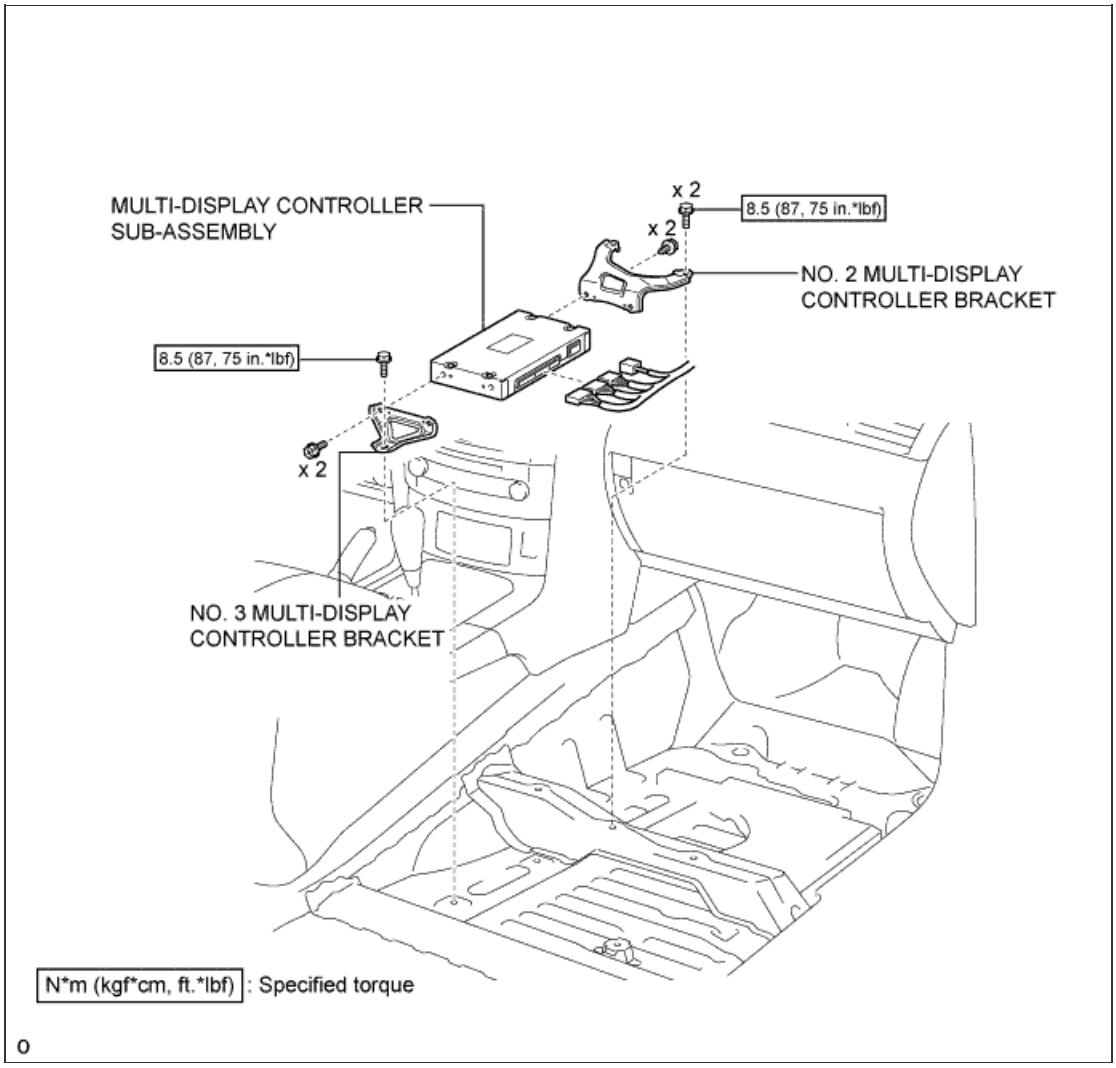
## 7. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover LH with the 7 clips.

**for Preparation** Click here



**for Preparation** Click here

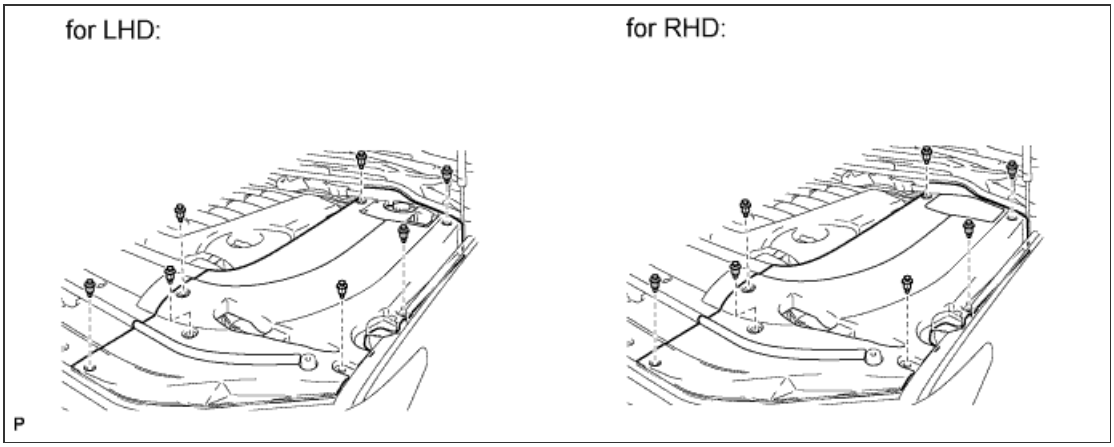



o

**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover.




## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**CAUTION:**

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 3. REMOVE FRONT SEAT ASSEMBLY RH

a. Remove the front seat assembly RH ( Click here).

## 4. REMOVE INSTRUMENT SIDE PANEL RH

a. w/o Airbag Cut Off Switch:

i. Place protective tape as shown in the illustration.

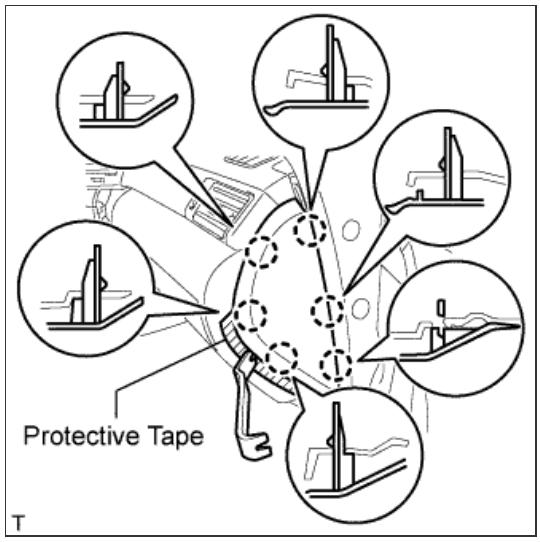
ii. Using a moulding remover, detach the 6 claws and remove the side panel.

b. w/ Airbag Cut Off Switch:

i. Place protective tape as shown in the illustration.

ii. Using a moulding remover, detach the 6 claws.

iii. Remove the side panel and disconnect the connector.




## 5. REMOVE FRONT DOOR SCUFF PLATE RH

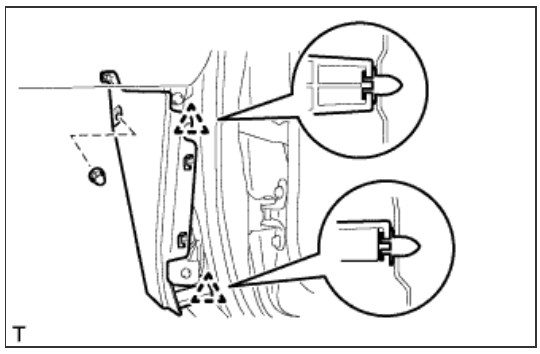
**HINT:**

Use the same procedures described for the LH side.

## 6. REMOVE COWL SIDE TRIM BOARD RH

a. Remove the cap nut.

b. Detach the 2 clips and remove the trim board.



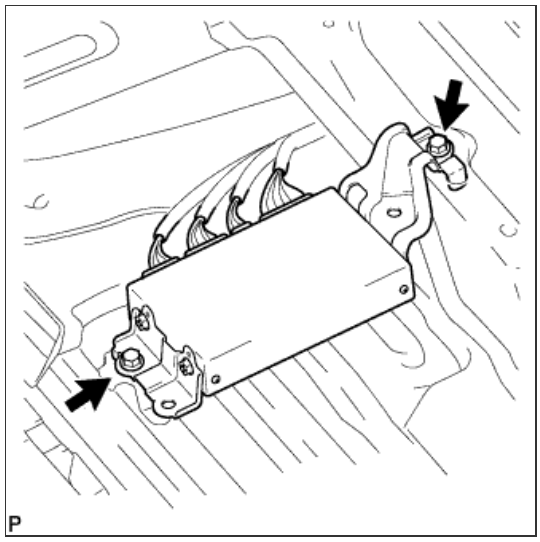

## 7. REMOVE FRONT FLOOR CARPET ASSEMBLY

a. Pull back the carpet far enough so that the selector can be removed. For further details, refer to the removal procedure ( Click here).

## 8. REMOVE MULTI-DISPLAY SELECTOR WITH BRACKET

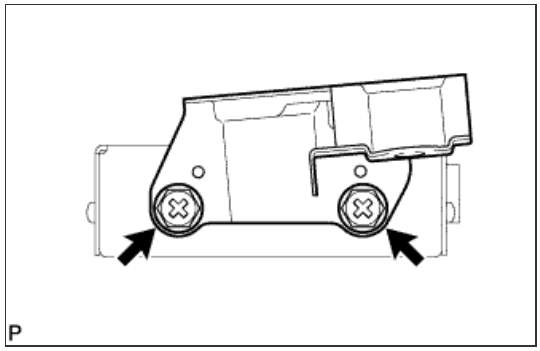
a. Disconnect the connectors.

b. Remove the 2 bolts and selector with bracket.



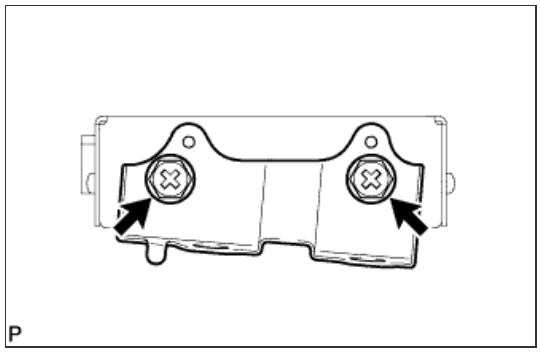

### 9. REMOVE NO. 2 MULTI-DISPLAY CONTROLLER BRACKET

a. Remove the 2 bolts and bracket.




### 10. REMOVE NO. 3 MULTI-DISPLAY CONTROLLER BRACKET

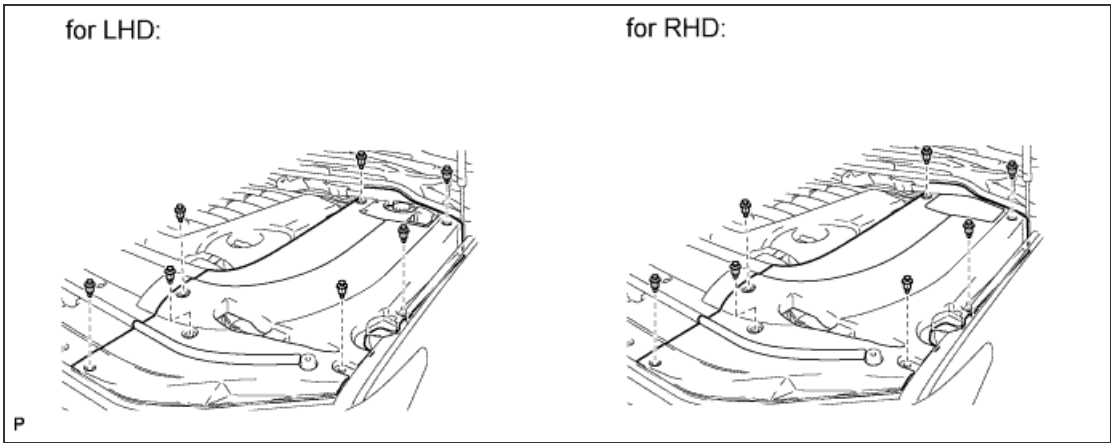
a. Remove the 2 bolts and bracket.



**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover LH.




## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**CAUTION:**

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

**NOTICE:**

- **w/ Navigation System:**
  **After the engine switch is turned off, the HDD navigation system requires approximately 6 minutes to record various types of memory and settings. As a result, after turning the engine switch off, wait 6 minutes or more before disconnecting the cable from the negative (-) battery terminal.**
- **When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).**

## 3. REMOVE FRONT SEAT ASSEMBLY RH

a. Remove the front seat assembly RH ( Click here).

## 4. REMOVE INSTRUMENT SIDE PANEL RH

a. w/o Airbag Cut Off Switch:

i. Place protective tape as shown in the illustration.

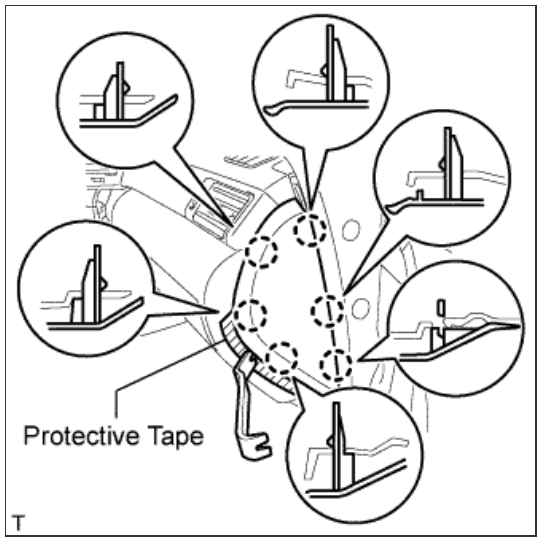
ii. Using a moulding remover, detach the 6 claws and remove the side panel.

b. w/ Airbag Cut Off Switch:

i. Place protective tape as shown in the illustration.

ii. Using a moulding remover, detach the 6 claws.

iii. Remove the side panel and disconnect the connector.




## 5. REMOVE FRONT DOOR SCUFF PLATE RH

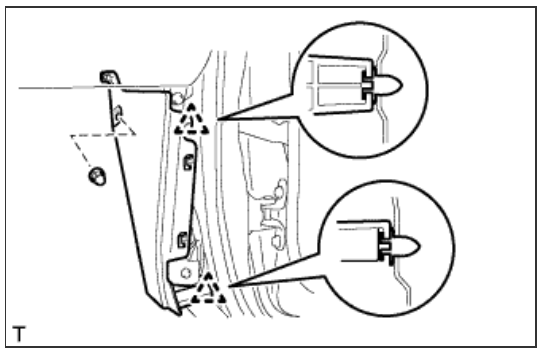
**HINT:**

Use the same procedures described for the LH side.

## 6. REMOVE COWL SIDE TRIM BOARD RH

a. Remove the cap nut.

b. Detach the 2 clips and remove the trim board.



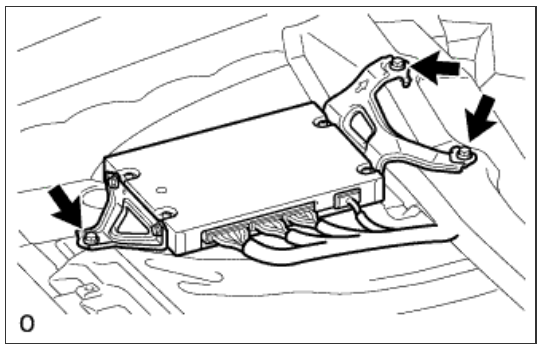

## 7. REMOVE FRONT FLOOR CARPET ASSEMBLY

a. Pull back the carpet far enough so that the selector can be removed. For further details, refer to the removal procedure ( Click here).

## 8. REMOVE MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY WITH BRACKET

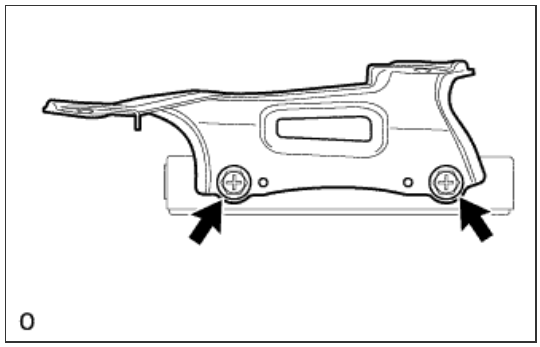
a. Disconnect the connectors.

b. Remove the 3 bolts and multi-display controller sub-assembly with bracket.



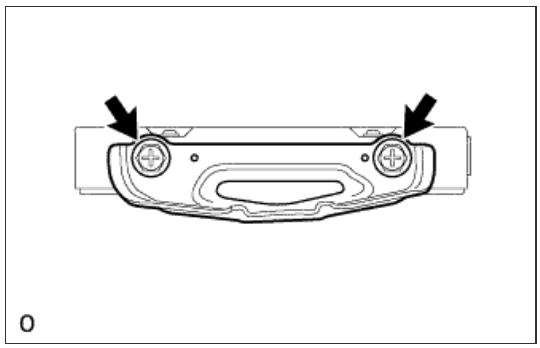
## 9. REMOVE NO. 2 MULTI-DISPLAY CONTROLLER BRACKET

a. Remove the 2 bolts and No. 2 multi-display controller bracket.



## 10. REMOVE NO. 3 MULTI-DISPLAY CONTROLLER BRACKET

a. Remove the 2 bolts and No. 3 multi-display controller bracket.



**for Preparation** Click here

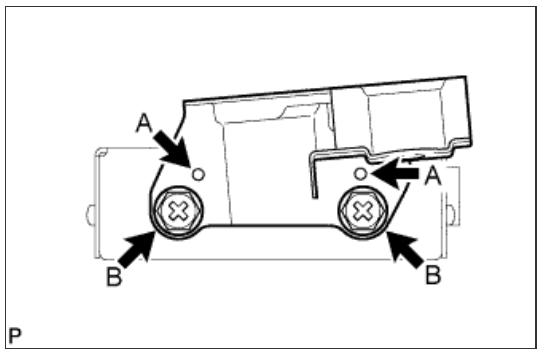
**HINT:**

A bolt without a torque specification is shown in the standard bolt chart ( Click here).

## 1. INSTALL NO. 2 MULTI-DISPLAY CONTROLLER BRACKET

a. Set the aligning protrusions of the bracket, labeled A, into the multi-display selector holes.

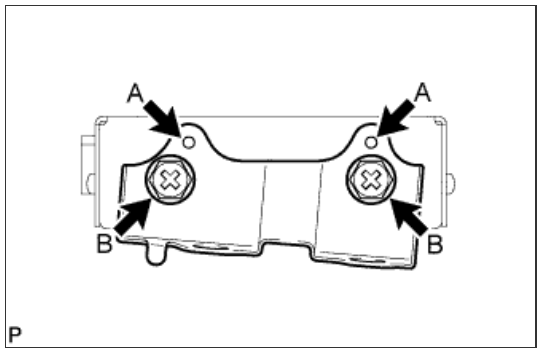
b. Install the bracket with the 2 bolts labeled B.




## 2. INSTALL NO. 3 MULTI-DISPLAY CONTROLLER BRACKET

a. Set the aligning protrusions of the bracket, labeled A, into the multi-display selector holes.

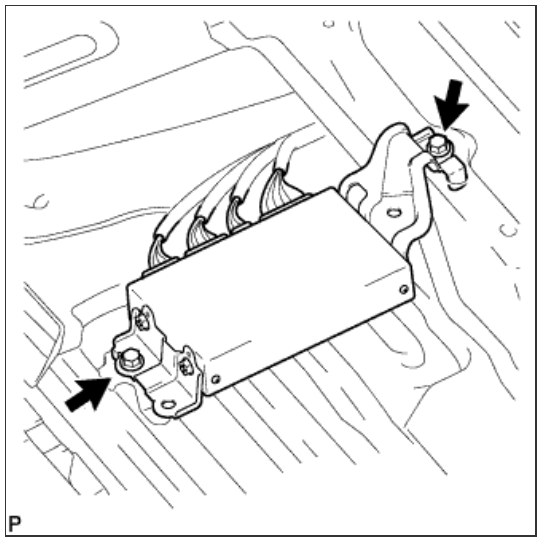
b. Install the bracket with the 2 bolts labeled B.




## 3. INSTALL MULTI-DISPLAY SELECTOR WITH BRACKET

a. Install the multi-display selector with the 2 bolts.

b. Connect the connectors.




### 4. INSTALL FRONT FLOOR CARPET ASSEMBLY

a. Install the carpet that was pulled back to remove the selector. For further details, refer to the installation procedure ( Click here).

### 5. INSTALL FRONT DOOR SCUFF PLATE RH

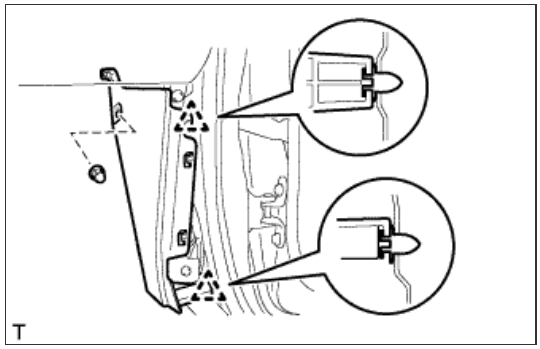
**HINT:**

Use the same procedures described for the LH side.

### 6. INSTALL COWL SIDE TRIM BOARD RH

a. Attach the 2 clips to install the trim board.

b. Install the cap nut.




### 7. INSTALL INSTRUMENT SIDE PANEL RH

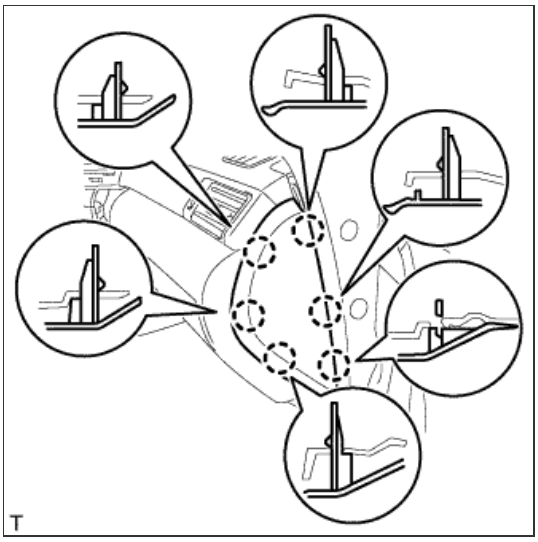
a. w/o Airbag Cut Off Switch:

i. Attach the 6 claws to install the side panel.

b. w/ Airbag Cut Off Switch:

i. Connect the connector.

ii. Attach the 6 claws to install the side panel.




## 8. INSTALL FRONT SEAT ASSEMBLY RH

a. Install the front seat assembly RH ( Click here).

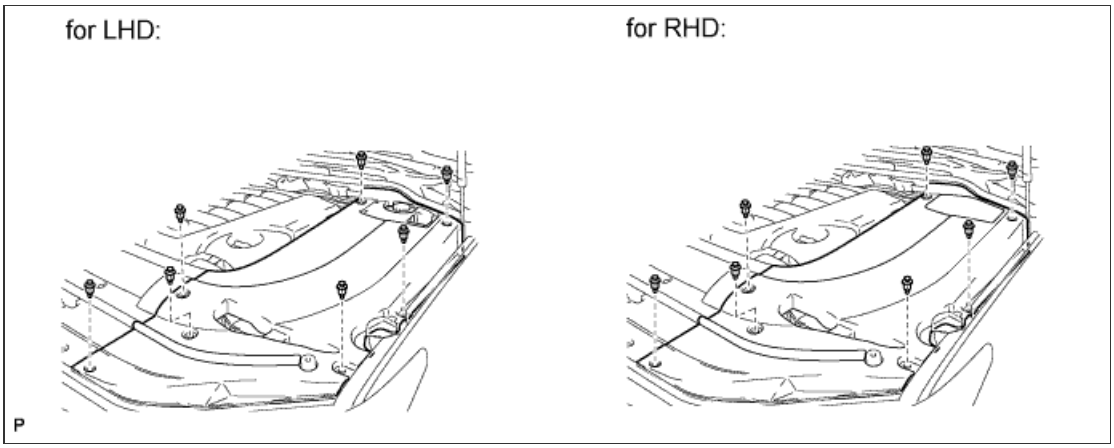
## 9. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 10. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover with the 7 clips.




## 11. CHECK SRS WARNING LIGHT

a. Check the SRS warning light (Click here).

**for Preparation** Click here

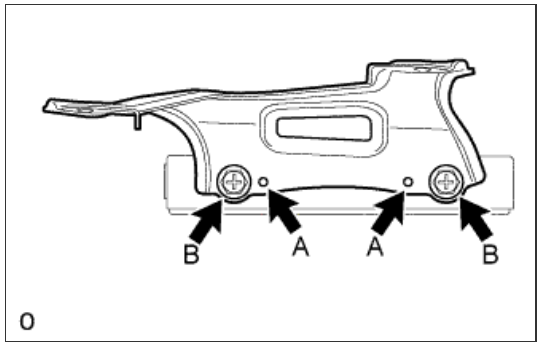
**HINT:**

A bolt without a torque specification is shown in the standard bolt chart ( Click here).

## 1. INSTALL NO. 2 MULTI-DISPLAY CONTROLLER BRACKET

a. Set the aligning protrusions of the No. 2 multi-display controller bracket, labeled A, into the multi-display controller sub-assembly holes.

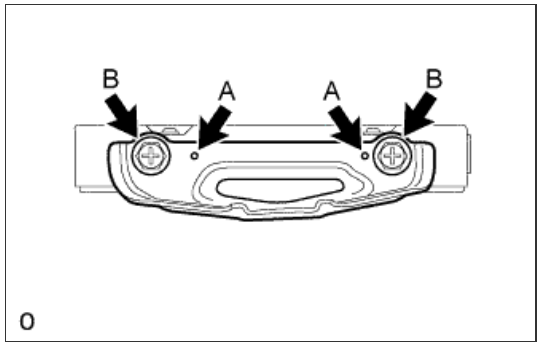
b. Install the No. 2 multi-display controller bracket with the 2 bolts labeled B.




## 2. INSTALL NO. 3 MULTI-DISPLAY CONTROLLER BRACKET

a. Set the aligning protrusions of the No. 3 multi-display controller bracket, labeled A, into the multi-display controller sub-assembly holes.

b. Install the No. 3 multi-display controller bracket bracket with the 2 bolts labeled B.

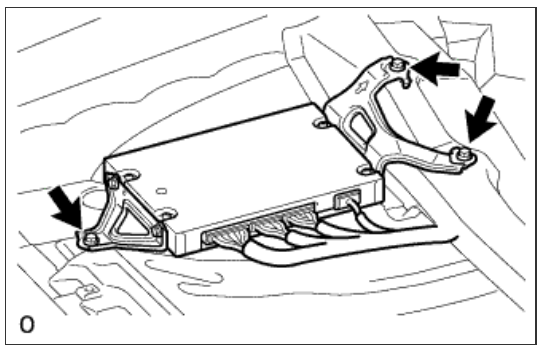



## 3. INSTALL MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY WITH BRACKET

a. Install the multi-display controller sub-assembly with bracket with the 3 bolts.

**Torque:**
**8.5 N*m{ 87 kgf*cm , 75 in.*lbf }**

b. Connect the connectors.



## 4. INSTALL FRONT FLOOR CARPET ASSEMBLY

a. Install the carpet that was pulled back to remove the selector. For further details, refer to the installation procedure ( Click here).

## 5. INSTALL FRONT DOOR SCUFF PLATE RH

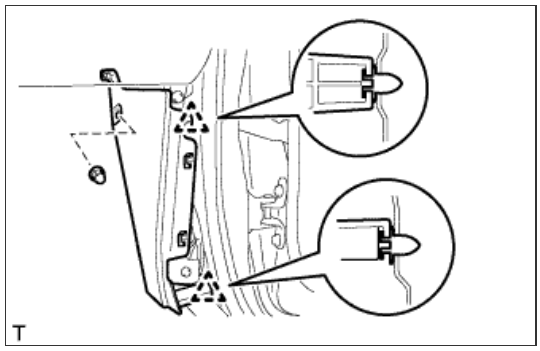
**HINT:**

Use the same procedures described for the LH side.

## 6. INSTALL COWL SIDE TRIM BOARD RH

a. Attach the 2 clips to install the trim board.

b. Install the cap nut.




## 7. INSTALL INSTRUMENT SIDE PANEL RH

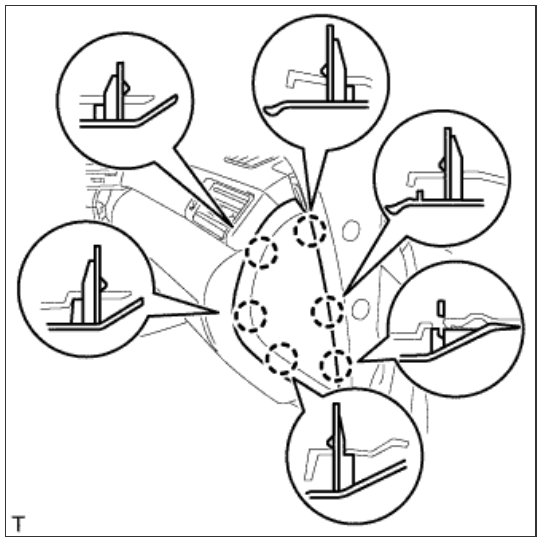
a. w/o Airbag Cut Off Switch:

i. Attach the 6 claws to install the side panel.

b. w/ Airbag Cut Off Switch:

i. Connect the connector.

ii. Attach the 6 claws to install the side panel.




## 8. INSTALL FRONT SEAT ASSEMBLY RH

a. Install the front seat assembly RH ( Click here).

## 9. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

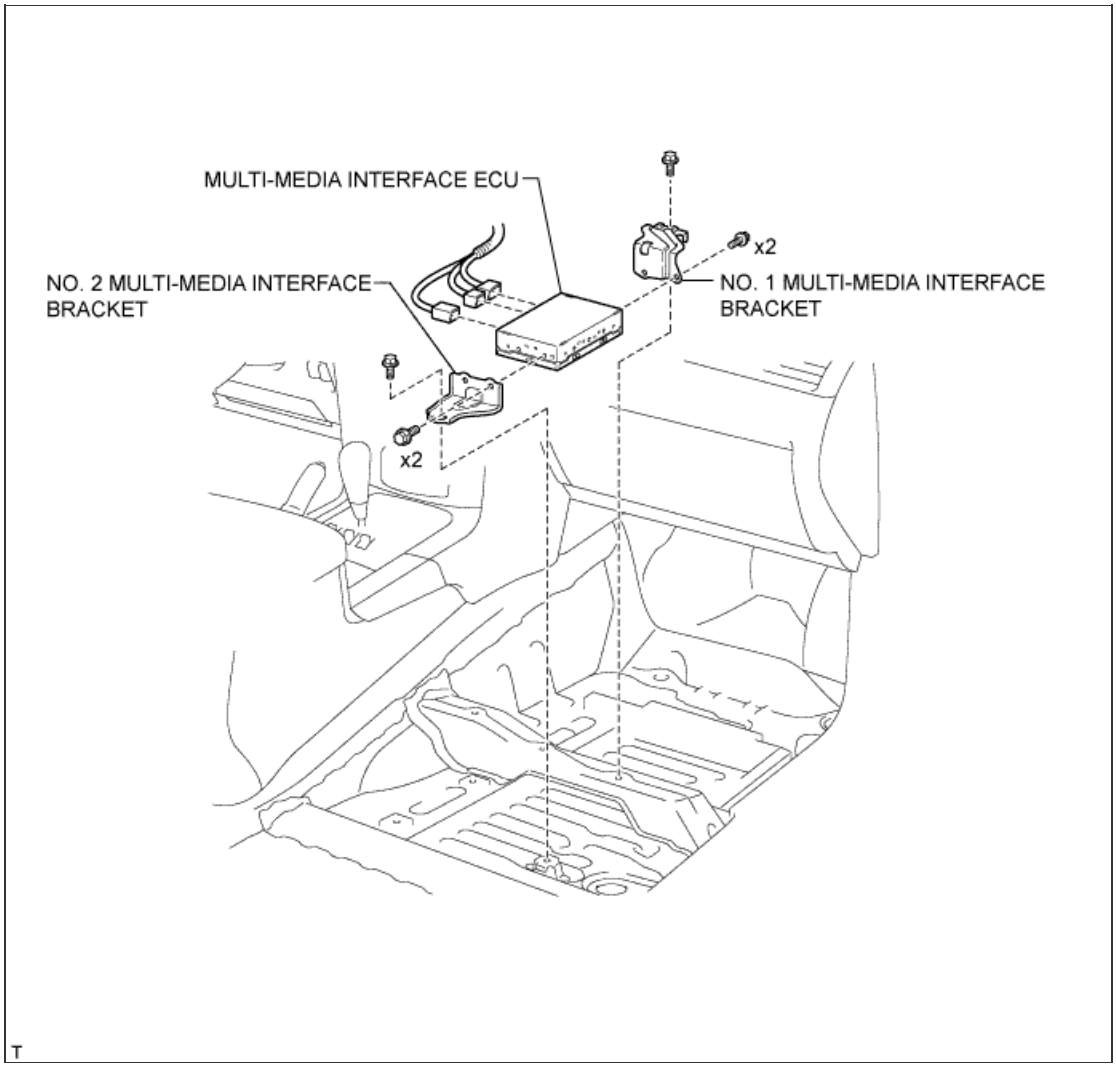
## 10. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover LH with the 7 clips.

**11. CHECK SRS WARNING LIGHT**

a. Check the SRS warning light (Click here).

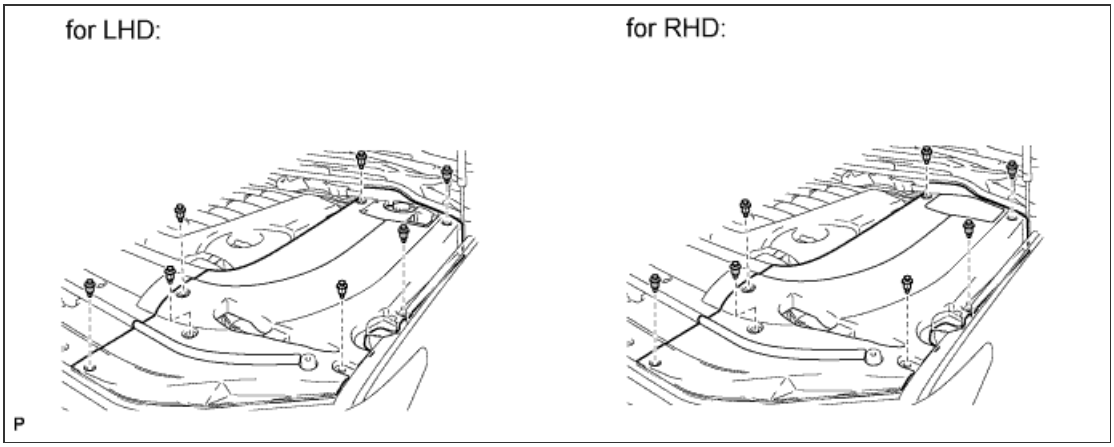
**for Preparation** Click here



**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover.




## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**CAUTION:**

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

**NOTICE:**

- **w/ Navigation System:**
  **After the engine switch is turned off, the HDD navigation system requires approximately 6 minutes to record various types of memory and settings. As a result, after turning the engine switch off, wait 6 minutes or more before disconnecting the cable from the negative (-) battery terminal**
- **When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).**

## 3. REMOVE FRONT SEAT ASSEMBLY RH

a. Remove the front seat assembly RH ( Click here).

## 4. REMOVE INSTRUMENT SIDE PANEL RH

a. w/o Airbag Cut Off Switch:

i. Place protective tape as shown in the illustration.

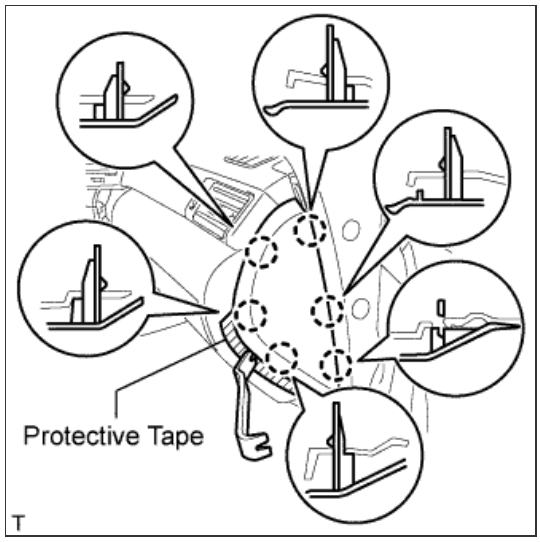
ii. Using a moulding remover, detach the 6 claws and remove the side panel.

b. w/ Airbag Cut Off Switch:

i. Place protective tape as shown in the illustration.

ii. Using a moulding remover, detach the 6 claws.

iii. Remove the side panel and disconnect the connector.




## 5. REMOVE FRONT DOOR SCUFF PLATE RH

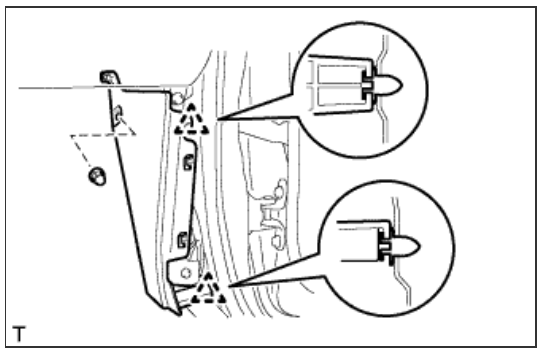
**HINT:**

Use the same procedures described for the LH side.

## 6. REMOVE COWL SIDE TRIM BOARD RH

a. Remove the cap nut.

b. Detach the 2 clips and remove the trim board.



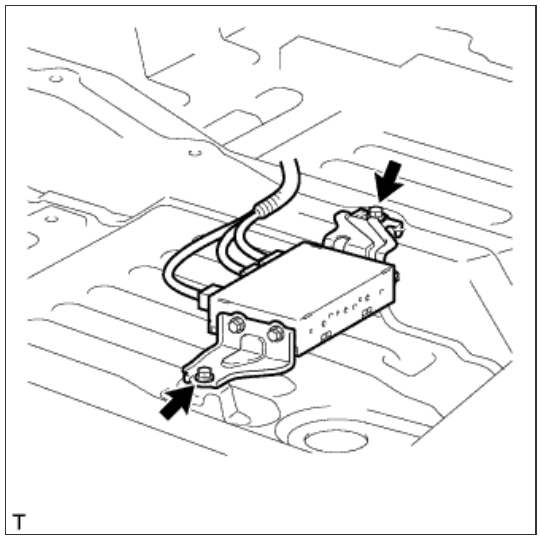

## 7. REMOVE FRONT FLOOR CARPET ASSEMBLY

a. Pull back the carpet far enough so that the selector can be removed. For further details, refer to the removal procedure ( Click here).

## 8. REMOVE MULTI-MEDIA INTERFACE ECU

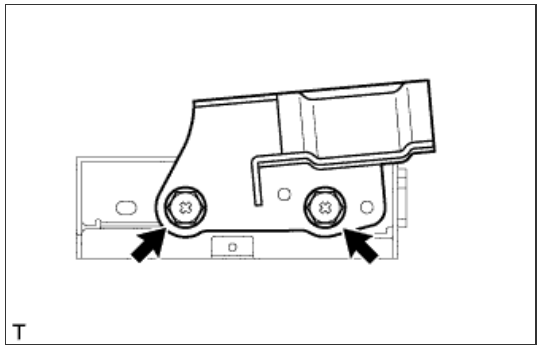
a. Disconnect the connectors.

b. Remove the 2 bolts and multi-media interface ECU.



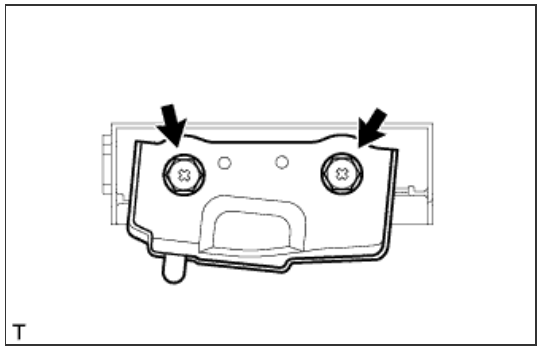

## 9. REMOVE NO. 1 MULTI-MEDIA INTERFACE BRACKET

a. Remove the 2 bolts and bracket.




## 10. REMOVE NO. 2 MULTI-MEDIA INTERFACE BRACKET

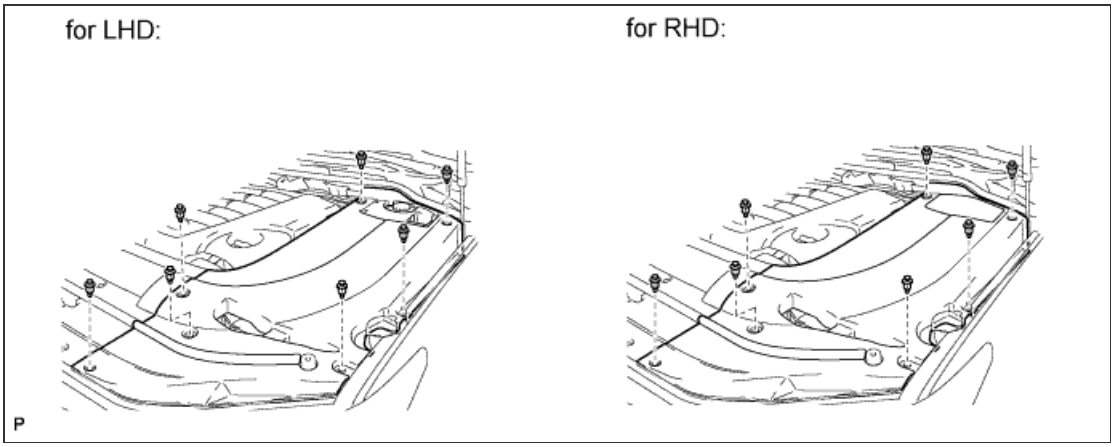
a. Remove the 2 bolts and bracket.



**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover.




## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**CAUTION:**

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

**NOTICE:**

- **w/ Navigation System:**
  **After the engine switch is turned off, the HDD navigation system requires approximately 6 minutes to record various types of memory and settings. As a result, after turning the engine switch off, wait 6 minutes or more before disconnecting the cable from the negative (-) battery terminal**
- **When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).**

## 3. REMOVE FRONT SEAT ASSEMBLY RH

a. Remove the front seat assembly RH ( Click here).

## 4. REMOVE INSTRUMENT SIDE PANEL RH

a. w/o Airbag Cut Off Switch:

i. Place protective tape as shown in the illustration.

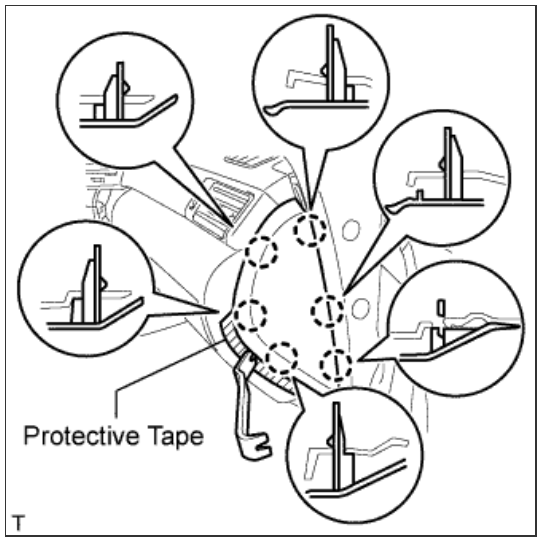
ii. Using a moulding remover, detach the 6 claws and remove the side panel.

b. w/ Airbag Cut Off Switch:

i. Place protective tape as shown in the illustration.

ii. Using a moulding remover, detach the 6 claws.

iii. Remove the side panel and disconnect the connector.




## 5. REMOVE FRONT DOOR SCUFF PLATE RH

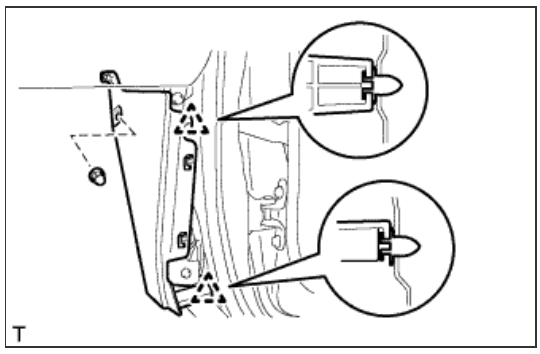
**HINT:**

Use the same procedures described for the LH side.

## 6. REMOVE COWL SIDE TRIM BOARD RH

a. Remove the cap nut.

b. Detach the 2 clips and remove the trim board.



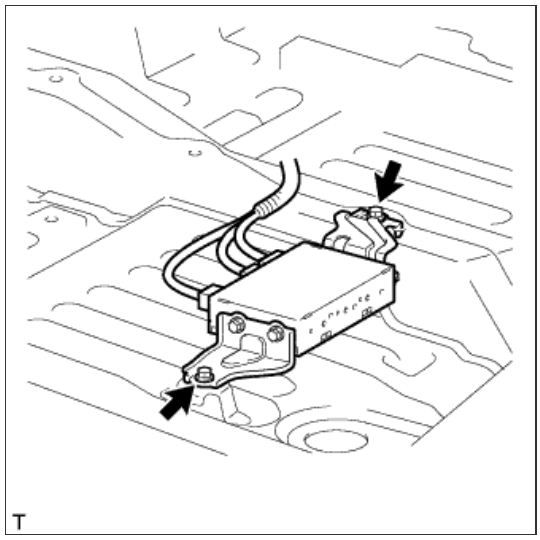

## 7. REMOVE FRONT FLOOR CARPET ASSEMBLY

a. Pull back the carpet far enough so that the selector can be removed. For further details, refer to the removal procedure ( Click here).

## 8. REMOVE MULTI-MEDIA INTERFACE ECU

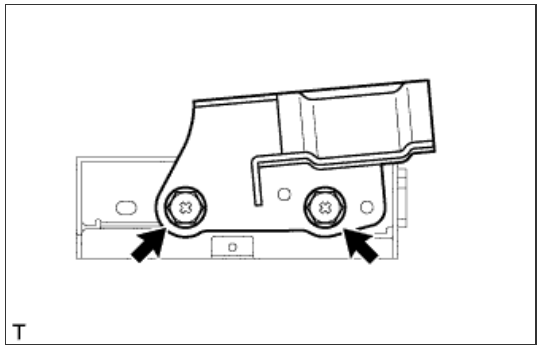
a. Disconnect the connectors.

b. Remove the 2 bolts and multi-media interface ECU.



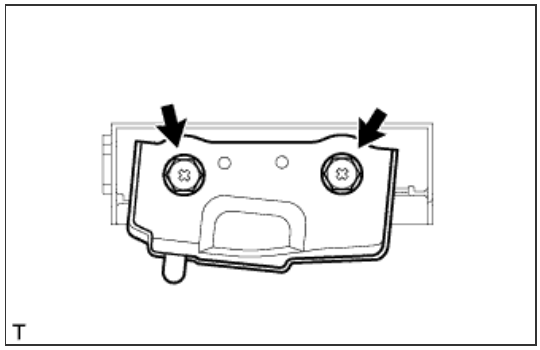

## 9. REMOVE NO. 1 MULTI-MEDIA INTERFACE BRACKET

a. Remove the 2 bolts and bracket.




## 10. REMOVE NO. 2 MULTI-MEDIA INTERFACE BRACKET

a. Remove the 2 bolts and bracket.



**for Preparation** Click here

**HINT:**

A bolt without a torque specification is shown in the standard bolt chart ( Click here).

## 1. INSTALL NO. 1 MULTI-MEDIA INTERFACE BRACKET

a. Install the bracket with the 2 bolts.

## 2. INSTALL NO. 2 MULTI-MEDIA INTERFACE BRACKET

a. Install the bracket with the 2 bolts.

## 3. INSTALL MULTI-MEDIA INTERFACE ECU

a. Install the multi-media interface ECU with the 2 bolts.

b. Connect the connectors.

## 4. INSTALL FRONT FLOOR CARPET ASSEMBLY

a. Install the carpet that was pulled back to remove the selector. For further details, refer to the installation procedure ( Click here).

## 5. INSTALL FRONT DOOR SCUFF PLATE RH

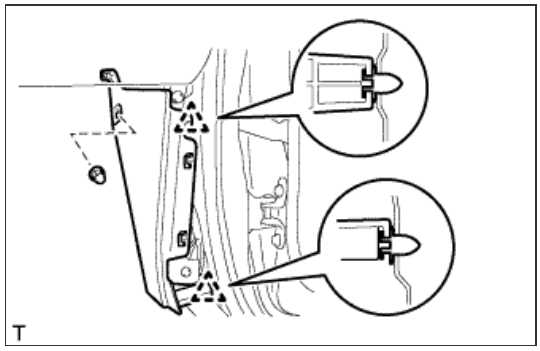
**HINT:**

Use the same procedures described for the LH side.

## 6. INSTALL COWL SIDE TRIM BOARD RH

a. Attach the 2 clips to install the trim board.

b. Install the cap nut.




## 7. INSTALL INSTRUMENT SIDE PANEL RH

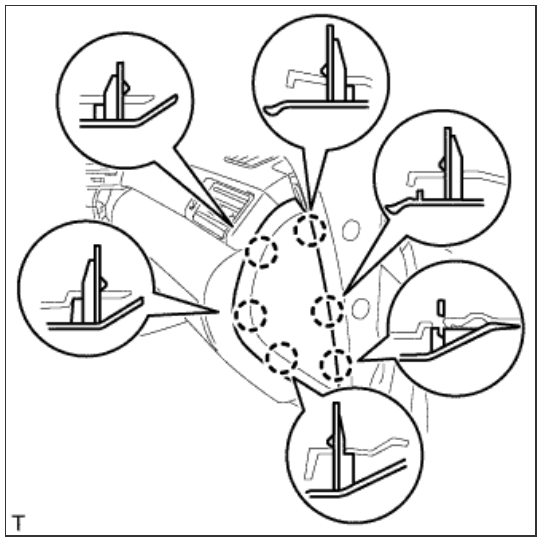
a. w/o Airbag Cut Off Switch:

i. Attach the 6 claws to install the side panel.

b. w/ Airbag Cut Off Switch:

i. Connect the connector.

ii. Attach the 6 claws to install the side panel.




## 8. INSTALL FRONT SEAT ASSEMBLY RH

a. Install the front seat assembly RH ( Click here).

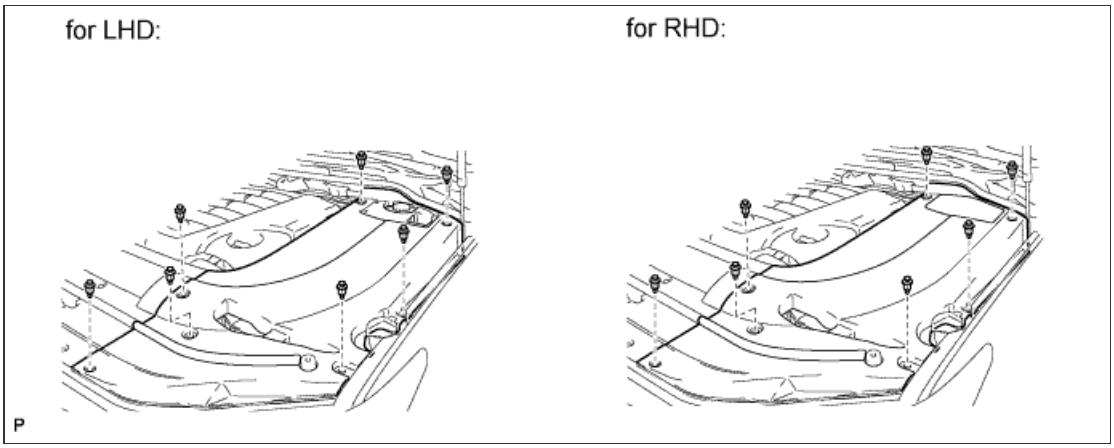
## 9. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 10. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover with the 7 clips.




## 11. CHECK SRS WARNING LIGHT

a. Check the SRS warning light (Click here).

**for Preparation** Click here

**HINT:**

A bolt without a torque specification is shown in the standard bolt chart ( Click here).

## 1. INSTALL NO. 1 MULTI-MEDIA INTERFACE BRACKET

a. Install the bracket with the 2 bolts.

## 2. INSTALL NO. 2 MULTI-MEDIA INTERFACE BRACKET

a. Install the bracket with the 2 bolts.

## 3. INSTALL MULTI-MEDIA INTERFACE ECU

a. Install the multi-media interface ECU with the 2 bolts.

b. Connect the connectors.

## 4. INSTALL FRONT FLOOR CARPET ASSEMBLY

a. Install the carpet that was pulled back to remove the selector. For further details, refer to the installation procedure ( Click here).

## 5. INSTALL FRONT DOOR SCUFF PLATE RH

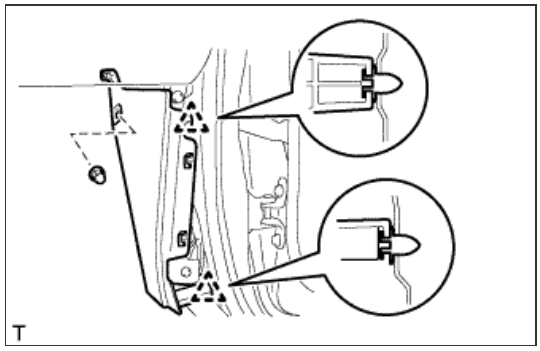
**HINT:**

Use the same procedures described for the LH side.

## 6. INSTALL COWL SIDE TRIM BOARD RH

a. Attach the 2 clips to install the trim board.

b. Install the cap nut.




## 7. INSTALL INSTRUMENT SIDE PANEL RH

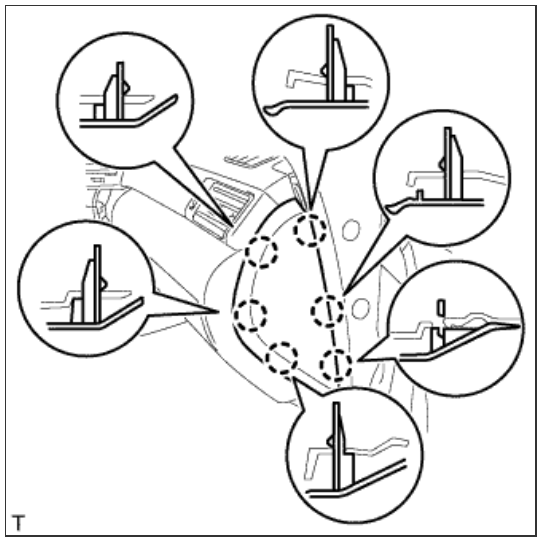
a. w/o Airbag Cut Off Switch:

i. Attach the 6 claws to install the side panel.

b. w/ Airbag Cut Off Switch:

i. Connect the connector.

ii. Attach the 6 claws to install the side panel.




## 8. INSTALL FRONT SEAT ASSEMBLY RH

a. Install the front seat assembly RH ( Click here).

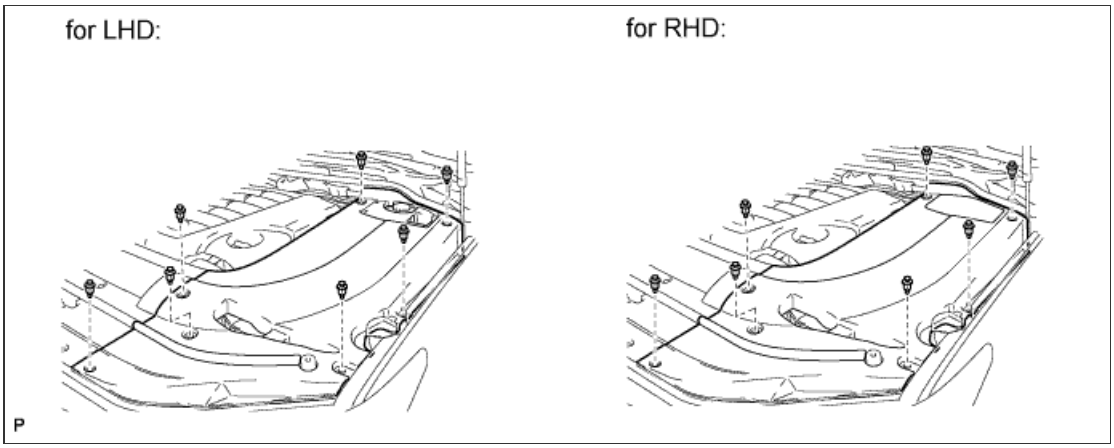
## 9. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 10. INSTALL ENGINE ROOM SIDE COVER LH

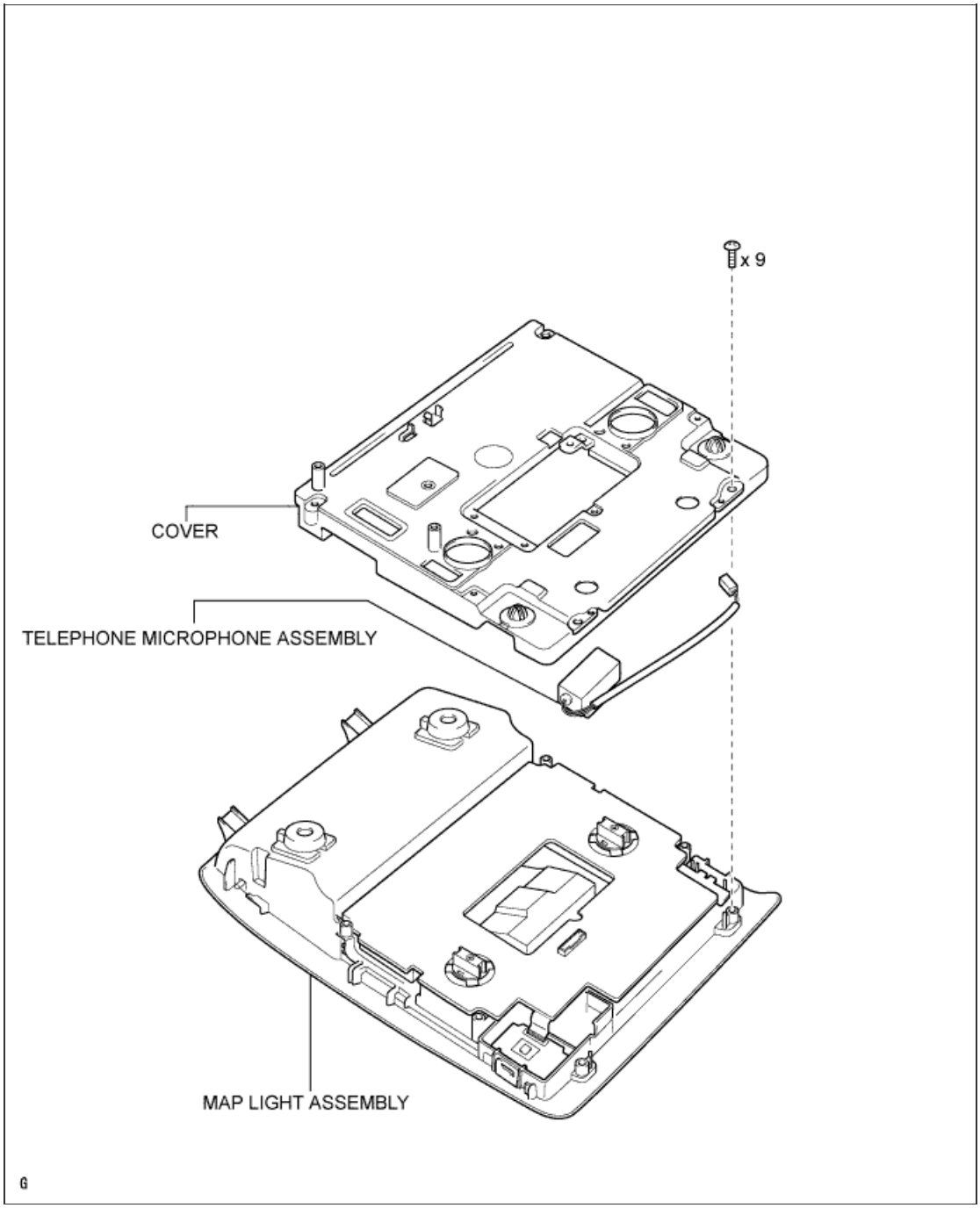
a. Install the engine room side cover with the 7 clips.




## 11. CHECK SRS WARNING LIGHT

a. Check the SRS warning light (Click here).

**for Preparation** Click here



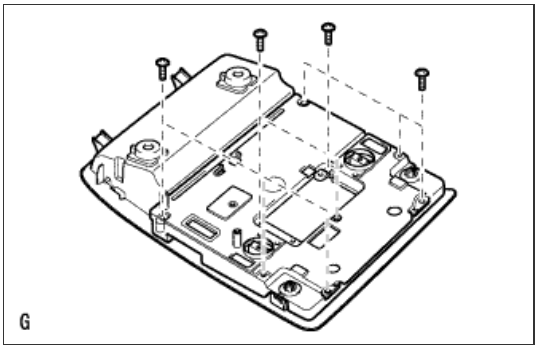
**for Preparation** Click here

## 1. REMOVE MAP LIGHT ASSEMBLY

a. Remove the map light (Click here).

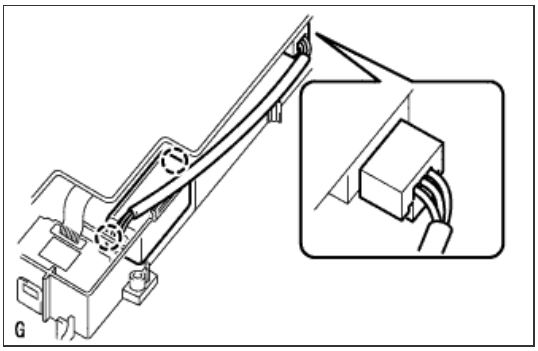
## 2. REMOVE TELEPHONE MICROPHONE ASSEMBLY

a. Remove the 9 screws and cover.




b. Disconnect the connector.

c. Detach the 2 claws and remove the microphone.



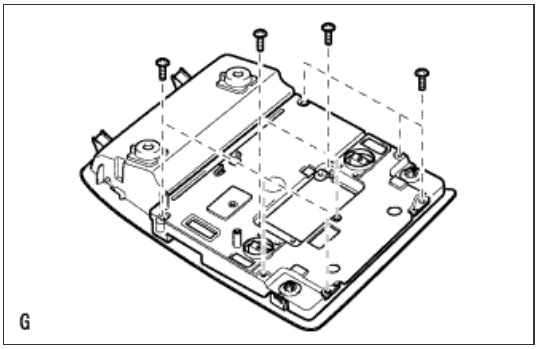
**for Preparation** Click here

## 1. REMOVE MAP LIGHT ASSEMBLY

a. Remove the map light (Click here).

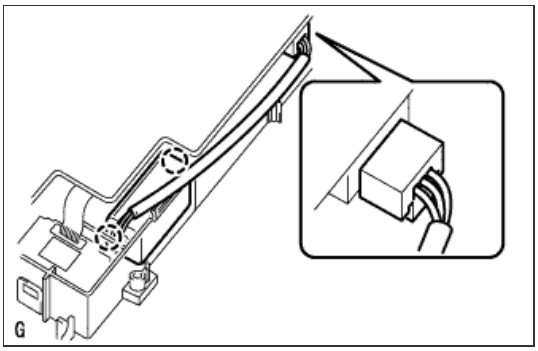
## 2. REMOVE TELEPHONE MICROPHONE ASSEMBLY

a. Remove the 9 screws and cover.




b. Disconnect the connector.

c. Detach the 2 claws and remove the microphone.

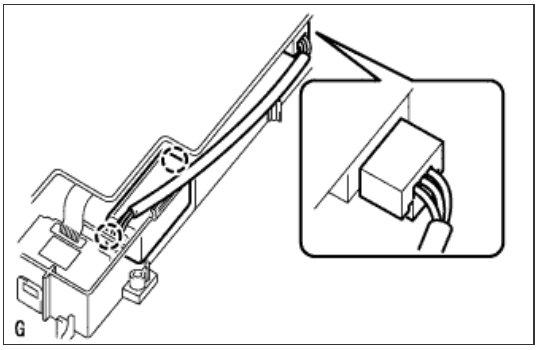


**for Preparation** Click here

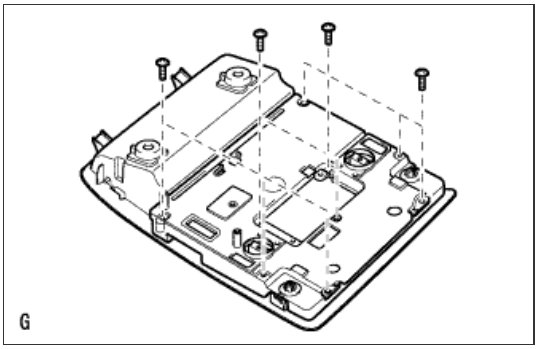
## 1. INSTALL TELEPHONE MICROPHONE ASSEMBLY

a. Attach the 2 claws to install the microphone.

b. Connect the connector.




c. Install the cover with the 9 screws.




## 2. INSTALL MAP LIGHT ASSEMBLY

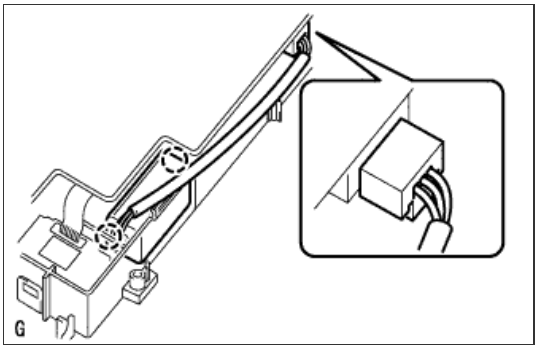
a. Install the map light (Click here).

**for Preparation** Click here

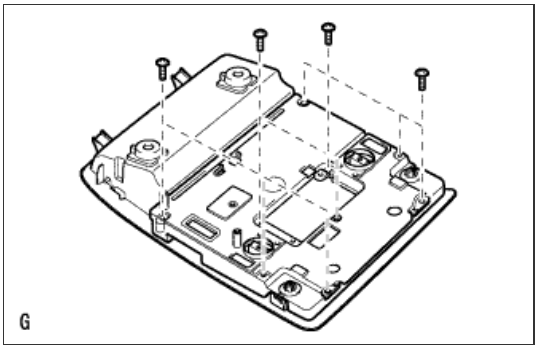
## 1. INSTALL TELEPHONE MICROPHONE ASSEMBLY

a. Attach the 2 claws to install the microphone.

b. Connect the connector.




c. Install the cover with the 9 screws.




## 2. INSTALL MAP LIGHT ASSEMBLY

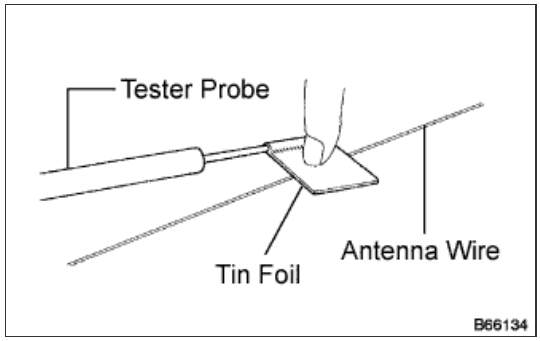
a. Install the map light (Click here).

**for Preparation** Click here

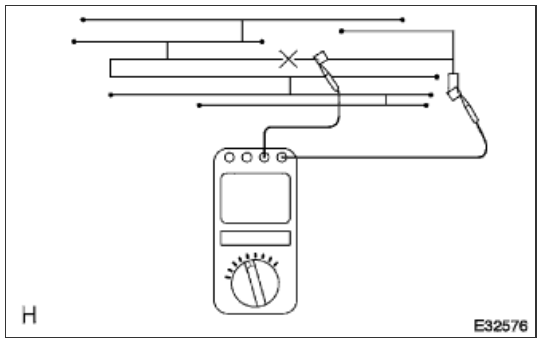
## 1. INSPECT WINDOW GLASS ANTENNA WIRE

**NOTICE:**

When cleaning the glass, use a soft, dry cloth, and wipe the glass in the direction of the wire. Take care not to damage the wires. Do not use detergents or glass cleaners with abrasive ingredients. When measuring voltage, wind a piece of tin foil around the top of the probe and press the foil against the wire with your finger, as shown in the illustration.




a. Check the voltage at the center of each wire, as shown in the illustration.

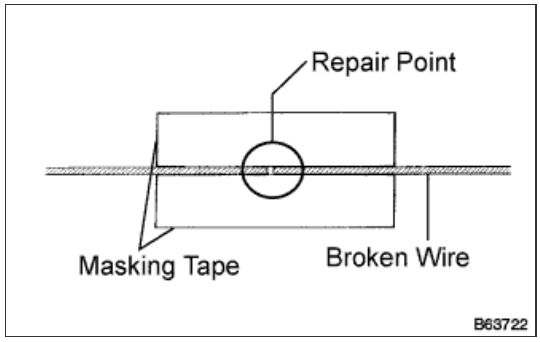



## 2. REPAIR WINDOW GLASS ANTENNA WIRE

a. Clean the broken wire tips with grease, wax and silicone remover.

b. Place masking tape along both sides of the wire to be repaired.

c. Thoroughly mix the repair agent (DuPont paste No. 4817).

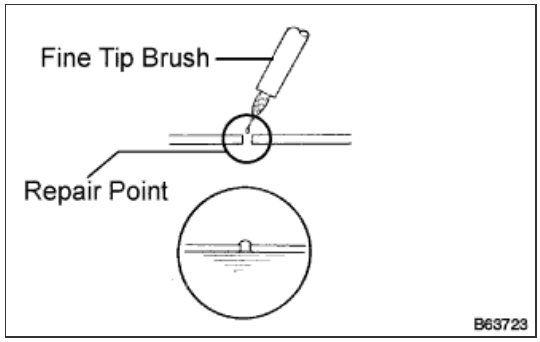



d. Using a fine tip brush, apply a small amount of the repair agent to the wire.

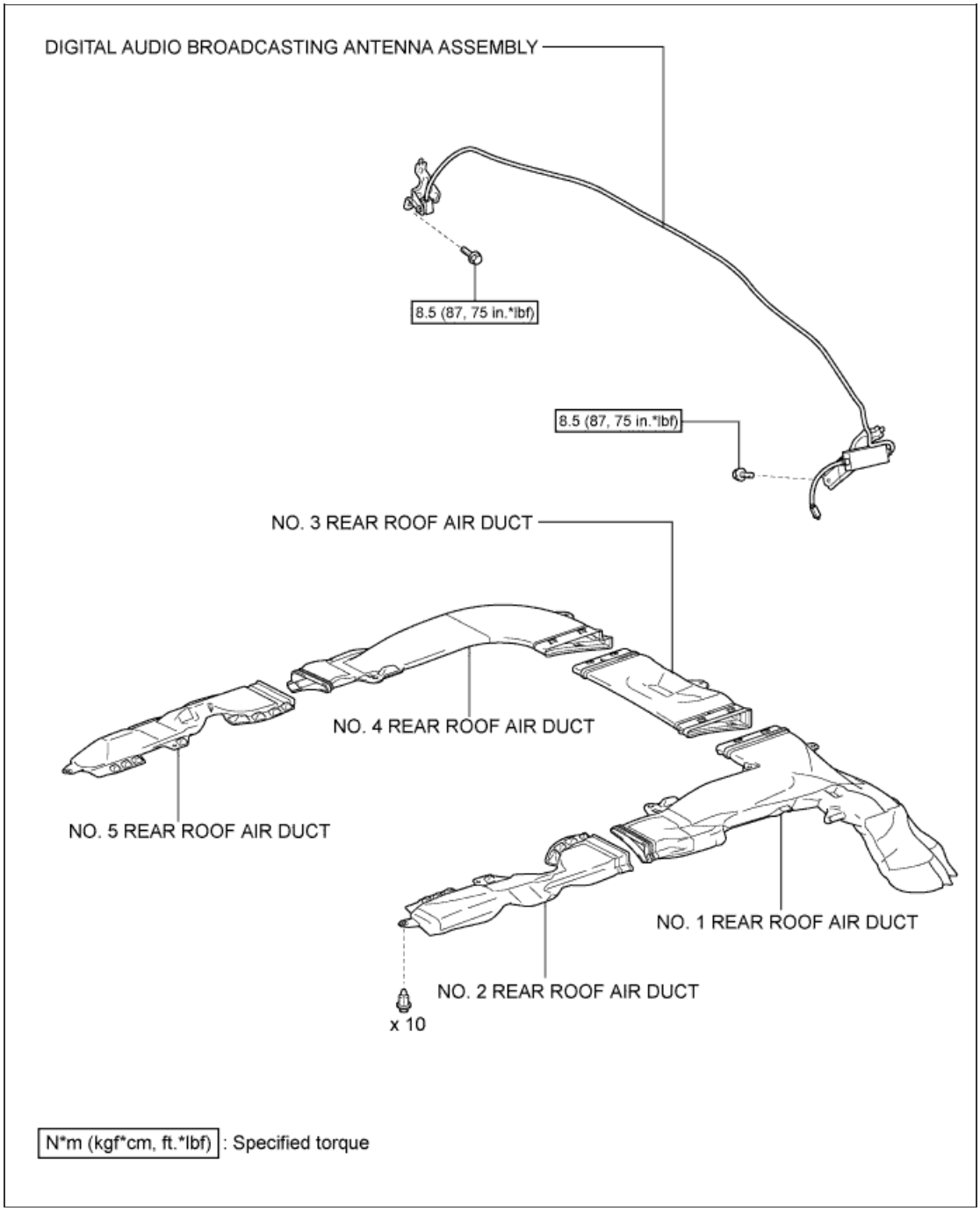
e. After a few minutes, remove the masking tape.

**NOTICE:**

Do not allow electricity to flow in the antenna wire for at least 24 hours.



**for Preparation** Click here



**for Preparation** Click here

## 1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

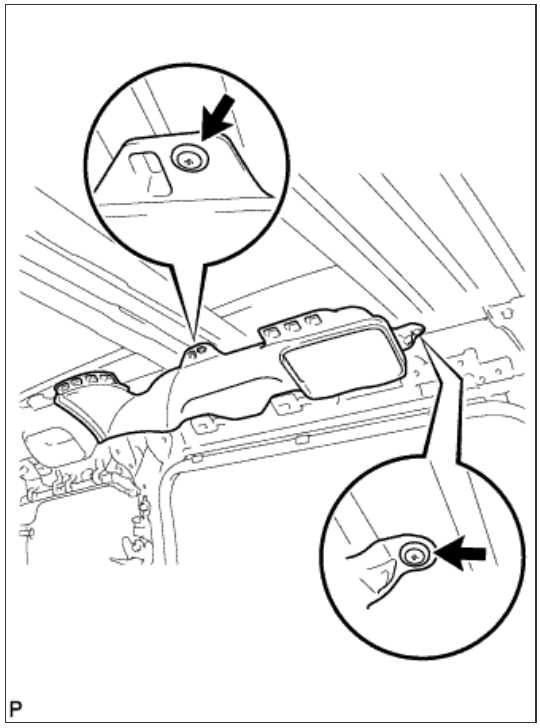
- **w/ Navigation System:**
  **After the engine switch is turned off, the HDD navigation system requires approximately 6 minutes to record various types of memory and settings. As a result, after turning the engine switch off, wait 6 minutes or more before disconnecting the cable from the negative (-) battery terminal.**
- **When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).**

## 2. REMOVE ROOF HEADLINING ASSEMBLY

a. Remove the roof headlining (Click here).

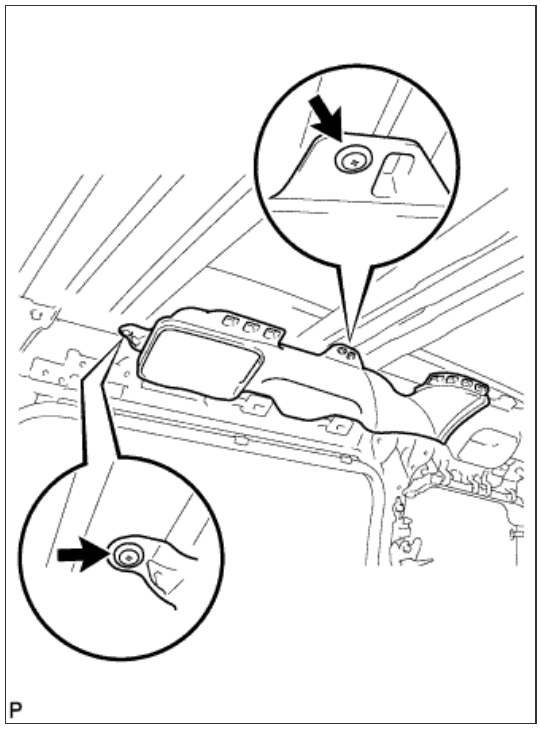
## 3. REMOVE NO. 2 REAR ROOF AIR DUCT

a. Remove the 2 clips and remove the duct.




## 4. REMOVE NO. 5 REAR ROOF AIR DUCT

a. Remove the 2 clips and remove the duct.



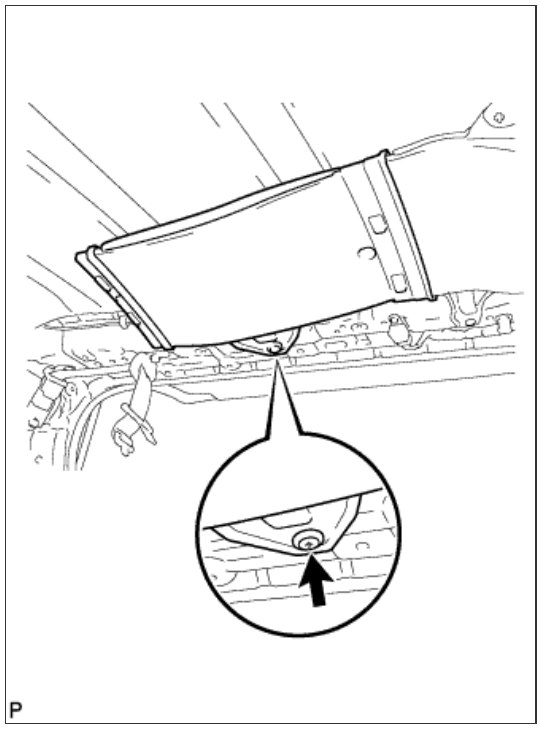

### 5. REMOVE NO. 4 REAR ROOF AIR DUCT

a. Remove the 2 clips and remove the duct.



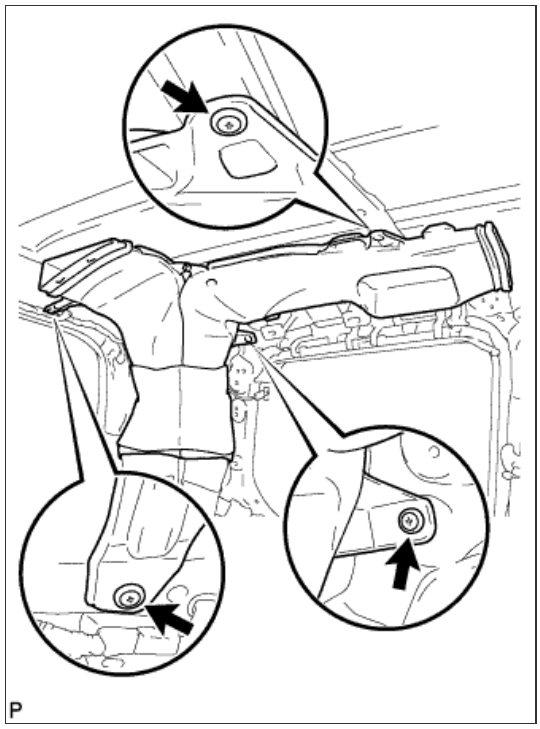

### 6. REMOVE NO. 3 REAR ROOF AIR DUCT

a. Remove the clip and remove the duct.



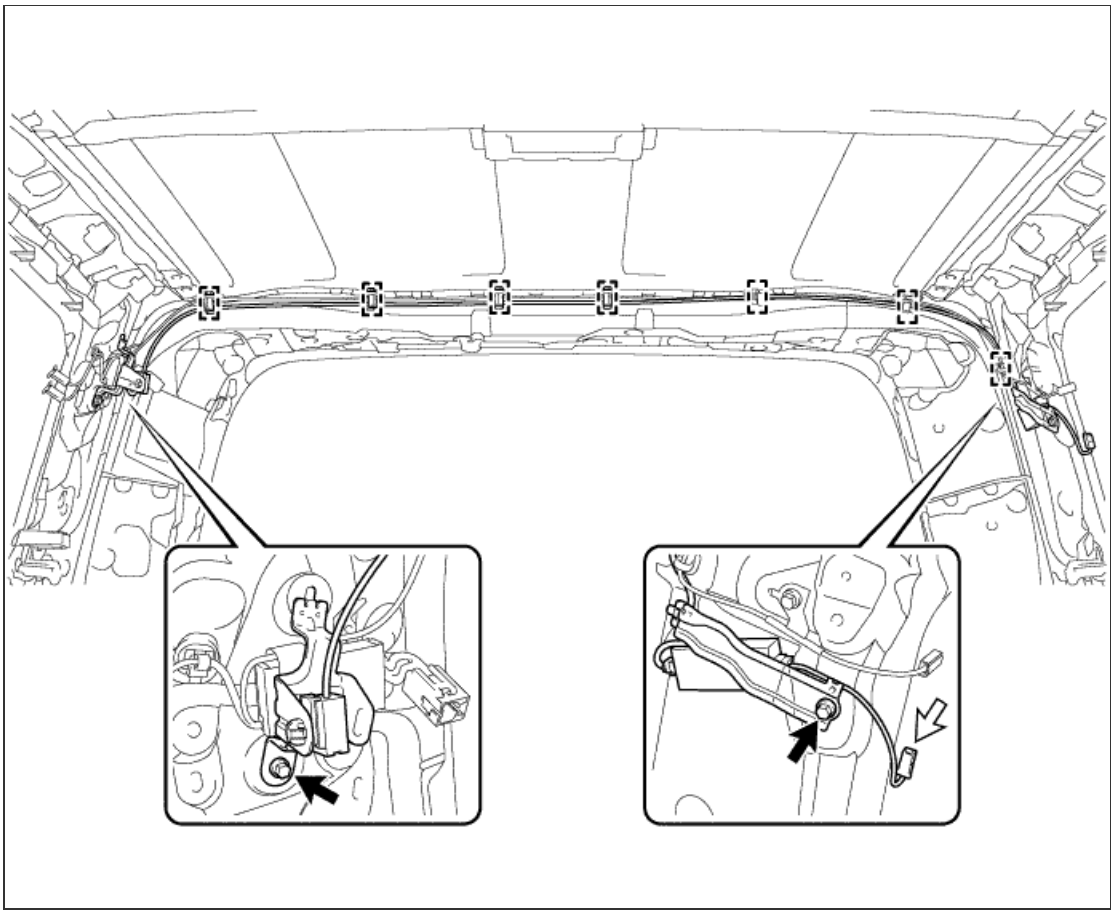

### 7. REMOVE NO. 1 REAR ROOF AIR DUCT

a. Remove the 3 clips and remove the duct.




### 8. REMOVE DIGITAL AUDIO BROADCASTING ANTENNA ASSEMBLY

a. Disconnect the connector and remove the 2 bolts.

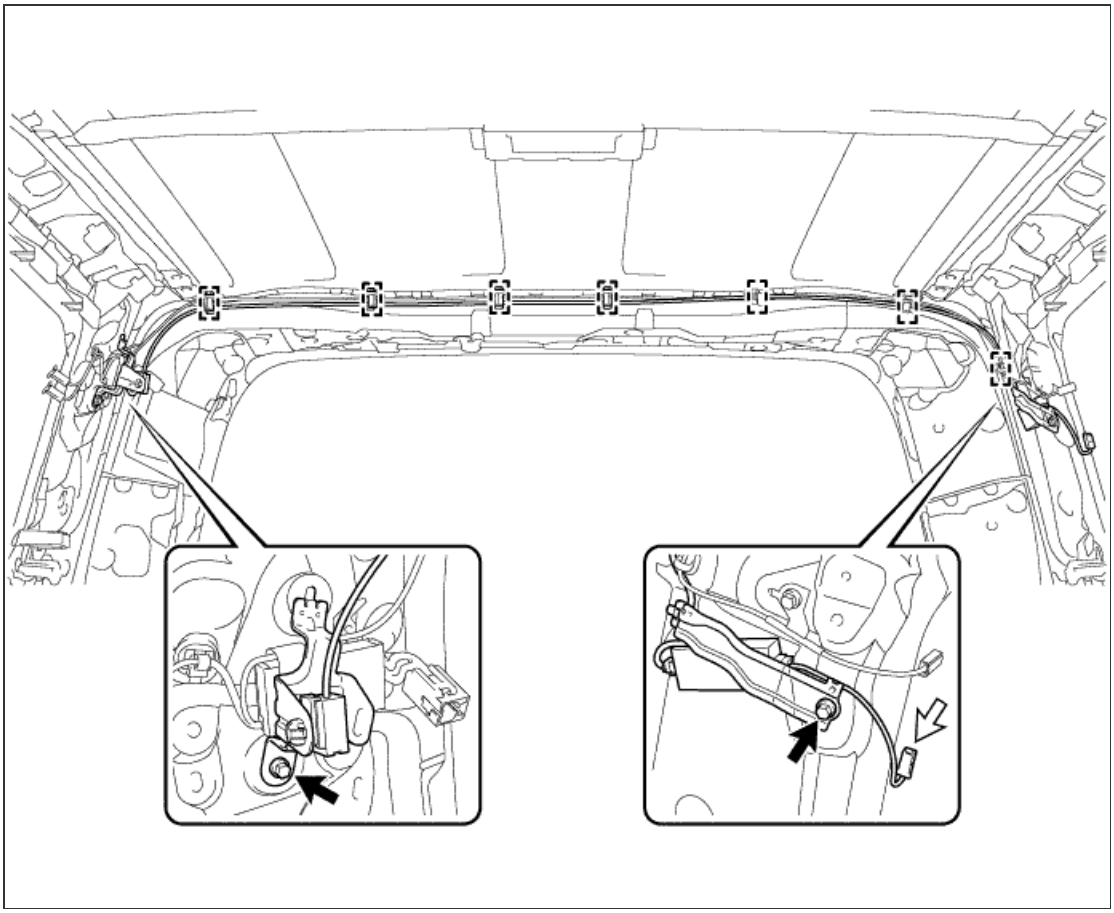


b. Detach the 7 clamps and remove the digital audio broadcasting antenna.

**for Preparation** Click here

## 1. INSTALL DIGITAL AUDIO BROADCASTING ANTENNA ASSEMBLY

a. Attach the 7clamps.

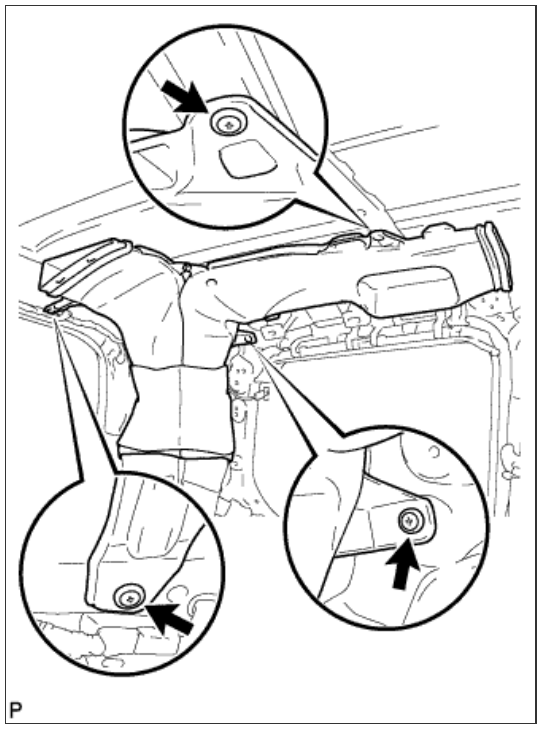


b. Install the digital audio broadcasting antenna with the 2 bolts and connect the connector.

**Torque:**
**8.5 N*m{ 87 kgf*cm , 75 in.*lbf }**

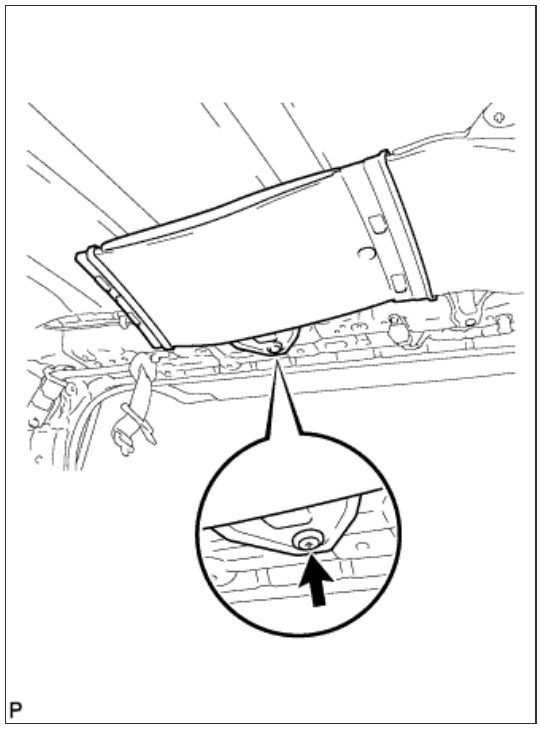
## 2. INSTALL NO. 1 REAR ROOF AIR DUCT

a. Install the duct with the 3 clips.




### 3. INSTALL NO. 3 REAR ROOF AIR DUCT

a. Install the duct with the clip.



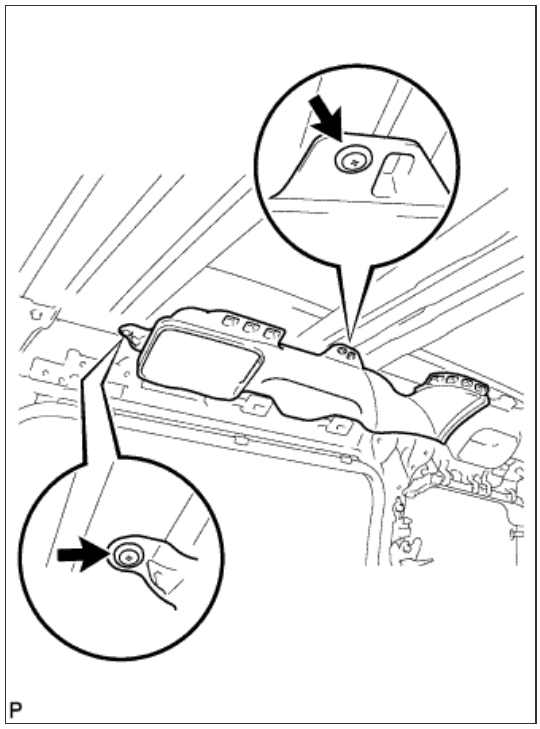

### 4. INSTALL NO. 4 REAR ROOF AIR DUCT

a. Install the duct with the 2 clips.



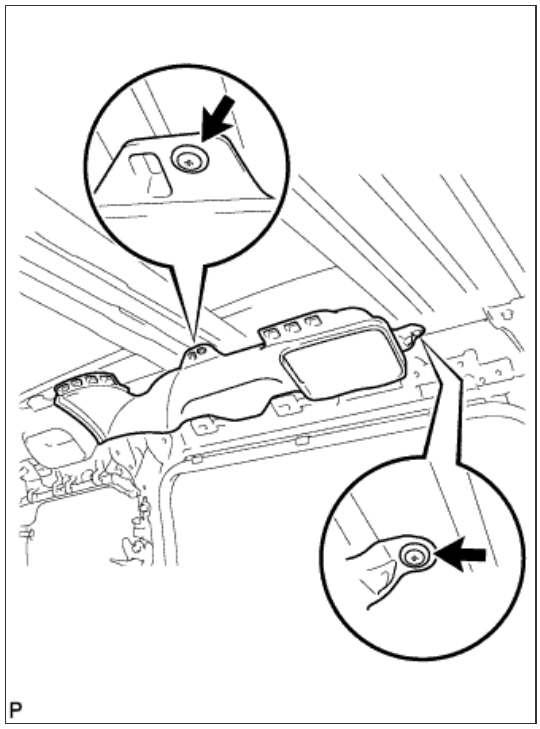

### 5. INSTALL NO. 5 REAR ROOF AIR DUCT

a. Install the duct with the 2 clips.




### 6. INSTALL NO. 2 REAR ROOF AIR DUCT

a. Install the duct with the 2 clips.




### 7. INSTALL ROOF HEADLINING ASSEMBLY

a. Install the roof headlining (Click here).

### 8. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

**for Preparation** Click here

## 1.PRECAUTION FOR DISCONNECTING CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

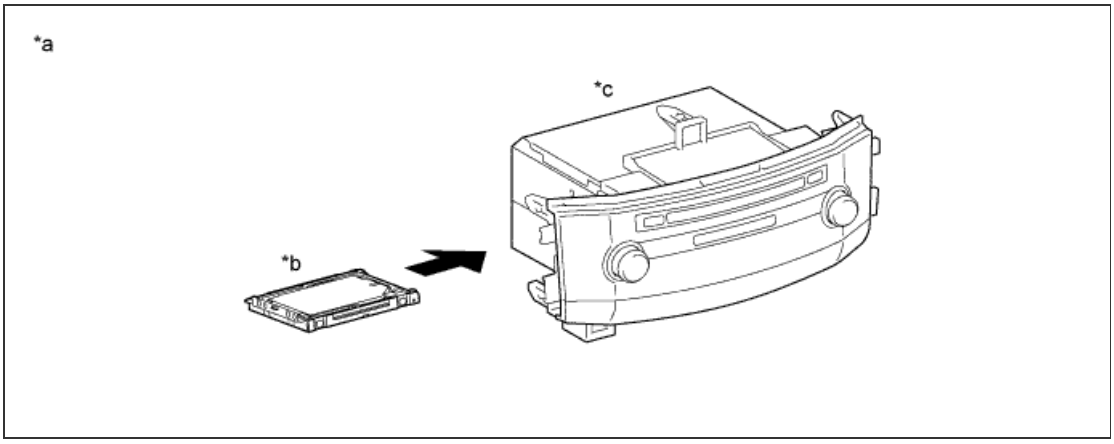
After the engine switch is turned off, the multi-media module receiver assembly records various types of memory and settings. As a result, after turning the engine switch off, be sure to wait for the time specified in the following table before disconnecting the cable from the negative (-) battery terminal.

**Waiting Time before Disconnecting Cable from Negative (-) Battery Terminal**

| Condition | Waiting Time |
|---|---|
| Vehicle enrolled in G-BOOK system | 6 minutes |
| Vehicle not enrolled in G-BOOK system | 1 minute |

## 2.PRECAUTIONS FOR MULTI-MEDIA MODULE RECEIVER ASSEMBLY

a. An HDD is built into the multi-media module receiver assembly to store map and other data, and is used for the navigation system. Therefore, care must be taken for the following points when handling:




**Text in Illustration**

| | | | |
|---|---|---|---|
| *a | Example | *b | Hard Disc |
| *c | Multi-media Module Receiver Assembly | - | - |

i. When it is necessary to replace the multi-media module receiver assembly, be sure to replace it with a new one.

**NOTICE:**

If a used multi-media module receiver assembly is installed as a replacement part, the customer's HDD will not be recognized.

ii. Do not apply any vibration or shock to the multi-media module receiver assembly.

**NOTICE:**

- **Do not drop or subject the multi-media module receiver assembly to severe impacts.**
- **Do not use the multi-media module receiver assembly if it has been dropped or subjected to a severe impact.**
- **Do not store the multi-media module receiver assembly without the HDD installed. (Only remove the HDD from the multi-media module receiver assembly when the replacement multi-media module receiver assembly or HDD is ready.)**

iii. Do not remove the multi-media module receiver assembly if there is a risk that condensation may occur.

**NOTICE:**

If the temperature of the multi-media module receiver assembly changes rapidly, condensation may occur inside the unit. This may cause a malfunction of the HDD. Therefore, when the multi-media module receiver assembly is removed from the instrument panel, it needs to be kept inside the vehicle or in an environment with an equivalent temperature and humidity.

iv. Take measures to prevent static electricity.

**NOTICE:**

Touching the terminals of a connector can cause static electricity to be transmitted to the internal circuits. This may cause a malfunction of the HDD.

v. Keep the multi-media module receiver assembly away from magnets or magnetized items.

**NOTICE:**

Keep the multi-media module receiver assembly away from speakers, motors, magnetized tools and other magnetic items.

## 3.PRECAUTIONS FOR HARD DISK DRIVE (HDD)

a. Map and other data for the navigation system is stored on the Hard Disk Drive (HDD). Make sure to follow the following instructions when replacing the HDD:

**NOTICE:**

Data downloaded by the customer may be stored on the HDD. This data will be lost when the HDD is replaced. Make sure to warn the customer that their data will be lost and obtain their consent prior to replacing the HDD.

i. The HDD must only be replaced with a new one. Do not attempt to install a used HDD from another vehicle.

**NOTICE:**

The multi-media module receiver assembly can recognize only a new HDD.

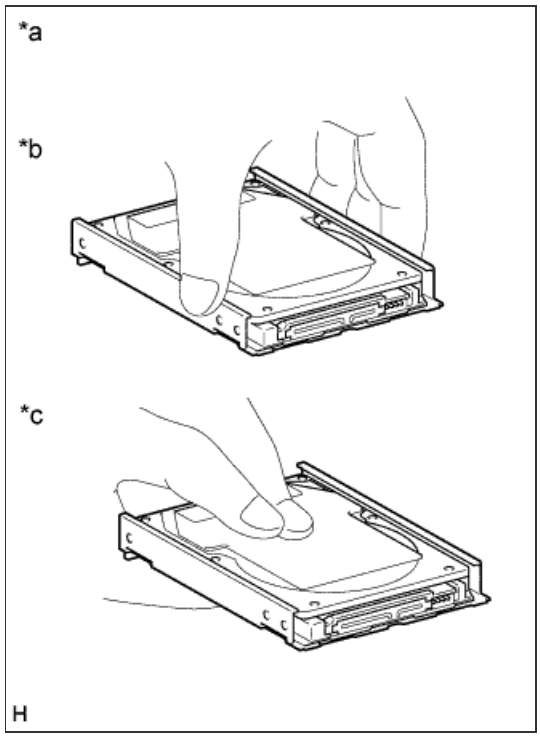
ii. Do not touch the HDD cover.

**NOTICE:**

When removing or installing the HDD, only hold it by the areas shown in the illustration.

**Text in Illustration**

| | |
|---|---|
| *a | Example |
| *b | CORRECT |
| *c | INCORRECT |




iii. Do not apply any vibration or shock to the HDD.

**NOTICE:**

- **Do not drop or subject the HDD to sever impacts.**
- **Do not use the HDD if it has been dropped or subjected to a severe impact.**
- **Do not store the HDD by itself if it has been removed from the multi-media module receiver assembly. (Only remove the HDD from the multi-media module receiver assembly when the replacement multi-media module receiver assembly or HDD is ready.)**

iv. Do not remove the HDD if there is a risk that condensation may occur.

**NOTICE:**

If the temperature of the HDD changes rapidly, condensation may occur inside the unit. This may cause a malfunction of the HDD. Therefore, when the multi-media module receiver assembly is removed from the instrument panel, it needs to be kept inside the vehicle or in an environment with an equivalent temperature and humidity.

v. Take measures to prevent static electricity.

**NOTICE:**

Touching the terminals of a connector can cause static electricity to be transmitted to the internal circuits. This may cause a

malfunction of the HDD.

vi. Keep the HDD away from magnets or magnetized items.

**NOTICE:**

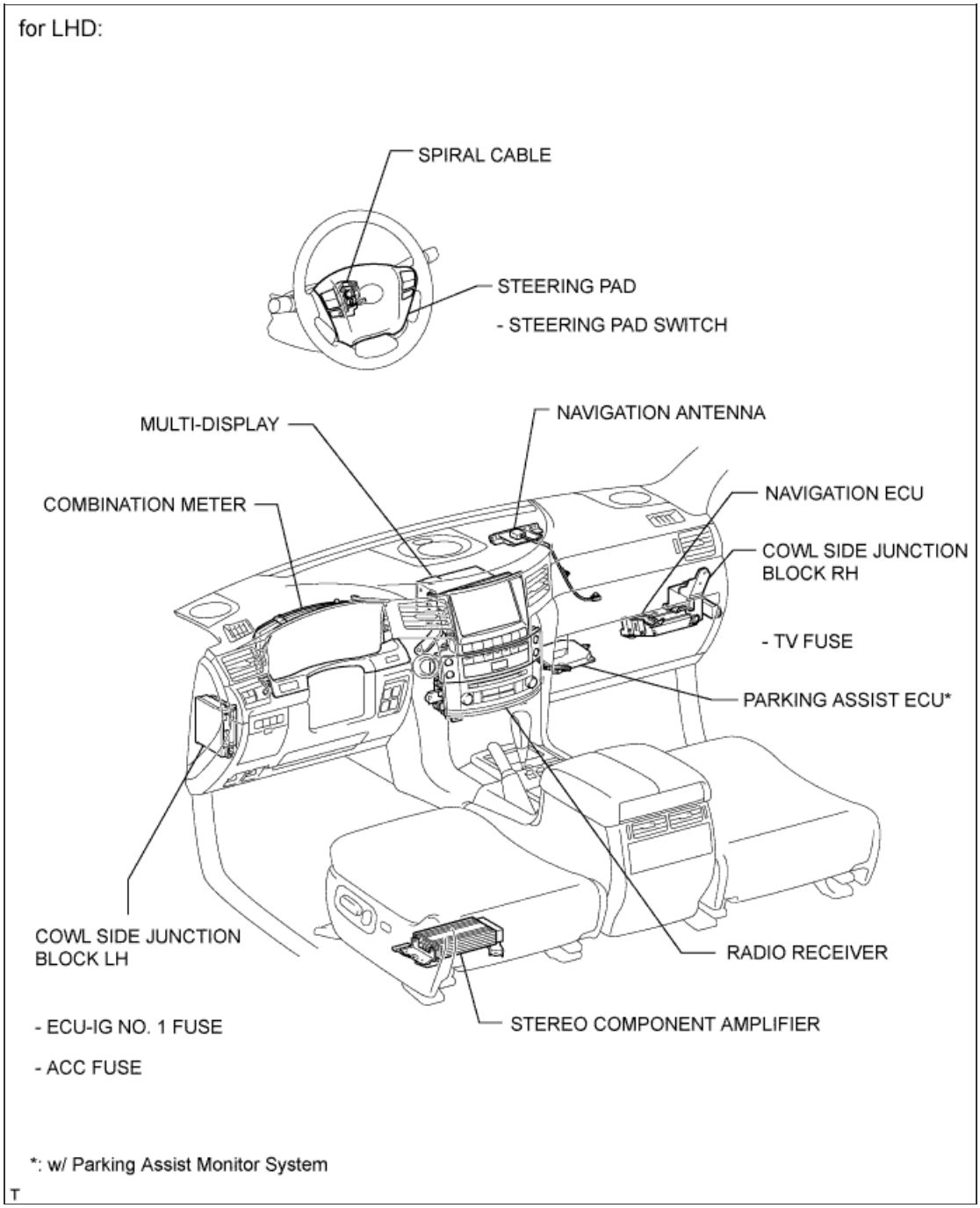
Keep the HDD away from speakers, motors, magnetized tools and other magnetic items.

vii. Inspect after HDD replacement.

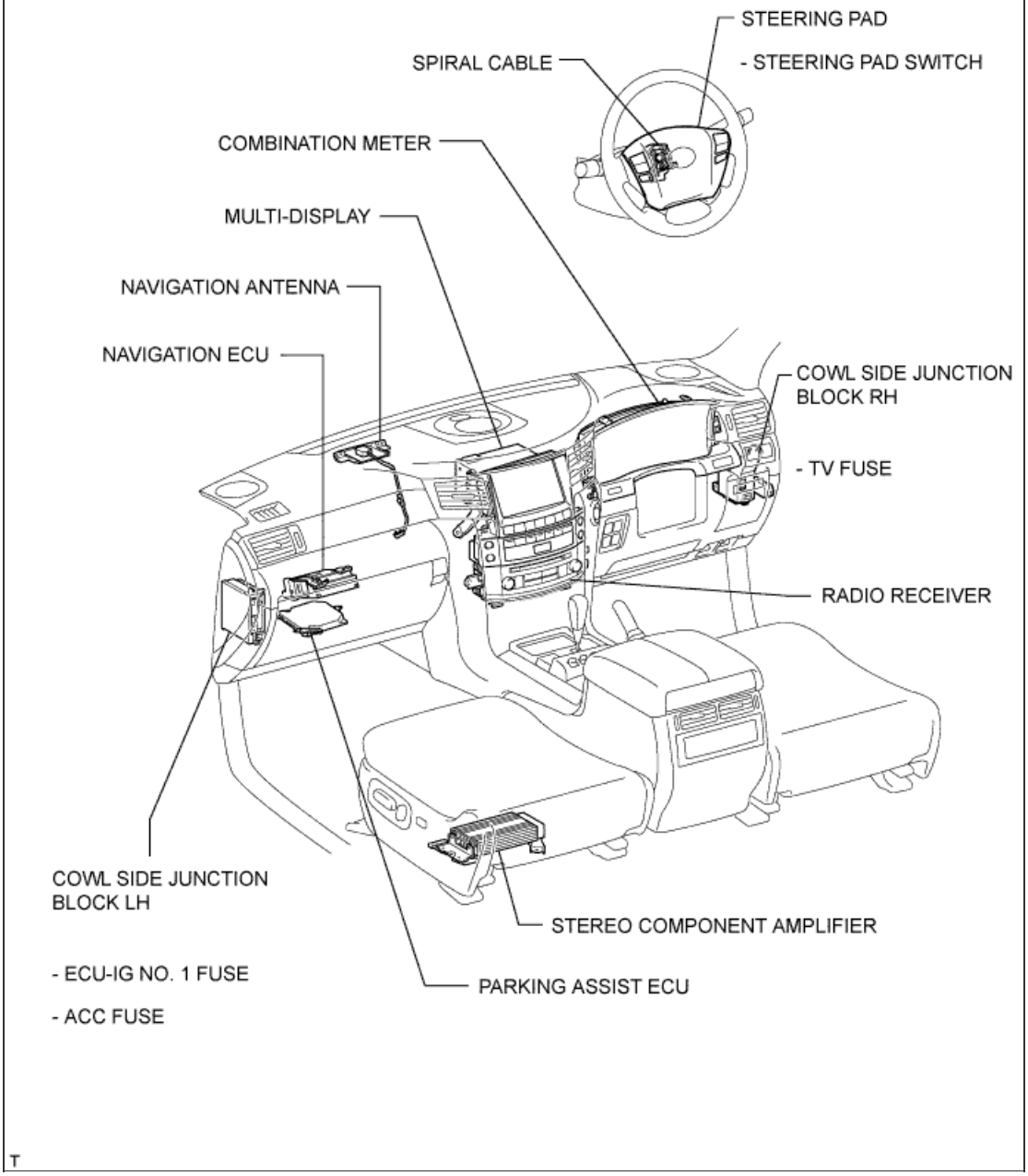
**NOTICE:**

Make sure to perform Check Hard Disk Drive in Operation Check to confirm that there are no HDD abnormalities after removal or installation (Click here).

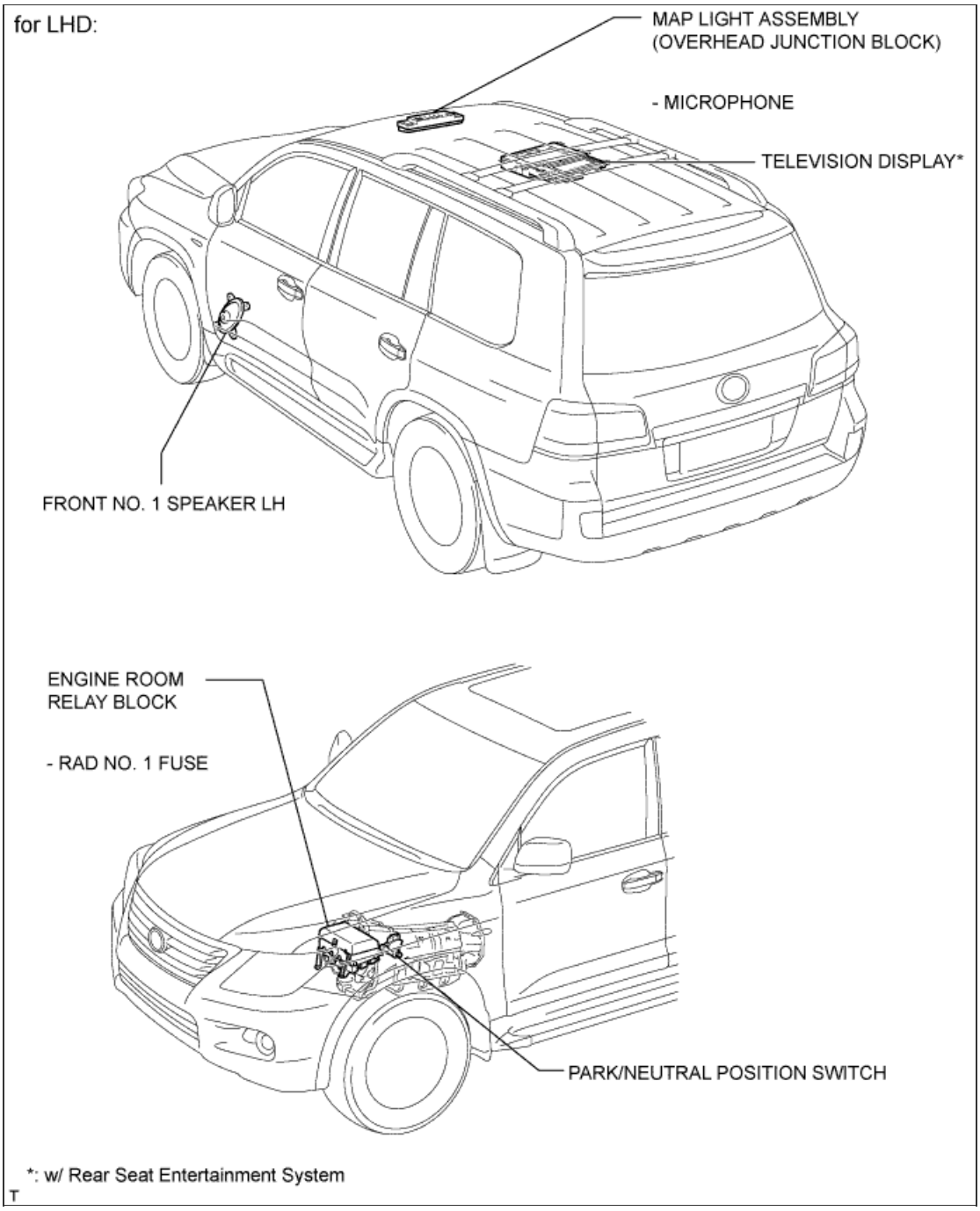
**for Preparation** Click here



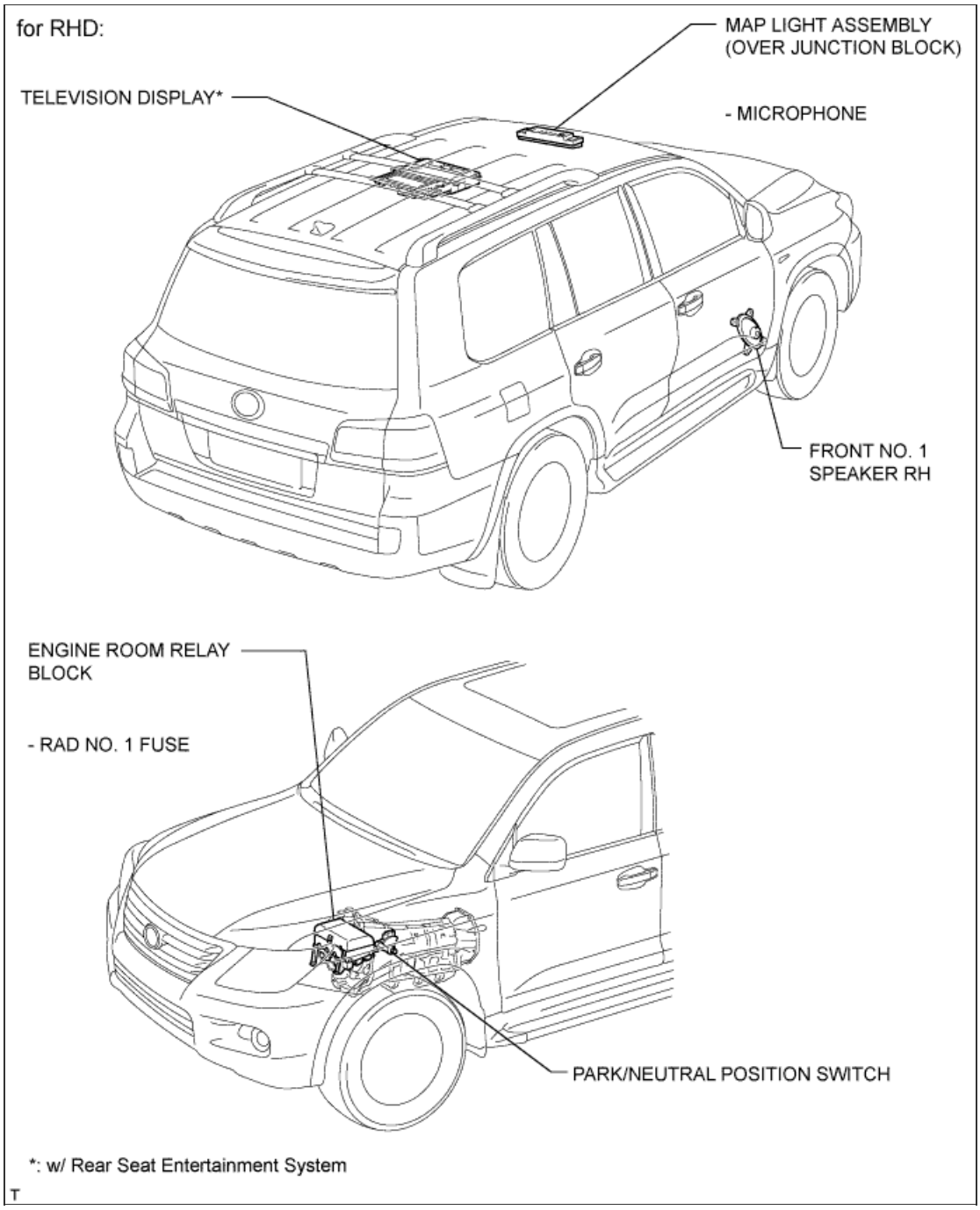
for RHD:


STEERING PAD
- STEERING PAD SWITCH
SPIRAL CABLE
COMBINATION METER
MULTI-DISPLAY
NAVIGATION ANTENNA
NAVIGATION ECU
COWL SIDE JUNCTION BLOCK RH
- TV FUSE
RADIO RECEIVER
COWL SIDE JUNCTION BLOCK LH
- ECU-IG NO. 1 FUSE
- ACC FUSE
STEREO COMPONENT AMPLIFIER
PARKING ASSIST ECU

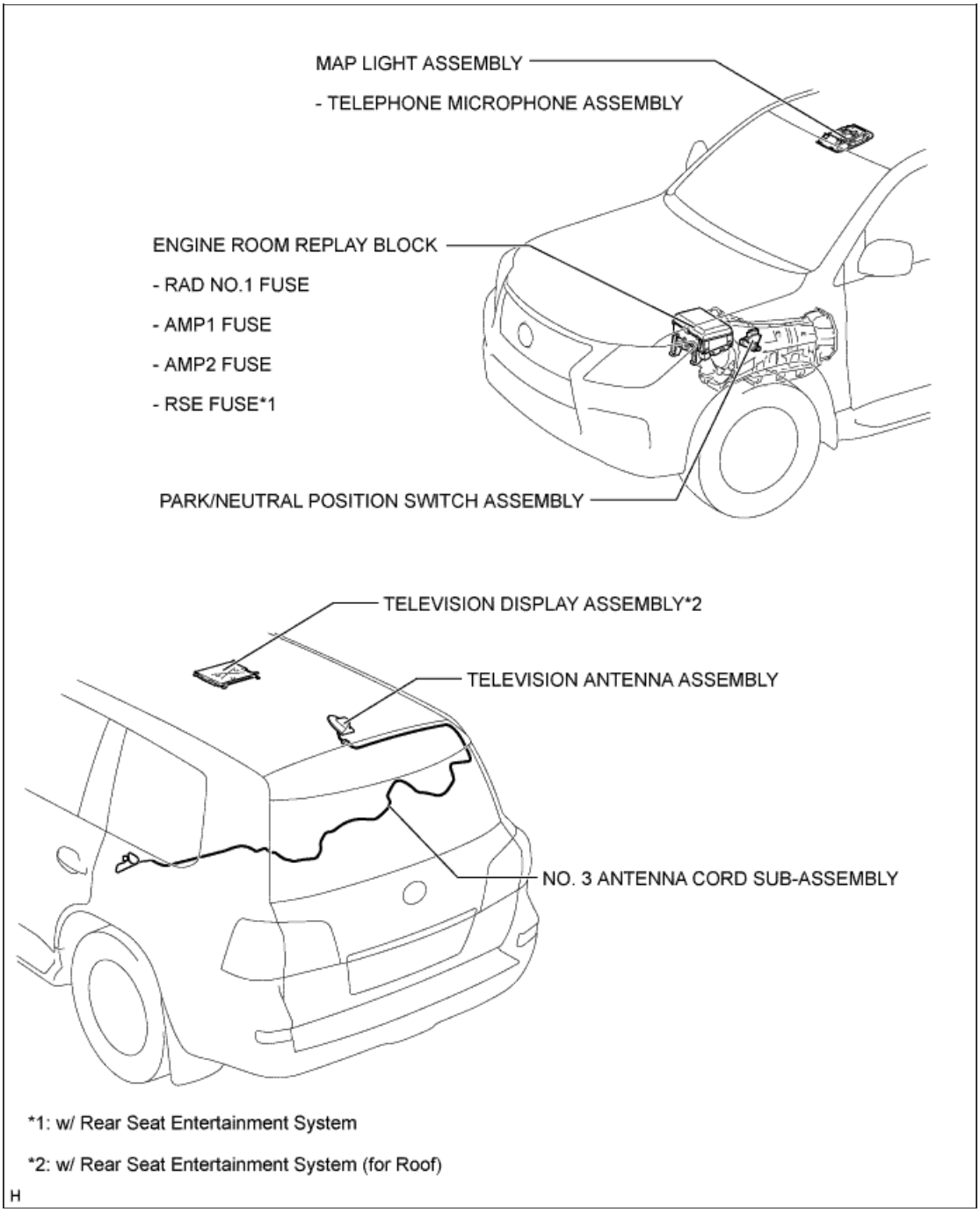
T


for LHD:
MAP LIGHT ASSEMBLY
(OVERHEAD JUNCTION BLOCK)
- MICROPHONE
TELEVISION DISPLAY*
FRONT NO. 1 SPEAKER LH
ENGINE ROOM
RELAY BLOCK
- RAD NO. 1 FUSE
PARK/NEUTRAL POSITION SWITCH
*: w/ Rear Seat Entertainment System

T


for RHD:
MAP LIGHT ASSEMBLY
(OVER JUNCTION BLOCK)
TELEVISION DISPLAY*
- MICROPHONE
FRONT NO. 1
SPEAKER RH
ENGINE ROOM RELAY
BLOCK
- RAD NO. 1 FUSE
PARK/NEUTRAL POSITION SWITCH
*: w/ Rear Seat Entertainment System
T

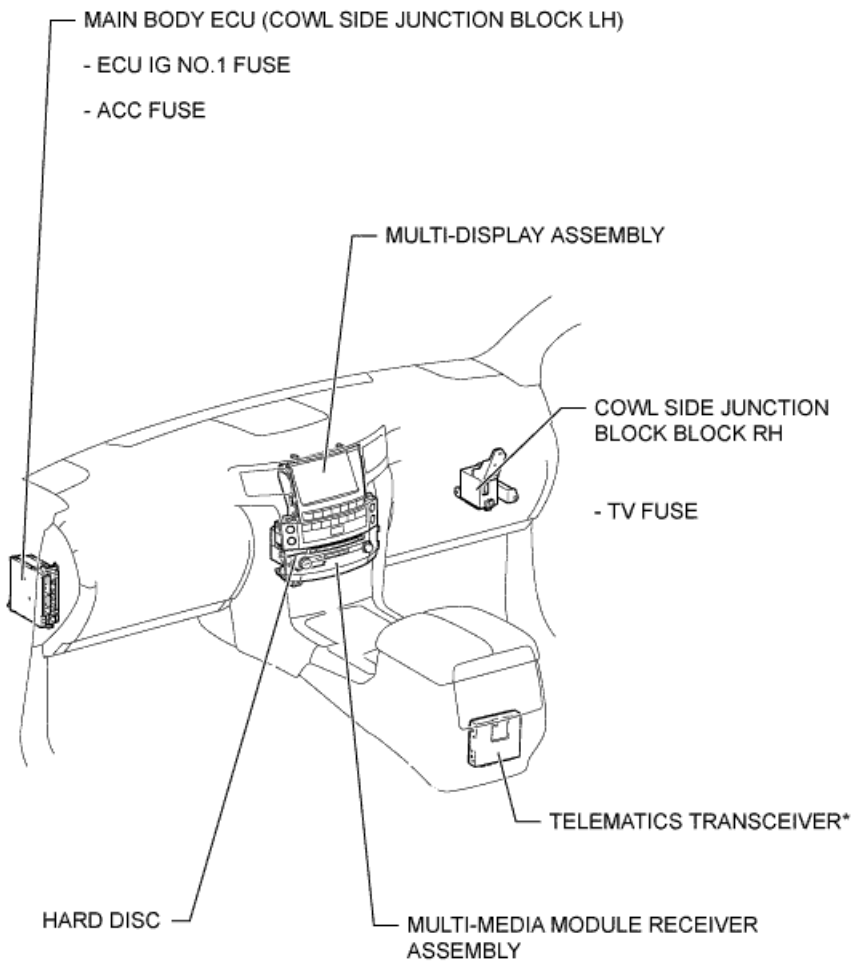
**for Preparation** Click here




*1: w/ Rear Seat Entertainment System

*2: w/ Rear Seat Entertainment System (for Roof)

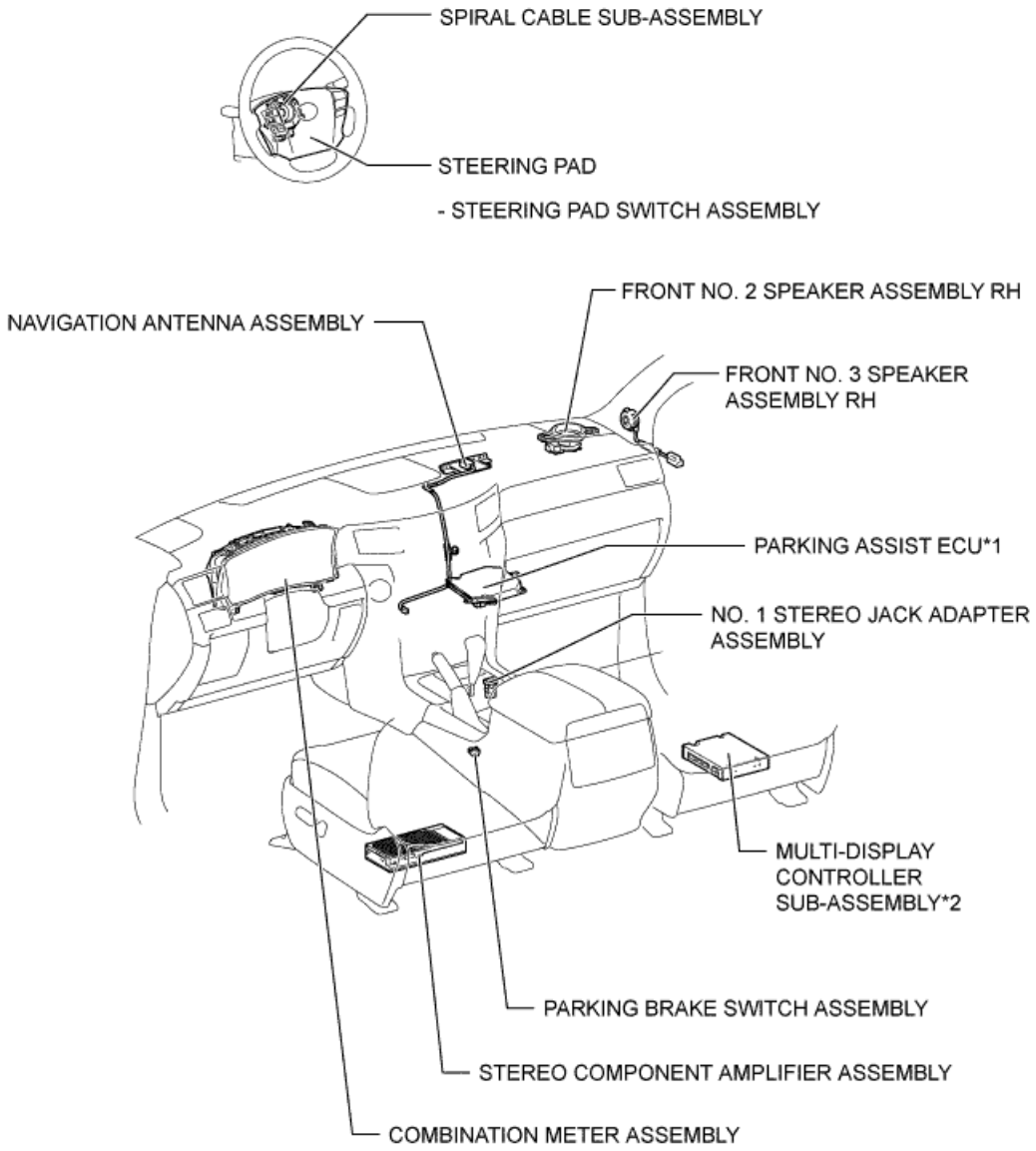
H




*: w/ Emergency Call Switch

H

for LHD:

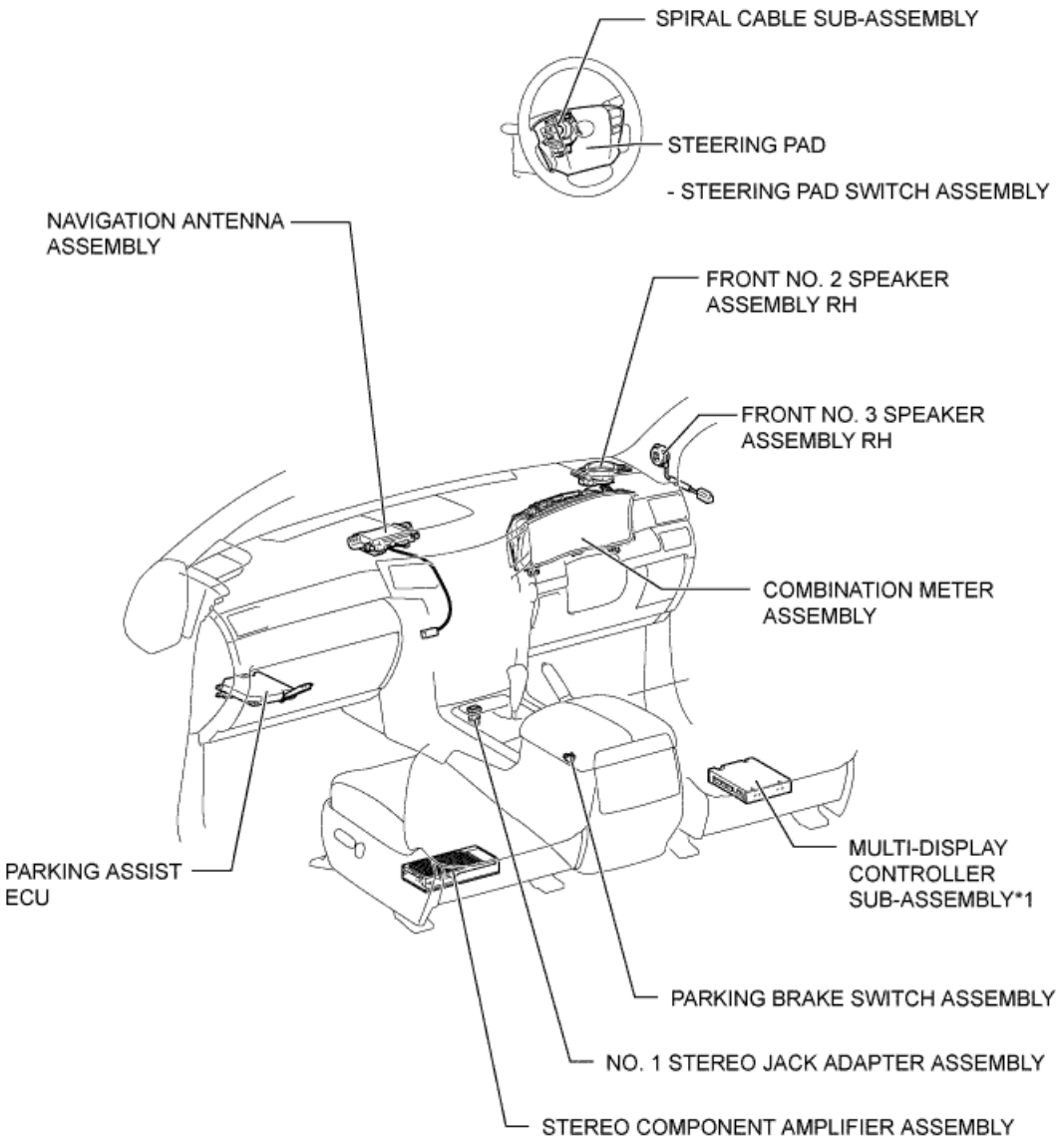



*1: w/ Side Monitor System

*2: w/ Rear Seat Entertainment System (for Seatback)

H

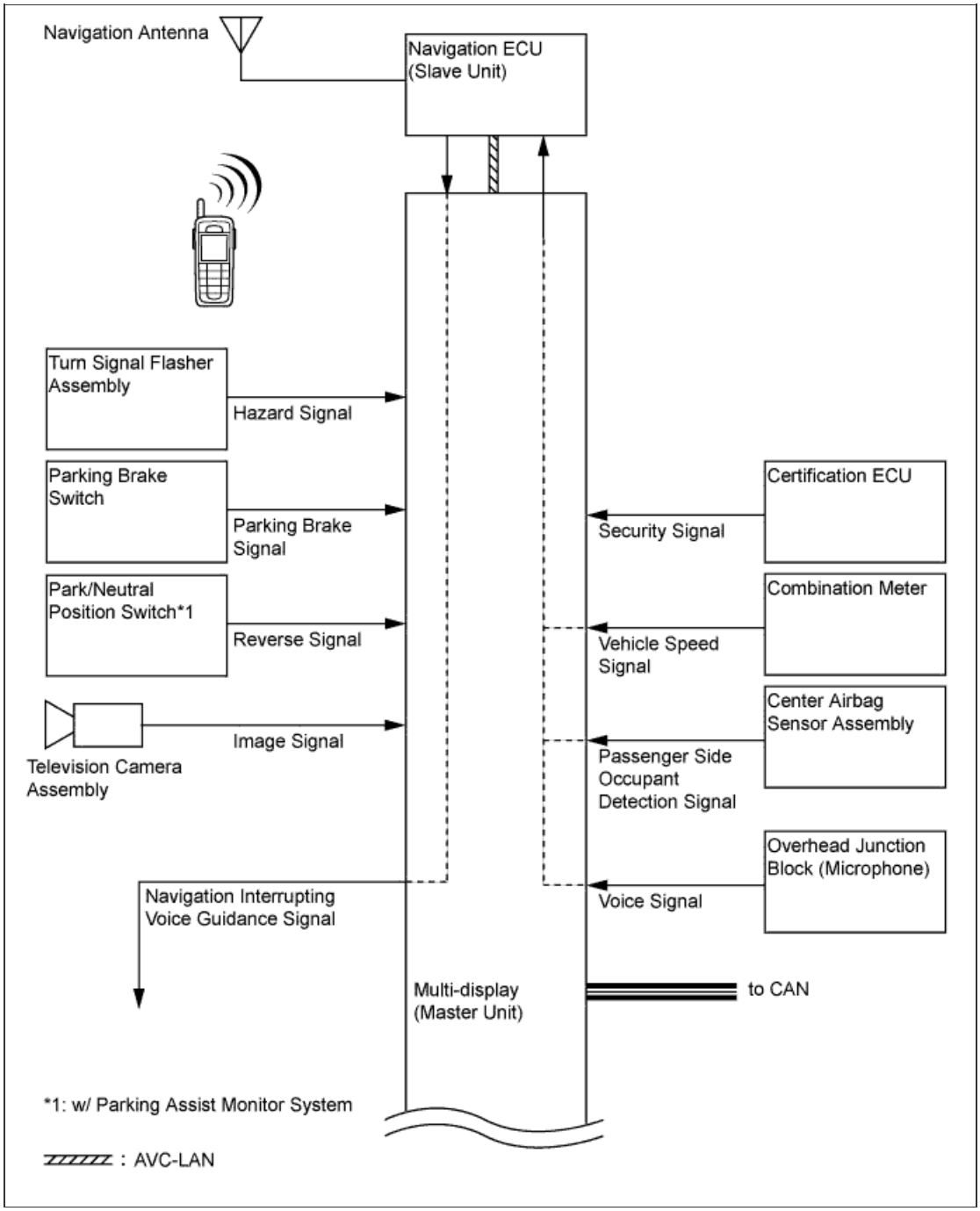
for RHD:

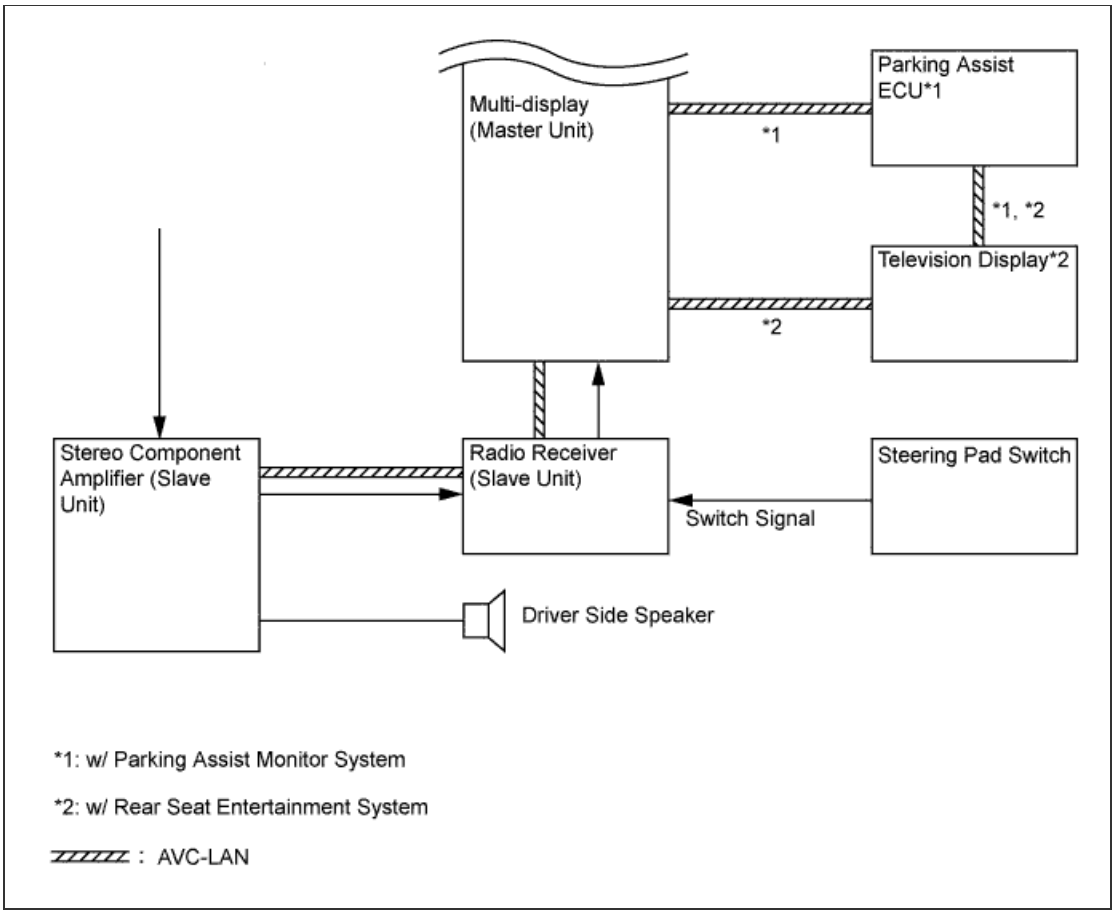



*1: w/ Rear Seat Entertainment System (for Seatback)

H

**for Preparation** Click here





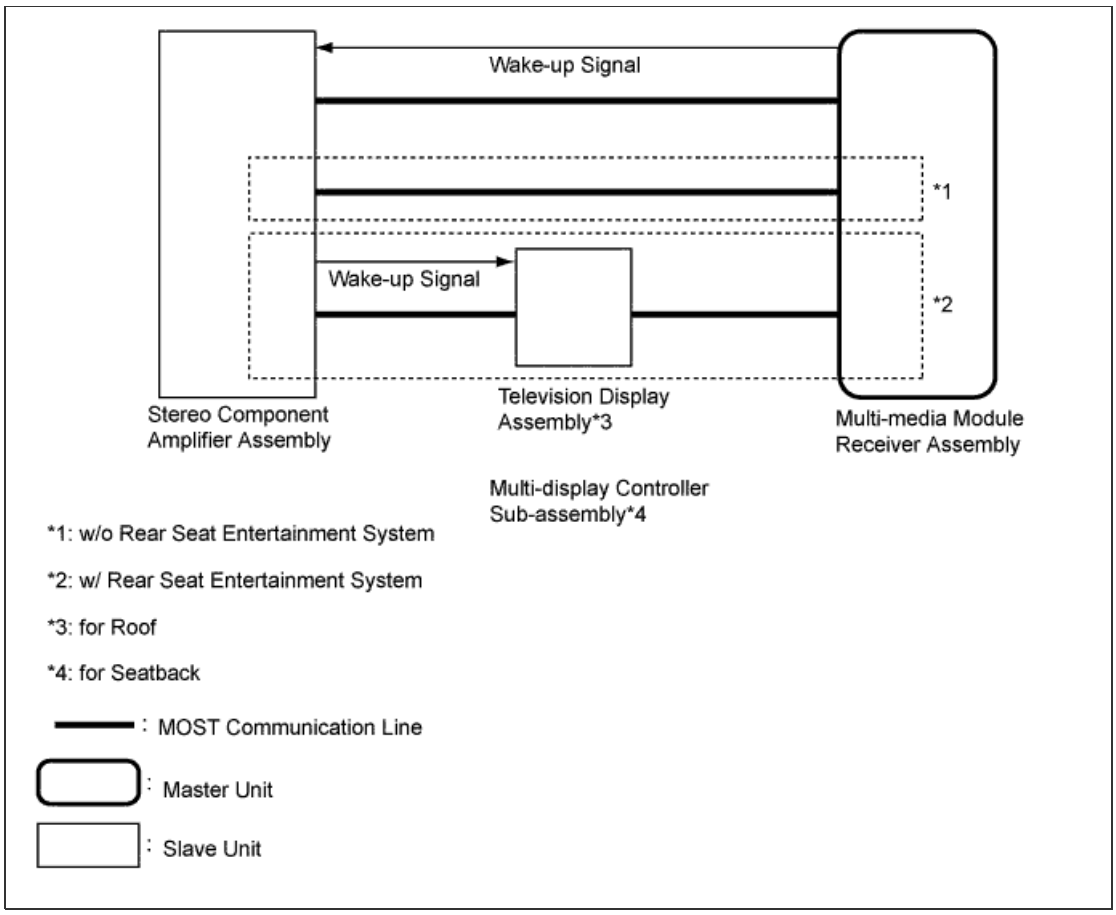

*1: w/ Parking Assist Monitor System

*2: w/ Rear Seat Entertainment System

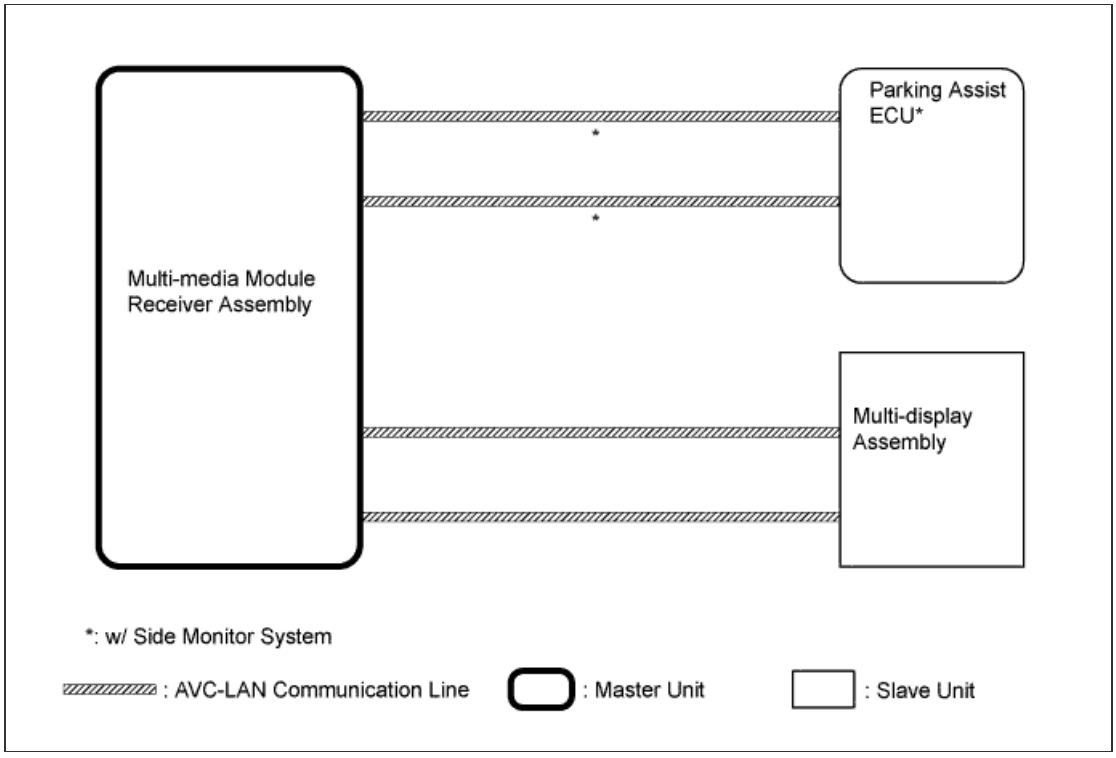
: AVC-LAN

**for Preparation** Click here

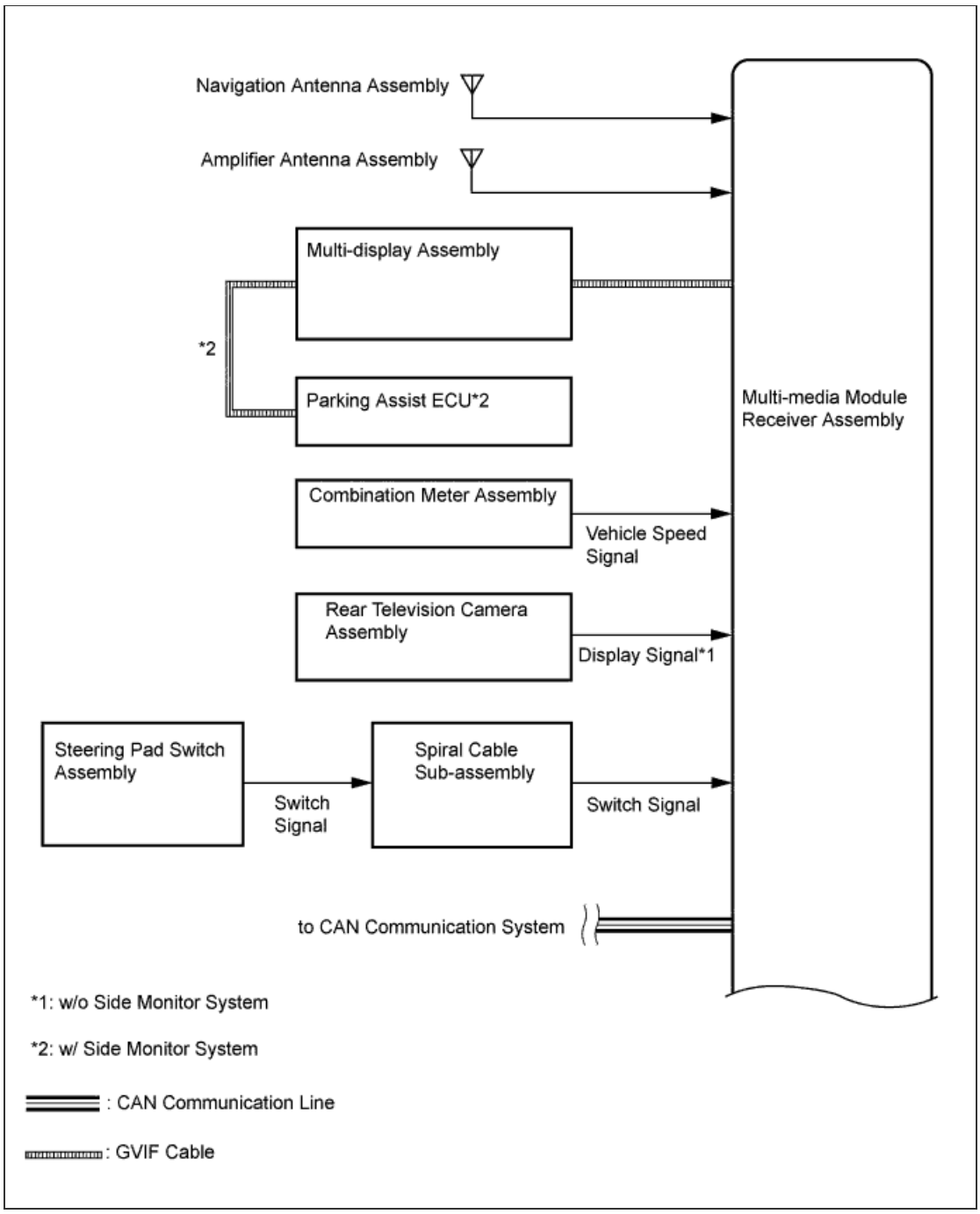
## MOST NETWORK COMMUNICATION LINE

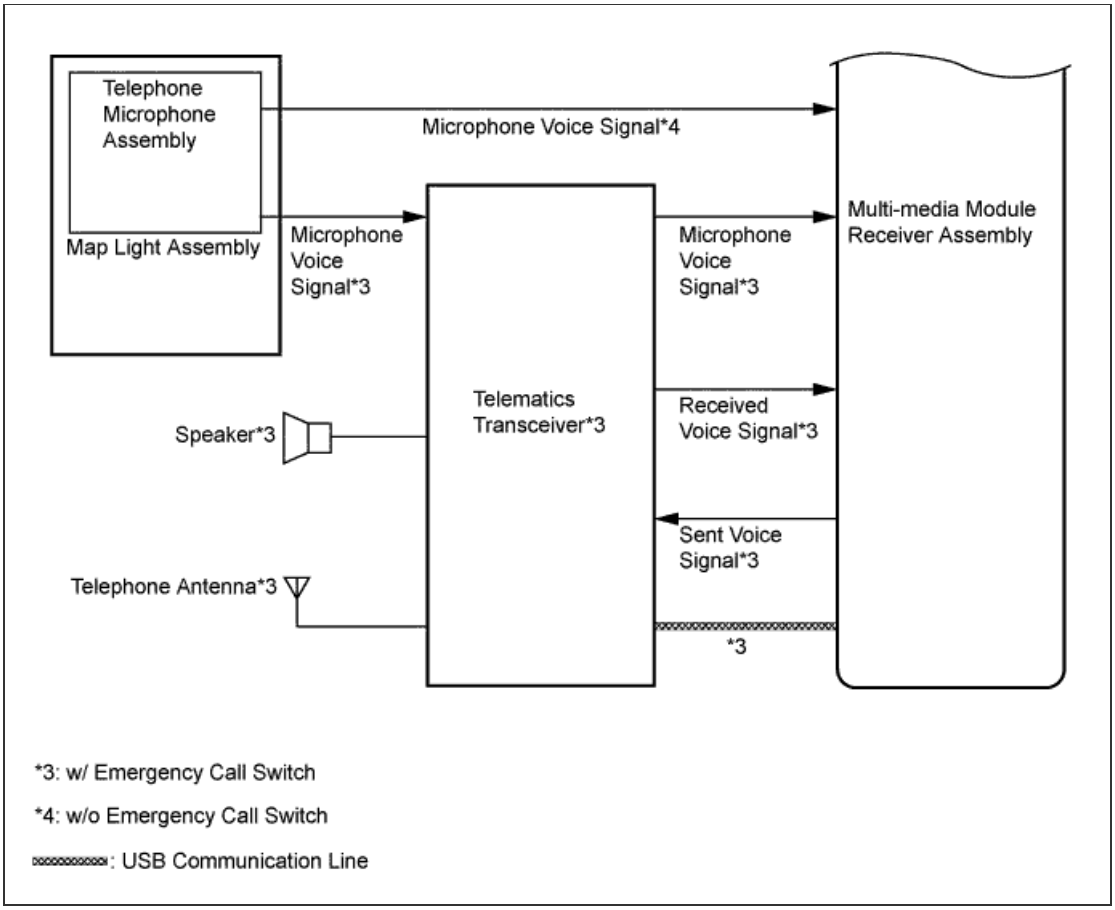



## AVC-LAN COMMUNICATION LINE



## OTHERS


Navigation Antenna Assembly
Amplifier Antenna Assembly
Multi-display Assembly
*2
Parking Assist ECU*2
Multi-media Module Receiver Assembly
Combination Meter Assembly
Vehicle Speed Signal
Rear Television Camera Assembly
Display Signal*1
Steering Pad Switch Assembly
Switch Signal
Spiral Cable Sub-assembly
Switch Signal
to CAN Communication System
*1: w/o Side Monitor System
*2: w/ Side Monitor System
: CAN Communication Line
: GVIF Cable




*3: w/ Emergency Call Switch

*4: w/o Emergency Call Switch

: USB Communication Line

**for Preparation** Click here

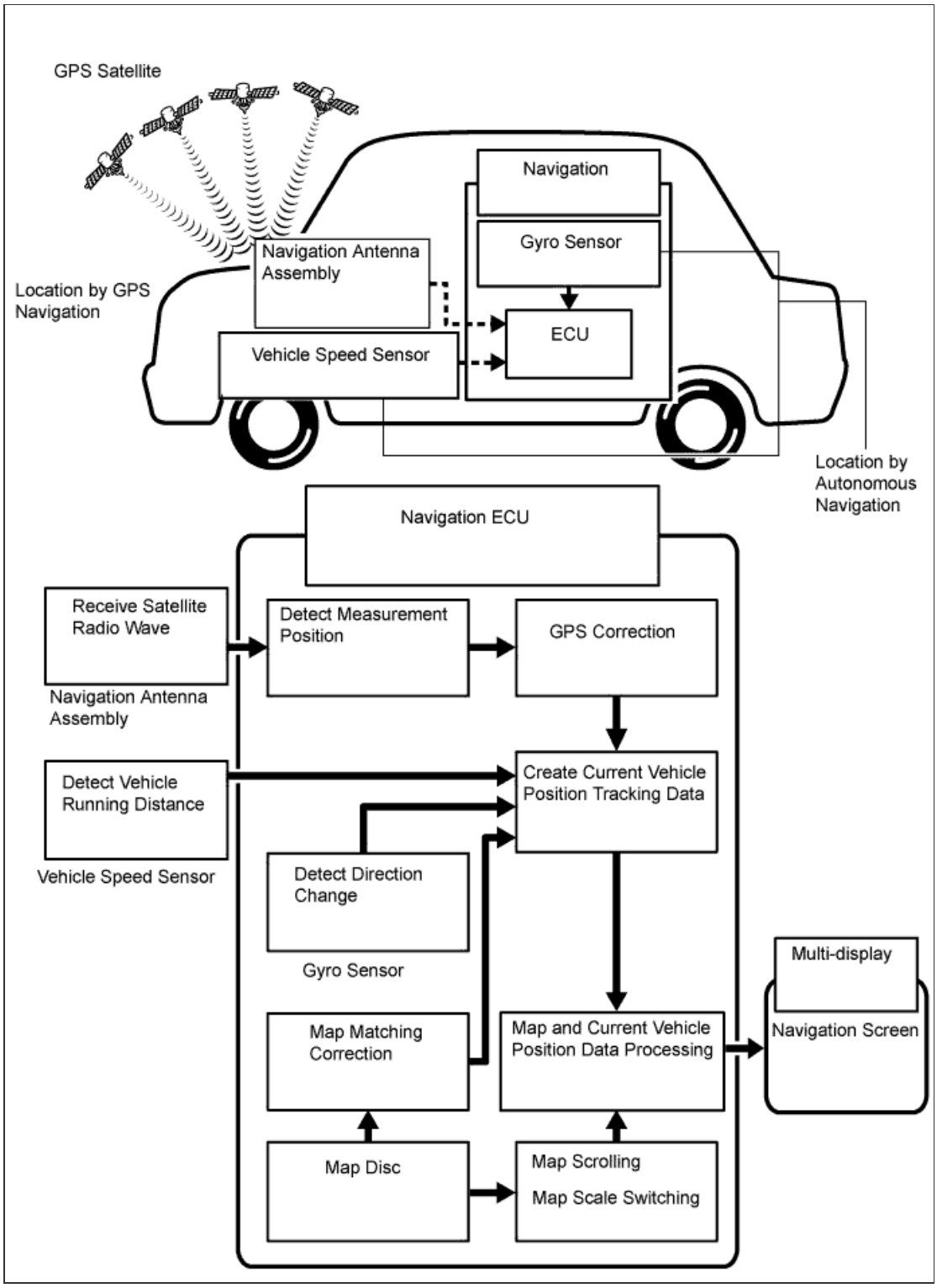
## NAVIGATION SYSTEM OUTLINE

a. Vehicle position tracking methods

i. It is essential that the navigation system correctly tracks the current vehicle position and displays it on the map. There are 2 methods to track the current vehicle position: autonomous (dead reckoning) and GPS* (satellite) navigation. Both navigation methods are used in conjunction with each other.

**HINT:**

*: GPS (Global Positioning System)

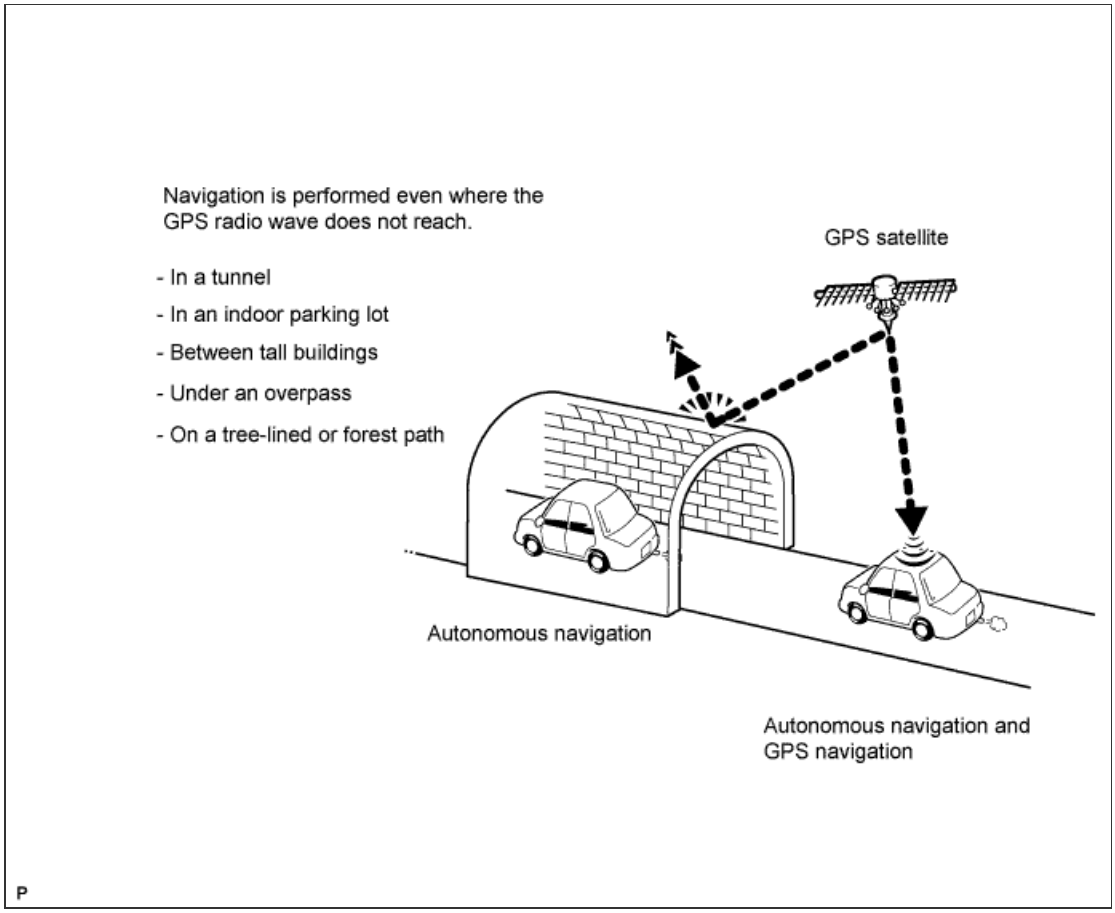



| Operation | Description |
|---|---|
| Vehicle Position Calculation | The navigation ECU calculates the current vehicle position (direction and current position) using the direction deviation signal from the gyro sensor and running distance signal from the vehicle speed sensor, and creates the driving route. |
| Map Display Processing | The navigation ECU processes the vehicle position data, vehicle running track, and map data from the map disc. |
| Map Matching | The map data from the map disc is compared to the vehicle position and running track data. Then, the vehicle position is matched with the nearest road. |
| GPS Correction | The vehicle position is matched to the position measured by the GPS. Then, the measurement position data from the GPS unit is compared with the vehicle position and running track data. If the position is very different, the GPS measurement position is used. |
| | The running distance signal from the vehicle speed |

| | |
|---|---|
| Distance Correction | sensor includes error caused by tire wear and slippage between the tires and road surface. Distance correction is performed to account for this. The navigation ECU automatically offsets the running distance signal to make up for the difference between it and the distance data of the map. The offset is automatically updated. |

**HINT:**

The combination of autonomous and GPS navigation makes it possible to display the vehicle position even when the vehicle is in places where the GPS radio wave cannot be received. When only autonomous navigation is used, the mapping accuracy may slightly decline.




b. Autonomous navigation
This method determines the relative vehicle position based on the running track determined by the gyro and vehicle speed sensors located in the navigation ECU.

i. Gyro sensor
Calculates the direction by detecting angular velocity. It is located in the navigation ECU.

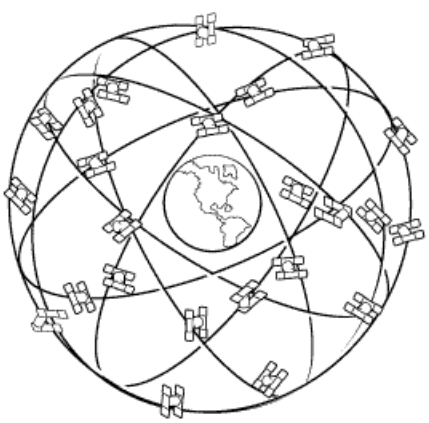
ii. Vehicle speed sensor
Used to calculate the vehicle running distance.

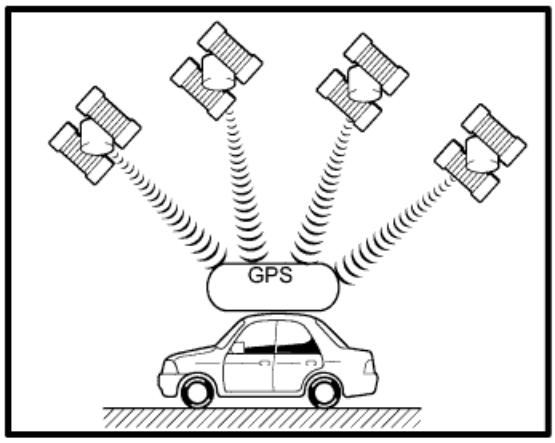
c. GPS navigation (satellite navigation)
This method detects the absolute vehicle position using radio waves from a GPS satellite*.

**HINT:**

*: GPS satellites were launched by the U.S. Department of Defense for military purposes.

Current longitude/latitude/altitude is determined using the radio wave arrival time from 4 satellites.



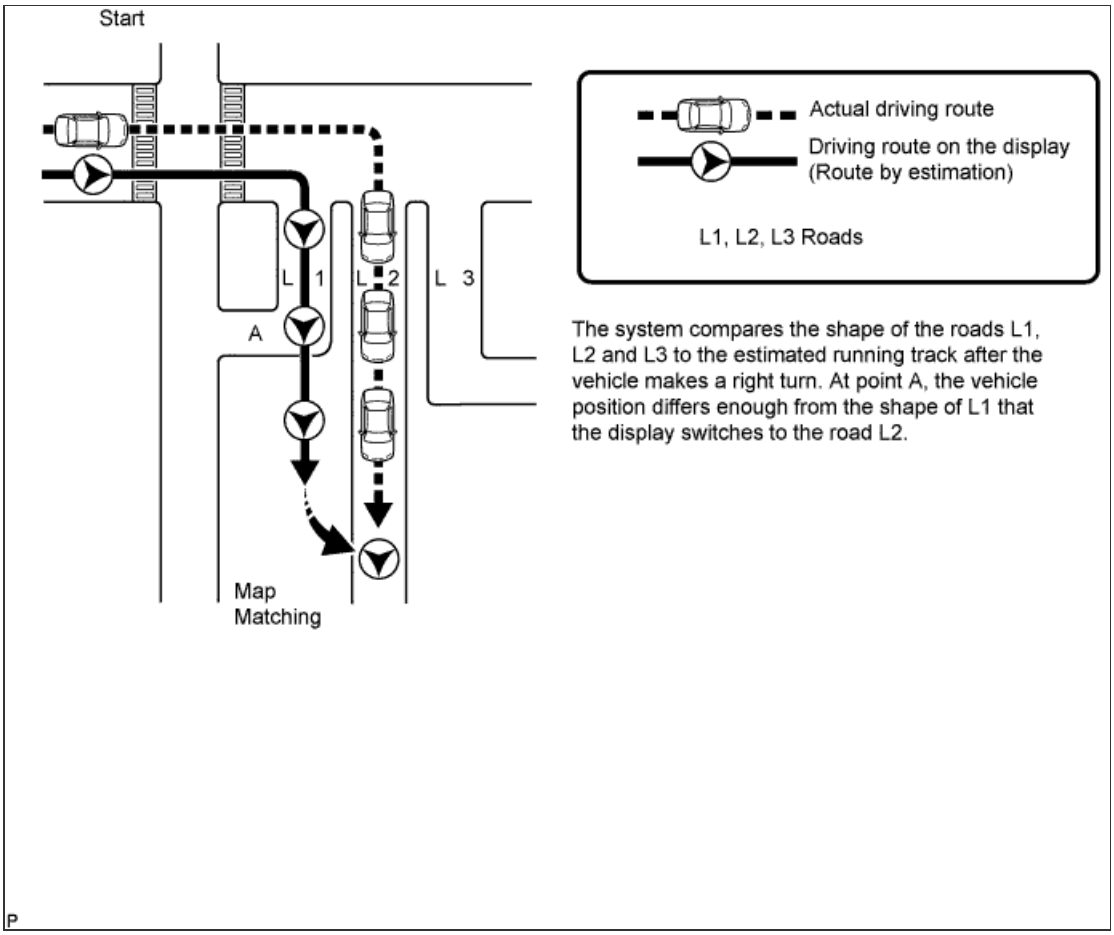



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| Number of satellites | Measurement | Description |
|---|---|---|
| 2 or less | Measurement impossible | The vehicle position cannot be obtained because the number of satellites is not enough. |
| 3 | 2-dimensional measurement is possible | The vehicle position is obtained based on current longitude and latitude (this is less precise than 3-dimensional measurement). |
| 4 | 3-dimensional measurement is possible | The vehicle position is obtained based on current longitude, latitude and altitude. |

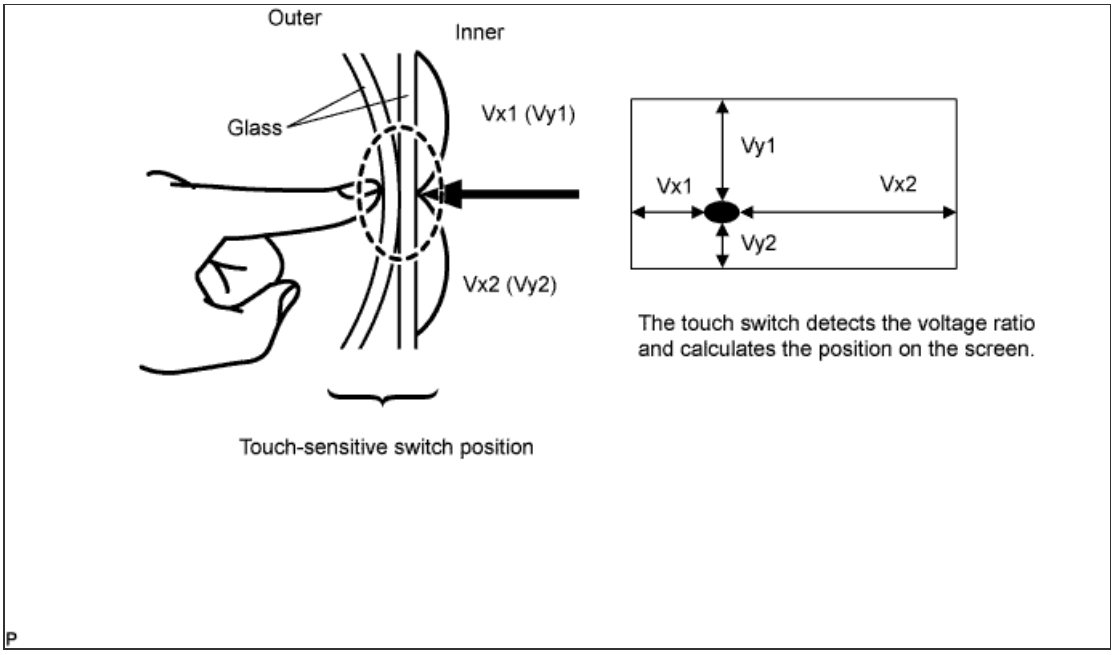
**d.** Map matching

The current driving route is calculated by autonomous navigation (according to the gyro sensor and vehicle speed sensor) and GPS navigation. This information is then compared with possible road shapes from the map data in the map disc and the vehicle position is set onto the most appropriate road.




## MULTI-DISPLAY OUTLINE

a. Touch switch
Touch switches are touch-sensitive (interactive) switches operated by touching the screen. When a switch is pressed, the outer glass bends to contact the inner glass at the pressed position. By doing this, the voltage ratio is measured and the pressed position is detected.




## DVD (Digital Versatile Disc) PLAYER OUTLINE (for Navigation Map)

a. The navigation ECU uses a laser pickup to read the digital signals recorded on a DVD.

**CAUTION:**

Because the navigation system uses an invisible laser beam, do not look directly at the laser pickup. Be sure to only operate the navigation as instructed.

**NOTICE:**

- **Do not disassemble any part of the navigation ECU.**
- **Do not apply oil to the navigation ECU.**
- **Do not insert anything but a DVD into the navigation ECU.**

## DVD (Digital Versatile Disc) PLAYER OUTLINE (for DVD Changer Models)

a. The DVD player can only play DVD videos that have any of the following marks:




H

i. Precaution for use of discs

**NOTICE:**

- **PAL or SECAM color television standard discs cannot be played (only NTSC discs can be played).**
- **Keep the discs away from dirt. Be careful not to damage the discs or leave fingerprints on them.**
- **Hold discs by the outer edge and center hole with the label side up.**
- **Leaving the disc exposed halfway out of the slot for a long time after pressing the disc eject button may cause deformation of the disc, making the disc unusable.**
- **Do not use odd-shaped CDs because these may cause player malfunctions.**
- **Do not use discs whose recording portion is transparent or translucent because they may not be inserted, ejected, or played normally.**
- **DualDiscs that mate DVD recorded material on one side with CD digital audio material on the other cannot be played.**

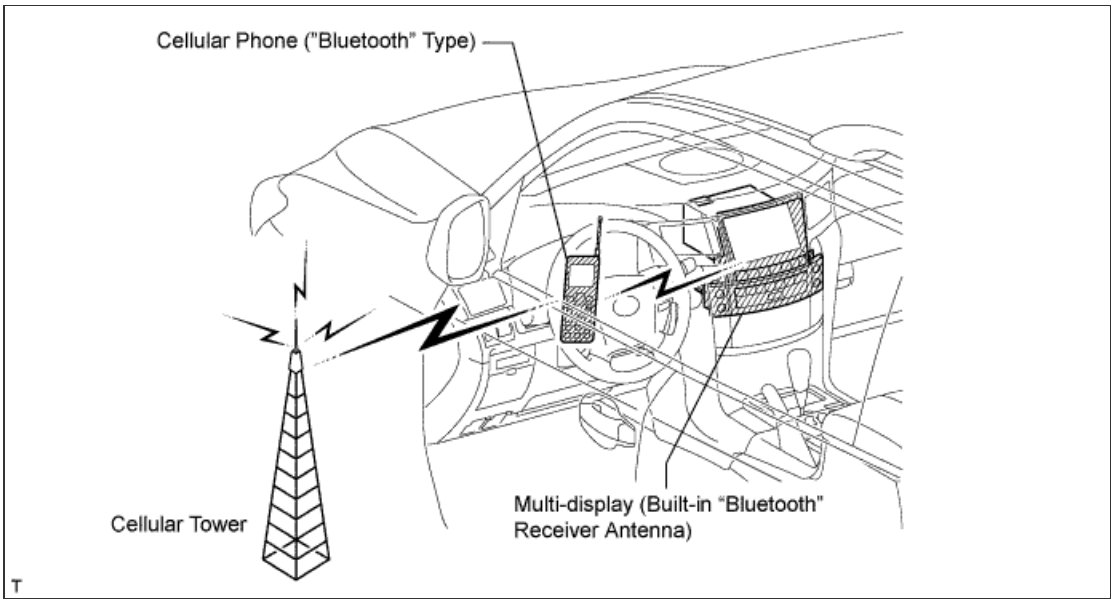
## "BLUETOOTH" OUTLINE

a. "Bluetooth" is a trademark owned by Bluetooth SIG, Inc.

b. "Bluetooth" is a new wireless connection technology that uses the 2.4 GHz frequency band. This makes it possible to connect a cellular phone ("Bluetooth" capable phone*) to the multi-display ("Bluetooth" system is built-in) through the handsfree function of the cellular phone, even if it is in a pocket or bag. As a result, it is not necessary to use a connector for the cellular phone.

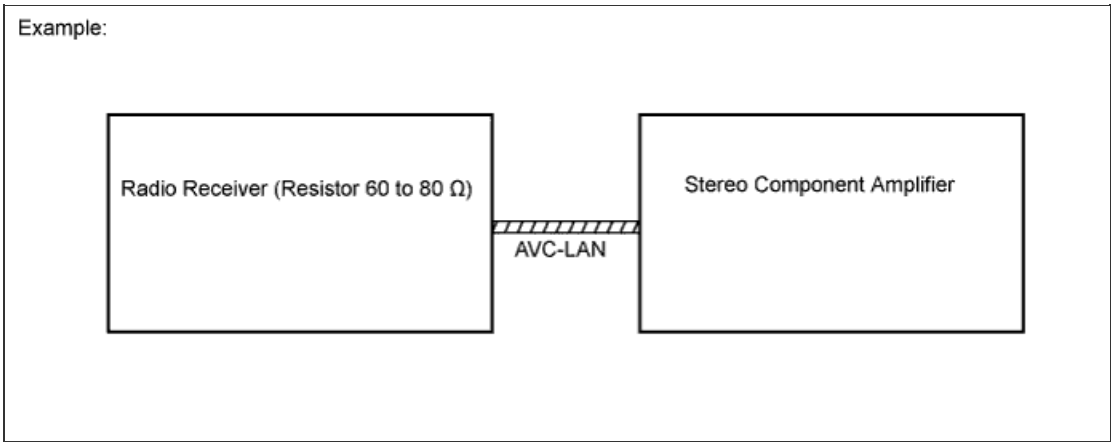
**HINT:**

*: The communication performance of "Bluetooth" may vary depending on the "Bluetooth" version, obstructions or radio wave conditions between communication devices, electromagnetic radiation, communication device sensitivity, or antenna capacity.




## AVC-LAN DESCRIPTION

a. What is AVC-LAN?
AVC-LAN, an abbreviation for "Audio Visual Communication Local Area Network", is a united standard developed by manufacturers in affiliation with Toyota Motor Corporation. This standard pertains to audio and visual signals as well as switch and communication signals.




b. Purpose:
Recently, car audio systems have rapidly developed and the functions have vastly changed. The conventional car audio system is being integrated with multimedia interfaces similar to those in navigation systems. At the same time, customers are demanding higher quality from their audio systems. This is merely an overview of the standardization background. The specific purposes are as follows:

i. To solve sound problems, etc. caused by using components of different manufacturers through signal standardization.

ii. To allow each manufacturer to concentrate on developing products they do best. From this, reasonably priced products can be produced.

**HINT:**

- **If a short +B or short to ground is detected in the AVC-LAN circuit, communication is interrupted and the navigation system will stop functioning.**
- **The multi-display unit acts as the master unit.**

## COMMUNICATION SYSTEM OUTLINE

a. Components of the navigation system communicate with each other via the AVC-LAN.

b. The radio receiver assembly has enough resistance (60 to 80 Ω) necessary for transmitting communication signals.

c. If a short circuit or open circuit occurs in the AVC-LAN circuit, communication is interrupted and the navigation system will stop functioning.

## DIAGNOSTIC FUNCTION OUTLINE

a. The navigation system has a diagnostic function (the result is indicated on the master unit).

b. A 3-digit hexadecimal component code (physical address) is allocated to each component on the AVC-LAN. Using this code, the component in the diagnostic function can be displayed.

## DIAGNOSIS DISPLAY DETAILED DESCRIPTION

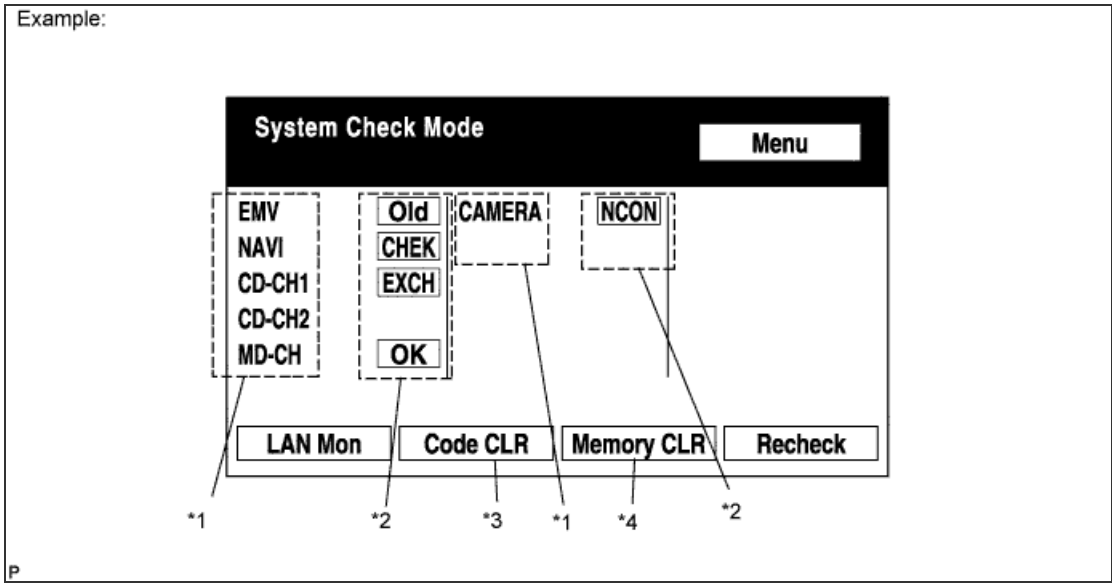
**HINT:**

- **This section contains a detailed description of displays within diagnostic mode.**
- **Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be exactly the same as on the actual vehicle.**

a. SYSTEM CHECK

i. System Check Mode Screen

Example:




*1: Device Names and Hardware Address

**HINT:**

- **Registered device names are displayed.**
- **If a device name is unknown to the system, its physical address is shown instead.**

| Address No. | Name | Address No. | Name |
|---|---|---|---|
| 110 | EMV | 120 | AVX |
| 128 | 1DIN TV | 140 | AVN |
| 144 | G-BOOK | 178 | NAVI |
| 17C | MONET | 190 | AUDIO H/U |
| 1AC | CAMERA-C | 1B0 | Rr-TV |
| 1C0 | Rr-CONT | 19D | BT-HF |
| 1C4 | PANEL | 1C6 | G/W |
| 1C8 | FM-M-LCD | 1D8 | CONT-SW |
| 1EC | Body | 118 | EMVN |
| 1F1 | XM | 1F2 | SIRIUS |
| 230 | TV-TUNER | 240 | CD-CH2 |
| 250 | DVD-CH | 280 | CAMERA |
| 360 | CD-CH1 | 3A0 | MD-CH |

| | | | |
|---|---|---|---|
| 17D | TEL | 440 | DSP-AMP |
| 530 | ETC | 1F6 | RSE |
| 1A0 | DVD-P | 1D6 | CLOCK |
| 238 | DTV | 480 | AMP |

*2: Check Result

**HINT:**

Result codes for all devices are displayed.

| Result | Meaning | Action |
|---|---|---|
| OK | Device did not respond with DTC (excluding communication DTCs from AVC-LAN). | - |
| EXCH | Device responds with "replace" type DTC. | Look up DTC in "Unit Check Mode" and replace device. |
| CHEK | Device responds with "check" type DTC. | Look up DTC in "Unit Check Mode". |
| NCON | Device was previously present, but does not respond in diagnostic mode. | - Check power supply wire harness of device<br>- Check AVC-LAN of device. |
| Old | Device responds with "old" type DTC. | Look up DTC in "Unit Check Mode". |
| NRES | Device responds in diagnostic mode, but gives no DTC information. | - Check power supply wire harness of device.<br>- Check AVC-LAN of device. |

*3: Code Clear

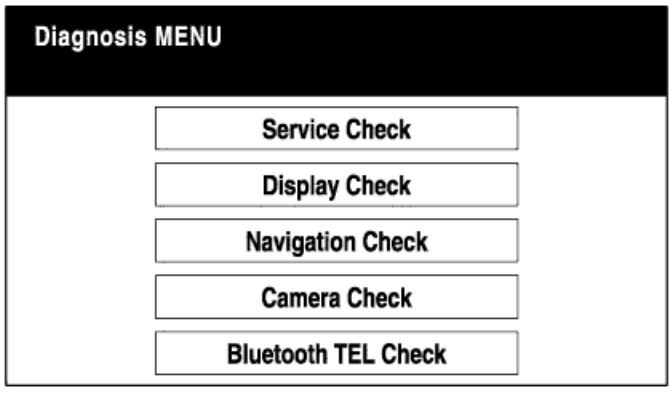
- Present DTCs are cleared.
- Press the "Code CLR" switch for 3 seconds.

*4: Memory Clear

- Present and past DTCs and registered connected device names are cleared.
- Press the "Memory CLR" switch for 3 seconds.

ii. Diagnosis MENU Screen

Example:



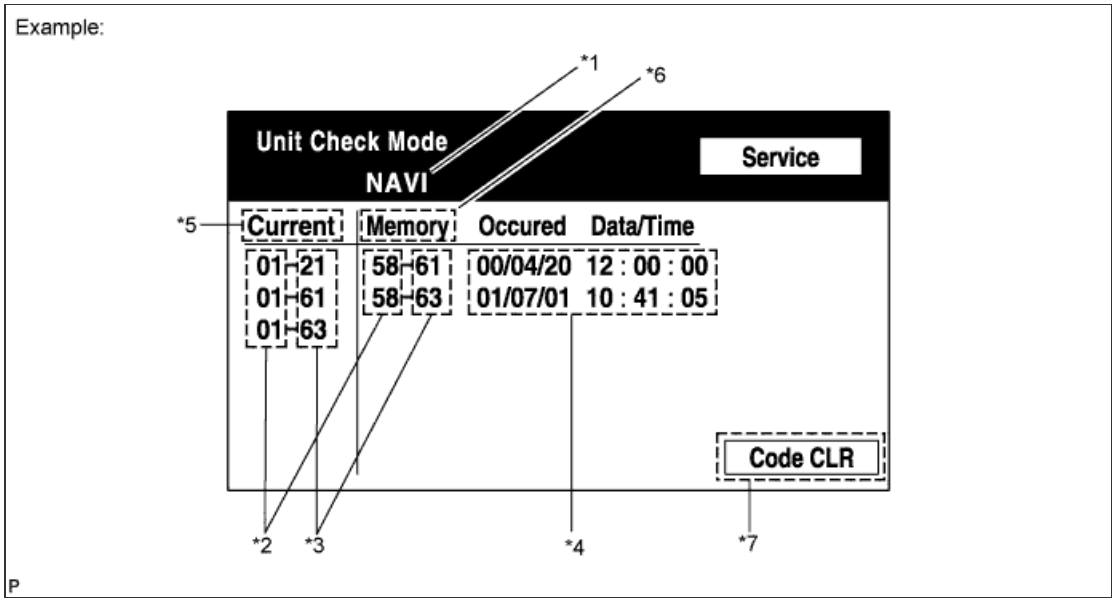

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**HINT:**

Some items may be grayed out or not displayed, as the functions are different depending on the vehicle.

iii. Unit Check Mode Screen

Example:

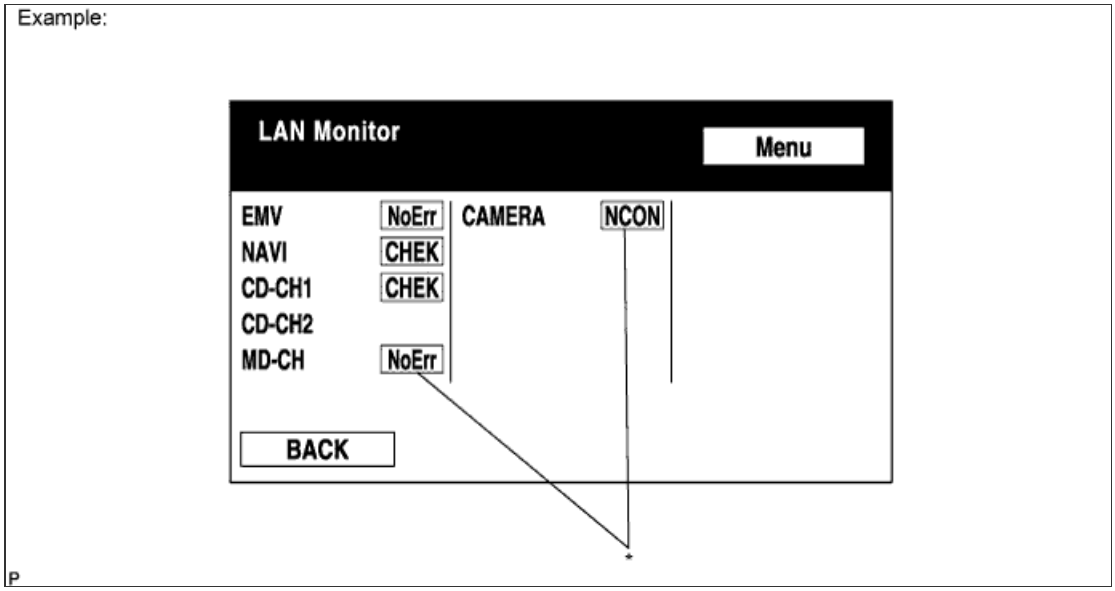



**Screen Description**

| Display | Contents |
|---|---|
| *1: Device name | Target device |
| *2: Segment | Target device logical address |
| *3: DTC | DTC (Diagnostic Trouble Code) |
| *4: Timestamp | Time and date of past DTCs are displayed (year is displayed in 2-digit format). |
| *5: Present Code | DTCs output at service check are displayed. |
| *6: Past Code | Diagnostic memory results and stored DTCs are displayed. |
| *7: Diagnosis Clear Switch | Pushing this switch for 3 seconds clears diagnostic memory data of target device (responses to diagnostic system check result and displayed data are cleared). |

iv. LAN Monitor (Original) Screen

Example:



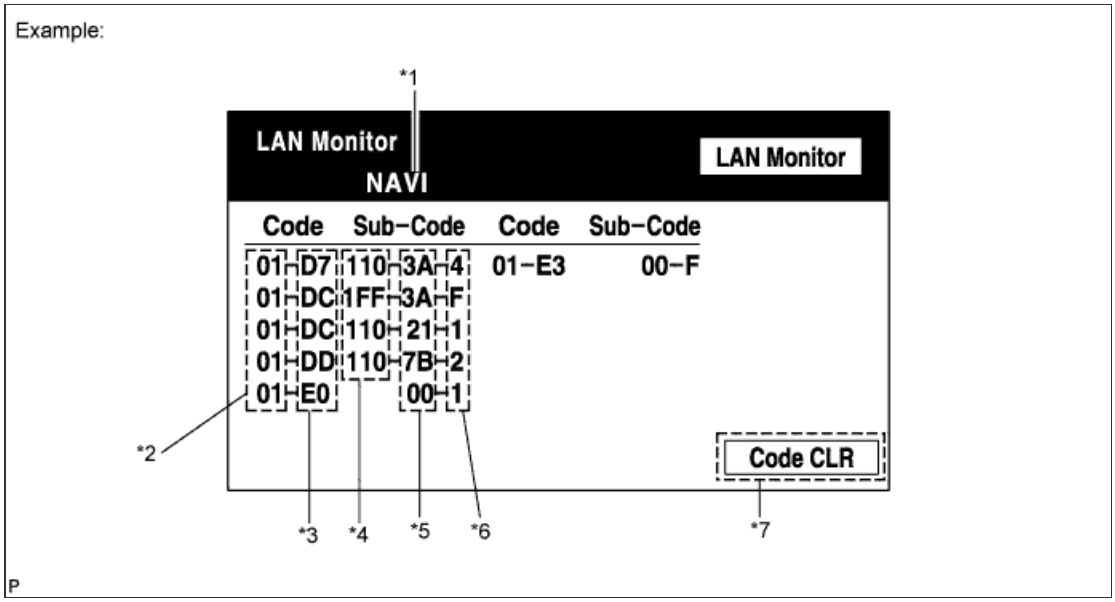

*: Check Result

**HINT:**

Check results of all the devices are displayed.

| Result | Meaning | Action |
|---|---|---|
| No Err (OK) | There are no communication DTCs. | - |
| CHEK | Device responds with "check" type DTC. | Look up DTC in "Unit Check Mode". |
| NCON | Device was previously present, but does not respond in diagnostic mode. | 1. **Check power supply wire harness of device.**<br>2. **Check AVC-LAN of device.** |
| Old | Device responds with "old" type DTC. | Look up DTC in "Unit Check Mode". |
| NRES | Device responds in diagnostic mode, but gives no DTC information. | 1. **Check power supply wire harness of device.**<br>2. **Check AVC-LAN of device.** |

v. LAN Monitor (Individual) Screen



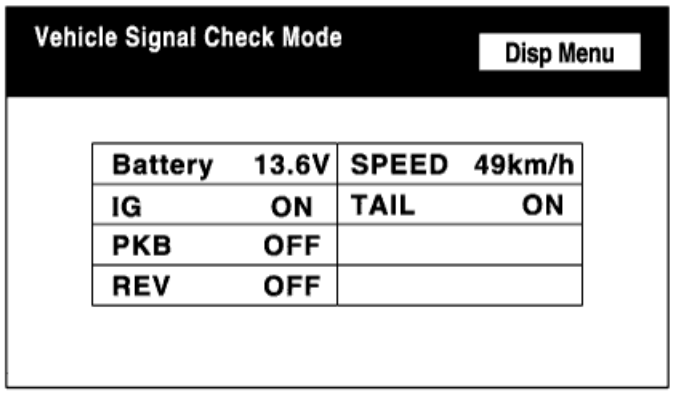

**Screen Description**

| Display | Contents |
|---|---|
| *1: Device name | Target device |
| *2: Segment | Target logical address |
| *3: DTC | DTC (Diagnostic Trouble Code) |
| *4: Sub-code (device address) | Physical address stored with DTC (if there is no address, nothing is displayed). |
| *5: Connection check No. | Connection check number stored with DTC |
| *6: DTC occurrence | Number of times same DTC has been stored |
| *7: Diagnosis Clear Switch | Pushing this switch for 3 seconds clears diagnostic memory data of target device (responses to diagnostic system check result and displayed data are cleared). |

b. DISPLAY CHECK

i. Vehicle Signal Check Mode Screen

Example:




P

**Screen Description**

| Name | Contents |
|---|---|
| Battery | Battery voltage is displayed. |
| PKB | Parking brake ON/OFF state is displayed. |
| REV | Reverse signal ON/OFF state is displayed. |
| IG | Engine switch ON/OFF state is displayed. |
| TAIL | TAIL signal (Light control switch) ON/OFF state is displayed. |
| SPEED | Vehicle speed is displayed in km/h. |

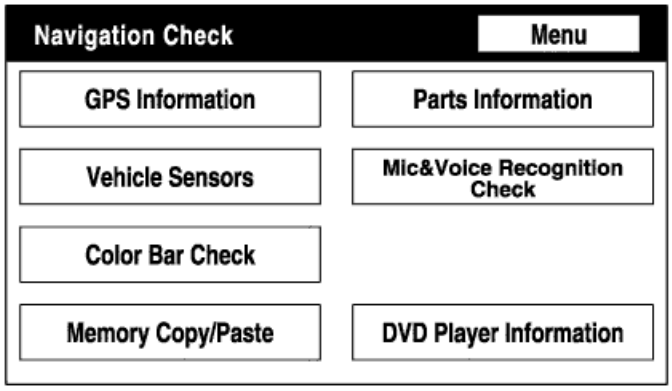
**HINT:**

- **Only items sending a vehicle signal will be displayed.**
- **This screen is updated once per second when input signals to the vehicle are changed.**

c. NAVIGATION CHECK

i. Navigation Check Screen

Example:

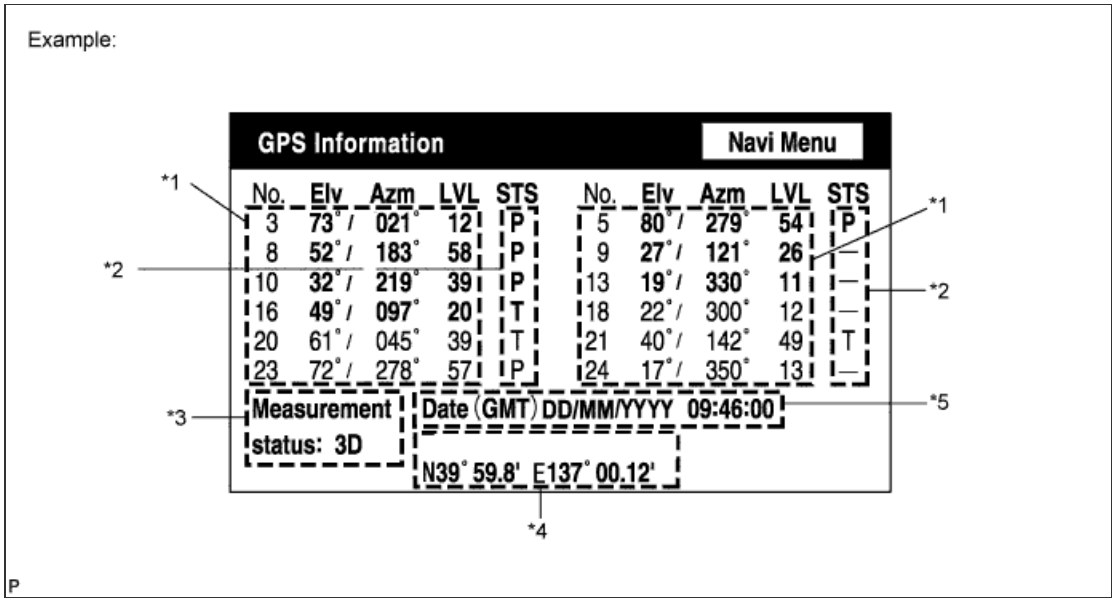



P

**HINT:**

Some items may be grayed out or not displayed, as the functions are different depending on the vehicle.

ii. GPS Information Screen




*1: Satellite information
Information from a maximum of 12 satellites is displayed on the screen. This information includes the target GPS satellite number, elevation angle, direction, and signal level.
*2: Receiving condition

**DENSO Model**

| Display | Contents |
|---|---|
| T | System is receiving GPS signal, but is not using it for location. |
| P | System is using GPS signal for location. |
| - | System cannot receive GPS signal. |

**AISIN AW Model**

| Display | Contents |
|---|---|
| 01H | System cannot receive a GPS signal. |
| 02H | System is tracing a satellite. |
| 03H | System is receiving a GPS signal, but is not using it for location. |
| 04H | System is using the GPS signal for location. |

*3: Measurement information

| Display | Contents |
|---|---|
| 2D | 2-dimensional location method is being used. |
| 3D | 3-dimensional location method is being used. |
| NG | Location data cannot be used. |
| Error | Reception error has occurred. |
| - | Any other state. |

*4: Position information

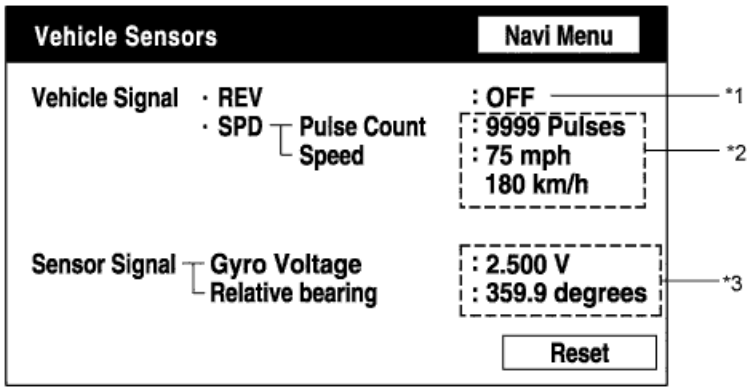
| Display | Contents |
|---|---|
| Position | Latitude and longitude information on current position is displayed. |

*5: Date information

| Display | Contents |
|---|---|
| Date | Date/time information obtained from GPS signal is displayed in Greenwich mean time (GMT). Last 4 digits are displayed. |

iii. Vehicle Sensors Screen

Example:




P

**Vehicle Signal**

| Display | Contents |
|---|---|
| *1: REV | REV signal ON/OFF state is displayed. |
| *2: SPD | SPD signal condition is displayed. |

**Sensor Signal**

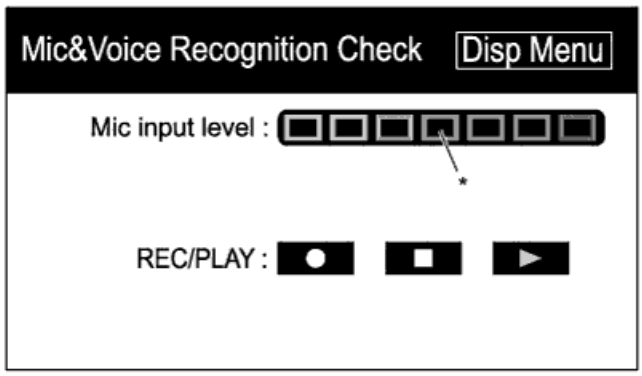
| Display | Contents |
|---|---|
| *3: Gyro sensor | Gyro sensor output condition is displayed (when vehicle is driven straight or is stationary, voltage is approximately 2.5 V). |

**HINT:**

Signals are updated once per second only when vehicle sensor signals are changed.

iv. MICROPHONE & VOICE RECOGNITION CHECK Screen

Example:




**Screen Description**

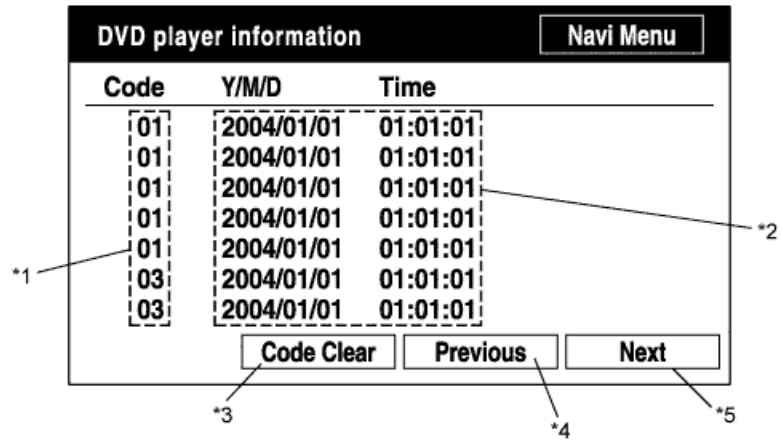
| Display | Contents |
|---|---|
| *: Microphone input level meter | Monitors the microphone input level every 100 ms and displays results in 8 different levels. |

**HINT:**

The microphone input function is on at all times when this screen is displayed.

v. DVD player information Screen

Example:




P

**Screen Description**

| Display | Contents |
|---|---|
| *1: Trouble code | Each code corresponding to malfunctions is displayed. For details, refer to "Trouble Code Description". |
| *2: Occurrence time | • Date (year, month, day) and time (hour, minute, second) when trouble code was stored are displayed as time stamp (Greenwich mean time).<br>• Time data to be displayed is received from GPS receiver. |
| *3: Trouble code clear switch | All code data being displayed is cleared by pushing this switch for 3 seconds. |
| *4: Returning switch | Previous page is displayed. If current displayed page is first page, this switch cannot be operated. |
| *5: Proceeding switch | Next page is displayed. If current displayed page is last page, this switch cannot be operated. |

**Trouble Code Description**

| Code | Malfunction | Countermeasure |
|---|---|---|
| 01 | Cannot be recognized | Replace navigation ECU. |
| 03 | Cannot be read | Follow inspection procedure for DTC 58-42 (Click here). |

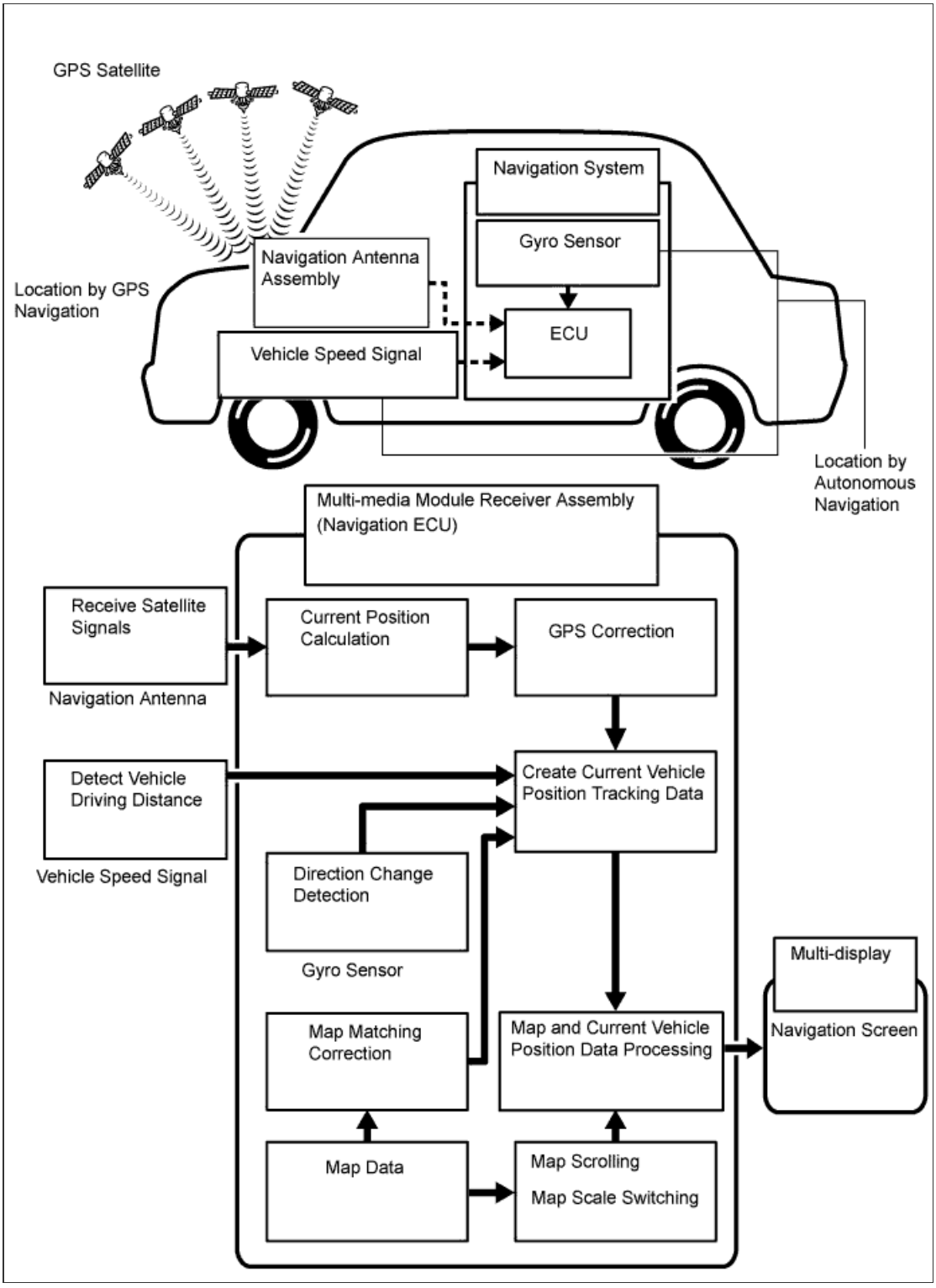
**HINT:**

There is a DVD player check function in the navigation ECU.

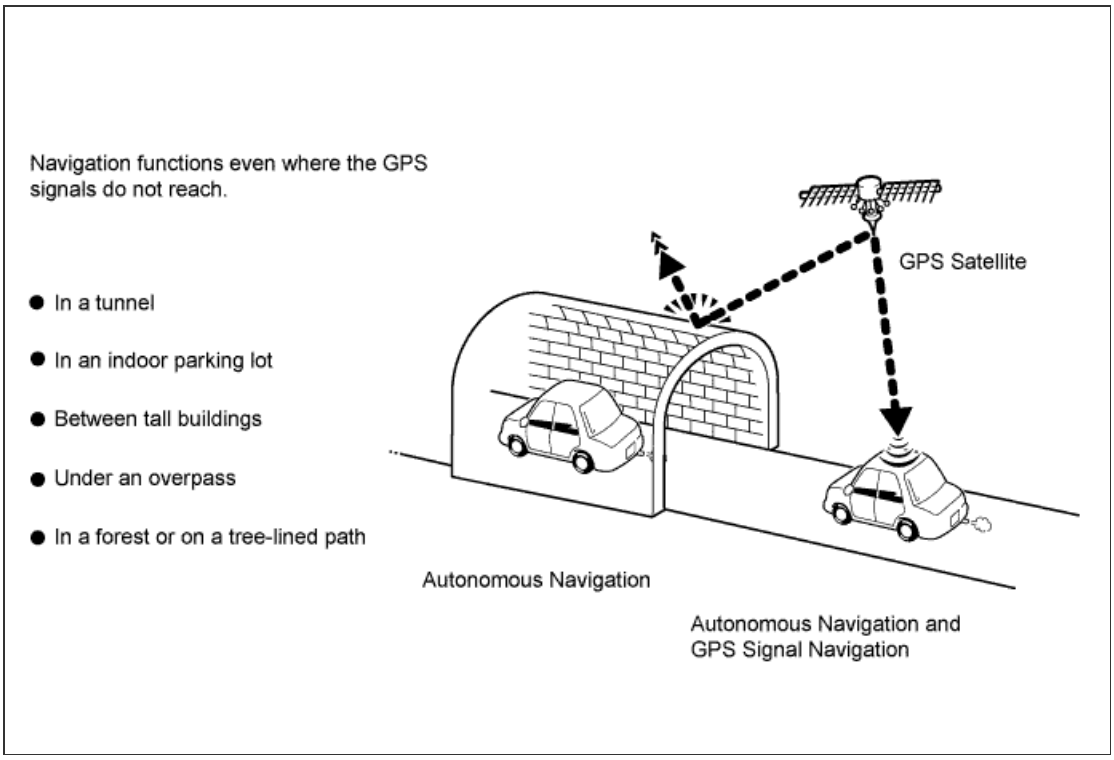
**for Preparation** Click here

## NAVIGATION SYSTEM OUTLINE

a. Vehicle position tracking methods
It is essential that the navigation system correctly tracks the current vehicle position and displays it on the map. There are 2 methods to track the current vehicle position: autonomous (dead reckoning) and GPS* (satellite) navigation. Both navigation methods are used in conjunction with each other.
*: GPS (Global Positioning System)



| Operation | Description |
|---|---|
| Vehicle Position Calculation | The multi-media module receiver assembly calculates the current vehicle position (direction and current position) using the direction deviation signal from the gyro sensor and driving distance signal from the vehicle speed sensor and creates the driving route. |
| Map Display Processing | The multi-media module receiver assembly processes the vehicle position data, vehicle driving track and map data from the hard disk drive. |
| Map Matching | The map data from the hard disk drive is compared to the vehicle position and driving track data. Then, the vehicle position is matched with the nearest road. |
| GPS Correction | The vehicle position is matched to the position measured by the GPS. Then, the GPS measurement position data is compared with the vehicle position and driving track data. If the position is very different, the GPS measurement position is used. |
| Distance Correction | The vehicle speed signal includes error caused by tire wear and slippage between the tires and road surface. Distance correction is performed to account for this. The multi-media module receiver assembly automatically offsets the signal to make up for the difference between the distance signal and distance data of the map. The offset is automatically updated. |




**HINT:**

The combination of autonomous and GPS navigation makes it possible to display the vehicle position even when the vehicle is in places where GPS signals cannot be received. When only autonomous navigation is used, however, the mapping accuracy may slightly decrease.

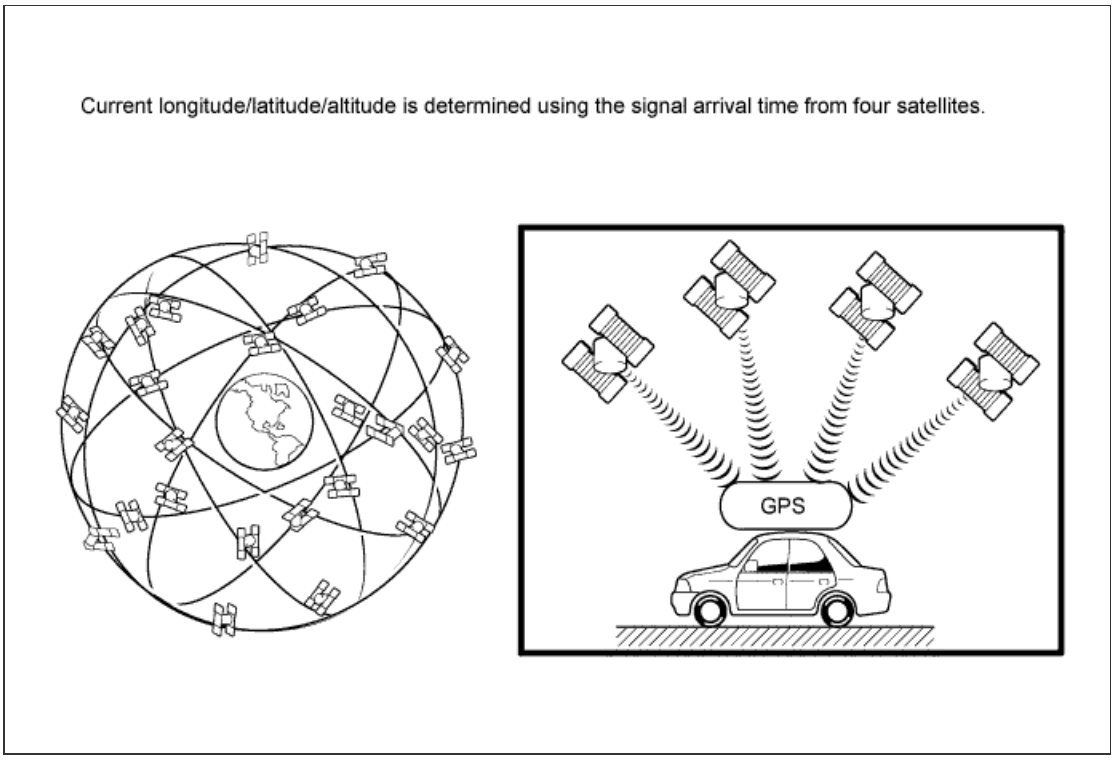
b. Autonomous navigation
This method determines the relative vehicle position based on the driving track determined by the gyro located in the multi-media module receiver assembly and the vehicle speed signal.

i. Gyro sensor
Used to calculate the direction by detecting angular velocity. It is located in the multi-media module receiver assembly.

ii. Vehicle speed signal
Used to calculate the vehicle driving distance.

c. GPS* navigation (Satellite navigation)
This method detects the absolute vehicle position using radio waves from GPS satellites.

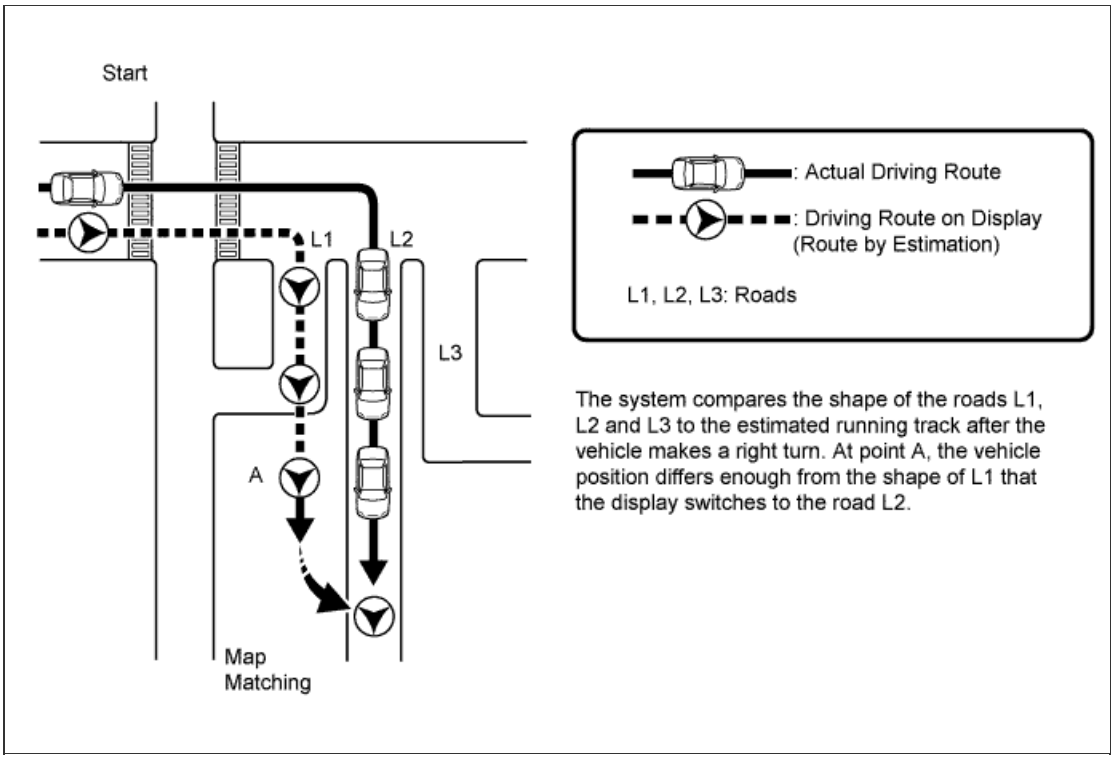
*: GPS satellites were launched by the U.S. Department of Defense for military purposes.




| Number of Satellites | Measurement | Description |
|---|---|---|
| 2 or less | Measurement is impossible | Vehicle position cannot be obtained because the number of satellites is not enough. |
| 3 | 2-dimensional measurement is possible | Vehicle position is obtained based on the current longitude and latitude. (This is less precise than 3-dimensional measurement.) |
| 4 | 3-dimensional measurement is possible | Vehicle position is obtained based on the current longitude, latitude and altitude. |

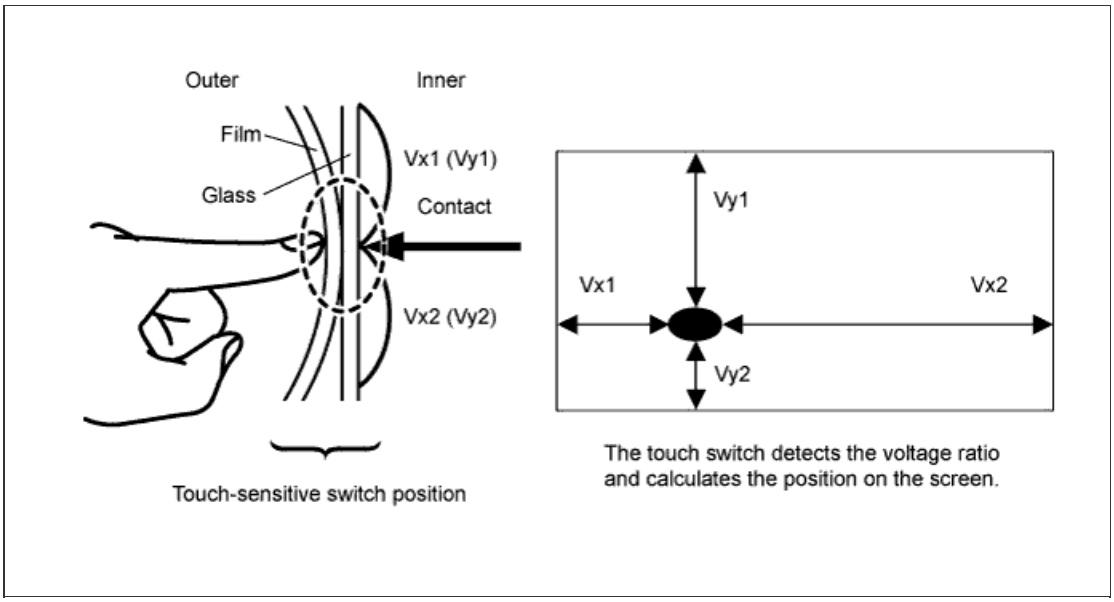
**d.** Map matching

The current driving route is calculated by autonomous navigation (according to the gyro sensor and vehicle speed signal) and GPS navigation. This information is then compared with possible road shapes from the map data in the hard disk drive and the vehicle position is set onto the most appropriate road.




## TOUCH SWITCH

a. Touch switches are touch-sensitive (interactive) switches operated by touching the screen. When a switch is pressed, the outer film bends in to contact the inner glass at the pressed position. By doing this, the voltage ratio is measured and the pressed position is detected.




## DVD (Digital Versatile Disc) PLAYER OUTLINE

a. The DVD player can only play DVD videos that have any of the following marks:



b. The following products may not be playable on your player.

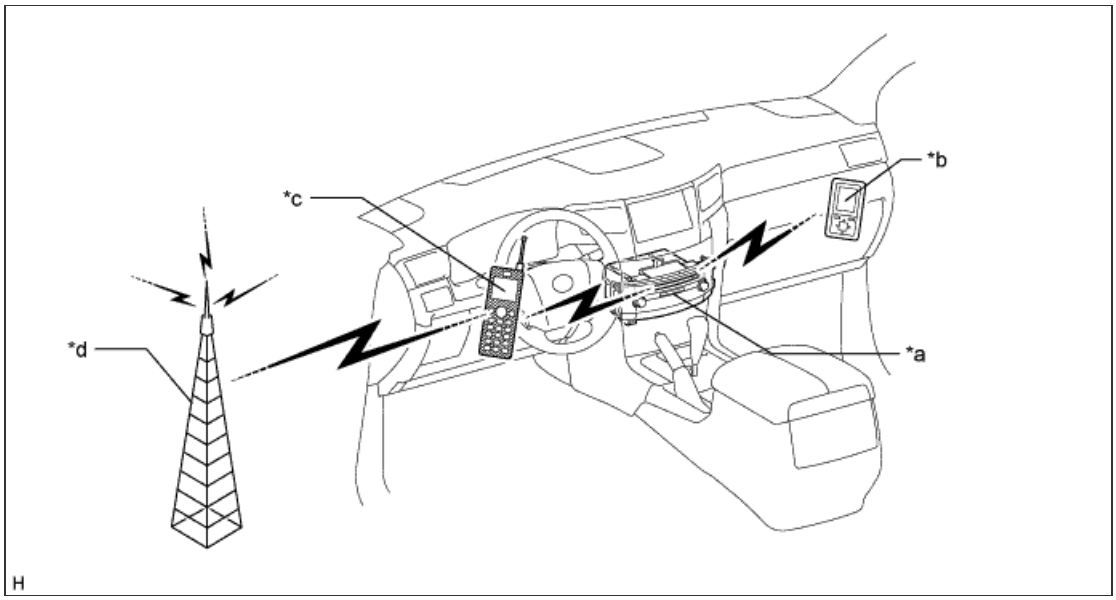
- Video CD
- DVD+R
- DVD+RW
- DVD-RAM

c. Precaution for use of discs

**NOTICE:**

- **SECAM color television standard discs cannot be played.**
- **Keep the discs away from dirt. Be careful not to damage the discs or leave fingerprints on them.**
- **Hold discs by the outer edge and center hole with the label side up.**
- **Leaving the disc exposed halfway out of the slot for a long time after pressing the disc eject button may cause deformation of the disc, making the disc unusable.**
- **Do not use odd-shaped discs because these may cause player malfunctions.**
- **Do not use discs whose recording portion is transparent or translucent because they may not be inserted, ejected or played normally.**
- **DualDiscs that mate DVD recorded material on one side with CD digital audio material on the other cannot be played.**

## "Bluetooth" OUTLINE




### Text in Illustration

| | | | |
|---|---|---|---|
| *a | Multi-media Module Receiver Assembly<br>(Built-in "Bluetooth" receiver antenna) | *b | Portable Audio Player<br>("Bluetooth" compatible type) |
| *c | Cellular Phone<br>("Bluetooth" compatible type) | *d | Cellular Tower |

a. "Bluetooth" is a trademark owned by Bluetooth SIG, Inc.

b. "Bluetooth" is a wireless connection technology that uses the 2.4 GHz frequency band.

**HINT:**

The communication performance of "Bluetooth" may vary depending on obstructions or radio wave conditions between communication devices, electromagnetic radiation, communication device sensitivity or antenna capacity.

c. Hands-free function

i. The "Bluetooth" built-in multi-media module receiver assembly and a "Bluetooth" compatible cellular phone* can be connected using a "Bluetooth" wireless connection. This enables the use of the hands-free function on the cellular phone even if the phone is in a pocket or bag. For this reason, it is not necessary to use a connector or cable to connect the cellular phone.
*: Some versions of "Bluetooth" compatible cellular phones may not function.

ii. Compatible hands-free devices

| | |
|---|---|
| Required "Bluetooth" specifications | Ver. 1.1 or higher (Ver. 2.1+EDR or higher recommended) |
| Compatible profiles | • HFP (Hands Free Profile) Ver.1.0 or higher (Ver.1.5 or higher recommended)*1<br>• OPP (Object Push Profile) Ver.1.1 or higher*1<br>• PBAP (Phone Book Access Profile) Ver.1.0 or higher*1<br>• MAP (Message Access Profile) Ver.1.0 or higher*2<br>• DUN (Dial-Up Networking Profile) Ver.1.1 or higher*3 |
| Maximum number of hands-free devices that can be registered (including audio devices) | 5 |

*1: This profile is necessary when using the handsfree function.
*2: This profile is necessary when using the message function. (w/ Connected Services)
*3: This profile is necessary when using the connected services. (w/ Connected Services)

**HINT:**

The amount of remaining battery charge displayed on the multi-media module receiver assembly may be different from that of the "Bluetooth" device.

## CONNECTED SERVICES OUTLINE (w/ Connected Services)

a. The following services are available by connecting the navigation system to Lexus's portal site via the internet using a cellular phone.

- Online search: New establishments, such as restaurants, bars etc., that are not registered in the navigation system can be set as a destination.
- Importing memory points: Establishments that were searched using a personal computer can be set as a destination and can be registered as memory points.

**HINT:**

- **For known compatible phones refer to www.my.lexus.eu.**
- **It is necessary to agree to the terms of service for the search engine on www.my.lexus.eu.**
  **Failure to do so may cause problems such as the search engine cannot be selected and the screen does not transfer to the next screen even when "Online search" is selected.**
- **If the cellular phone has not been registered as a registered device, the "Communication settings" screen button cannot be selected.**
- **Connected services are available only on the multi-media module receiver assembly that has had the identification code registered when the account was created.**
- **Search results may not be displayed if the target establishment is not in the data supplied by the provider or in the map data of the navigation system.**
- **As the information for a destination set using the connected services is supplied by the provider, the navigation system may guide to a location that deviates from the actual destination.**

## EXPORT / IMPORT MEMORY POINT FUNCTION OUTLINE

a. This function allows memory points stored in the multi-media module receiver assembly to be registered to another multi-media module receiver assembly.
Memory points stored in the multi-media module receiver assembly can be exported to a USB device.
Data exported to a USB device can be imported to another multi-media module receiver assembly using a USB device.

## RDS-TMC FUNCTION OUTLINE (w/ RDS-TMC Function)

a. This system has a function which allows the reception of traffic information from Radio Data System Traffic Message Channel (RDS-TMC) stations based on FM-multiple broadcasting.
It assists the driver to avoid areas with traffic congestion. It also helps to improve traffic flow and road safety.

i. RDS-TMC Function List

- Traffic information
  Using RDS-TMC station based on FM-multiple broadcasting or TPEG information*1 that is received, traffic events near the current position or the cursor position can be viewed as a list.
- Traffic prediction*1

Using TPEG information that is received, traffic prediction information relevant to the area around the current position or the cursor position can be viewed.

- Parking information*1
  Using TPEG information that is received, the location available spaces of a parking lot can be checked. The parking lot can also be set as a destination.
  *1: Can only be used when receiving TPEG (Transport Protocol Experts Group) information. Depending on the country or area, receiving TPEG information may not be possible.

**HINT:**

The following is information regarding the RDS-TMC function that utilizes TPEG information:

- **When the vehicle enters an area where TPEG information can be received, TPEG information can be received only after the vehicle has been driven for 1 km (0.6 miles) or more in the coverage area.**
- **Detoured route search activates only when traffic information within 200 km (124 miles) exists.**
- **If there is traffic information only for traffic congestion, the route may not be changed depending on the distance of the congestion.**
- **If there is no available avoidance route, the route may not be changed.**
- **Provided data may differ from actual condition.**
- **TPEG information uses the same signal reception path as the DAB function.**

## VEHICLE CUSTOMIZATION OUTLINE

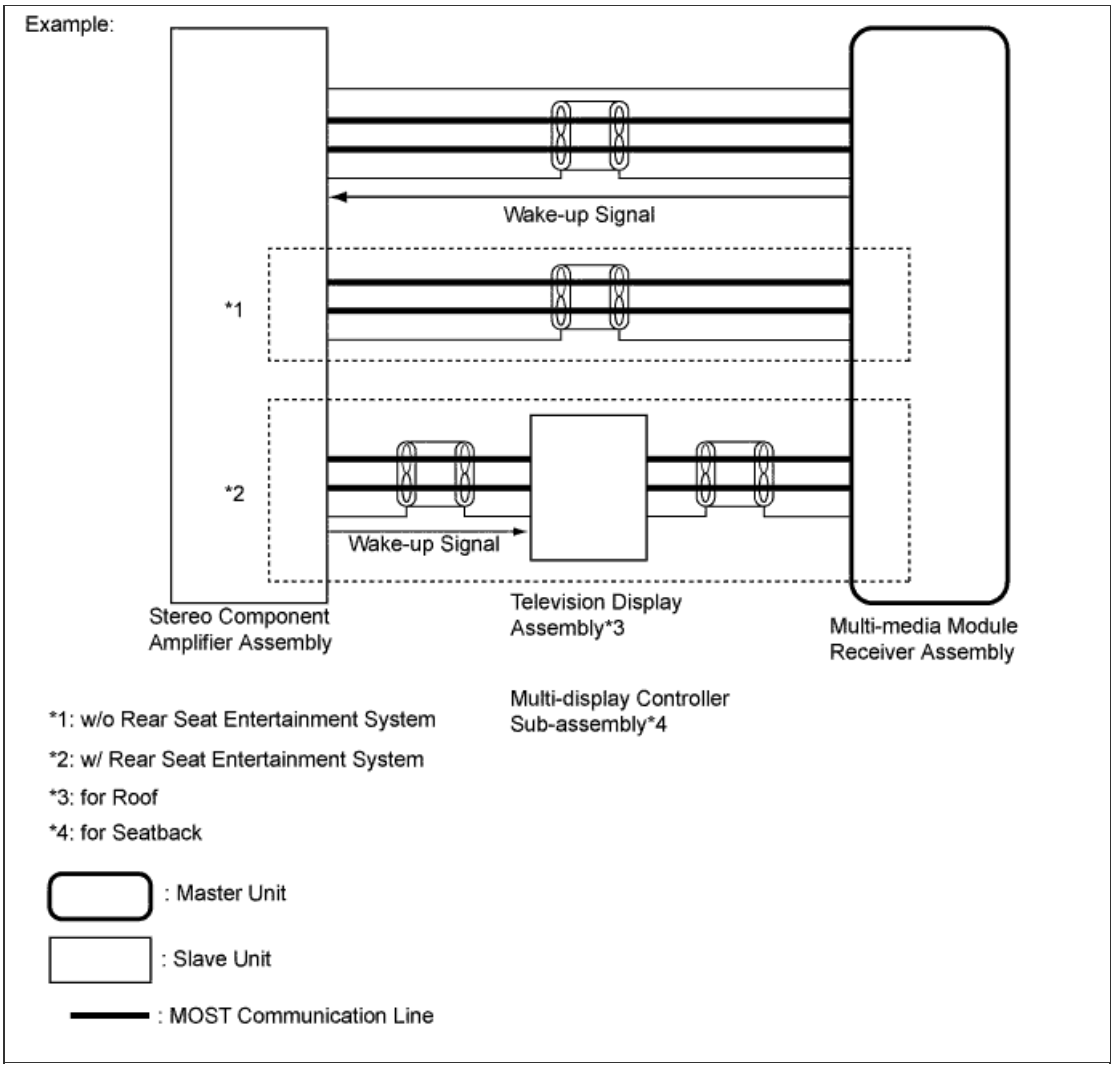
Customization of functions can be performed on the multi-display screen. Refer to the owner's manual for further information on customizable items for the navigation system.

**HINT:**

- **Items available for customization via the navigation system can be performed by using the intelligent tester.**
- **Some customize parameters displayed on the intelligent tester will be displayed on the "Vehicle Customization" screen for the navigation system. Users can customize these items.**

## COMMUNICATION SYSTEM

a. MOST Network Outline




i. Navigation system components communicate with each other via the MOST network.

ii. The MOST network uses a shielded twisted pair of wires for its communication lines.

iii. The master unit of the MOST network is the multi-media module receiver assembly.

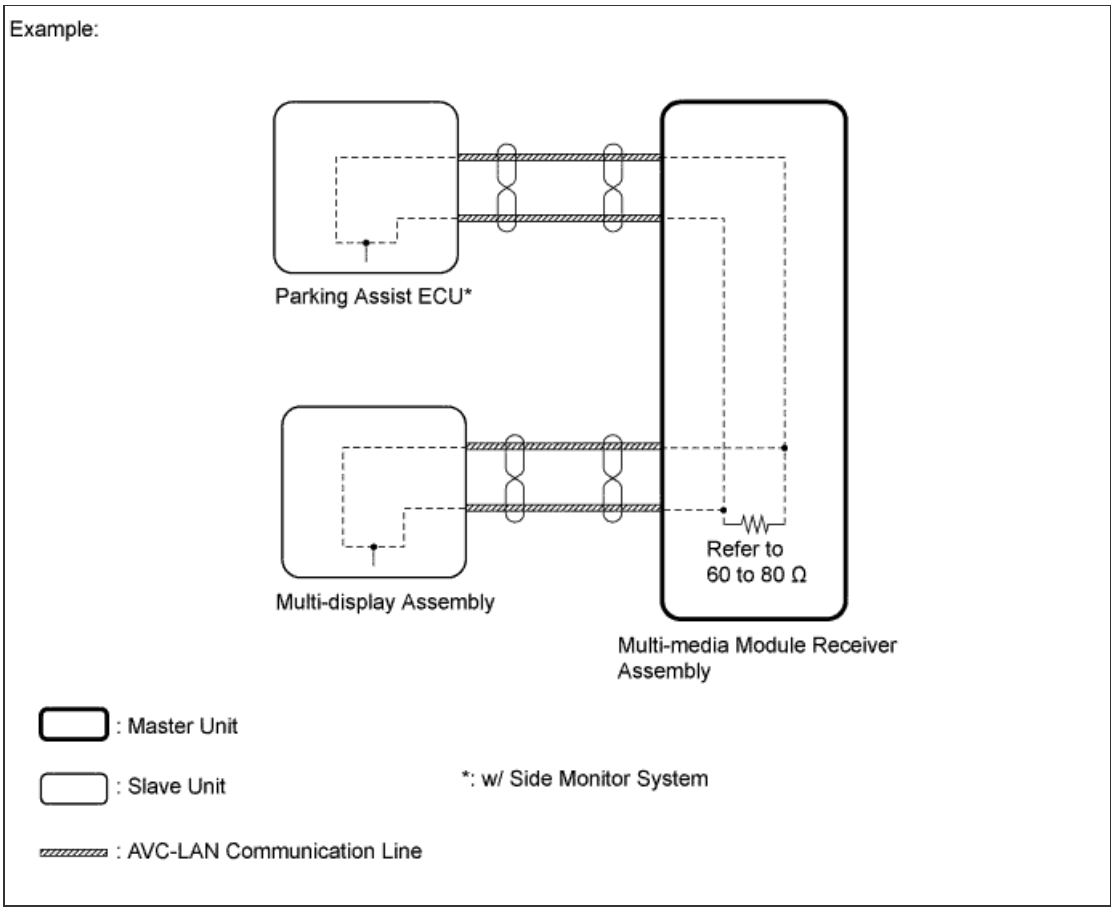
iv. MOST communication lines connect each slave unit centering around the master unit to form a MOST network ring.

v. The master unit sends a wake-up signal to activate each slave unit connected to the MOST network.

**HINT:**

If a short or open circuit occurs in the MOST circuit, communication will be interrupted and the system will not operate normally.

b. AVC-LAN Outline




i. Components of the navigation system communicate with each other via the AVC-LAN.

ii. The AVC-LAN uses a twisted pair of wires for its communication lines.

iii. The master unit of the AVC-LAN is the multi-media module receiver assembly.

**HINT:**

- **The multi-media module receiver assembly has the resistance (60 to 80 Ω) necessary for communication.**
- **If a short or open circuit occurs in the AVC-LAN circuit, communication is interrupted and the system will not operate normally.**

## DIAGNOSTIC FUNCTION OUTLINE

a. The navigation system has a diagnostic function (the result will be displayed on the master unit or the intelligent tester).

**for Preparation** Click here

**HINT:**

Use these procedures to troubleshoot the navigation system.

## 1.VEHICLE BROUGHT TO WORKSHOP

NEXT

## 2.INSPECT BATTERY VOLTAGE

**Standard voltage:**
**11 to 14 V**

If the voltage is below 11 V, recharge or replace the battery before proceeding.

NEXT

## 3.BASIC INSPECTION

a. Turn the engine switch on (ACC).

b. Check whether or not the display appears on the multi-display.

**Result**

| Result | Proceed to |
|---|---|
| Display appears | A |
| Display does not appear | B |

B. → Go to step 6

## 4.CHECK FOR DTC

a. Check for DTCs and note any codes that are output.

b. Clear the DTCs.

c. Recheck for DTCs. Based on the DTC output in the first step, try to force output of the navigation system DTC by simulating the conditions indicated by the DTC.

**HINT:**

- **If the system cannot enter the diagnosis mode, inspect each AVC-LAN communication signal and repair or replace problem parts.**
- **Even if the malfunction symptom is not confirmed, check for DTCs. This is because the system stores past DTCs.**
- **Refer to the detailed description on the diagnostic screen, as necessary (Click here).**
- **Check and clear past diagnostic trouble codes. Check the diagnostic trouble code and inspect the area the code indicates.**

**Result**

| Result | Proceed to |
|---|---|
| DTC is not output | A |
| DTC is output | B |

B. → Go to step 7

A

## 5.PROBLEM SYMPTOMS TABLE

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in problem symptoms table | A |
| Fault is listed in problem symptoms table | B |

**B.** → **Go to step 7**

**A**

## 6.OVERALL ANALYSIS AND TROUBLESHOOTING

a. Terminals of ECU (Click here)

b. Inspect the front No. 1 speaker (Click here)

c. Inspect the steering pad switch (Click here)

**NEXT**

## 7.ADJUST, REPAIR OR REPLACE

**NEXT**

## END

**for Preparation** Click here

**HINT:**

- **Use the following procedure to troubleshoot the navigation system.**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

**NEXT**

## 2.CUSTOMER PROBLEM ANALYSIS

- When troubleshooting, confirm that the problem symptoms have been accurately identified. Preconceptions should be discarded in order to make an accurate judgment. To clearly understand what the problem symptoms are, it is extremely important to ask the customer about the problem and the conditions at the time the malfunction occurred.
- Gather as much information as possible for reference.
  Past problems that seem unrelated may also help in some cases.
- The following 5 items are important points in problem analysis:

| | |
|---|---|
| What | Vehicle model, system name |
| When | Date, time, occurrence frequency |
| Where | Road conditions |
| Under what conditions? | Driving conditions, weather conditions |
| How did it happen? | Problem symptoms |

**NEXT**

## 3.INSPECT BATTERY VOLTAGE

a. Measure the battery voltage with the engine switch off.

**Standard voltage:**
**11 to 14 V**

If the voltage is below 11 V, recharge or replace the battery before proceeding to the next step.

**NEXT**

## 4.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

**OK:**
**Condensation is not likely being produced and the temperature is not high or extremely low.**

**HINT:**

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The navigation system may not operate normally when the temperature is -20°C (-4°F) or less, or 65°C (149°F) or higher.**

**NG.** → **SET CABIN TO APPROPRIATE TEMPERATURE**

**OK**

## 5.CHECK NAVIGATION SYSTEM NORMAL CONDITION

a. Refer to Check System Normal Condition ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| Symptom is not normal operation. | A |
| Symptom is normal operation. | B |

B. → SYMPTOM IS NORMAL OPERATION

A

## 6.CHECK CAN COMMUNICATION SYSTEM*

a. Check for DTC output.

for LHD: Click here
for RHD: Click here

**Result**

| Result | Proceed to |
|---|---|
| CAN DTCs are not output. | A |
| CAN DTCs are output (for LHD). | B |
| CAN DTCs are output (for RHD). | C |

B. → GO TO CAN COMMUNICATION SYSTEM (**Click here**)

C. → GO TO CAN COMMUNICATION SYSTEM (**Click here**)

A

## 7.CHECK FOR DTC*

a. Refer to DTC Check/Clear (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTCs are output. | A |
| DTCs are not output.<br>(The multi-display displays content.) | B |
| DTCs are not output.<br>(The multi-display does not display anything.) | C |

**HINT:**

If more information is needed, perform a check using the "System Check Mode" screen after checking for DTCs using the intelligent tester.

B. → Go to step 11

C. → Go to step 12

A

## 8.CLEAR DTC*

a. Refer to DTC Check/Clear (Click here).

**HINT:**

The present DTCs may not indicate actual malfunctions depending on the vehicle operating conditions.

NEXT

## 9.RECHECK FOR DTC*

a. Refer to DTC Check/Clear (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTCs are output. | A |
| DTCs are not output. | B |

**HINT:**

- **Even if the malfunction symptom is not confirmed, check for DTCs. This is because the system stores history DTCs.**
- **If more information is needed, perform a recheck using the "System Check Mode" screen after rechecking for DTCs using the intelligent tester.**
- **Check the DTCs and inspect the area that the code indicates.**

| | |
|---|---|
| B. | Go to step 11 |

A

## 10.DIAGNOSTIC TROUBLE CODE CHART

a. Find the output code in Diagnostic Trouble Code Chart ( Click here).

**NOTICE:**

- **The navigation system outputs DTCs for the following system.**
- **When DTCs other than those in Diagnostic Trouble Code Chart for the navigation system are output, refer to Diagnostic Trouble Code Chart for the relevant system.**
- **Refer to Audio and Visual System (Click here)**
- **Refer to Rear Seat Entertainment System (Click here)**

**Result**

| Result | Proceed to |
|---|---|
| DTCs for the navigation system are output. | A |
| DTCs for the audio and visual system are output. | B |
| DTCs for the rear seat entertainment system.. | C |

| | |
|---|---|
| A. | Go to step 14 |
| B. | GO TO AUDIO AND VISUAL SYSTEM (Click here) |
| C. | GO TO REAR SEAT ENTERTAINMENT SYSTEM (Click here) |

## 11.CHECK HARD DISC

a. Enter the "Failure Diagnosis" screen. Refer to Check Hard Disk Drive in Operation Check ( Click here).

**OK:**
**"OK" is displayed.**

| | |
|---|---|
| NG. | REPLACE HARD DISC (Click here) |

OK

## 12.PROBLEM SYMPTOMS TABLE

a. Refer to Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|

| | |
|---|---|
| Fault is not listed in Problem Symptoms Table. | A |
| Fault is listed in Problem Symptoms Table. | B |

**HINT:**

If the symptom does not recur and no DTCs are output, attempt to reproduce the symptoms ( Click here).

**B.** → **ADJUST, REPAIR OR REPLACE IN ACCORDANCE WITH PROBLEM SYMPTOMS TABLE**

**A**

## 13.PERFORM TROUBLESHOOTING BASED ON MALFUNCTION SYMPTOM

a. Refer to Terminals of ECU (Click here).

**NEXT**

## 14.CHECK CIRCUIT

a. Adjust, repair or replace as necessary.

**NEXT**

## 15.RECHECK FOR DIAGNOSTIC TROUBLE CODE*

**HINT:**

After clearing DTCs, recheck for DTCs (Click here).

**NEXT**

## 16.PERFORM CONFIRMATION TEST

**NEXT**

**END**

**for Preparation** Click here

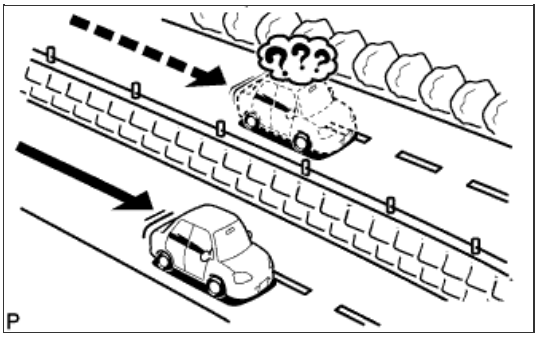
## Check system normal condition

a. If the cause of a symptom is any of the following, the corresponding symptom is normal, it is not a malfunction.

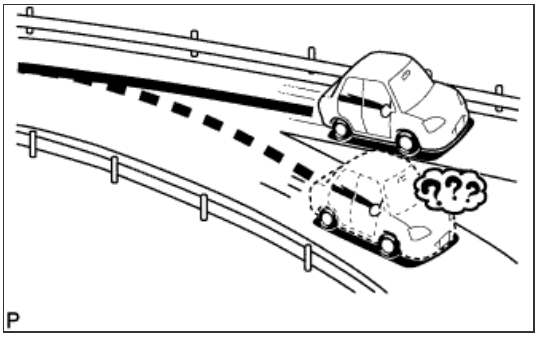
| Symptom | Answer |
|---|---|
| A longer route than expected is chosen. | Depending on the road conditions, the navigation ECU may determine that a longer route is quicker. |
| Even when distance priority is high, the shortest route is not shown. | Some paths may not be advised due to safety concerns. |
| When the vehicle is put into motion immediately after the engine starts, the navigation system deviates from the actual position. | If the vehicle starts before the navigation system activates, the system may not react. |
| When running on certain types of roads, especially new roads, the vehicle position deviates from the actual position. | When the vehicle is driving on new roads not available on the map disc, the system attempts to match it to another nearby road, causing the position mark to deviate. |

b. The following symptoms are not a malfunction, but are caused by errors inherent in the GPS, gyro sensor, speed sensor, and navigation ECU.

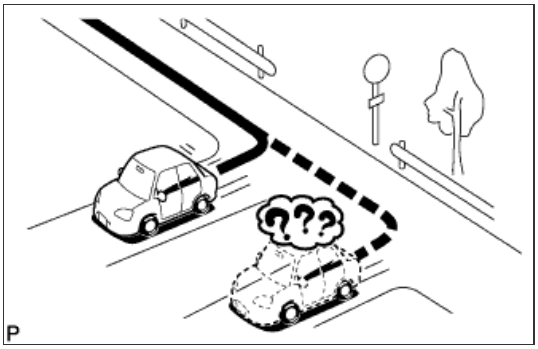
i. The current position mark may be displayed on a nearby parallel road.



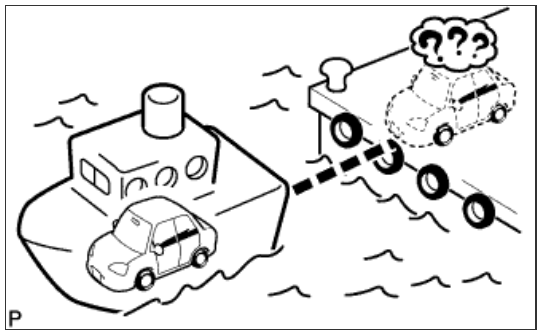

ii. Immediately after a fork in the road, the current vehicle position mark may be displayed on the wrong road.



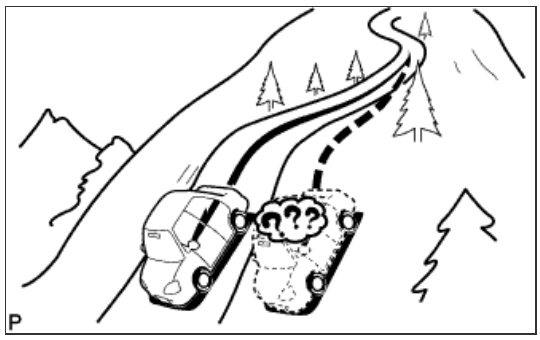

iii. When the vehicle turns right or left at an intersection, the current vehicle position mark may be displayed on a nearby parallel road.



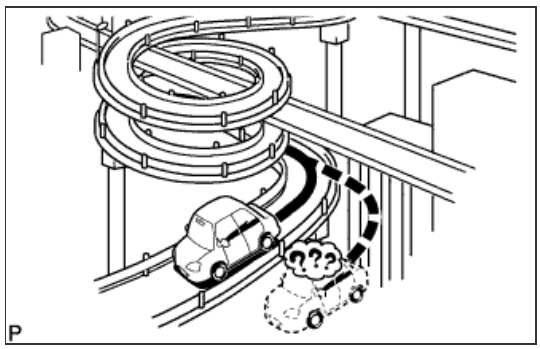

iv. When the vehicle is carried, such as on a ferry, and the vehicle itself is not running, the current vehicle position mark may be displayed in the position where the vehicle was until a measurement can be performed by GPS.



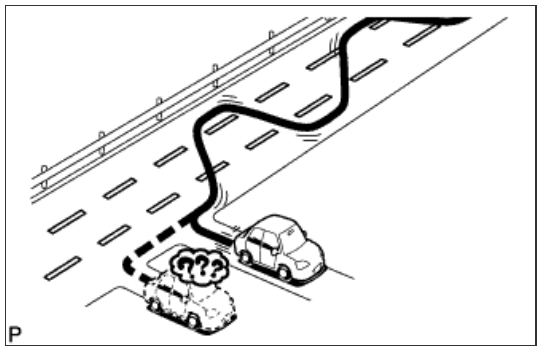

v. When the vehicle is driven on a steep hill, the current vehicle position mark may deviate from the correct position.



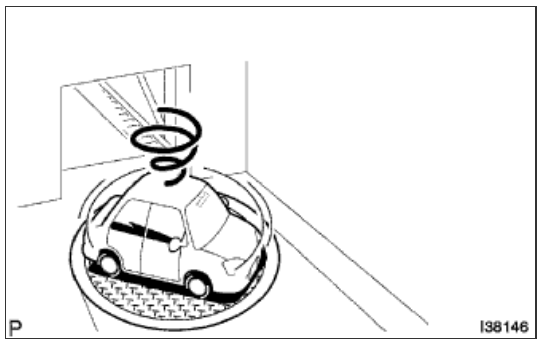

vi. When the vehicle makes a continuous turn of 360°, 720°, 1080°, etc., the current vehicle position mark may deviate from the correct position.




vii. When the vehicle moves erratically, such as constant lane changes, the current vehicle position mark may deviate from the correct position.




viii. When the engine switch is turned on (ACC) or on (IG) on a turntable while parking, the current vehicle position mark may not point in the correct direction. The same will occur when the vehicle starts to move.



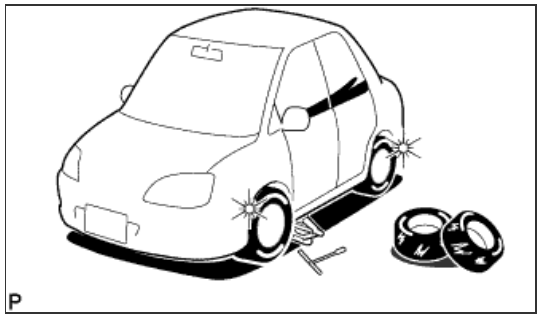

ix. When the vehicle is driven on a snowy road or a mountain path with tire chains installed or using a spare tire, the current vehicle position mark may deviate from the correct position.




x. When a tire is changed, the current vehicle position mark may deviate from the correct position.

**HINT:**

- **The diameter of the tire may change, causing a speed sensor error.**
- **Performing the "tire change" in calibration mode will allow the system to correct the current vehicle position faster.**



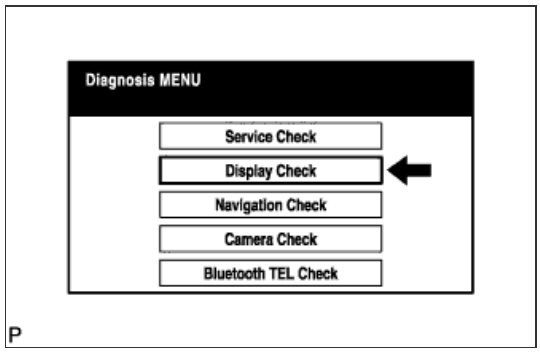

## Check Display Check mode

**HINT:**

- **This mode checks the color display on the multi-display.**
- **Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be exactly the same as on the actual vehicle.**

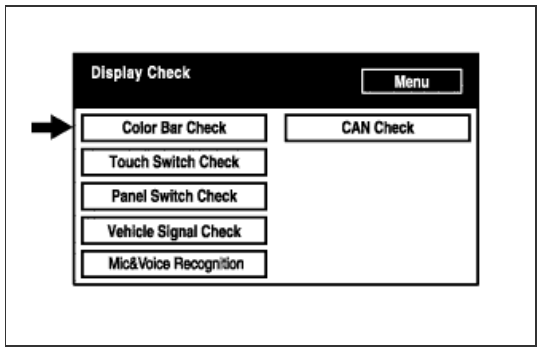
a. Enter diagnostic mode (Click here).

b. Select "Display Check" from the "Diagnosis MENU" screen.




c. Color Bar Check

i. Select "Color Bar Check" from the "Display Check" screen.

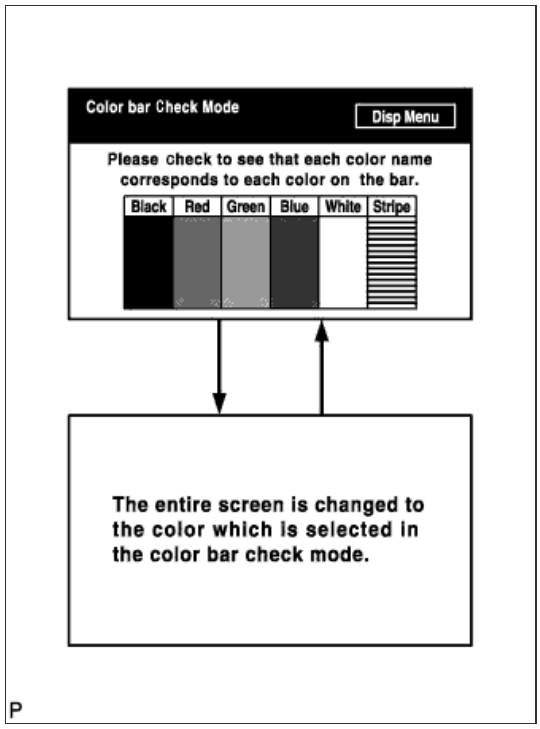



ii. Select a color bar from the "Color Bar Check Mode" screen.

iii. Check the display color.

**HINT:**

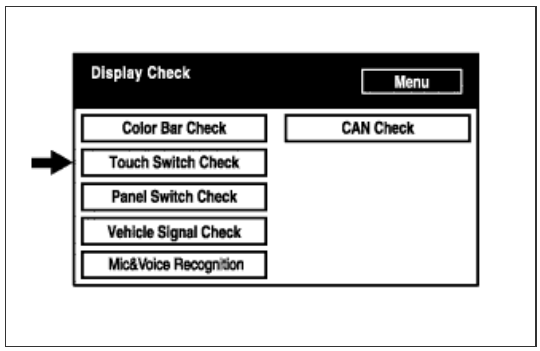
- **The entire screen turns to the color or stripe selected.**
- **Touch the display to return to the "Color Bar Check Mode" screen.**




d. Touch Switch Check

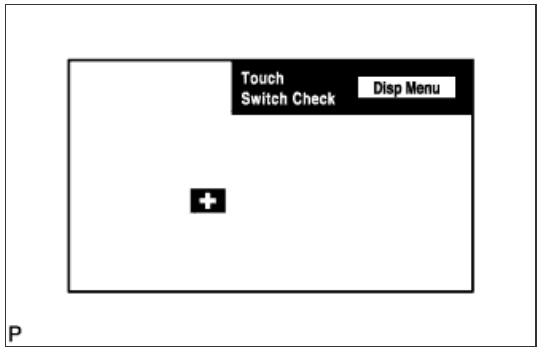
i. Select "Touch Switch Check" from the "Display Check" screen.

ii. Touch the display anywhere in the open area to perform the check when the "Touch Switch Check" screen is displayed.



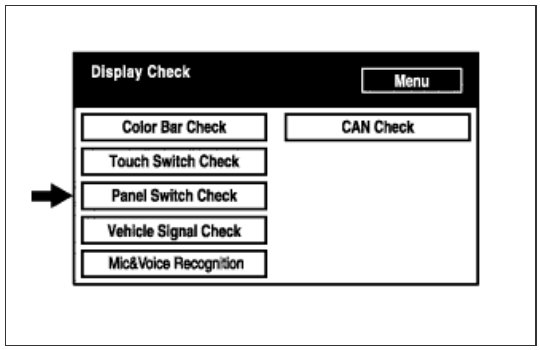

**HINT:**

A "+" mark is displayed where the display is touched.

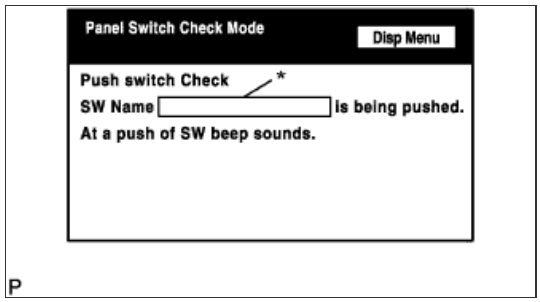



e. Panel Switch Check

i. Select "Panel Switch Check" from the "Display Check" screen.



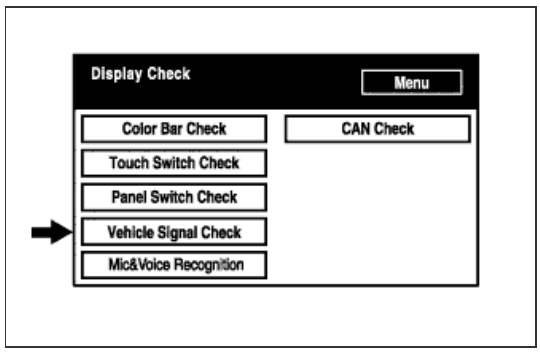

ii. Operate each switch and check that the switch name and condition are correctly displayed.




| Display | Contents |
|---|---|
| *: Pushed switch name | • Name of the pressed switch is displayed.<br>• If more than one switch is pressed, "MULTIPLE" is displayed. |

f. Vehicle Signal Check

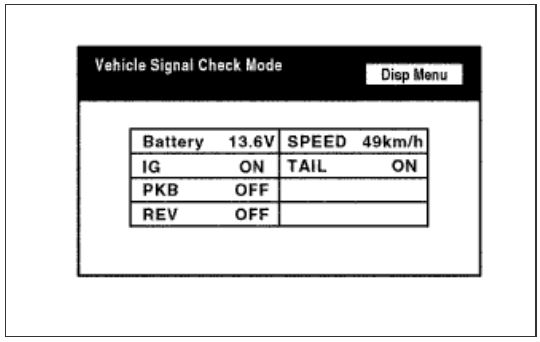
i. Select "Vehicle Signal Check" from the "Display Check" screen.




ii. When the "Vehicle Signal Check Mode" screen is displayed, check all the vehicle signal conditions.

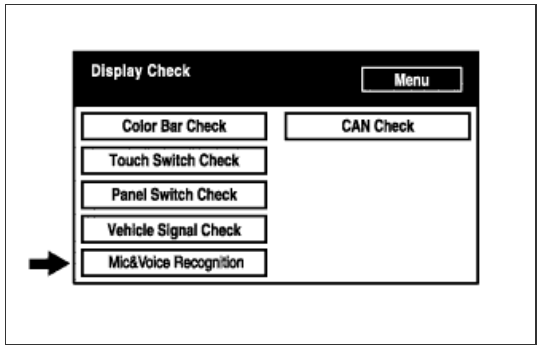
**HINT:**

- **Only conditions having inputs are displayed.**
- **This screen is updated once per second when input signals to the vehicle are changed.**
- **For details of this function, refer to Diagnosis Display Detailed Description in the System Description (Click here).**




g. Mic&Voice Recognition Check

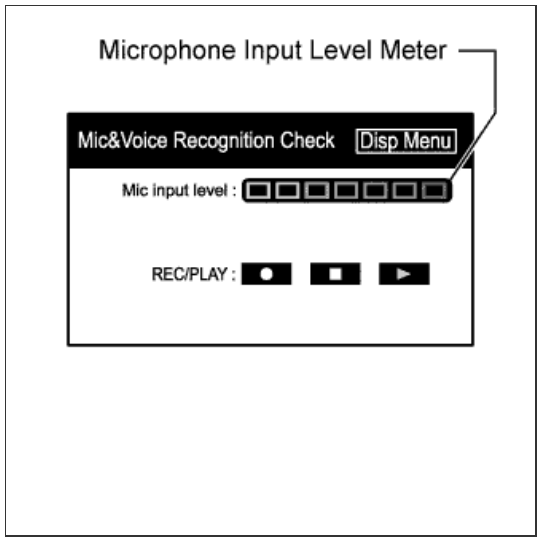
i. Select "Mic&Voice Recognition Check" on the "Display Check" screen to display the "MICROPHONE & VOICE RECOGNITION CHECK" screen.




ii. When a voice is input into the microphone, check that the microphone input level meter changes according to the input voice.

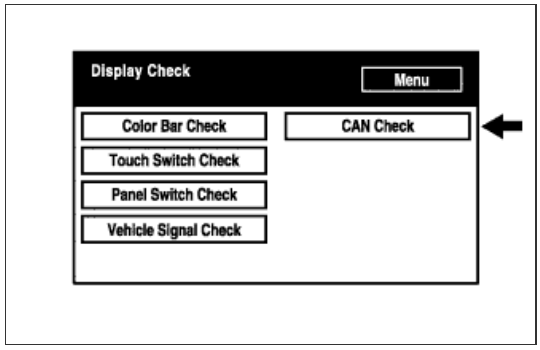
**HINT:**

This function is controlled by the navigation ECU.



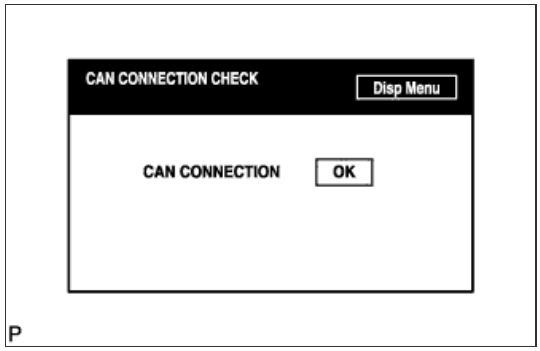

h. CAN Check

i. Select "CAN Check" from the "Display Check" screen.




ii. Check the CAN CONNECTION CHECK result.

- This function operates only for the systems connected to the CAN system.
- For details of this function, refer to Diagnosis Display Detailed Description in the System Description (Click here).




P

## Check Navigation Check

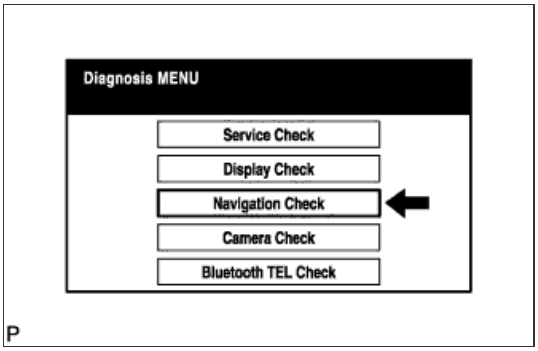
**HINT:**

- **This mode displays GPS satellite information.**
- **Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be exactly the same as on the actual vehicle.**

a. Enter Diagnostic Mode (Click here).

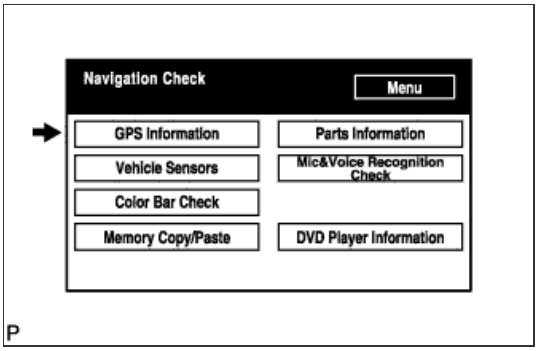
b. Navigation Check

i. Select "Navigation Check" from the "Diagnosis MENU" screen.




c. GPS Information

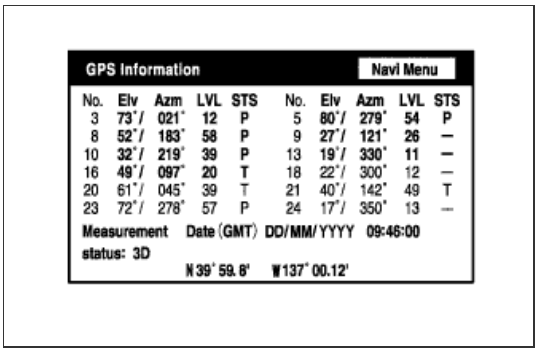
i. Select "GPS Information" from the "Navigation Check" screen.




ii. When GPS information is displayed, check the GPS conditions.

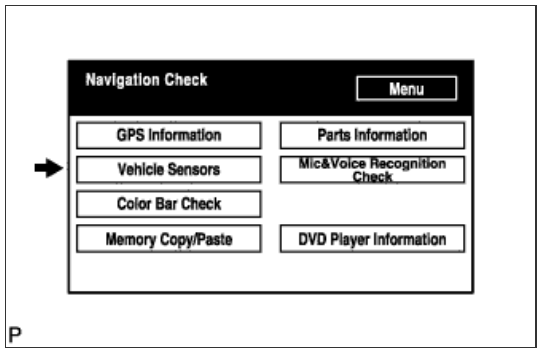
**HINT:**

- **This screen is updated once per second when input signals to the vehicle are changed.**
- **For details of this function, refer to Diagnosis Display Detailed Description in the System Description (Click here).**




d. Vehicle Sensors

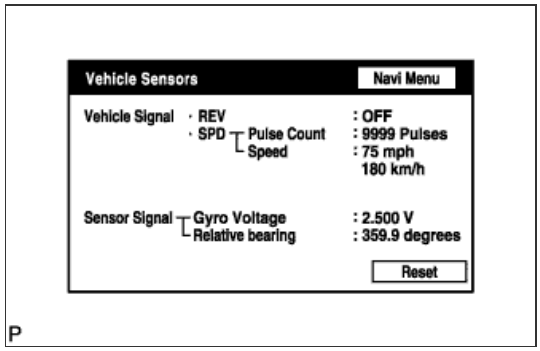
i. Select "Vehicle Sensors" from the "Navigation Check" screen.




ii. Check all the signals and sensors when vehicle signal information is displayed.

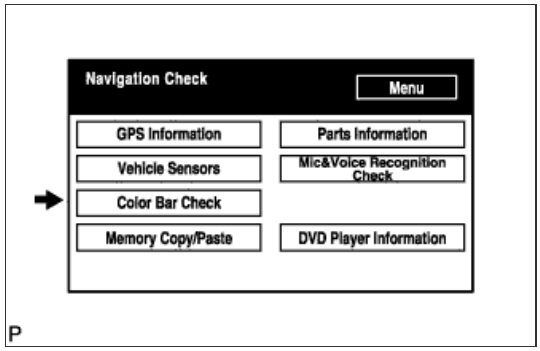
**HINT:**

- **This screen is updated once per second when input signals to the vehicle are changed.**
- **This screen displays vehicle signals input to the navigation ECU.**
- **For details of this function, refer to Diagnosis Display Detailed Description in the System Description (Click here).**




e. Color Bar Check

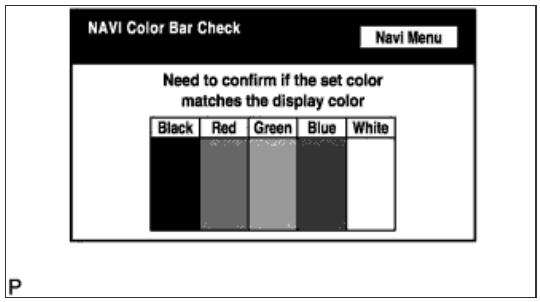
i. Select "Color Bar Check" from the "Navigation Check" screen.




ii. Check each color of the color bar when the "NAVI Color Bar Check" screen is displayed.

**HINT:**

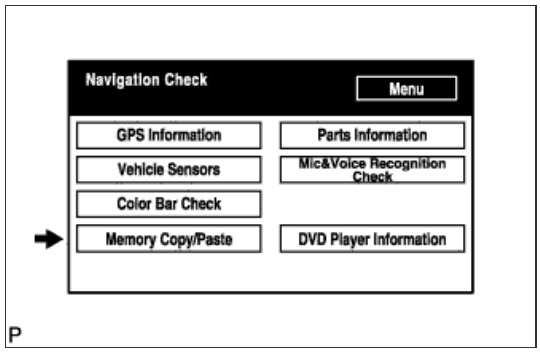
- **Colors will not be displayed full-screen as in "Display Check Mode".**
- **This screen displays the navigation ECU display color.**




f. Memory Copy/Paste

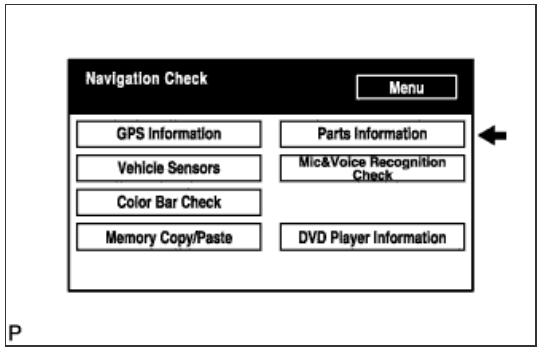
**HINT:**

This function cannot be used.

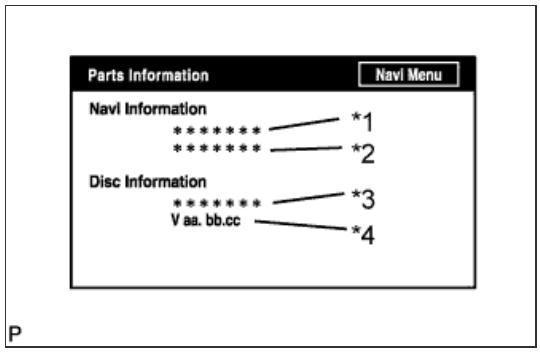



g. Parts Information

i. Select "Parts Information" from the "Navigation Check" screen.




ii. Check the navigation and disc information when the "Parts Information" screen is displayed.

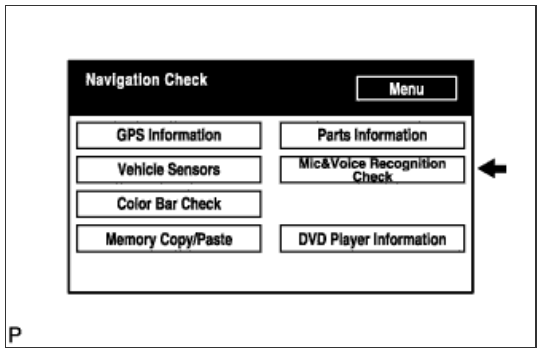



**Screen Description**

| Display | Contents |
|---|---|
| *1: Navigation Manufacturer | Navigation ECU manufacturer is displayed. |
| *2: Navigation Version | Navigation ECU version is displayed. |
| *3: Disc Manufacturer | Map disc manufacturer is displayed. |
| *4: Disc Version | Map disc version is displayed. |

h. Mic&Voice Recognition Check

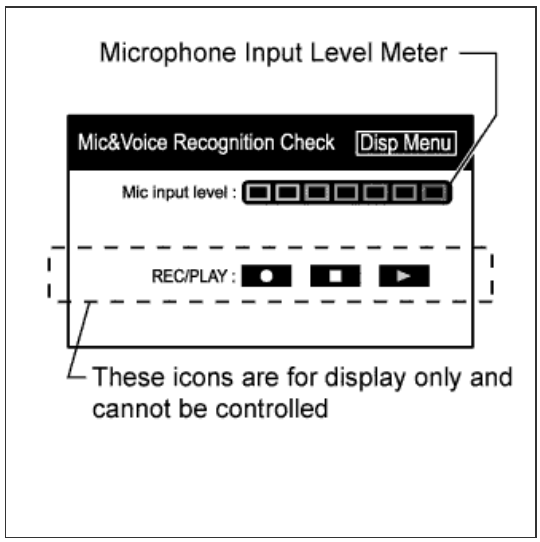
i. Select "Mic&Voice Recognition Check" on the "Navigation Check" screen to display the "MICROPHONE & VOICE RECOGNITION CHECK" screen.




ii. When a voice is input into the microphone, check that the microphone input level meter changes according to the input voice.

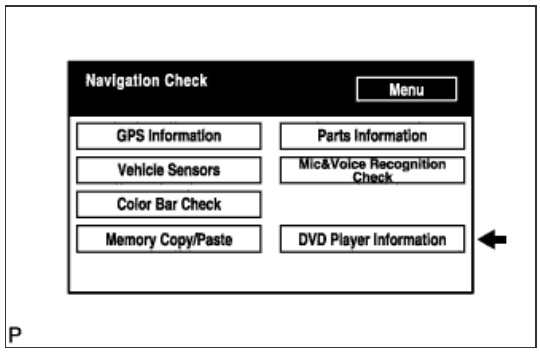
**HINT:**

This function is controlled by the navigation ECU.




i. DVD Player Information

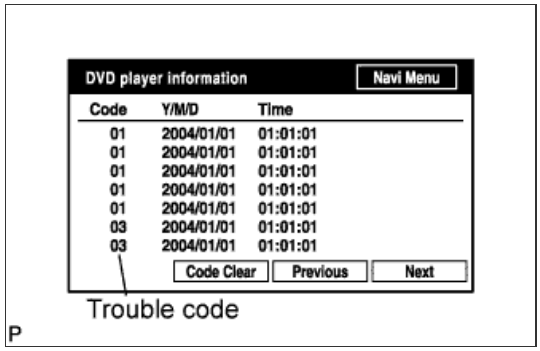
i. Select "DVD Player Information" from the "Navigation Check" screen.




ii. Check for DTCs.

**HINT:**

- **This is the DVD player check function in the navigation ECU.**
- **For details of this function, refer to Diagnosis Display Detailed Description in the System Description.**



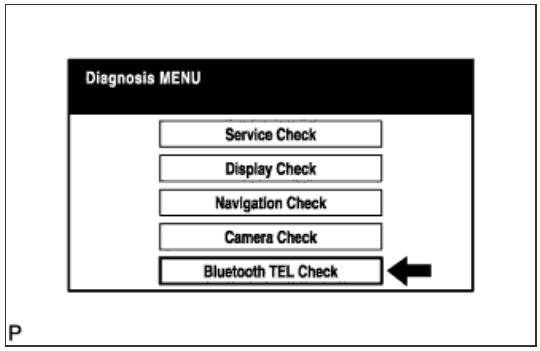

## Check "Bluetooth" TEL Check

**HINT:**

Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be exactly the same as on the actual vehicle.

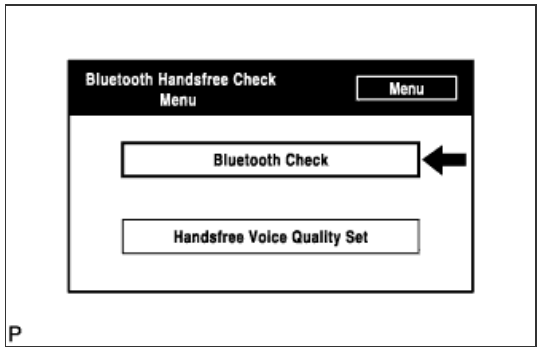
a. Enter diagnostic mode (Click here).

b. Select ""Bluetooth" TEL Check" from the "Diagnosis MENU" screen.

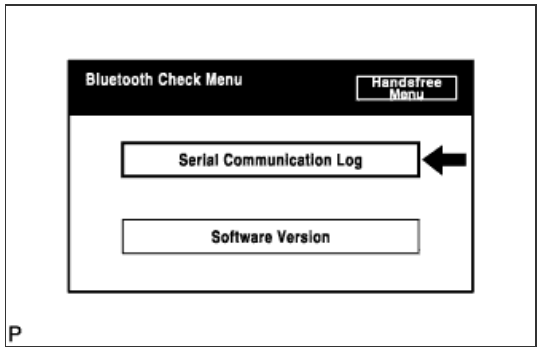



c. "Bluetooth" Check

i. Select ""Bluetooth" Check" from the ""Bluetooth" Handsfree Check Menu" screen.



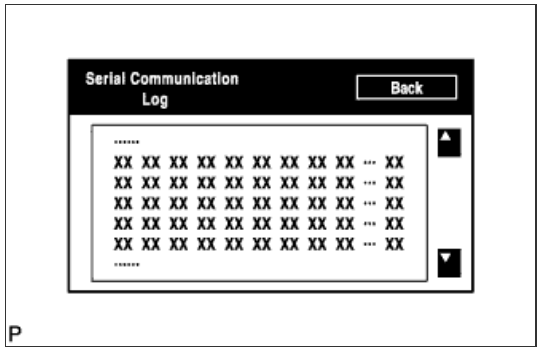

ii. Select "Serial Communication Log" from the ""Bluetooth" Check Menu" screen.



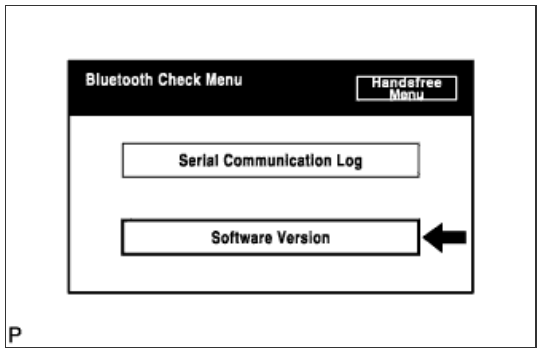

1. The communication log data in the multi-display are displayed on this screen.

**HINT:**

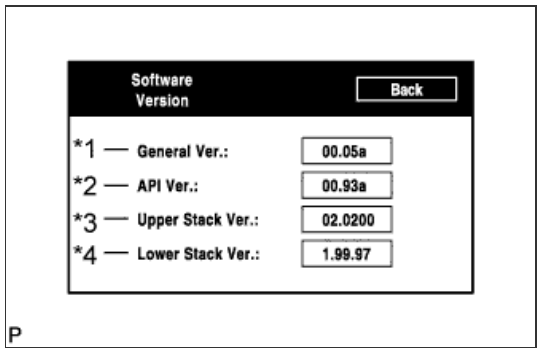
The displayed data can be used as a reference.




iii. Select "Software Version" from the ""Bluetooth" Check Menu" screen.




1. Check the software version of the "Bluetooth" module.




**Screen Description**

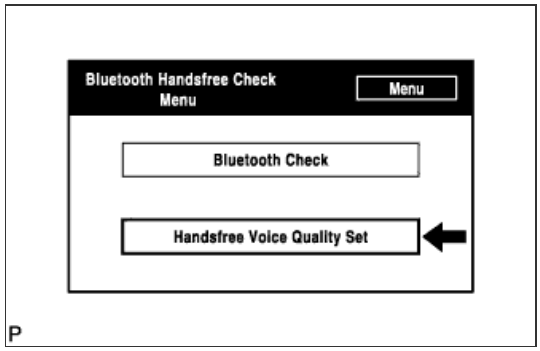
| Display | Contents |
|---|---|
| *1: General Version | • Overall software version of "Bluetooth" module<br>• If any of the API version, upper stack version, and low stack version is updated, the general version is upgraded. |
| *2: API Version | API software version is displayed. |
| *3: Upper Stack Version | Upper Stack version is displayed. |
| *4: Lower Stack Version | Lower Stack version is displayed. |

**HINT:**

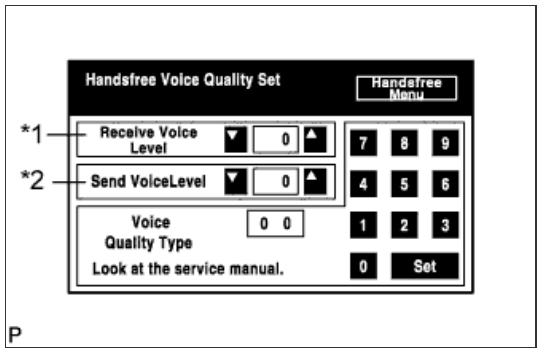
This function is controlled by the multi-display.

**d.** Handsfree Voice Quality Set

**i.** Select "Handsfree Voice Quality Set" from the ""Bluetooth" Handsfree Check Menu" screen.




**ii.** Check the handsfree voice level.




### Screen Description

| Display | Contents |
|---|---|
| *1: Received voice level adjustment | Setting possible for the voice level received from "Bluetooth" compatible phones. |
| *2: Sent voice level adjustment | Setting possible for the voice level sent to "Bluetooth" compatible phones. |

**HINT:**

This function is controlled by the multi-display.

**NOTICE:**

"Voice Quality Type" should not be changed.

**for Preparation** Click here

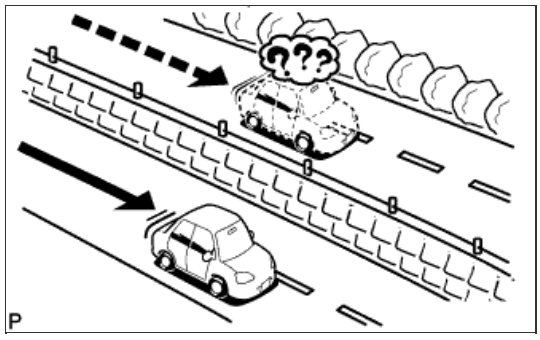
## CHECK SYSTEM NORMAL CONDITION

a. If the symptom is applicable to any of the following, it is intended behavior, and not a malfunction.

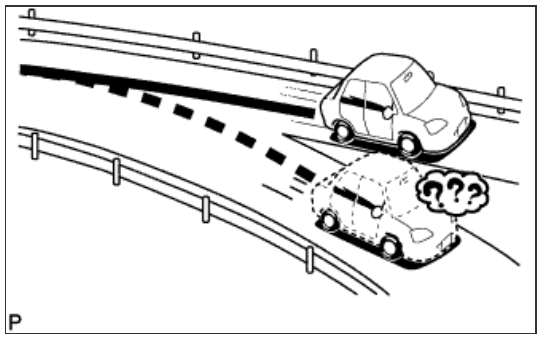
| Symptom | Answer |
|---|---|
| A longer route than expected is chosen. | Depending on the road conditions, the multi-media module receiver assembly may determine that a longer route is quicker. |
| Even when distance priority is high, the shortest route is not shown. | Some routes may not be advised due to safety concerns. |
| When the vehicle is put into motion immediately after the hybrid system starts, the navigation system deviates from the correct position. | If the vehicle starts before the navigation system activates, the system may not react. |
| When driving on certain types of roads, especially new roads, the vehicle position deviates from the correct position. | When the vehicle is driving on new roads not available on the map data from the hard disk drive, the system attempts to match it to another nearby road, causing the position mark to deviate. |

b. The following symptoms are not malfunctions, but are caused by errors inherent in the GPS, gyro sensor, speed sensor or multi-media module receiver assembly.

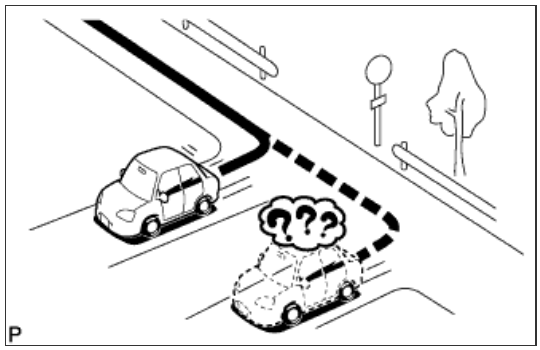
i. The current position mark may be displayed on a nearby parallel road.




ii. Immediately after a fork in the road, the current vehicle position mark may be displayed on the wrong road.

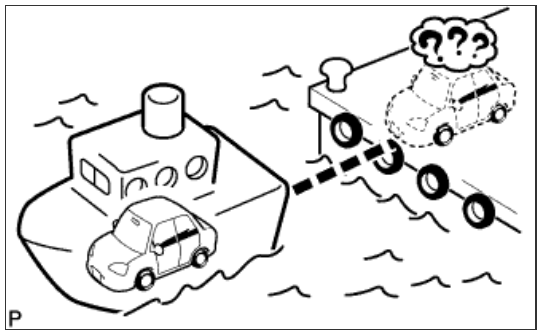



iii. When the vehicle turns right or left at an intersection, the current vehicle position mark may be displayed on a nearby parallel road.

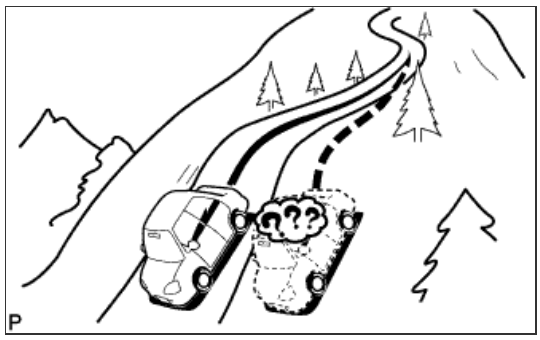



iv. When the vehicle is carried, such as on a ferry, and the vehicle itself is not being driven, the current vehicle position mark may be displayed in the position where the vehicle was until a measurement can be

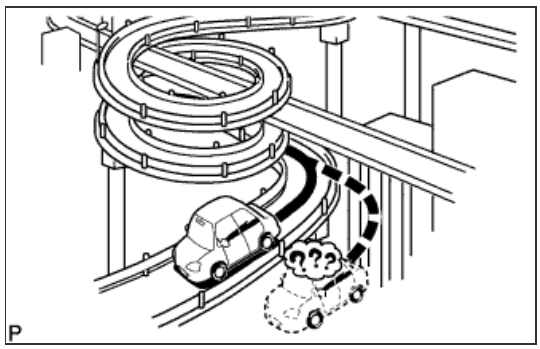
performed by the GPS.



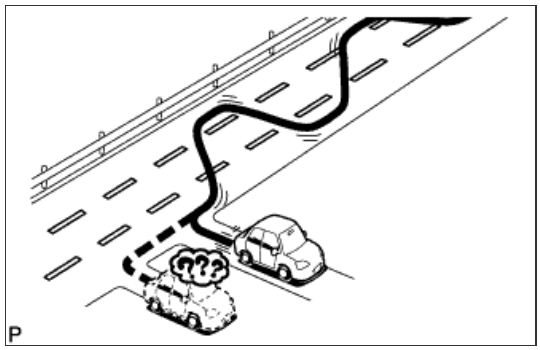
v. When the vehicle travels on a steep hill, the current vehicle position mark may deviate from the correct position.



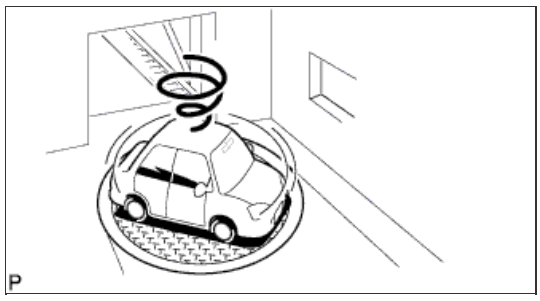
vi. When the vehicle makes a continuous turn (e.g. 360, 720, 1080 degrees), the current vehicle position mark may deviate from the correct position.



vii. When the vehicle moves erratically, such as constant lane changes, the current vehicle position mark may deviate from the correct position.



viii. When the engine switch is turned on (ACC or IG) on a turntable before parking, the current vehicle position mark may not indicate the correct direction. The same will occur when the vehicle comes out of the parking garage.



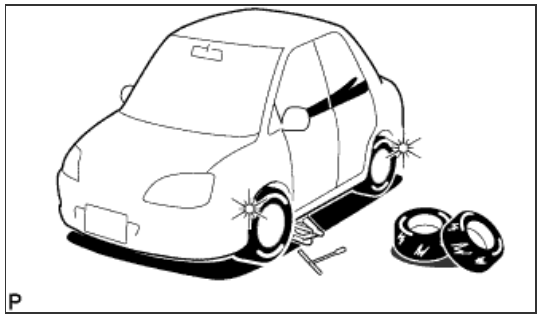
ix. When the vehicle travels on a snowy road or a mountain path with tire chains installed or using a spare tire, the current vehicle position mark may deviate from the correct position.




x. When the tires are changed, the current vehicle position mark may deviate from the correct position.

**HINT:**

- **A change in tire diameter may cause a speed sensor error.**
- **Performing "tire change" in calibration mode will allow the system to correct the current vehicle position faster.**



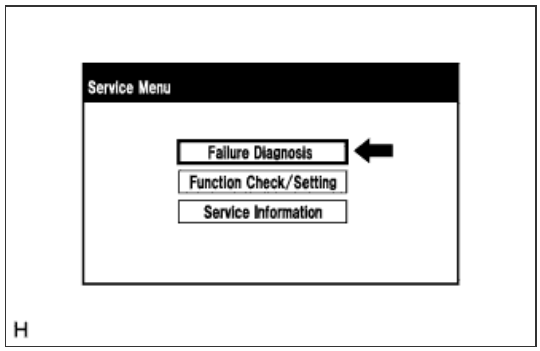

## CHECK HARD DISK DRIVE

**HINT:**

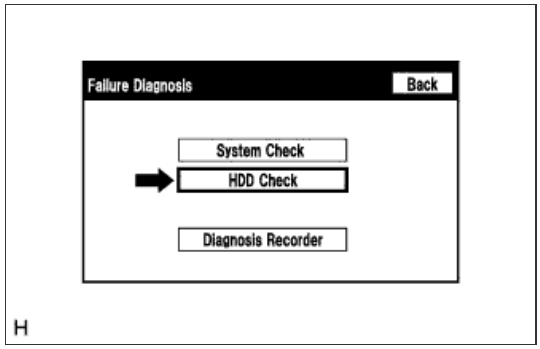
- **Check the hard disk drive (HDD) built into the multi-media module receiver assembly.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Failure Diagnosis" from the "Service Menu" screen.




c. Select "HDD Check" from the "Failure Diagnosis" screen.




d. HDD check

i. Select "HDD Check" to start the HDD check.

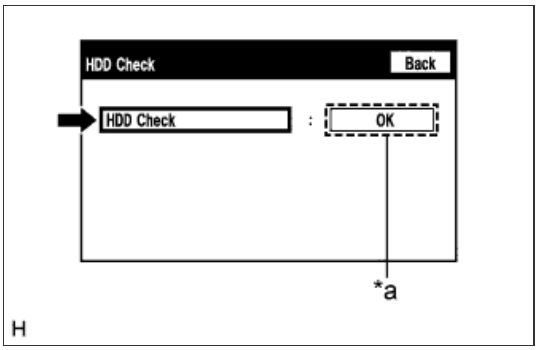
ii. Check that the result is displayed when the HDD check is completed.

**Screen Description**

| Result | Description |
|---|---|
| Checking | While the check is in progress |
| OK | Hard disk drive is normal |
| NG | Hard disk drive is malfunctioning |

**Text in Illustration**

| | |
|---|---|
| *a | Result |




**HINT:**

- **After selecting "HDD Check", it may take a while until the result is displayed.**
- **If the cabin temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher, the HDD may not operate normally, and "NG" may be shown on the display. Make sure to perform the inspection with the cabin at an appropriate temperature.**
- **If "NG" is displayed even when the cabin temperature is appropriate, replace the HDD with a new one.**

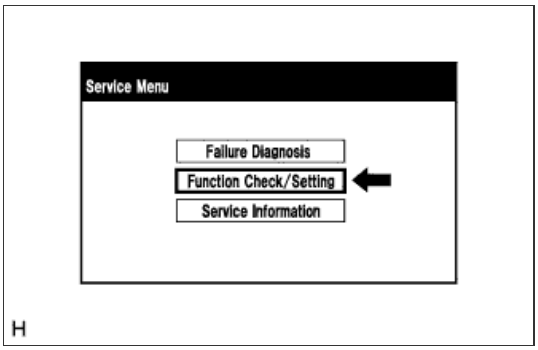
## CHECK PANEL&STEERING SWITCH

**HINT:**

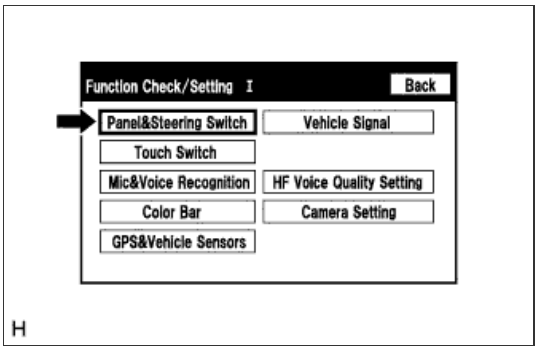
- **The multi-media module receiver assembly panel switches and steering switch are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.



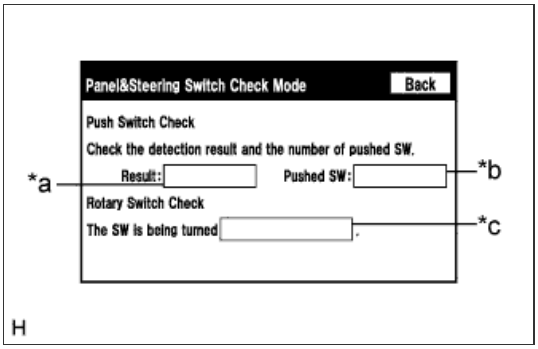

c. Select "Panel&Steering Switch" from the "Function Check/Setting I" screen.




d. Panel&Steering Switch Check Mode

**Screen Description**

| Display | Content |
|---|---|
| *a: Switch condition | "Pushed" is displayed when any switch is pushed |
| *b: Number of switches pushed | • Number of switches pushed at once is displayed<br>• If more than 3 switches are pushed at once, "More than 3" is displayed |
| *c: Rotary switch direction | Direction of rotary switch is displayed |



i. Operate each switch and check that the switch conditions are correctly displayed.

**NOTICE:**

When the "SETUP" switch is pressed and held for 3 seconds or more, diagnostic mode will be canceled.

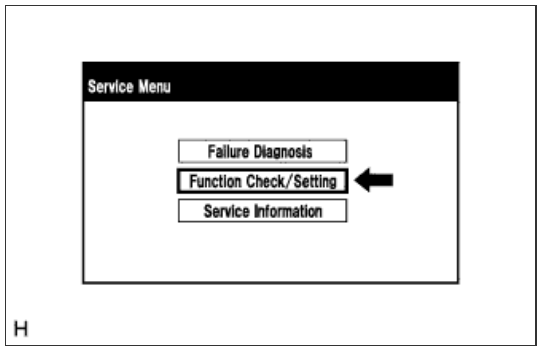
## CHECK TOUCH SWITCH

**HINT:**

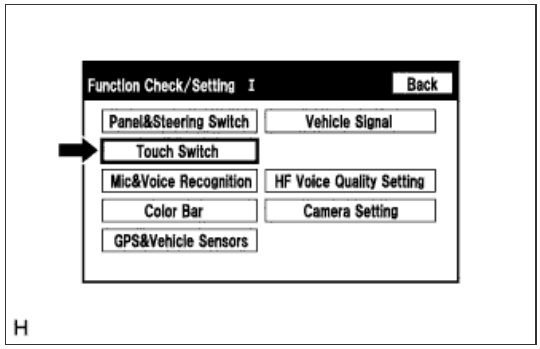
- **The touch switches on the screen are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "Touch Switch" from the "Function Check/Setting I" screen.

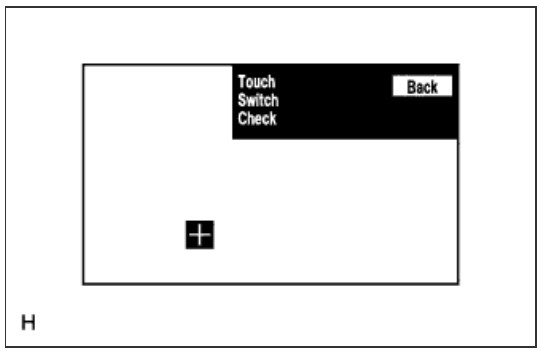



d. Touch Switch Check

i. Touch the display anywhere in the open area to perform the check when the "Touch Switch Check" screen is displayed.

**HINT:**

- **A "+" mark is displayed where the display is touched.**
- **The "+" mark remains on the display even after the finger is removed.**



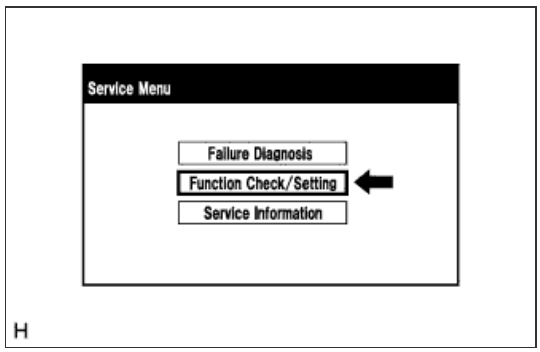

## CHECK MIC&VOICE RECOGNITION

**HINT:**

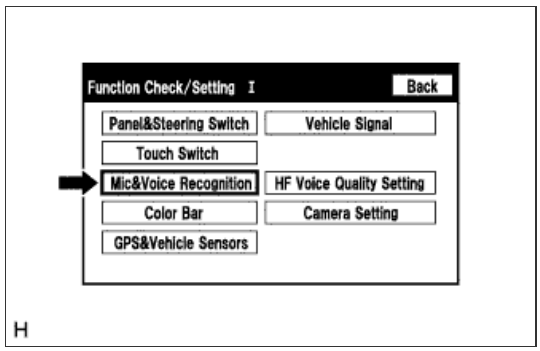
- **The microphone and microphone input level are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.



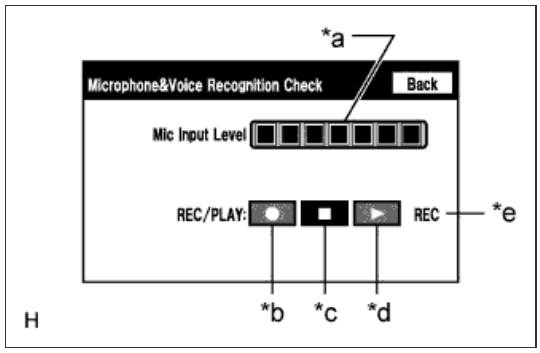

c. Select "Mic&Voice Recognition" from the "Function Check/Setting I" screen.




d. Microphone&Voice Recognition Check

**Screen Description**

| Display | Content |
|---|---|
| *a: Microphone input level meter | Monitors the microphone input level every 0.1 seconds and displays the results in 8 different levels. |
| *b: Recording switch | Starts recording. |
| *c: Stop switch | Stops recording and playing. |
| *d: Play switch | Plays the recorded voice. |
| *e: Recording indicator | Comes on while recording. |




i. When speaking into the microphone, check that the microphone input level meter changes according to the input level.

ii. Select the recording switch and perform voice recording.

**HINT:**

Select the recording switch with the blower motor of the air conditioning system stopped. If an outlet of the air conditioning system is facing the microphone, noise may be recorded.

iii. Check that the recording indicator remains on while recording and that the recording can be played normally.

**HINT:**

- **For details of this function, refer to Diagnosis Display Detailed Description in System Description ( Click here).**
- **This function is controlled by the multi-media module receiver assembly (built-in navigation ECU).**

## CHECK COLOR BAR

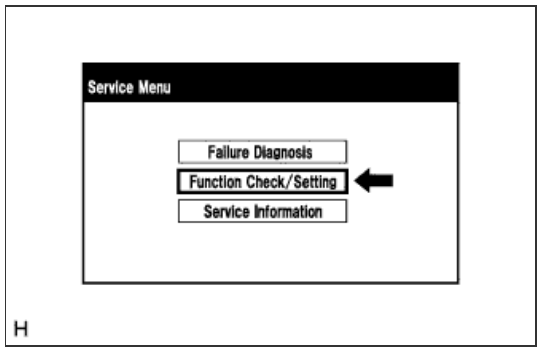
**HINT:**

- **The display color on the screen is checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed**

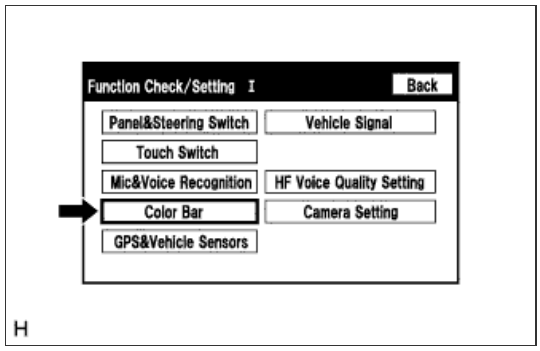
**areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "Color Bar" from the "Function Check/Setting I" screen.



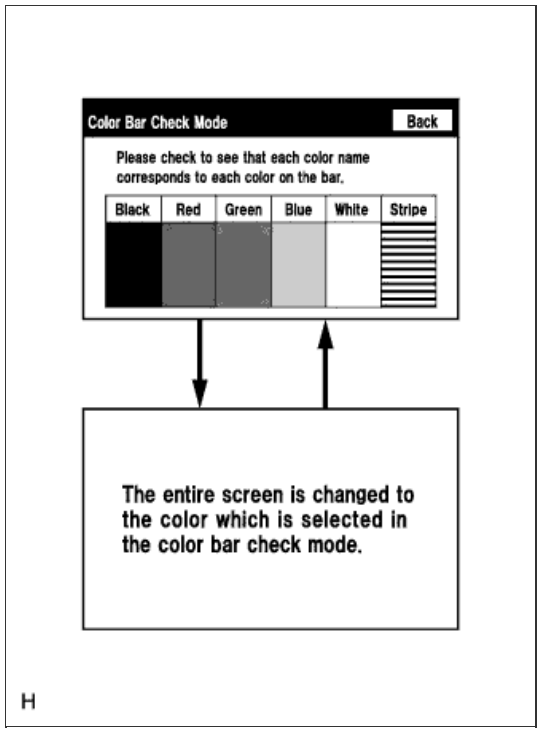

d. Color Bar Check Mode

i. Select a color bar from the "Color Bar Check Mode" screen.

ii. Check the display color.

**HINT:**

- **The entire screen turns to the color or stripe selected.**
- **Touching the display will return to the "Color Bar Check Mode" screen.**



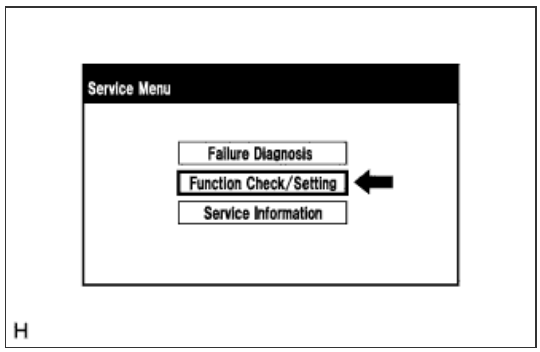

## CHECK GPS&VEHICLE SENSORS

**HINT:**

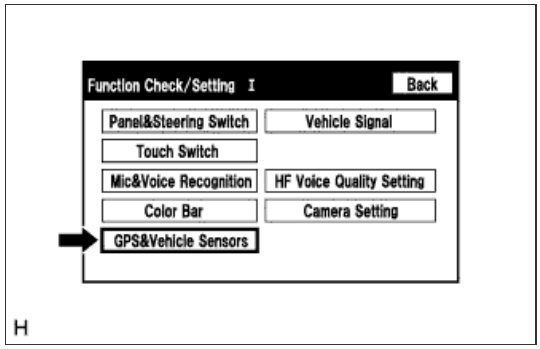
- **GPS information, vehicle signals and sensor signals are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

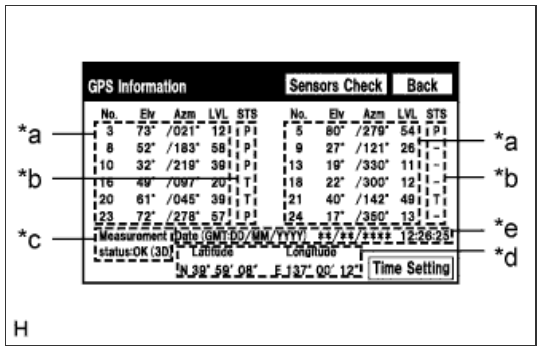
b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "GPS&Vehicle Sensors" from the "Function Check/Setting I" screen.




d. GPS Information




***a: Satellite Information Description**

| Display | Content |
|---|---|
| No. | Number of the target GPS satellite. |
| Elv | Elevation angle of the target GPS satellite. |
| Azm | Direction of the target GPS satellite. |
| LVL | The GPS signal level |

***b: Receiving Condition Description**

| Display | Content |
|---|---|
| P | The system is using the GPS signal for location. |
| T | The system is tracking the GPS signal for location. |
| U | The system is receiving a GPS signal, but is not using it for location. |
| - | The system cannot receiver a GPS signal (Searching a GPS Signal). |

***c: Measurement Status Description**

| Display | Content |
|---|---|
| OK (H3D) | High accuracy 3-dimensional location method is being used. |
| OK (H2D) | High accuracy 2-dimensional location method is being used. |
| OK (3D) | 3-Dimensional location method is being used. |
| OK (2D) | 2-Dimensional location method is being used. |
| NG | Location data cannot be used. |
| error | Reception error has occurred. |
| - | Any other state. |

***d: Position Information Description**

| Display | Content |
|---|---|
| Position | Latitude and longitude information on the current position is displayed. |

***e: Date Information Description**

| Display | Content |
|---|---|

| | |
|---|---|
| Date | The date/time information obtained from GPS signals is displayed in Greenwich Mean Time (GMT). |

**HINT:**

- **This screen is updated once per second.**
- **Information from a maximum of 12 satellites is displayed on the screen.**

i. When the "GPS Information" screen is displayed, check the GPS conditions.

e. Select "Sensors Check" from the "GPS Information" screen.

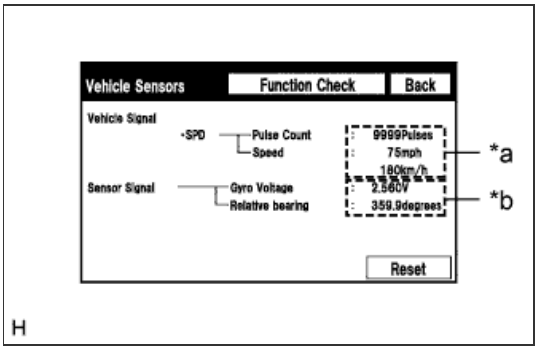
f. Vehicle Sensors

**Screen Description**

| Display | Content |
|---|---|
| *a: Vehicle signal | Vehicle speed signal condition is displayed. |
| *b: Sensor signal | Gyro sensor output condition is displayed. |

**HINT:**

This screen is updated once per second.



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i. Check all the signals and sensors when vehicle signal information is displayed.

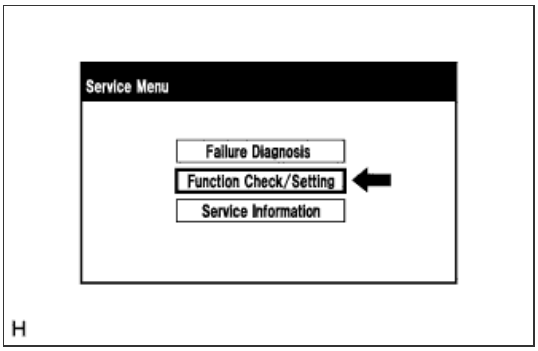
## CHECK VEHICLE SIGNALS

**HINT:**

- **Vehicle signals received by the multi-media module receiver assembly are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

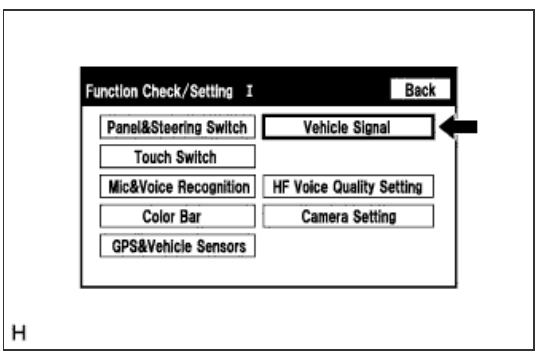
a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.



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c. Select "Vehicle Signal" from the "Function Check/Setting I" screen.

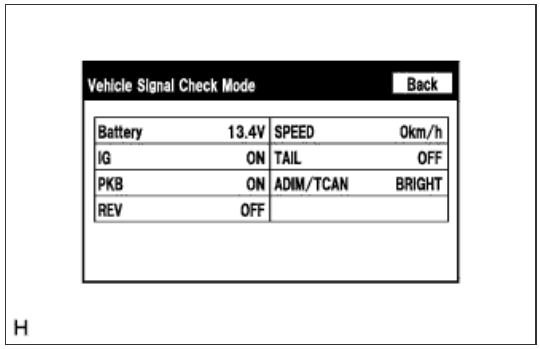


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d. Vehicle Signal Check Mode

d. Vehicle Signal Check Mode

i. When the "Vehicle Signal Check Mode" screen is displayed, check all the vehicle signal conditions.




**Screen Description**

| Display | Content |
|---|---|
| Battery | Battery voltage is displayed. |
| IG | Engine switch ON/OFF state is displayed. |
| PKB | Parking brake ON/OFF state is displayed. |
| REV | Reverse signal ON/OFF state is displayed. |
| SPEED | Vehicle speed is displayed in km/h. |
| TAIL | Tail signal (Light control switch) ON/OFF state is displayed. |
| ADIM/TCAN | Brightness state DIM (with) / BRIGHT (without) is displayed. |

**HINT:**

- **Only conditions having inputs are displayed.**
- **This screen displays vehicle signals input to the multi-media module receiver assembly (built-in navigation ECU).**
- **For details of this function, refer to Diagnosis Display Detailed Description in System Description ( Click here).**

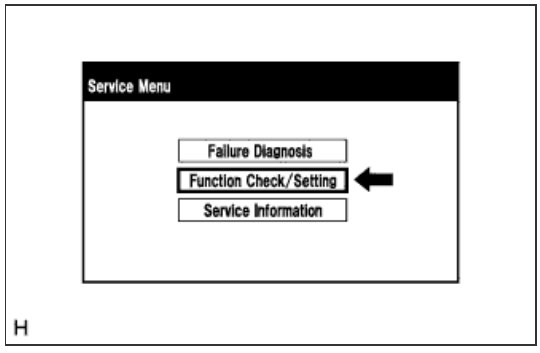
## CHECK HANDS-FREE VOICE QUALITY AND VOLUME SETTING

**HINT:**

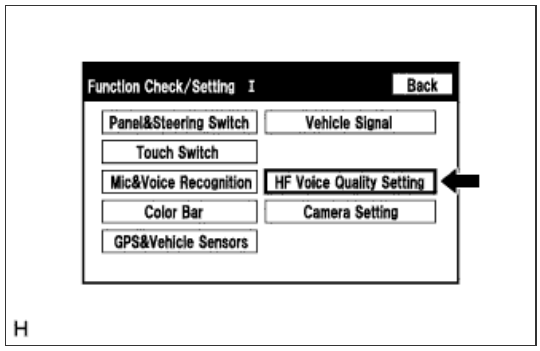
- **The hands-free volume of a "Bluetooth" compatible phone can be adjusted using the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.



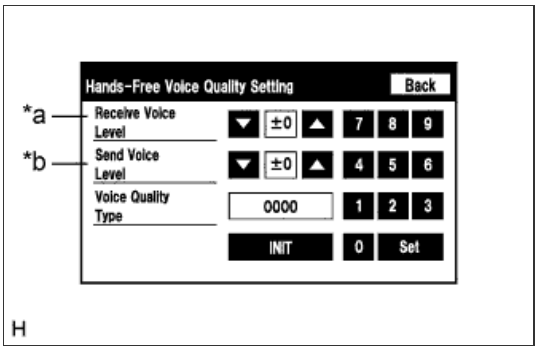

c. Select "HF Voice Quality Setting" from the "Function Check/Setting I" screen.




d. Hands-Free Voice Quality Setting (Receive/Send Voice Level adjustment)

**Screen Description**

| Display | Content |
|---|---|
| *a: Receive voice level adjustment | Setting for the voice level received from "Bluetooth" compatible phones. |
| *b: Send voice level adjustment | Setting for the voice level sent from "Bluetooth" compatible phones. |




**NOTICE:**

Sound quality may deteriorate when the receive voice or send voice level is changed more than necessary. For this reason, check that the received voice or sent voice quality is still acceptable after changing this setting.

i. If the voice level is low, press the up button, and if the voice level is loud, press the down button.

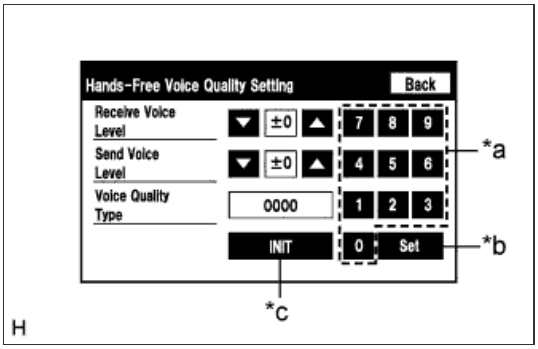
**HINT:**

- **Settings will be applied when the up or down button is selected.**
- **The received voice level adjustment ranges from -5 to +1.**
- **The sent voice level adjustment ranges from -5 to +4.**
- **The initial level is "0".**

e. Hands-Free Voice Quality Setting (Voice Quality Type adjustment)

**Screen Description**

| | |
|---|---|
| *a | Numeric keypad |
| *b | Setting button |
| *c | Reset button |




i. If necessary, refer to the table below to adjust the voice quality type with the numeric keypad.

ii. When adjusting the settings, use the number pad on the screen to input the voice quality type according to the table.

**Settings**

| Parameter | Target Phenomenon | Voice Quality Type | Positive Effect of Changing Voice Quality | Negative Effect of Changing Voice Quality |
|---|---|---|---|---|
| A (Noise) | The change in background noise the other party hears becomes unpleasant. | 1000 | The change in background noise the other party hears is reduced. | Background noise when not talking becomes large. |
| B (Noise) | The volume of the noise the other party hears temporarily becomes large. | 2000 | The temporary noise is reduced. | The volume of voice may drop temporarily. |
| C (Echo) | The other party hears weak echoes. | 0100 | The amount of echo is reduced (low level). | Sound quality of the other party deteriorates (low level). |
| D (Echo) | The other party hears strong echoes. | 0200 | The amount of echo is reduced (high level). | Sound quality of the other party deteriorates (high level). |
| E (Quality) | The other party hears harsh noises. | 0010 | Sound the other party hears becomes soft. | Sound the other party hears becomes muffled. |
| F (Quality) | You hear harsh noises. | 0020 | Sound you hear becomes soft. | Sound you hear becomes muffled. |

**Settings (When multiple phenomenon occurred)**

| Parameter | Target Phenomenon | Voice Quality Type | Positive Effect of Changing Voice Quality | Negative Effect of Changing Voice Quality |
|---|---|---|---|---|
| A+C | The change in background noise the other party hears becomes unpleasant | 1100 | • The change in background noise the other party hears is reduced. | • Background noise when not talking becomes large.<br>• Sound |

| | | | | |
|---|---|---|---|---|
| | and the other party hears weak echoes. | | • The amount of echo is reduced (low level). | quality of the other party deteriorates (low level). |
| A+D | The change in background noise the other party hears becomes unpleasant and the other party hears strong echoes. | 1200 | • The change in background noise the other party hears is reduced.<br>• The amount of echo is reduced (high level). | • Background noise when not talking becomes large.<br>• Sound quality of the other party deteriorates (high level). |
| B+C | The volume of the noise the other party hears temporarily becomes large and the other party hears weak echoes. | 2100 | • The temporary noise is reduced.<br>• The amount of echo is reduced (low level). | • The volume of voice may drop temporarily.<br>• Sound quality of the other party deteriorates (low level). |
| B+D | The volume of the noise the other party hears temporarily becomes large and the other party hears strong echoes. | 2200 | • The temporary noise is reduced.<br>• The amount of echo is reduced (high level). | • The volume of voice may drop temporarily.<br>• Sound quality of the other party deteriorates (high level). |
| C+E | The other party hears weak echoes and harsh noises. | 0110 | • The amount of echo is reduced (low level).<br>• Sound the other party hears becomes soft. | • Sound quality of the other party deteriorates (low level).<br>• Sound the other party hears becomes muffled. |
| C+F | The other party hears weak echoes and you hear harsh noises. | 0120 | • The amount of echo is reduced (low level).<br>• Sound you hear becomes soft. | • Sound quality of the other party deteriorates (low level).<br>• Sound you hear becomes muffled. |

**HINT:**

- **The default value is "0000".**
- **Settings will be applied when the setting button is selected.**
- **If voice quality type values that are not in the table are input, the setting will not be applied and a positive effect may not be gained.**
- **If the quality of phone calls decreases due to the changed settings, return the settings to "0000" by pressing the "INIT" switch.**

## CHECK SOFTWARE ERROR HISTORY

**HINT:**

This function is used to check the cause when the multi-media module receiver assembly screen is blacked out.

a. Check software error history.

i. Connect the intelligent tester to the DLC3.

ii. Turn the engine switch on (IG).

iii. Turn the intelligent tester on.

iv. Enter the following menus: Body Electrical / Navigation System / Utility / Software Error History.

v. When an item is stored for Software Error History, record it before repairing the multi-media module receiver assembly.

**Software Error History Screen Description**

| Error Description | Trigger | Detail |
|---|---|---|
| Software Reset | Navi Microcomputer | Hexadecimal Number |
| | Audio Microcomputer | |
| | CAN Microcomputer | |
| No Video Signal | Front Monitor | |
| | Rear Monitor | |
| MOST Cold Restart | Always | |

**HINT:**

- **Software Error History can store up to 5 history data items. If a new software error occurs when 5 data items have already been stored, the oldest data is cleared and the new data is stored.**
- **If an error that is unsupported by the intelligent tester occurs, a "-" is displayed for the display items.**

b. Clear software error history.

i. When DTCs are cleared using any of the following operations, Software Error History will be cleared as well ( Click here).

- Cleared using the intelligent tester.
- Cleared using the system check mode screen.
- Cleared using the unit check mode screen.

## CHECK OPTICAL DISC ERROR HISTORY

**HINT:**

This function is used to check the cause of an optical disc error.

a. Check optical disc error history.

i. Connect the intelligent tester to the DLC3.

ii. Turn the engine switch on (IG).

iii. Turn the intelligent tester on.

iv. Enter the following menus: Body Electrical / Navigation System / Utility / Optical Disc Error History.

v. When an item is stored for Optical Disc Error History, record it before proceeding with troubleshooting.

**Optical Disc Error History Screen Description**

| Display | Content |
|---|---|
| Error Type | Displays the type of error. |
| Device | Displays the malfunctioning device. |
| Date | Displays the date and time that the malfunction occurred. |

**"Error Type" Screen Description**

| Error Type | Detection Condition | Action |
|---|---|---|
| Read Error | When a disc read error occurs. | |
| Disc damaged/up | When it is determined that any of the following is the cause of the disc read error:<br>• The disc cannot be read.<br>• The disc cannot be read because of dirt or | |

| | | |
|---|---|---|
| side down/dirty | scratches.<br>• The disc cannot be read because it is inserted up side down. | Proceed to next suspected area shown in Problem Symptoms Table (Click here) |
| Cannot determine disc type | An unsuitable disc is inserted. | |
| DPS error | When an error occurs while decoding MP3/WMA files. | |
| Some files are corrupt | • When MP3/WMA files cannot be played back because they are unsupported.<br>• Even though the file extensions are MP3 or WMA, files cannot be played back because the header information cannot be read. | |
| Some files cannot be found | • When a disc without music data is played back.<br>• When there are no playable MP3/WMA files. | |
| Copy protection violation | When a file with copyright protection that cannot be played back is played back. | |

**"Device" Screen Description**

| Device | Component |
|---|---|
| DVD-P | Multi-media module receiver assembly |
| CD-P | Not available |
| R-Seat DVD-P | Not available |

**HINT:**

- **Optical Disc Error History can store up to 7 history data items. If a new optical disc error occurs when 7 data items have already been stored, the oldest data is cleared and the new data is stored.**
- **If an error that is unsupported by the intelligent tester occurs, a "-" or blank is displayed for the display items.**

b. Clear optical disc error history.

i. When DTCs are cleared using any of the following operations, Optical Disc Error History will be cleared as well ( Click here).

- Cleared using the intelligent tester.
- Cleared using the system check mode screen.
- Cleared using the unit check mode screen.

## MAP INFORMATION

**HINT:**

This function is used to check the map version of the navigation system and the end date of the map update service.

a. Check map information.

i. Connect the intelligent tester to the DLC3.

ii. Turn the engine switch on (IG).

iii. Turn the intelligent tester on.

iv. Enter the following menus: Body Electrical / Navigation System / Utility / Map Information.

v. Check the map version and the end date of the map update service.

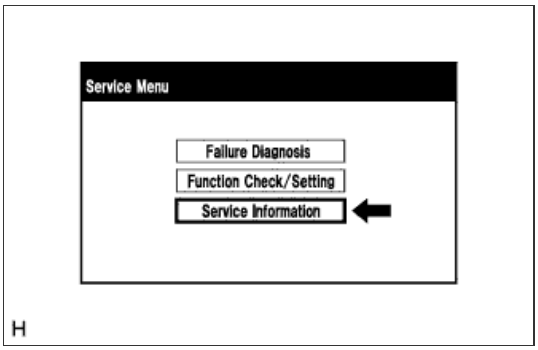
## CLEAR PASSWORD OF EXPORT/IMPORT MEMORY POINT FUNCTION

**HINT:**

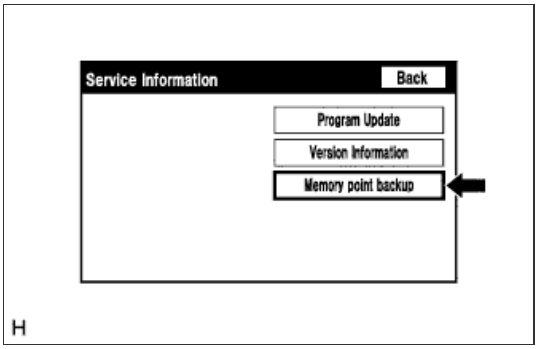
- **This function allows the initialization of a password which was set on the multi-media module receiver assembly when exporting/importing memory points.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (See page ).

b. Select "Service Information" from the "Service Menu" screen.



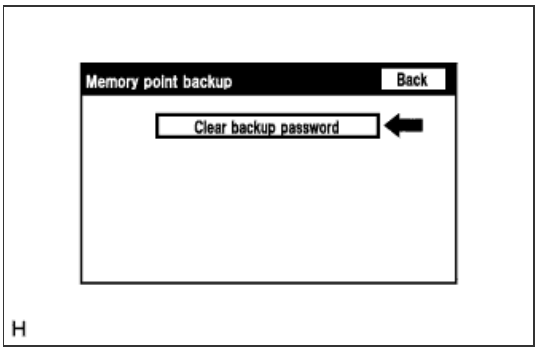

c. Select "Memory point backup" from the "Service Information" screen.




d. Clear backup password

**HINT:**

Depending on the manufacturer, some component names and versions will be displayed differently.




i. Select "Clear backup password".

**for Preparation** Click here

**HINT:**

Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

### Display Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Pressing multi-display main switch does not turn on system. | Multi-display Power Source Circuit | Click here |
| | AVC-LAN Circuit | Click here |
| | Replace multi-display | Click here |
| Black screen (no image appears on navigation/audio screen). | Proceed to "No Image Appears on Multi-display" | Click here |
| | Multi-display Power Source Circuit | Click here |
| | Illumination Circuit | Click here |
| | AVC-LAN Circuit | Click here |
| | Replace multi-display | Click here |
| Illumination for panel switch does not come on with TAIL switch on. | Proceed to "Illumination for Panel Switch does not Come on with Tail Switch ON" | Click here |
| | Illumination Circuit | Click here |
| | Replace multi-display | Click here |
| Display does not dim (night screen) with light control switch turned on. | Proceed to "Display does not DIM when Light Control Switch is turned ON" | Click here |
| | Replace multi-display | Click here |
| Power does not turn off (the screen remains on). | Proceed to "Multi-display Power Source Circuit" | Click here |
| | Replace multi-display | Click here |
| Panel switches do not function. | Proceed to "Panel Switches do not Function" | Click here |
| | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Proceed to "Multi-display Power Source Circuit" | Click here |
| | Replace multi-display | Click here |
| Touch panel switch does not function. | Proceed to "Touch Panel Switch does not Function" | Click here |
| | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Replace multi-display | Click here |
| Navigation screen is not displayed. | Replace Map disc | - |
| | Replace navigation ECU | Click here |
| | Replace multi-display | Click here |
| | Proceed to "Screen Flicker or Color Distortion" | Click here |

| | | |
|---|---|---|
| Navigation screen flicker or color distortion. | Replace navigation ECU | Click here |
| | Replace multi-display | Click here |
| DVD image cannot be displayed on multi-display (parking brake is on). | Proceed to "Display Signal Circuit between Multi-display and Radio Receiver" | Click here |
| | Proceed to "Parking Brake Switch Circuit" | Click here |
| | Replace radio receiver | Click here |
| | Replace multi-display | Click here |
| Navigation function switches can be operated while vehicle is running. | Proceed to "Vehicle Speed Signal Circuit" | Click here |

### Navigation Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Map disc cannot be inserted. | Proceed to "Map Disc cannot be Inserted" | Click here |
| | Proceed to "Navigation ECU Power Source Circuit" | Click here |
| | Replace navigation ECU | Click here |
| Map disc cannot be ejected. | Proceed to "Map Disc cannot be Ejected" | Click here |
| | Proceed to "Navigation ECU Power Source Circuit" | Click here |
| | Replace navigation ECU | Click here |
| Vehicle position mark deviates greatly. | Proceed to "Vehicle Position Mark Deviates Greatly" | Click here |
| | Proceed to "GPS Mark is not Displayed" | Click here |
| | Proceed to "Vehicle Speed Signal Circuit" | Click here |
| | Reverse Signal Circuit | Click here |
| | Replace navigation antenna | Click here |
| | Replace navigation ECU | Click here |
| Cursor or map rotates when vehicle is stopped. | Proceed to "Cursor or Map Rotates when Vehicle is Stopped" | Click here |
| | Proceed to "Vehicle Speed Signal Circuit" | Click here |
| | Replace navigation ECU | Click here |
| Vehicle position mark is not updated. | Proceed to "Vehicle Position Mark is not Updated" | Click here |
| | Proceed to "GPS Mark is not Displayed" | Click here |
| | Proceed to "Vehicle Speed Signal Circuit" | Click here |
| | Replace multi-display | Click here |
| | Replace map disc | - |
| | Replace navigation ECU | Click here |
| Current position display does not appear. | Proceed to "Current Position Display does not Appear" | Click here |
| | Replace map disc | - |
| | Replace navigation ECU | Click here |
| GPS Mark is not displayed. | Proceed to "GPS Mark is not Displayed" | Click here |
| | Replace navigation antenna | Click here |
| | Replace navigation ECU | Click here |
| No sound can be heard from speakers. | Proceed to "No Sound can be Heard from Speakers" | Click here |
| | Proceed to "Navigation Voice Speaker Circuit" | Click here |
| Voice guidance does not function. | Proceed to "Voice Guidance does not Function" | Click here |
| | Proceed to "Navigation Voice Speaker Circuit" | Click here |
| | Replace map disc | - |
| | Replace stereo component amplifier | Click here |
| Map display incomplete. | Proceed to "Map Display Incomplete" | Click here |
| | Replace map disc | - |
| | Replace navigation ECU | Click here |
| Route cannot be calculated. | Proceed to "Route cannot be Calculated" | Click here |
| | Replace map disc | - |
| | Replace navigation ECU | Click here |
| Voice recognition difficulty.* | Proceed to "Voice Recognition Difficulty" | Click here |
| | Replace navigation ECU | Click here |

| | | |
|---|---|---|
| Voice is not recognized.* | Proceed to "Voice is not recognized" | Click here |
| | Proceed to "Microphone circuit between overhead J/B and multi-display" | Click here |
| | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Replace microphone amplifier | Click here |
| | Replace navigation ECU | Click here |
| Speed signal does not change in navigation check mode. | Proceed to "Vehicle Speed Signal Circuit" | Click here |
| Reverse signal does not change in navigation check mode. | Proceed to "Reverse Signal Circuit" | Click here |

*: /w Voice Recognition Function

### Steering Pad Switch Function

| Symptom | Suspected Area | See page |
|---|---|---|
| The system cannot be operated by steering pad switch. | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Replace radio receiver | Click here |
| Illumination for steering pad switch does not come on with tail switch on. | Proceed to "Illumination Circuit" | Click here |
| | Replace radio receiver | Click here |

### "Bluetooth" Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Cellular phone registration failure, phone directory transfer failure. | Proceed to "Cellular Phone Registration Failure, Phone Directory Transfer Failure" | Click here |
| Cellular phone cannot send/receive. | Proceed to "Cellular Phone cannot Send/Receive" | Click here |
| | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Replace multi-display | Click here |
| Cannot call in a certain place. | Proceed to "Cannot Call in a Certain Place" | Click here |
| The other callers voice cannot be heard, is too quiet, or distorted. | Proceed to "The Other Callers Voice cannot be Heard, is too Quiet, or Distorted" | Click here |
| | Proceed to "Voice Guidance does not Function" | Click here |
| | Replace multi-display | Click here |
| The other caller cannot hear your voice, or your voice is too quiet or distorted. | Proceed to "The Other Caller cannot Hear Your Voice, or Your Voice is too Quiet or Distorted" | Click here |
| | Proceed to "Microphone circuit between overhead J/B and multi-display" | Click here |
| | Replace microphone | Click here |
| | Replace multi-display | Click here |

**for Preparation** Click here

**HINT:**

- **Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**
- **Inspect the fuses and relays related to this system before inspecting the suspected areas below.**

**Display Function**

| Symptom | Suspected Area | See page |
|---|---|---|
| Black screen (No image appears on navigation/audio screen.) | Proceed to "Black Screen" | Click here |
| | Proceed to "Display Signal Circuit between Multi-display and Radio Receiver" | Click here |
| | Proceed to "Visual Mute Signal Circuit between Radio Receiver and Multi-display" | Click here |
| | Hard disc | Click here |
| | Multi-media module receiver assembly | Click here |
| A message is displayed to inform the driver that the program cannot be read, and the system cannot be operated using the remote touch. | Hard disc | Click here |
| | Multi-media module receiver assembly | Click here |
| A white or blue screen remains displayed after the engine switch is turned on (ACC). (Even though the navigation system is operated, the screen does not change or navigation sound cannot be heard.) | Hard disc | Click here |
| | Multi-media module receiver assembly | Click here |
| A white or blue screen remains displayed after the engine switch is turned on (ACC). (When the navigation system is operated the current position screen or a navigation screen such as MENU is displayed or navigation sound is heard.) | Hard disc | Click here |
| | Multi-media module receiver assembly | Click here |
| The multi-display assembly does not dim even when the light control switch is turned to the tail or head position. | Confirm that the tail cancel is off. | - |
| | Proceed to "Display does not Dim when Light Control Switch is Turned ON" | Click here |
| | Proceed to "Illumination Circuit" | Click here |
| | Multi-display assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| Power does not turn off. (Screen remains on.) | Proceed to "Radio Receiver Power Source Circuit" | Click here |
| | Multi-media module receiver assembly | Click here |
| | Multi-display assembly | Click here |
| Noise occurs when screens switch. | Proceed to "Visual Mute Signal Circuit between Radio Receiver and Multi-display" | Click here |
| | Multi-media module receiver assembly | Click here |
| | Multi-display assembly | Click here |
| | Proceed to "Radio Receiver Power Source Circuit" | Click here |

| | | |
|---|---|---|
| Screen is distorted. | Multi-media module receiver assembly | Click here |
| | Multi-display assembly | Click here |
| Screen flicker or color distortion. | Proceed to "Screen Flicker or Color Distortion" | Click here |
| | Proceed to "Display Signal Circuit between Multi-display and Radio Receiver" | Click here |
| | Proceed to "Visual Mute Signal Circuit between Navigation ECU and Multi-display" | Click here |
| | Multi-media module receiver assembly | Click here |
| Navigation function switches can be operated while vehicle is being driven. | Multi-media module receiver assembly | Click here |

### Panel Switch and Touch Switch Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Illumination for panel switches does not come on with tail switch on. | Proceed to "Illumination for Panel Switch does not Come on with Tail Switch ON" | Click here |
| | Proceed to "Illumination Circuit" | Click here |
| | Multi-media module receiver assembly | Click here |
| Panel switches do not function. | Proceed to "Panel Switches do not Function" | Click here |
| | Proceed to "Radio Receiver Power Source Circuit | Click here |
| | Multi-media module receiver assembly | Click here |
| Touch panel switch does not function. | Proceed to "Touch Panel Switch does not Function" | Click here |
| | Proceed to "Radio Receiver Power Source Circuit | Click here |
| | Multi-media module receiver assembly | Click here |
| Navigation function switches can be operated while vehicle is driving. | Proceed to "Parking Brake Switch Circuit" | Click here |
| | Multi-media module receiver assembly | Click here |

### Customize Startup Image or Screen Off Image Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Screen cannot be changed to UIC setting screen. | Multi-media module receiver assembly | Click here |
| Thumbnails for opening image setting or screen off image setting do not update when USB device is connected. | Check that the USB device was not disconnected while transferring an image. | - |
| | Check that the screen was not changed to another function menu while transferring an image. | - |
| | Proceed to "USB Audio System Recognition/Play Error" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| Transfer button cannot be pressed. | Check that a USB device is connected. | - |
| | Check that the USB device is not in use. (USB audio system is playing etc.) | - |
| | Proceed to "USB Audio System Recognition/Play Error" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media module receiver assembly | Click here |

| | | |
|---|---|---|
| Image data in USB device cannot be displayed. | Check that the designated folder name is used. | - |
| | Check that the file extension of the data is JPG or JPEG. | - |
| | Check that the file name is 32 characters or less and available language is used. | - |
| | Check that the image data size is 10 MB or less. | - |
| | Check that the file system of the USB device is FAT16 or FAT32. | - |
| | Proceed to "USB Audio System Recognition/Play Error" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| Set opening image or screen off image is not displayed. | Check if it is the first start-up after disconnecting and reconnecting the +B terminal. (Reading from the HDD may be slow when the system is first starting-up.) | - |
| | Set the opening image or screen off image again. | - |
| | Multi-media module receiver assembly | Click here |
| Stored image cannot be deleted. | Multi-media module receiver assembly | Click here |
| Message indicating that USB device cannot be accessed is displayed. | Check that the USB device has not been disconnected while the navigation system is recognizing it. | - |
| | Proceed to "USB Audio System Recognition/Play Error" | Click here |
| | No. 1 stereo jack adapter assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| Thumbnail images for opening image or screen off image are not displayed on setting screen. | Check if it is the first start-up after disconnecting and reconnecting the +B terminal. (Reading from the HDD may be slow when the system is first starting-up.) | - |
| | Set the opening image or screen off image again. | - |
| | Multi-media module receiver assembly | Click here |
| Image cannot be set for opening image or screen off image on setting screen. | Set the opening image or screen off image again. | - |
| | Multi-media module receiver assembly | Click here |

### Navigation Function

| Symptom | Suspected Area | See page |
|---|---|---|
| GPS mark is not displayed. | Proceed to "GPS Mark is not Displayed" | Click here |
| | Navigation antenna assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| Vehicle position mark deviates from correct position and does not return to correct position. | Proceed to "GPS Mark is not Displayed" | Click here |
| | Navigation antenna assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| Cursor or map rotates when vehicle is stopped. | Proceed to "Cursor or Map Rotates when Vehicle Stopped" | Click here |
| | Multi-media module receiver assembly | Click here |
| Vehicle position mark moves in the opposite direction to the vehicle. | Check if the GPS mark is displayed on the map screen. | - |
| | Proceed to "Cursor or Map Rotates when Vehicle Stopped" | Click here |
| | Multi-media module receiver assembly | Click here |
| | Proceed to "GPS Mark is not Displayed" | Click here |
| | Drive the vehicle for sensor learning. (At a place where GPS signals can be | |

| | | |
|---|---|---|
| Vehicle position mark deviates from and returns to correct position repeatedly even though GPS mark is displayed. | received, drive the vehicle clockwise and counterclockwise in at least a 200 meter square 2 times or more.) | - |
| | Navigation antenna assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| Vehicle position mark moves slow or fast. | Proceed to "GPS Mark is not Displayed" | Click here |
| | Navigation antenna assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| Voice guidance does not function. | Proceed to "Voice Guidance does not Function" | Click here |
| | Proceed to "Speaker Circuit" | Click here |
| | Multi-media module receiver assembly | Click here |
| | Stereo component amplifier assembly | Click here |
| Map display is incomplete. | Hard disc | Click here |
| | Multi-media module receiver assembly | Click here |
| Route cannot be calculated. | Proceed to "Route cannot be Calculated" | Click here |
| | Multi-media module receiver assembly | Click here |
| Screen does not change to night screen even when tail switch is turned on. | Proceed to "Display does not Dim when Light Control Switch is Turned ON" | Click here |
| | Proceed to "Illumination Circuit" Multi-display | Click here |
| | Multi-media module receiver assembly | Click here |
| Navigation ECU cannot record memory point registration or each item setting. | Hard disc | Click here |
| | Multi-media module receiver assembly | Click here |
| A message indicating to wait for a while because of low temperature is displayed. | Start the engine and increase cabin temperature (near multi-media module receiver assembly) | - |
| | Proceed to "Check Hard Disk Drive" in Operation Check | Click here |
| | Multi-media module receiver assembly | Click here |
| A message is displayed because map data cannot be read, and current position screen is not displayed. | If message appears only when driving on rough roads, check if message disappears when vehicle is stopped. | - |
| | Hard disc | Click here |
| | Multi-media module receiver assembly | Click here |
| Map screen turns white or blue. (GPS receiving status is displayed normally, and switches and own vehicle position mark are also displayed normally.) | Change map scale to smallest (a scale that shows a large area) | - |
| | Hard disc | Click here |
| | Multi-media module receiver assembly | Click here |
| Voice menu screen is not displayed. | Proceed to "Panel Switches do not Function" | Click here |
| | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Multi-media module receiver assembly | Click here |
| | Proceed to "Panel Switches do not Function" | Click here |
| | Proceed to "Steering Pad Switch Circuit" | Click here |

| | | |
|---|---|---|
| Voice is not recognized. | Proceed to "Voice is not Recognized" | Click here |
| | Proceed to "Microphone Circuit between Microphone and Radio Receiver" | Click here |
| | Multi-media module receiver assembly | Click here |
| Customizable parameters cannot be changed. (Customizable parameters can be changed by using the intelligent tester.) | Multi-media module receiver assembly | Click here |
| Reverse signal does not change in vehicle signal check mode. | Check shift indicator display on combination meter. | - |
| | Multi-media module receiver assembly | Click here |
| Parking brake signal does not change in vehicle signal check mode. | Proceed to "Parking Brake Switch Circuit" | Click here |
| | Multi-media module receiver assembly | Click here |
| "MIC" is not displayed on system check mode screen. | Proceed to "Microphone Circuit between Microphone and Radio Receiver" | Click here |
| | Multi-media module receiver assembly | Click here |
| "AUX" is not displayed on system check mode screen. | Proceed to "Sound Signal Circuit between Radio Receiver and Stereo Jack Adapter" | Click here |
| | Multi-media module receiver assembly | Click here |

### Steering Pad Switch Function

| Symptom | Suspected Area | See page |
|---|---|---|
| System cannot be operated by steering pad switch. | Proceed to "Panel Switches do not Function" | Click here |
| | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Multi-media module receiver assembly | Click here |
| The steering pad switch does not illuminate even when the light control switch is turned to the tail or head position. | Proceed to "Illumination Circuit" | Click here |
| | Multi-media module receiver assembly | Click here |

### "Bluetooth" Hands-free Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Bluetooth is inoperative. | Proceed to "Microphone Circuit between Microphone and Radio Receiver" | Click here |
| | Multi-media module receiver assembly | Click here |
| Cellular phone registration failure. | Proceed to "Cellular Phone Registration Failure, Phonebook Transfer Failure" | Click here |
| | Multi-media module receiver assembly | Click here |
| Cellular phone cannot make outgoing/incoming calls or call in a certain place. | Proceed to "Cellular Phone cannot Make Outgoing/Incoming Calls" | Click here |
| | Multi-media module receiver assembly | Click here |
| Message that prompts to check the cellular phone is displayed. | Proceed to "Cellular Phone cannot Make Outgoing/Incoming Calls" | Click here |
| | Multi-media module receiver assembly | Click here |
| Phonebook data cannot be transferred manually or automatically. | Check the automatic download contract setting | - |
| | When transferring phonebook data, OBEX authentication may be required. Enter "1234" into the "Bluetooth" phone. | - |
| | Proceed to "Cellular Phone Registration Failure, Phonebook Transfer Failure" | Click here |
| | Multi-media module receiver assembly | Click here |

| | | |
|---|---|---|
| Volume of other caller's voice is not at an appropriate volume level, there is noise, sound quality is poor or other caller's voice cannot be heard. | Proceed to "Check Hands-free Voice Quality and Volume Setting" in Operation Check | Click here |
| | Proceed to "The Other Caller's Voice cannot be Heard, is too Quiet, or Distorted" | Click here |
| | Multi-media module receiver assembly | Click here |
| | Stereo component amplifier assembly | Click here |
| Other caller cannot hear your voice at an appropriate volume level, there is noise or an echo, sound quality is poor or other caller cannot hear your voice. | Proceed to "Check Hands-free Voice Quality and Volume Setting" in Operation Check | Click here |
| | Proceed to "The Other Caller cannot Hear Your Voice, or Your Voice is too Quiet or Distorted" | Click here |
| | Proceed to "Microphone Circuit between Microphone and Radio Receiver" | Click here |
| | Multi-media module receiver assembly | Click here |
| E-mail/SMS cannot be received or sent. (w/ Connected Service) | Check whether messages can be received/sent using the cellular phone. | - |
| | Check that the phone is registered as a hands-free device. | - |
| | Check the sending and receiving e-mails via the navigation system setting. | - |
| | Proceed to "Cellular Phone Registration Failure, Phonebook Transfer Failure" | Click here |
| | Multi-media module receiver assembly | Click here |

### Fuel Consumption Function

| Symptom | Suspected Area | See page |
|---|---|---|
| "Fuel Consumption" icon is dimmed. | Check if other icons or items displayed on screen have any problems. | - |
| | Multi-media module receiver assembly | Click here |
| Graph is not displayed on "Trip Information" screen. | Recheck with the engine running. | - |
| | Multi-media module receiver assembly | Click here |
| Cruise range is not displayed on "Trip Information" screen. | Turn engine switch on (IG) and recheck. | - |
| | Multi-media module receiver assembly | Click here |
| Graph is not updated on "Past record" screen even though "Clear" is selected. | Turn engine switch on (IG) and recheck. | - |
| | Multi-media module receiver assembly | Click here |
| Graph is not displayed on "Past record" screen. | Turn engine switch on (IG) and recheck. | - |
| | Multi-media module receiver assembly | Click here |

### Connected Services (w/ Connected Services)

| Symptom | Suspected Area | See page |
|---|---|---|
| Connection to the search engine fails. | Check "Connected Services" in System Description | Click here |
| | Contact the mobile network provider and check if the items in "Detail Setting" are set correctly. | - |
| | Check if the cellular phone is in standby mode. | - |
| | Check if the cellular phone is compatible with the connected service. | - |
| | Multi-media module receiver assembly | Click here |
| POIs are not displayed on the list. (When using a USB device) | Check if POIs are stored in USB device root folders. | - |
| | Check that POIs with extension .csi are stored in the USB device. | - |
| | Check that 8.3 filename is used for POIs. | - |
| | Check that the file size of POIs is not 400 kb or more. | - |
| | Check that nothing has been changed for downloaded POIs other than renaming them. | - |
| | | Click |

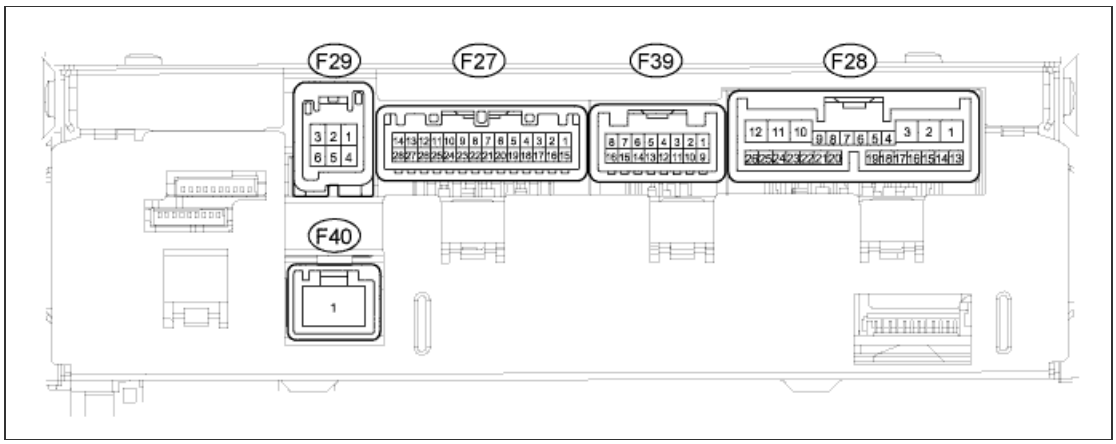
| | | |
|---|---|---|
| | Multi-media module receiver assembly | here |
| POIs cannot be registered to the navigation system. | Check if the maximum number of memory points has been registered. | - |
| | Check that nothing has been changed for downloaded POIs other than renaming them. | - |
| | Multi-media module receiver assembly | Click here |

### TPEG Information (w/ Connected Services)

| Symptom | Suspected Area | See page |
|---|---|---|
| TPEG information is not displayed on the navigation screen. | Check that "Show traffic info" is set to on. | - |
| | Check whether the area is where TPEG information can be received. | - |
| | Multi-media module receiver assembly | Click here |
| TPEG provider logo mark is not displayed on the information screen. | Check if the DAB function for audio is being used. | - |
| | Check if the select traffic info service is set to AUTO. | - |
| | Check whether DAB could be received. | - |
| | Proceed to "Check DAB Reception" in Operation Check | Click here |
| | Multi-media module receiver assembly | Click here |
| Detoured search using TPEG information does not operate. | Check that "Show traffic info" is set to on. | - |
| | Check that "Realtime traffic events" or "Predictive traffic events" are set to on. | - |
| | Multi-media module receiver assembly | Click here |

**for Preparation** Click here

## CHECK MULTI-DISPLAY




a. Disconnect the F28 and F39 display connectors.

b. Measure the resistance and voltage according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F28-1 (+B1) - F28-10 (GND1) | R - W-B | Battery | Always | 10.5 to 16 V |
| F28-2 (ACC) - F28-10 (GND1) | GR - W-B | Accessory (ON) | Engine switch off | Below 1 V |
| | | | Engine switch on (ACC) | 10.5 to 16 V |
| F28-3 (IG) - F28-10 (GND1) | G - W-B | Ignition (ON) | Engine switch off | Below 1 V |
| | | | Engine switch on (IG) | 10.5 to 16 V |
| F28-10 (GND1) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F39-6 (GND2) - Body ground | B - Body ground | Ground | Always | Below 1 Ω |

If the result is not as specified, there may be a malfunction on the wire harness side.

c. Reconnect the F28 and F39 display connectors.

d. Measure the voltage and waveform according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F27-1 (TX-) - F28-10 (GND1) | L - W-B | AVC-LAN communication signal | Engine switch on (ACC) | 2.25 to 2.75 V |
| F27-2 (TX+) - F28-10 (GND1) | W - W-B | AVC-LAN communication signal | Engine switch on (ACC) | 2.25 to 2.75 V |
| F27-3 (TX2-) - F28-10 (GND1) | L - W-B | AVC-LAN communication signal | Engine switch on (ACC) | 2.25 to 2.75 V |
| F27-4 (TX2+) - F28-10 (GND1) | W - W-B | AVC-LAN communication signal | Engine switch on (ACC) | 2.25 to 2.75 V |
| F27-5 (TSW-) - F28-10 (GND1) | BR - W-B | Telephone relation switch signal | Always | Below 1 V |
| F27-9 (MACC) - F28-10 (GND1) | Y - W-B | Microphone amplifier power supply | Engine switch off | Below 1 V |
| | | | Engine switch on (IG) | 4.75 to 5.25 V |
| F27-10 (MIN-) - F28-10 (GND1) | R - W-B | Microphone voice signal | See "Microphone & Voice Recognition Check" (Click here) | - |
| F27-11 (MIN+) - F28-10 (GND1) | G - W-B | Microphone voice signal | See "Microphone & Voice Recognition Check" (Click here) | - |
| F27-12 (SGND) - F28-10 (GND1) | BR - W-B | Signal ground | Always | Below 1 V |

| | | | | |
|---|---|---|---|---|
| F27-13 (CA+) - F28-10 (GND1)*1 | B - W-B | Television camera power supply | Engine switch on (IG), shift lever moved to R | 5.8 to 6.5 V |
| F27-14 (CGND) - Body ground*1 | W - Body ground | Ground | Always | Below 1 V |
| F27-21 (IVO-) - F28-10 (GND1) | B - W-B | Voice guidance signal | Voice guidance provided | Waveform synchronized with sounds is output |
| F27-22 (IVO+) - F28-10 (GND1) | W - W-B | Voice guidance signal | Voice guidance provided | Waveform synchronized with sounds is output |
| F27-23 (SLD) - F28-10 (GND1) | Shielded - W-B | Shielded ground | Always | Below 1 V |
| F27-27 (V+) - F27-28 (V-)*1 | R - W | Television camera image signal | Engine switch on (IG), shift lever moved to R | Pulse generation (refer to waveform 1) |
| F27-28 (V-) - F27-14 (CGND)*1 | Shielded - W | Shielded ground | Always | Below 1 V |
| F28-5 (HILL) - F28-10 (GND1) | W - W-B | Illumination signal | Light control switch off | Below 1 V |
| | | | Light control switch on | 10.5 to 16 V |
| F28-7 (TC) - F28-10 (GND1) | V - W-B | Diagnosis ON signal | Engine switch on (IG) | 9 to 14 V |
| F28-8 (HAZ) - F28-10 (GND1) | O - W-B | Hazard warning signal | Hazard warning switch off | Below 1 V |
| | | | Hazard warning switch on | 111 to 14 V |
| F28-9 (ARON) - F28-10 (GND1) | W - W-B | Front passenger side airbag ON/OFF indicator signal | Passenger airbag ON/OFF indicator off | Below 2 V |
| | | | Passenger airbag ON/OFF indicator on | 11 to 14 V |
| F28-12 (ILL+) - F28-10 (GND1) | G - W-B | Illumination signal | Light control switch off | Below 1 V |
| | | | Light control switch on | 10.5 to 16 V |
| F28-13 (REV) - F28-10 (GND1) | L - W-B | Reverse signal | See "Vehicle Signal Check" Mode (Click here) | - |
| F28-14 (SPD) - F28-10 (GND1) | V - W-B | Speed signal from combination meter | See "Vehicle Signal Check" Mode (Click here) | - |
| F28-20 (AIR) - F28-10 (GND1) | B - W-B | Front passenger side airbag ON/OFF indicator signal | Passenger airbag ON/OFF indicator off | Below 2 V |
| | | | Passenger airbag ON/OFF indicator on | 10.5 to 16 V |
| F28-21 (PBEW) - F28-10 (GND1) | Y - W-B | Passenger seat belt signal | Passenger seat occupied, seat belt fastened | 11 to 14 V |
| | | | Passenger seat occupied, seat belt unfastened | Below 2 V |
| F28-23 (PKB) - F28-10 (GND1) | Y - W-B | Parking brake signal | See "Vehicle Signal Check" Mode (Click here) | - |
| F29-1 (VV+) - F28-10 (GND1) | W - W-B | DVD image signal | DVD played on radio receiver | Pulse generation (refer to waveform 2) |
| F29-4 (VV-) - F28-10 (GND1) | B - W-B | Signal ground | Always | Below 1 V |
| F39-1 (TX4-) - F28-10 (GND1) | L - W-B | AVC-LAN communication signal | Engine switch on (ACC) | 2.25 to 2.75 V |
| F39-2 (TX4+) - F28-10 (GND1) | W - W-B | AVC-LAN communication signal | Engine switch on (ACC) | 2.25 to 2.75 V |
| F39-3 (SGND) - F28-10 (GND1) | Shielded - W-B | Shielded ground | Always | Below 1 V |
| F39-4 (MCO-) - F28-10 (GND1) | W - W-B | Microphone voice signal | See "Microphone & Voice Recognition Check" (Click here) | - |
| F39-5 (MCO+) - F28-10 (GND1) | B - W-B | Microphone voice signal | See "Microphone & Voice Recognition Check" (Click here) | - |
| F39-7 (ACC2) - F28-10 (GND1) | GR - W-B | Accessory (ON) | Engine switch off | Below 1 V |
| | | | Engine switch on (ACC) | 10.5 to 16 V |

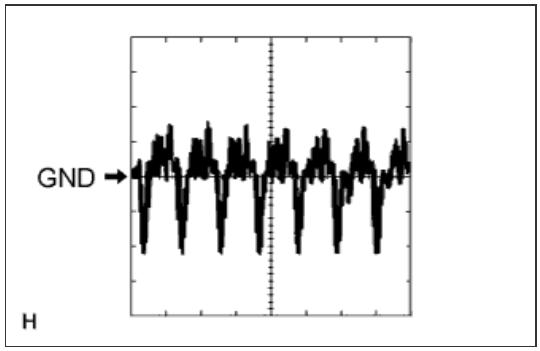
| | | | | |
|---|---|---|---|---|
| F39-10 (SI-) - F28-10 (GND1) | W - W-B | Voice guidance signal | Voice guidance provided | Waveform synchronized with sounds is input |
| F39-11 (SI+) - F28-10 (GND1) | B - W-B | Voice guidance signal | Voice guidance provided | Waveform synchronized with sounds is input |
| F39-15 (REV2) - F28-10 (GND1) | L - W-B | Reverse signal | See "Vehicle Sensors" Mode (Click here) | - |
| F39-16 (SPD2) - F28-10 (GND1) | V - W-B | Speed signal | See "Vehicle Sensors" Mode (Click here) | - |
| F40-1 (GVIF) - F28-10 (GND1)*2 | B - W-B | Digital image signal | Navigation display ON | - |

*1: w/ Rear View Monitor System
*2: w/ Parking Assist Monitor System
If the result is not as specified, the multi-display may have a malfunction.

e. Using an oscilloscope, check waveform 1.

**Waveform 1 (reference)**

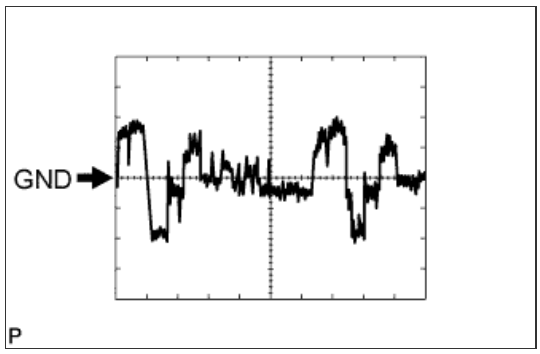
| Item | Content |
|---|---|
| Terminal No. (Symbol) | F27-27 (V+) - F27-28 (V-) |
| Tool Setting | 0.2 V/DIV., 50 µs/DIV. |
| Condition | Engine switch on (IG), shift lever moved to R |



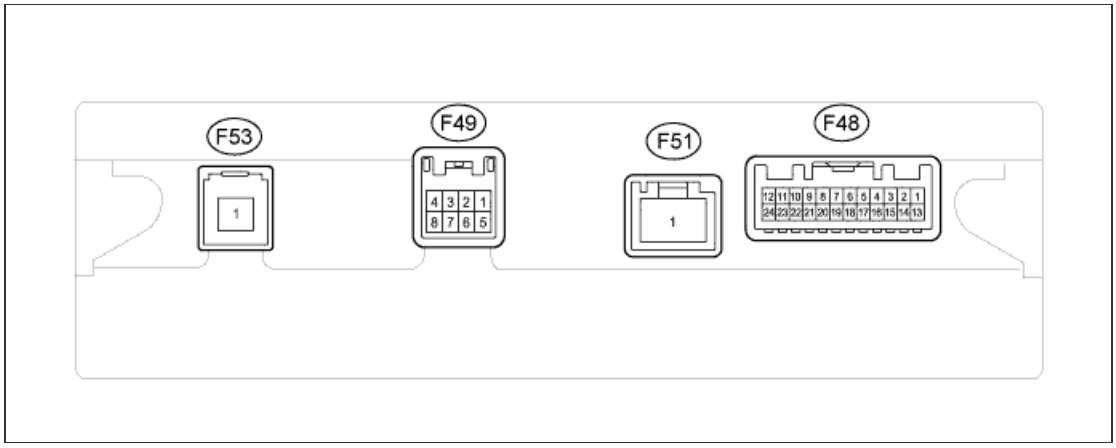

f. Using an oscilloscope, check waveform 2.

**Waveform 2 (reference)**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F29-1 (VV+) - F28-10 (GND1) |
| Tool Setting | 0.2 V/DIV., 0.2 µs/DIV. |
| Condition | Disc played on multi-display |




## CHECK NAVIGATION ECU




a. Disconnect the F48 ECU connector.

b. Measure the resistance and voltage according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F48-1 (+B) - F48-15 (GND1) | L - B | Battery | Always | 11 to 14 V |
| F48-13 (ACC) - F48-15 | | | Engine switch off | Below 1 V |

| | | | | |
|---|---|---|---|---|
| (GND1) | GR - B | Accessory (ON) | Engine switch on (ACC) | 11 to 14 V |
| F48-15 (GND1) - Body ground | B - Body ground | Ground | Always | Below 1 Ω |

If the result is not as specified, there may be a malfunction on the wire harness side.

c. Reconnect the F48 ECU connector.

d. Measure the voltage according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F48-4 (SPD) - F48-15 (GND1) | V - B | Speed signal | See "Vehicle Sensors" Mode (Click here) | - |
| F48-7 (SLD1) - F48-15 (GND1) | Shielded - B | Shielded ground | Always | Below 1 V |
| F48-8 (VOI-) - F48-15 (GND1) | W - B | Voice guidance signal | Voice guidance provided | A waveform synchronized with sounds is output |
| F48-9 (VOI+) - F48-15 (GND1) | B - B | Voice guidance signal | Voice guidance provided | A waveform synchronized with sounds is output |
| F48-18 (TX-) - F48-15 (GND1) | L - B | AVC-LAN communication signal | Engine switch on (ACC) | 2 to 3 V |
| F48-19 (TX+) - F48-15 (GND1) | W - B | AVC-LAN communication signal | Engine switch on (ACC) | 2 to 3 V |
| F48-20 (REV) - F48-15 (GND1) | L - B | Reverse signal | See "Vehicle Sensors" Mode (Click here) | - |
| F49-3 (MIC+) - F48-15 (GND1) | B - B | Microphone voice signal | See "Microphone & Voice Recognition Check" (Click here) | - |
| F49-5 (MIC-) - F48-15 (GND1) | W - B | Microphone voice signal | See "Microphone & Voice Recognition Check" (Click here) | - |
| F51-1 (GVIF) - F48-15 (GND1) | B - B | Digital image signal | Navigation display ON | Pulse generation |

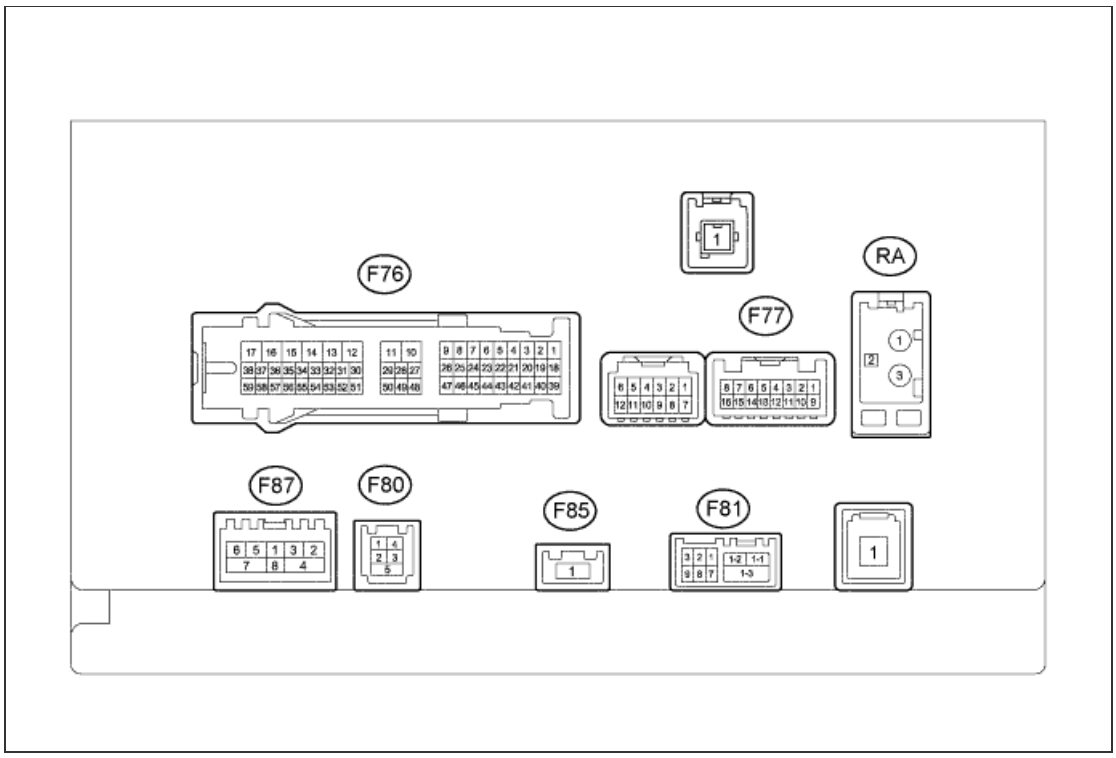
If the result is not as specified, the ECU may have a malfunction.

**CHECK RADIO RECEIVER (Click here)**

**CHECK STEREO COMPONENT AMPLIFIER (Click here)**

**for Preparation** Click here

## MULTI-MEDIA MODULE RECEIVER ASSEMBLY




| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F76-1 (CANH) | P | CAN communication signal | - | - |
| F76-2 (CANL) | B | CAN communication signal | - | - |
| F76-7 (TX1+) | W | AVC-LAN communication signal | - | - |
| F76-8 (TX1-) | L | AVC-LAN communication signal | - | - |
| F76-10 (VMTF) - F76-12 (GND1) | V - W-B | Visual mute signal | When image on display switches | 3.5 V or higher → Below 1 V → 3.5 V or higher |
| F76-12 (GND1) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F76-13 (ILL-) - F76-12 (GND1) | W - W-B | Illumination signal | Engine switch on (IG), light control switch off → tail or head position | Below 1 V → Pulse generation |
| F76-14 (ILL+) - F76-12 (GND1) | G - W-B | Illumination signal | Engine switch on (IG), light control switch off → tail or head position | Below 1 V → 11 to 14 V |
| F76-15 (IG) - F76-12 (GND1) | G - W-B | Power source (IG) | Engine switch on (IG) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F76-16 (ACC1) - F76-12 (GND1) | GR - W-B | Power source (ACC) | Engine switch on (ACC) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F76-17 (+B1) - F76-12 (GND1) | R - W-B | Power source | Always | 11 to 14 V |
| F76-18 (V+) - F76-19 (V-) | R - W | Rear television camera image signal | Engine switch on (IG), reverse (R) selected, camera lens is not covered, displaying an image | Pulse generation (Refer to waveform 2) |
| | | | Engine switch on (IG), reverse (R) selected, camera lens is covered, blacking out screen | Pulse generation (Refer to waveform 3) |
| F76-19 (V-) - F76-12 (GND1) | W - W-B | Ground | Always | Below 1 V |
| | | | See "Microphone & Voice | |

| | | | | |
|---|---|---|---|---|
| F76-27 (MIN+) - F76-12 (GND1) | B - W-B | Microphone voice signal | Recognition Check" in Operation Check (Click here) | - |
| F76-28 (SGND) - F76-12 (GND1) | Shield - W-B | Shield ground | Always | Below 1 V |
| F76-29 (MACC) - F76-12 (GND1) | W - W-B | Telephone microphone assembly power supply | Engine switch off | Below 1 V |
| | | | Engine switch on (ACC) | 4 to 6 V |
| F76-30 (SW1) - F76-32 (SWG) | L - W | Steering pad switch signal | Steering pad switch not operated | 4.44 to 5.43 V |
| | | | Seek+ switch pushed | 0.45 to 0.65 V |
| | | | Seek- switch pushed | 1.19 to 1.49 V |
| | | | Vol+ switch pushed | 2.09 to 2.54 V |
| | | | Vol- switch pushed | 3.2 to 3.88 V |
| F76-31 (SW2) - F76-32 (SWG) | P - W | Steering pad switch signal | Steering pad switch not operated | 4.44 to 5.43 V |
| | | | MODE switch pushed | 0.45 to 0.65 V |
| | | | On hook switch pushed | 1.19 to 1.49 V |
| | | | Off hook switch pushed | 2.09 to 2.54 V |
| | | | Voice switch pushed | 3.2 to 3.88 V |
| F76-32 (SWG) - Body ground | W - Body ground | Steering pad switch signal | Always | Below 1 V |
| F76-35 (UIND) | R | UART communication signal | - | - |
| F76-36 (UPSW) | P | UART communication signal | - | - |
| F76-39 (CA+) - F76-12 (GND1) | B - W-B | Television camera power supply | Engine switch on (IG), reverse (R) selected | 5.5 to 7.05 V |
| F76-40 (CGND) - Body ground | Shield - Body ground | Shield ground | Always | Below 1 V |
| F76-45 (TX3+) | B | AVC-LAN communication signal | - | - |
| F76-46 (TX3-) | W | AVC-LAN communication signal | - | - |
| F76-48 (MIN-) - Body ground | R - Body ground | Microphone voice signal | See "Microphone & Voice Recognition Check" in Operation Check (Click here) | - |
| F76-49 (SNS2) - F76-12 (GND1) | GR - W-B | Microphone connection detection signal | Always | Below 1 V |
| F76-55 (PKB) - F76-12 (GND1) | Y - W-B | Parking brake switch signal | See "Vehicle Signal Check Mode" in Operation Check (See page ) | - |
| F76-56 (SPD) - F76-12 (GND1) | V - W-B | Speed signal from combination meter assembly | See "Vehicle Signal Check Mode" in Operation Check (Click here) | - |
| F76-57 (REV) - F76-12 (GND1) | L - W-B | Receiver signal | See "Vehicle Signal Check Mode" in Operation Check (See page ) | - |
| F87-1 (WUO) - F76-12 (GND1) | W - W-B | MOST communication signal | Engine switch on (ACC) | 4.5 V or higher |
| | | | Engine switch off | Below 1 V |
| F87-2 (MI+) | B | MOST communication signal | - | - |
| F87-3 (MI-) | B | MOST communication signal | - | - |
| F87-4 (SLDI) - F76-12 (GND1) | Shield - W-B | Shield ground | Always | Below 1 V |
| F87-5 (MO+) | B | MOST communication signal | - | - |
| F87-6 (MO-) | B | MOST communication signal | - | - |
| F87-7 (SLDO) - F76-12 (GND1) | Shield - W-B | Shield ground | Always | Below 1 V |
| F80-1 (USV1) | # | Power source | - | - |
| F80-2 (US1-) | # | Data signal | - | - |
| F80-3 (US1+) | # | Data signal | - | - |
| F80-4 (UGD1) | # | Ground | - | - |
| F80-5 (UESS) | Shield | Shield ground | - | - |
| F77-1 (NTSO) - F76-12 (GND1)*2 | B - W-B | Display signal | RSE playing | A waveform synchronized with sound is output. |

| | | | | |
|---|---|---|---|---|
| F77-2 (NTSG) - F76-12 (GND1)*2 | W - W-B | Display signal ground | Always | Below 1 V |
| F77-3 (SLD2) - F76-12 (GND1)*2 | Shield - W-B | Shield ground | Always | Below 1 V |
| F77-4 (VMTR) - F76-12 (GND1)*2 | G - W-B | Mute signal | RSE playing → Source chanyed | 4 V or higher → Below 0.7 V → 4 V or higher |
| F77-5 (AGND) - F76-12 (GND1) | Shield - Body ground | Shield ground | Always | Below 1 V |
| F77-6 (VV+) - F76-12 (GND1)*2 | B - W-B | Display signal | DVD is playing | A waveform synchronized with display signal is output. (Refer to waveform 1) |
| F77-7 (VAR+) - F77-15 (VA-) | W - R | Sound signal (Right) | AUX audio device playing (When stereo jack adapter used)*1<br>Rear audio device playing (When headphone terminal used)*2 | A waveform synchronized with sound is output. |
| F77-8 (VAL+) - F77-15 (VA-) | B - R | Sound signal (Left) | AUX audio device playing (When stereo jack adapter used)*1<br>Rear audio device playing (When headphone terminal used)*2 | A waveform synchronized with sound is output. |
| F77-13 (SG) - Body ground*2 | Shield - Body ground | Shield ground | Always | Below 1 V |
| F77-14 (VV-) - F76-12 (GND1)*2 | W - W-B | Ground | Always | Below 1 V |
| F77-15 (VA-) - F76-12 (GND1) | R - W-B | Sound signal ground | Always | Below 1 V |
| F77-16 (ADPG) - F76-12 (GND1) | R - W-B | External device connector detection signal | External device connected | Below 1 V |
| | | | External device not connected | 2.1 to 3 V |
| F81-1-1 (USB-) | B | USB communication line | - | - |
| F81-1-2 (USB+) | B | USB communication line | - | - |
| F81-1-3 (USBS) - Body ground | B - Body ground | Shield ground | Always | Below 1 V |
| F81-2 (USBG) - Body ground | W - Body ground | Shield ground | Always | Below 1 V |
| F81-3 (VOT+) - F76-12 (GND1) | W - W-B | Sent voice signal | Destination assist service in use and vehicle occupant speaking to operator | A waveform synchronized with the sent voice is output. |
| F81-4 (USBV) - F76-12 (GND1) | W - W-B | Telematics transceiver power supply | Engine switch on (ACC) | 4.75 to 5.25 V |
| | | | Engine switch off | Below 1 V |
| F81-5 (VOT-) - F76-12 (GND1) | R - W-B | Sent voice signal | Destination assist service in use and vehicle occupant speaking to operator | A waveform synchronized with the sent voice is output. |
| F81-6 (VOR-) - F76-12 (GND1) | B - W-B | Receive voice signal | Destination assist service in use and operator speaking to vehicle occupant | A waveform synchronized with the received voice is output. |
| F81-7 (VOR+) - F76-12 (GND1) | G - W-B | Receive voice signal | Destination assist service in use and operator speaking to vehicle occupant | A waveform synchronized with the received voice is output. |

*1: w/o Rear Seat Entertainment System
*2: w/ Rear Seat Entertainment System (for Roof)

a. Reference (Oscilloscope waveform):

i. Waveform 1

| Item | Content |
|---|---|
| Measurement Terminal | F77-6 (VV+) - F76-12 (GND1) |

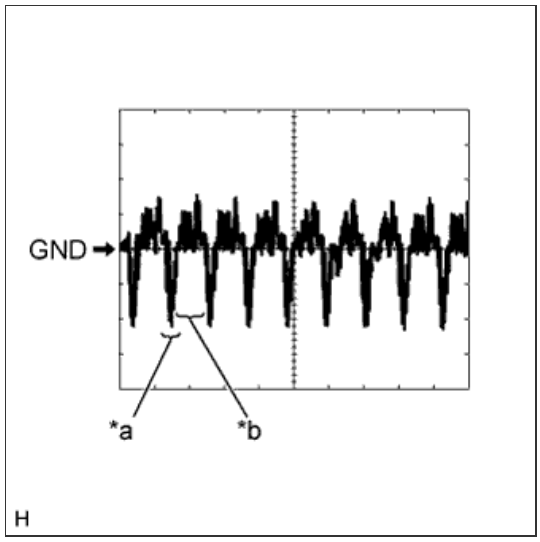
| | |
|---|---|
| Measurement Setting | 200 mV/DIV., 10 µs/DIV. |
| Condition | DVD is playing |

**HINT:**

The video waveform changes according to the image input from the multi-media module receiver assembly to the multi-display assembly, but the synchronization signal does not change.

**Text in Illustration**

| | |
|---|---|
| *a | Synchronization Signal |
| *b | Video Waveform |




b. Reference (Oscilloscope waveform):

i. Waveform 2 (camera lens is not covered, displaying an image)

| Item | Content |
|---|---|
| Measurement terminal | F76-18 (V+) - F76-19 (V-) |
| Measurement setting | 200 mV/DIV., 50 µs/DIV. |
| Condition | Engine switch on (IG), reverse (R) selected, camera lens is not covered, displaying an image |

**HINT:**

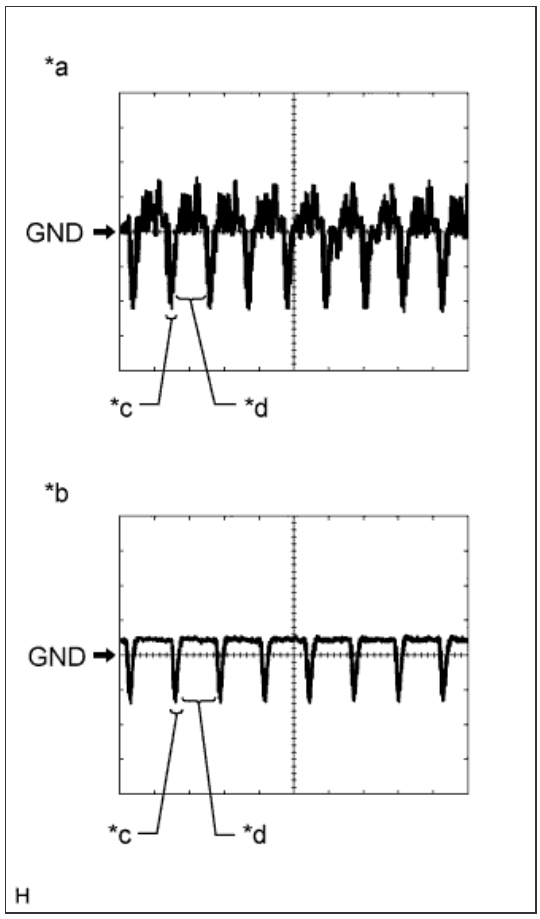
The video waveform changes according to the image from the rear television camera assembly.

ii. Waveform 3 (camera lens is covered, blacking out the screen)

| Item | Content |
|---|---|
| Measurement terminal | F76-18 (V+) - F76-19 (V-) |
| Measurement setting | 200 mV/DIV., 50 µs/DIV. |
| Condition | Engine switch on (IG), reverse (R) selected, camera lens is covered, blacking out screen |

**HINT:**

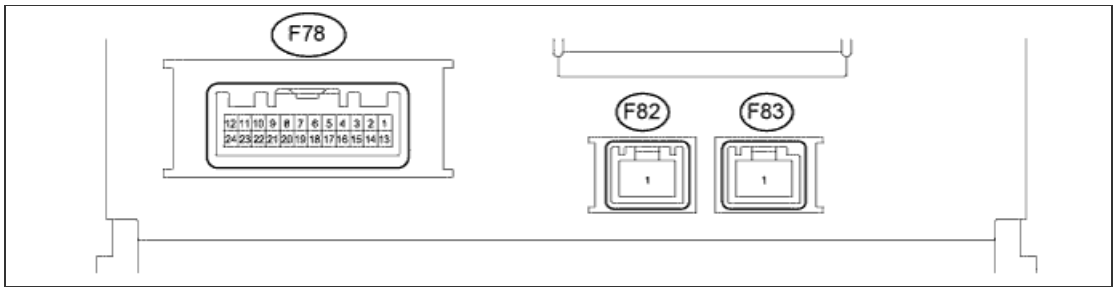
The video waveform changes according to the image from the rear television camera assembly.




**Text in Illustration**

| | |
|---|---|
| *a | Waveform 1 (camera lens is not covered, displaying an image) |
| *b | Waveform 2 (camera lens is covered, blacking out the screen) |
| *c | Synchronization Signal |
| *d | Video Waveform |

## MULTI-DISPLAY ASSEMBLY




| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F78-2 (ILL) - F78-13 (GND1) | G - BR | Illumination signal | Engine switch on (IG), light control switch off → tail or head position | Below 1 V → 11 to 14 V |
| F78-3 (UPSW) | P | UART communication signal | - | - |
| F78-4 (UIND) | R | UART communication signal | - | - |
| F78-7 (TX+) | B | AVC-LAN communication signal | - | - |
| F78-11 (VMTI) - F78-13 (GND1) | V - BR | Visual mute signal | When image on display switches | 3.5 V or higher → Below 1 V → 3.5 V or higher |
| F78-12 (+B2) - F78-13 (GND1) | R - BR | Power source | Always | 11 to 14 V |
| F78-13 (GND1) - Body ground | BR - Body ground | Ground | Always | Below 1 Ω |
| F78-14 (ILL-) - F78-13 (GND1) | W - BR | Illumination signal | Engine switch on (IG), light control switch off → tail or head position | Below 1 V → Pulse generation |
| F78-19 (TX-) | W | AVC-LAN communication signal | - | - |
| F78-23 (IG) - F78-13 (GND1) | G - BR | Power source (IG) | Engine switch on (IG) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F78-24 (ACC) - F78-13 (GND1) | GR - BR | Power source (ACC) | Engine switch on (ACC) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |

**STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)**

**TELEVISION DISPLAY ASSEMBLY (for Roof) (Click here)**

**MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY (for Seatback) (Click here)**

**for Preparation** Click here

**HINT:**

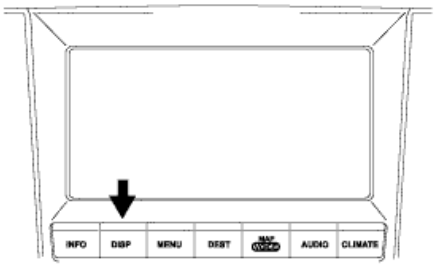
- **Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be exactly the same as on the actual vehicle.**
- **If the system cannot enter the diagnostic mode, inspect all AVC-LAN communication components and repair or replace problem parts (Click here).**
- **After the engine switch is turned on (IG), check that the map is displayed before starting the diagnostic mode. Otherwise, some items cannot be checked.**

## START DIAGNOSTIC MODE

a. Turn the engine switch on (IG).

b. Press the "DISP" switch.

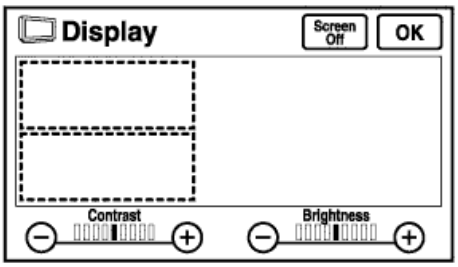
Example (for LHD):




T

c. From the display quality adjustment screen, touch the corners of the screen in the following order: upper left → lower left → upper left → lower left → upper left → lower left.

d. The diagnostic mode starts and the "System Check Mode" screen will be displayed. Service inspection starts automatically and the result will be displayed.




P

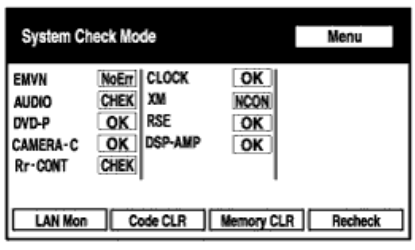
## FINISH DIAGNOSTIC MODE

a. Turn the engine switch off.

## DIAGNOSIS MENU

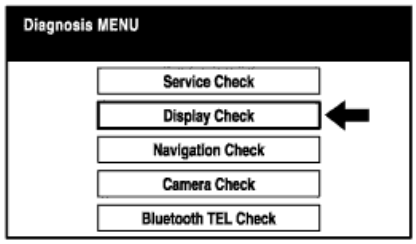
a. Press the "MENU" switch on the "System Check Mode" screen.

Example:



b. The "Diagnosis MENU" screen will be displayed.

Example:



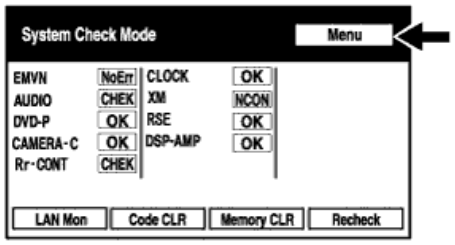

P

## CHECK DTC (WITH DIAGNOSTIC MODE)

a. Read the system check result.

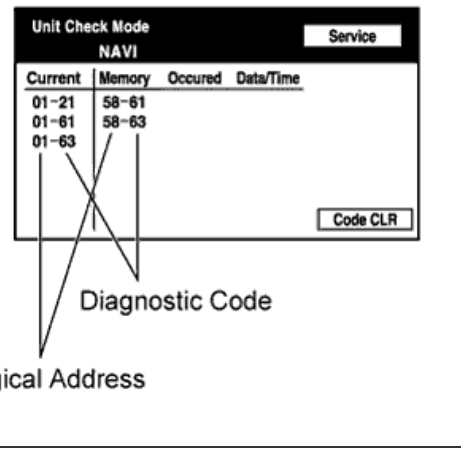
i. If the check result is "EXCH", "CHEK" or "Old", touch the displayed check result.

Example:



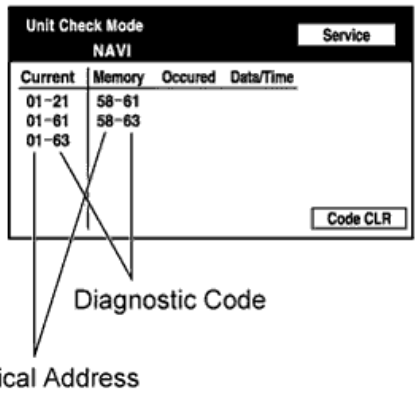

ii. View the results on the "Unit Check Mode" screen and record them.

Example:




iii. When proceeding to view the results of another device, press the "Service" switch.

Example:

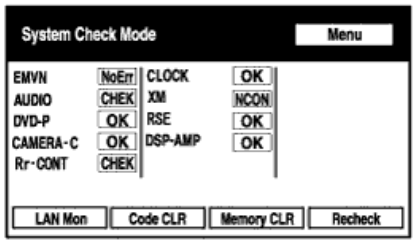



iv. Return to the "System Check Mode" screen.

**HINT:**

To check other items, repeat from the first step.

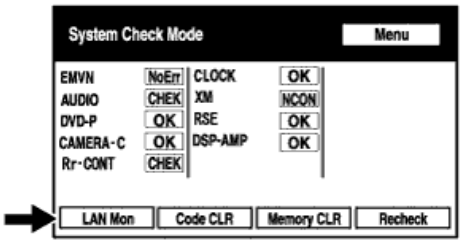
Example:




b. Read the communication diagnostic check result.

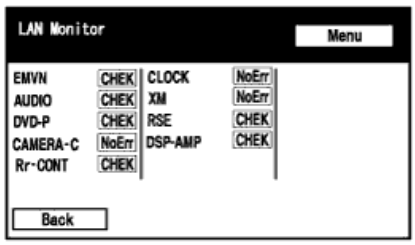
i. Return to the "System Check Mode" screen, and press the "LAN Mon" switch.

Example:



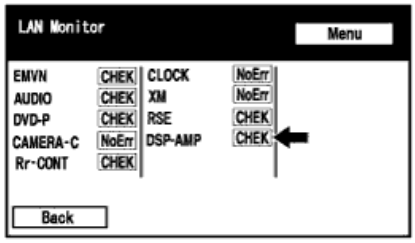

ii. The "LAN Monitor" screen is displayed.

Example:




iii. If the check result is "CHEK" or "Old", touch the displayed check result.

Example:

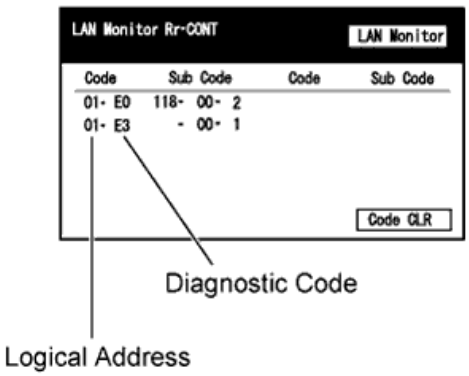



iv. View the results on the individual communication diagnostic screen and record them.

**HINT:**

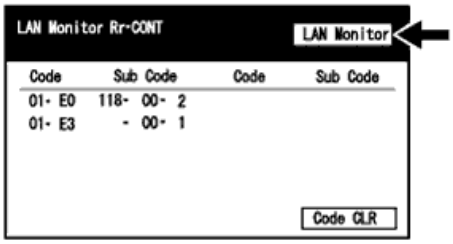
- **If all check results are "No Err", the system judges that no DTC is stored.**

Example:




- **The sub-code (relevant device) will be indicated by its physical address.**

Example:



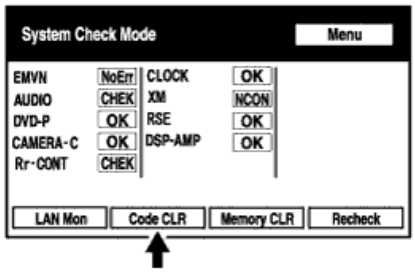

## DTC CLEAR/RECHECK (WITH DIAGNOSTIC MENU)

a. Clear DTC

i. Press the "Code CLR" switch for 3 seconds.

ii. The check results are cleared.

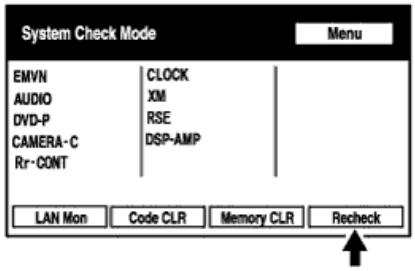
Example:



**b.** Recheck

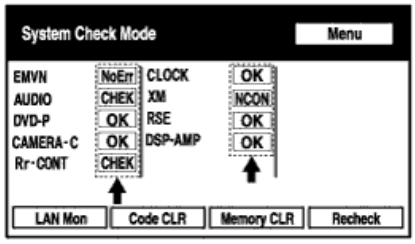
**i.** Press the "Recheck" switch.

Example:



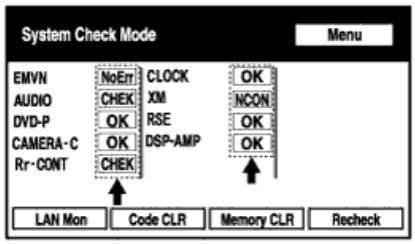

**ii.** Confirm that all diagnostic codes are "OK" when the check results are displayed.
If a code other than "OK" is displayed, troubleshoot again.

Example:



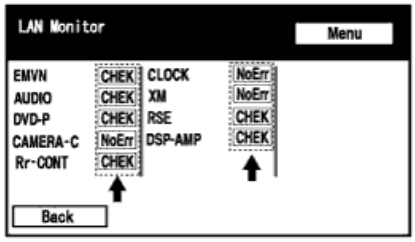

**iii.** Press the "LAN Mon" switch to change to "LAN Monitor" mode.

Example:




**iv.** Confirm that all diagnostic codes are "No Err".
If a code other than "No Err" is displayed, troubleshoot again.

Example:



**for Preparation** Click here

## CHECK DTC (CHECK USING INTELLIGENT TESTER)

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Body / Navigation System / DTCs.

e. Check for DTCs, and then write them down.

f. Check the details of the DTC(s) ( Click here).

**NOTICE:**

The navigation system outputs DTCs for the following system. When DTCs other than those in Diagnostic Trouble Code Chart for the navigation system are output, refer to Diagnostic Trouble Code Chart for the relevant system.

| System | Proceed to |
|---|---|
| Audio and Visual System | Click here |
| Rear Seat Entertainment System (for Roof) | Click here |
| Rear Seat Entertainment System (for Seatback) | Click here |

## CLEAR DTC (CHECK USING INTELLIGENT TESTER)

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Body / Navigation System / DTCs.

e. Clear the DTCs.

## START DIAGNOSTIC MODE

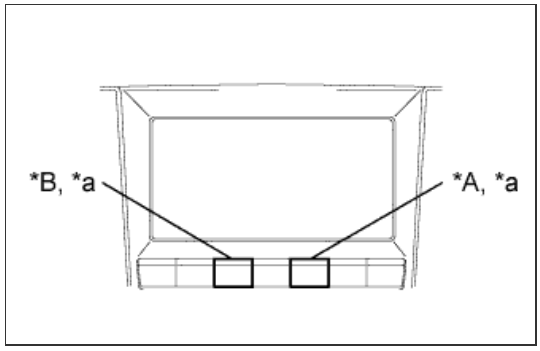
**HINT:**

- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**
- **To help find the malfunction when the system cannot change to diagnostic mode, check for DTCs using the intelligent tester.**
- **After the engine switch is turned on (IG), check that the map is displayed before starting diagnostic mode. Otherwise, some items cannot be checked.**

a. Start the engine.

**Text in Illustration**

| | |
|---|---|
| *A | for LHD |
| *B | for RHD |
| *a | "INFO" Switch |




b. While pressing and holding the "INFO" switch, operate the light control switch: Off → Tail → Off → Tail → Off → Tail → Off.

c. Diagnostic mode starts and the "Service Menu" screen will be displayed.

## FINISH DIAGNOSTIC MODE

a. There are 2 methods to finish diagnostic mode. Start the mode by using one of them.

b. Method 1

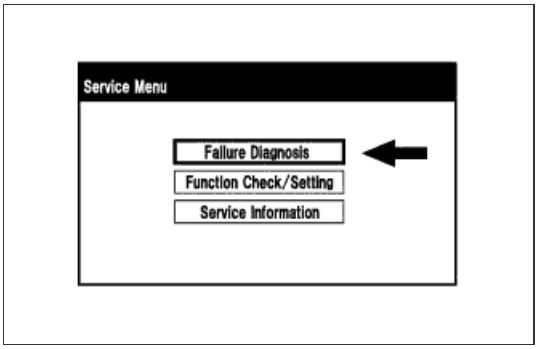
i. Turn the engine switch off.

c. Method 2

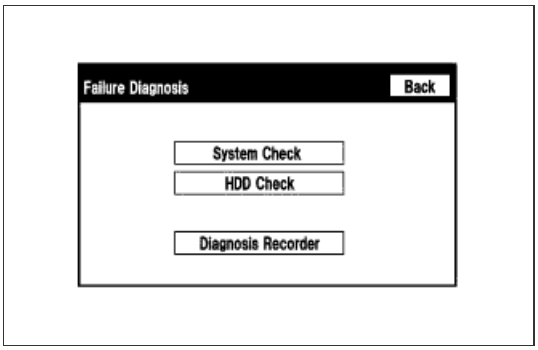
i. Press and hold the "SETUP" switch for 3 seconds or more.

## FAILURE DIAGNOSIS

a. Press the "Failure Diagnosis" switch on the "Service Menu" screen.

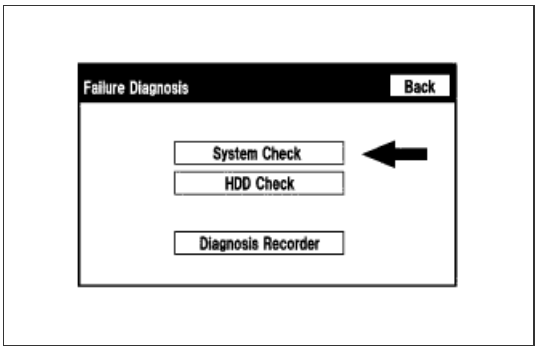



b. The "Failure Diagnosis" will be displayed.

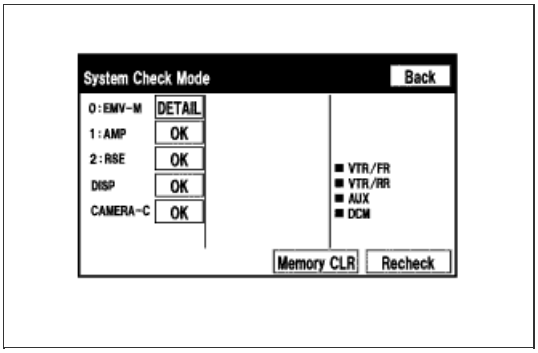



## SYSTEM CHECK

a. Press the "System Check" switch on the "Failure Diagnosis" screen.

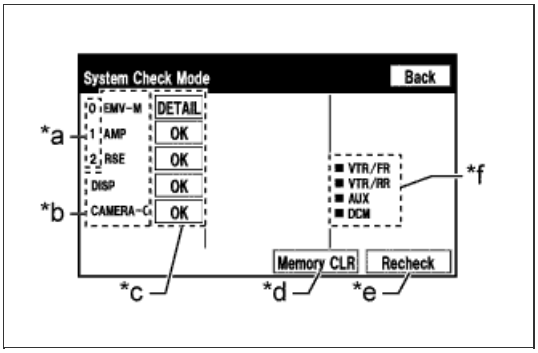



b. The "System Check Mode" screen will be displayed.




## CHECK DTC (CHECK USING SYSTEM CHECK MODE SCREEN)

a. System check mode screen description




### Screen Description

| Display | Content |
|---|---|
| *a: Node position number for devices that use MOST communication | MOST node position numbers are provided for devices connected to the MOST network. |
| *b: Device Name List No. 1 | • Device Name List No. 1 displays some of the devices that make up the audio and visual system.<br>• The names of the components from Device Name List No. 1 are shown in the following table. |
| *c: Check Result | Result codes for all devices are displayed. |
| *d: Memory Clear | • Present and history DTCs and registered connected device names are cleared.<br>• Press the "Memory CLR" switch for 3 seconds. |
| *e: Recheck | • A system check will be performed again after the memory is cleared.<br>• The "Recheck" switch will dim during a system check. |
| *f: Device Name List No. 2 | • Device Name List No. 2 displays some of the devices that make up the audio and visual system.<br>• The names of the components from Device Name List No. 2 are shown in the following table. |

### *b: Device Name List No. 1 Description

| Name | Component | Connection Method |
|---|---|---|
| EMV-M | Multi-media module receiver assembly | - |
| AMP | Stereo component amplifier assembly | Communication line for MOST |
| RSE | Television display assembly | Communication line for MOST |
| DISP | Multi-display assembly | Communication line for AVC-LAN |
| CAMERA-C | Parking assist ECU | Communication line for AVC-LAN |

### *c: Check Result Description

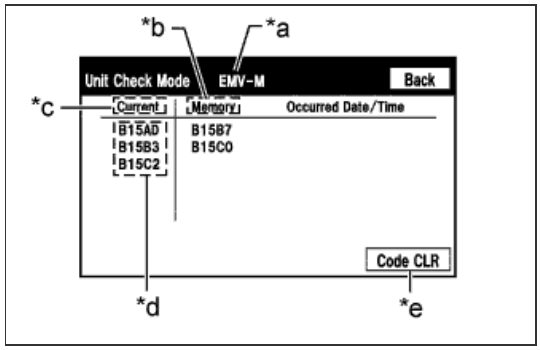
| Result | Meaning | Action |
|---|---|---|
| OK | The device does not respond with a DTC. | - |
| MOST | MOST communication error | Perform "MOST Line Check" to check connection of each device on the MOST network. |
| DETAIL | The device responds with a DTC. | Look up the DTC in "Unit Check Mode". |
| NCON | The device was previously present, but does not respond in diagnostic mode. | • Check power supply wire harness of the device.<br>• Check the AVC-LAN of the device. |
| | The device responds in diagnostic mode, but gives no | • Check power supply wire harness of the device. |

| | | |
|---|---|---|
| NRES | DTC information. | • Check the AVC-LAN of the device. |

***f: Device Name List No. 2 Description**

| Name | Component | Connection Method |
|---|---|---|
| VTR/FR | Remote controller adapter assembly (video terminal) | Vehicle wire harness |
| VTR/RR | Remote controller adapter assembly (video terminal) | Vehicle wire harness |
| AUX | No. 1 stereo jack adapter assembly | Vehicle wire harness |
| DCM | Telematics transceiver | Communication line for USB |

**b.** Unit check mode screen description




**Screen Description**

| Display | Content |
|---|---|
| *a: Device name | Target device |
| *b: History DTC | Diagnostic memory results and stored DTCs are displayed. |
| *c: Current DTC | DTCs output in the service check are displayed. |
| *d: DTC | DTC (Diagnostic Trouble Code) |
| *e: Diagnosis clear switch | Pushing this switch for 3 seconds clears the diagnostic memory data of the target device. (Both response to diagnostic system check result and the displayed data are cleared.) |

**HINT:**

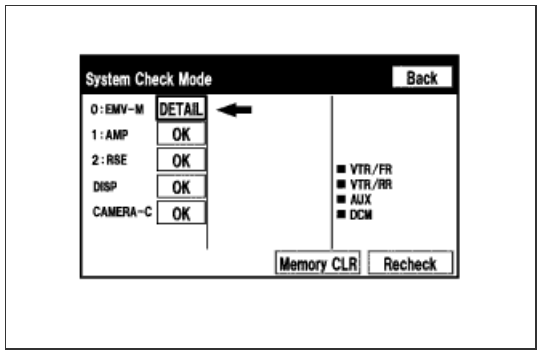
- **This screen is updated once per second.**
- **A maximum of 6 DTCs can be displayed for history and present DTCs.**

**c.** Read the system check result.

**i.** If the check result is "DETAIL", touch the displayed check result

**HINT:**

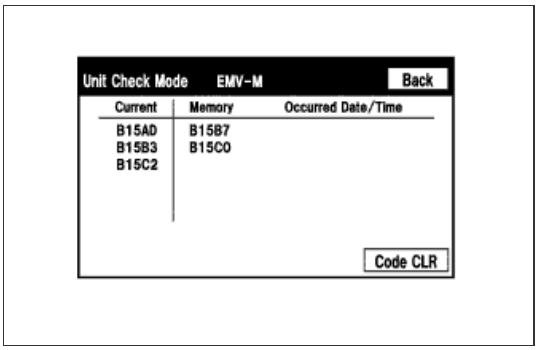
When all results are "OK", this means that no DTCs are stored.



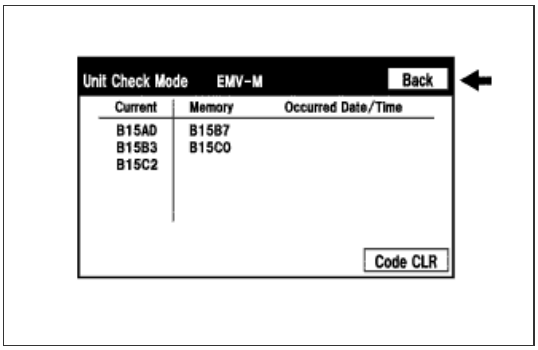

**ii.** View the results on the "Unit Check Mode" screen and record them.

**NOTICE:**

A maximum of 6 DTCs can be displayed for history and present DTCs on the "Unit check mode" screen. Therefore, when 6 DTCs are displayed, troubleshoot those DTCs first and then check the "Unit check mode" screen again to see if any other DTCs are displayed.




iii. When proceeding to view the results of another device, press the "Back" switch to return to the "System Check Mode" screen. Repeat the step above to view the results of other devices.




**HINT:**

To check other item, repeat from the first step.

iv. Check the details of the DTC(s) ( Click here).

**NOTICE:**

The navigation system outputs DTCs for the following system. When DTCs other than the codes in Diagnostic Trouble Code Chart for the navigation system are output, refer to Diagnostic Trouble Code Chart for the relevant system.

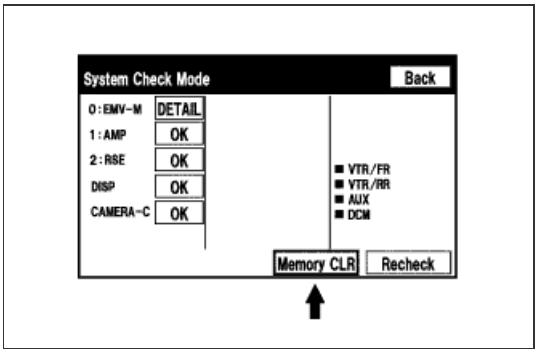
| System | Proceed to |
|---|---|
| Audio and Visual System | Click here |
| Rear Seat Entertainment System (for Roof) | Click here |
| Rear Seat Entertainment System (for Seatback) | Click here |

## DTC CLEAR/RECHECK (CLEAR USING SYSTEM CHECK MODE SCREEN)

a. Clear DTC

i. Press the "Memory CLR" switch for 3 seconds.

ii. Confirm that the check results are cleared.

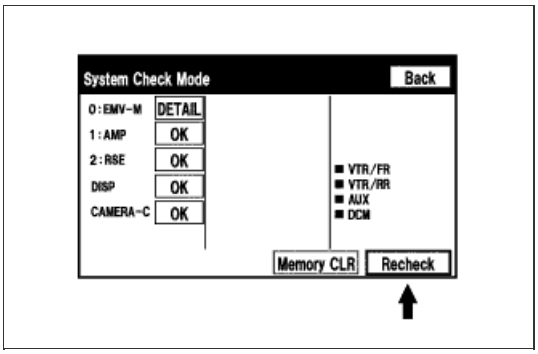



**HINT:**

- **To clear the DTC for a specific device, clear the DTC using the "Unit Check Mode" screen.**
- **When clearing a DTC using the "Unit Check Mode" screen, press the "Code CLR" switch for 3 seconds.**

b. Recheck DTC

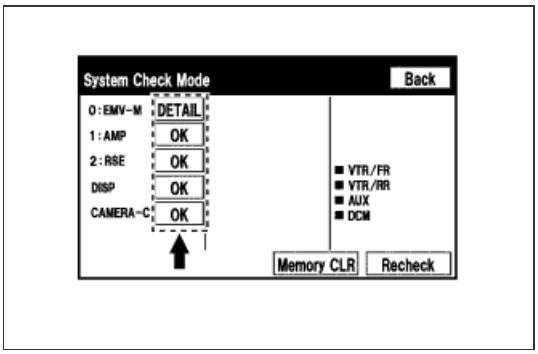
i. Press the "Recheck" switch.




ii. Confirm that all diagnostic codes are "OK" when the check results are displayed. If a code other than "OK" is displayed, troubleshoot again.

**HINT:**

When a DTC was cleared using the "Unit Check Mode" screen, press the "Back" switch to return to the "System Check Mode" screen and perform this operation.



**for Preparation** Click here

## CHECK FREEZE FRAME DATA

a. Connect the intelligent tester to the DLC3.

b. Start the engine.

c. Turn the intelligent tester on.

d. Enter the following menus: Body / Navigation System / DTCs.

e. Select a Trouble Code to display its Freeze Frame Data.

## LIST OF FREEZE FRAME DATA

a. Refer to "Data List / Active Test" ( Click here).

**for Preparation** Click here

## DATA LIST

**NOTICE:**

In the table below, the values listed under "Normal Condition" are reference values. Do not depend solely on these reference values when deciding whether a part is faulty or not.

**HINT:**

Using the intelligent tester to read the Data List allows the values or states of switches, sensors, actuators and other items to be read without removing any parts. This non-intrusive inspection can be very useful because intermittent conditions or signals may be discovered before parts or wiring is disturbed. Reading the Data List information early in troubleshooting is one way to save diagnostic time.

a. Connect the intelligent tester to the DLC3.

b. Start the engine.

c. Turn the intelligent tester on.

d. Enter the following menus: Body / Navigation System / Data List.

e. According to the display on the intelligent tester, read the Data List.

**Navigation System**

| Tester Display | Measurement Item/Range | Normal Condition | Diagnostic Note |
|---|---|---|---|
| Battery Voltage | Battery voltage / Min.: 0 V, Max.: 24 V | 11 to 15.5 V | - |
| Active Dimmer | Active dimmer function / ON or OFF | ON: Active dimmer function on<br>OFF: Active dimmer function off | - |
| Tail Light SW | Taillight switch / ON or OFF | ON: Light control switch in tail or head position<br>OFF: Light control switch off | - |
| Reverse Signal | Reverse signal / ON or OFF | ON: Shift lever in R<br>OFF: Shift lever in any position other than R | - |
| Parking Brake | Parking brake switch / ON or OFF | ON: Parking brake applied<br>OFF: Parking brake released | - |
| Ignition | Engine switch / ON or OFF | ON: Engine switch on (IG)<br>OFF: Engine switch off | - |
| Vehicle Speed | Maximum wheel speed sensor reading / Min.: 0 km/h (0 mph), Max.: 255 km/h (158 mph) | Vehicle stopped: 0 km/h (0 mph) | When driving at constant speed: No large fluctuations |

**for Preparation** Click here

**HINT:**

If a trouble code is output during the DTC check, inspect the trouble areas listed for that code. For details of the code, refer to the "See page" below.

**Navigation System**

| DTC Code | Detection Item | Trouble Area | See page |
|---|---|---|---|
| 01-21 | ROM Error | Multi-display | Click here |
| 01-22 | RAM Error | Multi-display | Click here |
| 01-D5 | Absence of Registration Unit | - Power source circuit of component shown by sub-code<br>- AVC-LAN circuit between multi-display and component shown by sub-code<br>- Component shown by sub-code | Click here |
| 01-D6 | No Master | - Multi-display power source circuit<br>- Power source circuit of the component which has stored this code<br>- AVC-LAN circuit between the multi-display and the component which has stored this code<br>- Component which has stored this code<br>- Multi-display | Click here |
| 01-D7 | Connection Check Error | - Multi-display power source circuit<br>- Power source circuit of the component which has stored this code<br>- AVC-LAN circuit between the multi-display and the component which has stored this code<br>- Component which has stored this code<br>- Multi-display | Click here |
| 01-D8 | No Response for Connection Check | - Power source circuit of component shown by sub-code<br>- AVC-LAN circuit between multi-display and component shown by sub-code<br>- Component shown by sub-code | Click here |
| 01-D9 | Last Mode Error | - Power source circuit of component shown by sub-code<br>- AVC-LAN circuit between multi-display and component shown by sub-code<br>- Component shown by sub-code | Click here |
| 01-DA | No Response Against ON / OFF Command | - Power source circuit of component shown by sub-code<br>- AVC-LAN circuit between multi-display and component shown by sub-code<br>- Component shown by sub-code | Click here |
| 01-DB | Mode Status Error | - Power source circuit of component shown by sub-code<br>- AVC-LAN circuit between multi-display and component shown by sub-code<br>- Component shown by sub-code | Click here |
| 01-DC | Transmission Error | If same sub-code is recorded in other components, check harness for power supply and communication system of all components shown by code | Click here |
| 01-DD | Master Reset | - Multi-display power source circuit<br>- AVC-LAN circuit between multi-display and component which has stored this code<br>- Multi-display<br>- Component which has stored this code | Click here |
| 01-DE | Slave Reset | - Power source circuit of component shown by sub-code<br>- AVC-LAN circuit between multi-display and component shown by sub-code<br>- Component shown by sub-code | Click here |
| 01-DF | Master Error | - Multi-display power source circuit<br>- AVC-LAN circuit between multi-display and component which has stored this code<br>- AVC-LAN circuit between multi-display and radio receiver<br>- Multi-display<br>- Component which has stored this code | Click here |
| 01-E0 | Registration Complete Indication Error | - | Click here |
| 01-E1 | Voice Processing Device ON Error | - Multi-display power source circuit<br>- AVC-LAN circuit between multi-display and component which has stored this code<br>- Multi-display<br>- Component which has stored this code | Click here |
| 01-E2 | ON / OFF Indication Parameter Error | Multi-display | Click here |
| 01-E3 | Registration Demand Transmission | - | Click here |
| | | | Click |

| | | | |
|---|---|---|---|
| 01-E4 | Multiple Frame Incomplete | - | here |
| 21-10 | Panel Switch Error | Multi-display | Click here |
| 21-11 | Touch Switch Error | Multi-display | Click here |
| 23-10 | Panel Switch Error | Multi-display | Click here |
| 23-11 | Touch Switch Error | Multi-display | Click here |
| 24-10 | Panel Switch Error | Multi-display | Click here |
| 24-11 | Touch Switch Error | Multi-display | Click here |
| 25-10 | Panel Switch Error | Multi-display | Click here |
| 25-11 | Touch Switch Error | Multi-display | Click here |
| 34-10 | Error in Picture Circuit | Multi-display | Click here |
| 34-11 | No Current in Back-light | Multi-display | Click here |
| 34-12 | Excess Current in Back-light | Multi-display | Click here |
| 45-10 | DVD Changer Mechanical Error | Radio receiver | Click here |
| 45-11 | DVD Insertion and Ejection Error | Radio receiver | Click here |
| 45-12 | DVD Reading Abnormal | Radio receiver | Click here |
| 45-41 | Wrong Disc | - Disc<br>- Radio receiver | Click here |
| 45-42 | Disc cannot be Read | - Disc<br>- Radio receiver | Click here |
| 45-43 | DVD-ROM Abnormal | - Disc<br>- Radio receiver | Click here |
| 45-44 | DVD Malfunction | Radio receiver | Click here |
| 45-45 | Eject Error | Radio receiver | Click here |
| 45-46 | Scratched/Reversed Disc | - Disc<br>- Radio receiver | Click here |
| 45-47 | High Temperature | Radio receiver | Click here |
| 45-48 | Excess Current | Radio receiver | Click here |
| 45-50 | Tray Insertion / Ejection Error | Radio receiver | Click here |
| 45-51 | Elevator Error | Radio receiver | Click here |
| 45-52 | Clamp Error | Radio receiver | Click here |
| 45-78 | DSP Error | Radio receiver | Click here |
| 45-7D | Disc cannot be Played | - Disc<br>- Radio receiver | Click here |
| 45-7E | No Playable Files | - Disc<br>- Radio receiver | Click here |
| 45-7F | Copyright Protection Error | - Disc<br>- Radio receiver | Click here |
| 57-47 | Bluetooth Module Initialization Failed | Multi-display | Click here |
| 58-10 | Gyro Error | - Gyro sensor<br>- Navigation ECU | Click here |
| 58-11 | GPS Receiver Error | Navigation ECU | Click here |

| | | | |
|---|---|---|---|
| 58-40 | GPS Antenna Error | - Harness or connector<br>- Navigation antenna<br>- Navigation ECU | Click here |
| 58-41 | GPS Antenna Power Source Error | - Harness or connector<br>- Navigation antenna<br>- Navigation ECU | Click here |
| 58-42 | Map Disc Read Error | - Map disc<br>- Navigation ECU | Click here |
| 58-43 | SPD Signal Error | - Speed signal circuit<br>- Navigation ECU | Click here |
| 5C-40 | Camera Picture Error | - Harness or connector<br>- Television camera<br>- Multi-display | Click here |
| 60-10 | AM Tuner PLL does not Lock | Radio receiver | Click here |
| 60-11 | FM Tuner PLL does not Lock | Radio receiver | Click here |
| 60-42 | Tuner Power Source Error | Radio receiver | Click here |
| 60-43 | AM Tuner Error | Radio receiver | Click here |
| 60-44 | FM Tuner Error | Radio receiver | Click here |
| 60-50 | Malfunction in Internal IC | Radio receiver | Click here |
| 80-10 | Gyro Error | - Gyro sensor<br>- Navigation ECU | Click here |
| 80-11 | GPS Receiver Error | Navigation ECU | Click here |
| 80-40 | GPS Antenna Error | - Harness or connector<br>- Navigation antenna<br>- Navigation ECU | Click here |
| 80-41 | GPS Antenna Power Source Error | - Harness or connector<br>- Navigation antenna<br>- Navigation ECU | Click here |
| 80-42 | Map Disc Read Error | - Map disc<br>- Navigation ECU | Click here |
| 80-43 | SPD Signal Error | - Speed signal circuit<br>- Navigation ECU | Click here |
| 58-44 | Player Error | Navigation ECU | Click here |
| 58-45 | High Temperature | Navigation ECU | Click here |
| 80-44 | Player Error | Navigation ECU | Click here |
| 80-45 | High Temperature | Navigation ECU | Click here |

**for Preparation** Click here

### Navigation System

| DTC Code | Detection Item | See page |
|---|---|---|
| B1574 | GVIF Disconnected (from Park Assist/Monitoring ECU to EMV/MM Integrated Device) | Click here |
| B1575 | GVIF Disconnected (from EMV/MM Integrated Device to Multi Display) | Click here |
| B1579 | Voice Recognition Microphone Disconnected | Click here |
| B15A0 | LAN Master Malfunction | Click here |
| B15A3 | Stereo Component Amplifier Malfunction | Click here |
| B15A6 | Display Malfunction | Click here |
| B15AD | Navigation Processor Malfunction | Click here |
| B15B0 | Display Screen Malfunction | Click here |
| B15B8 | Harddisk Malfunction | Click here |
| B15C0 | Short in GPS Antenna | Click here |
| B15C1 | Open in GPS Antenna | Click here |
| B15C2 | Speed Signal Malfunction | Click here |
| B15D0 | MOST Communication Malfunction | Click here |
| B15D3 | Stereo Component Amplifier Disconnected | Click here |
| B15D5 | Rear Seat Entertainment System Disconnected | Click here |
| B15D6 | Display Disconnected | Click here |
| B15D8 | Monitor Disconnected | Click here |
| B15E5 | Electric Throttle Malfunction | Click here |
| B15E7 | Harddisk Reading/Writing Malfunction(Low Temperature) | Click here |
| B15E8 | Harddisk Reading/Writing Malfunction(High Temperature) | Click here |
| B15F5 | A/C ECU Vehicle Information Reading/Writing Processor Malfunction | Click here |
| B15F6 | Main Body ECU Vehicle Information Reading/Writing Process Malfunction | Click here |
| B15F7 | Certification ECU Vehicle Information Reading/Writing Process Malfunction | Click here |
| B15F8 | Driver Seat ECU Vehicle Information Reading/Writing Process Malfunction | Click here |
| B15F9 | UART Communication Malfunction(for A/C) | Click here |
| C1610 | Camera ECU Malfunction | Click here |
| U0073 | Sending Malfunction (Navigation to APGS) | Click here |
| U0100 | Engine ECU Communication | Click here |
| U0126 | Steering Sensor Communication | Click here |
| U0140 | Lost Communication with Body Control Module | Click here |
| U0155 | Meter ECU Communication | Click here |
| U1110 | Clearance Sonar ECU Communication | Click here |

## DTC 01-21 ROM Error

## DTC 01-22 RAM Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-21 | A malfunction exists in the ROM. | Multi-display |
| 01-22 | A malfunction exists in the RAM. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY**

a. Replace the multi-display (Click here).

**NEXT**

**END**

## DTC 58-40 GPS Antenna Error

## DTC 58-41 GPS Antenna Power Source Error

## DTC 80-40 GPS Antenna Error

## DTC 80-41 GPS Antenna Power Source Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 58-40 | A navigation antenna error. | • Harness or connector<br>• Navigation antenna<br>• Navigation ECU |
| 58-41 | An error of the power source to the navigation antenna. | |
| 80-40 | A navigation antenna error. | |
| 80-41 | An error of the power source to the navigation antenna. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK HARNESS AND CONNECTOR (NAVIGATION ANTENNA - NAVIGATION ECU)**

a. Check that the navigation antenna cord is securely connected to the navigation ECU.

**OK:**
**The cord is securely connected.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

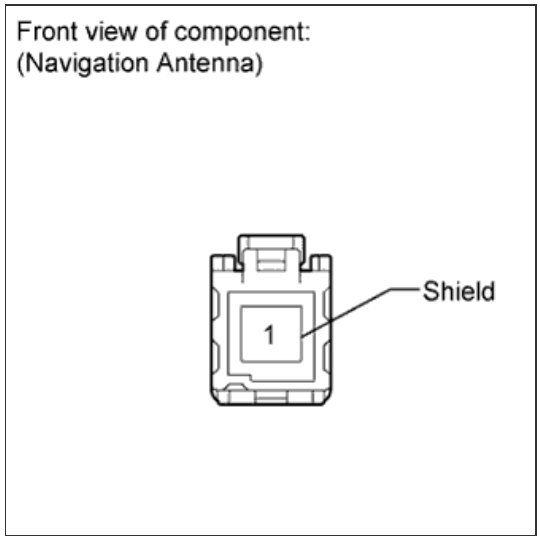
**2.INSPECT NAVIGATION ANTENNA**

a. Disconnect the navigation antenna connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - Shield | Always | 50 to 500 Ω |




NG → REPLACE NAVIGATION ANTENNA (Click here)

OK ↓

3.CLEAR AND RECHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → REPLACE NAVIGATION ECU (**Click here**)

OK → END

## DTC 01-21 ROM Error

## DTC 01-22 RAM Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-21 | A malfunction exists in the ROM. | Multi-display |
| 01-22 | A malfunction exists in the RAM. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY**

a. Replace the multi-display (Click here).

**NEXT**

**END**

## DTC 58-40 GPS Antenna Error

## DTC 58-41 GPS Antenna Power Source Error

## DTC 80-40 GPS Antenna Error

## DTC 80-41 GPS Antenna Power Source Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 58-40 | A navigation antenna error. | • Harness or connector<br>• Navigation antenna<br>• Navigation ECU |
| 58-41 | An error of the power source to the navigation antenna. | |
| 80-40 | A navigation antenna error. | |
| 80-41 | An error of the power source to the navigation antenna. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK HARNESS AND CONNECTOR (NAVIGATION ANTENNA - NAVIGATION ECU)**

a. Check that the navigation antenna cord is securely connected to the navigation ECU.

**OK:**
**The cord is securely connected.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

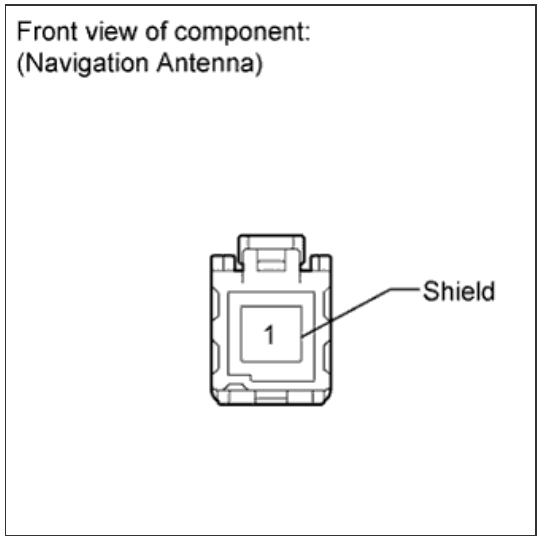
**2.INSPECT NAVIGATION ANTENNA**

a. Disconnect the navigation antenna connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - Shield | Always | 50 to 500 Ω |




NG → REPLACE NAVIGATION ANTENNA (Click here)

OK ↓

3.CLEAR AND RECHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → REPLACE NAVIGATION ECU (**Click here**)

OK → END

## DTC 01-D5 Absence of Registration Unit

## DTC 01-D8 No Response for Connection Check

## DTC 01-D9 Last Mode Error

## DTC 01-DA No Response Against ON / OFF Command

## DTC 01-DB Mode Status Error

## DTC 01-DE Slave Reset

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-D5*1, *3 | When either condition below is met:<br>• The component shown by the sub-code is (was) disconnected from the system when turning the engine switch on (ACC) or on (IG).<br>• The communication condition with the device that the code shows cannot be obtained when the engine starts. | • Power source circuit of component shown by sub-code<br>• AVC-LAN circuit between multi-display and component shown by sub-code<br>• Component shown by sub-code |
| 01-D8*2, *3 | The component shown by the sub-code is (was) disconnected from the system after the engine starts. | |
| 01-D9*1, *3 | The device that had functioned before the engine stopped is (was) disconnected from the system when the engine switch is (was) on (IG) or on (ACC). | |
| 01-DA*3 | When either condition below is met:<br>• No response is identified when changing modes.<br>• Sound and image do not change by switch operation. | |
| 01-DB*1, *3 | Dual alarm is detected. | |
| 01-DE*3 | The slave device has been disconnected after the engine starts. | |

**HINT:**

*1: Even if no fault is present, this trouble code may be stored depending on the battery condition or engine start voltage.

*2: If the power connector is disconnected after the engine starts, this code is stored after 180 seconds.

*3: If it is reported that the device does not exist during verification, check the power source circuit and AVC-LAN circuit for the device.

**NOTICE:**

- **Before starting troubleshooting, be sure to clear DTCs to clear codes stored due to the reasons described in the HINT above. Then, check for DTCs and troubleshoot according to the output DTCs.**
- **The multi-display is the master unit.**
- **Be sure to clear and recheck DTCs after the inspection is completed to confirm that no DTCs are output.**

### INSPECTION PROCEDURE

**NOTICE:**

Be sure to read the Description before performing the following procedures.

**1.CHECK "MULTI-DISPLAY COMMUNICATION ERROR" IN FLOWCHART**

a. Refer to the Multi-display Communication Error (Click here).


NEXT
END

## DTC 58-40 GPS Antenna Error

## DTC 58-41 GPS Antenna Power Source Error

## DTC 80-40 GPS Antenna Error

## DTC 80-41 GPS Antenna Power Source Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 58-40 | A navigation antenna error. | • Harness or connector<br>• Navigation antenna<br>• Navigation ECU |
| 58-41 | An error of the power source to the navigation antenna. | |
| 80-40 | A navigation antenna error. | |
| 80-41 | An error of the power source to the navigation antenna. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK HARNESS AND CONNECTOR (NAVIGATION ANTENNA - NAVIGATION ECU)**

a. Check that the navigation antenna cord is securely connected to the navigation ECU.

**OK:**
**The cord is securely connected.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

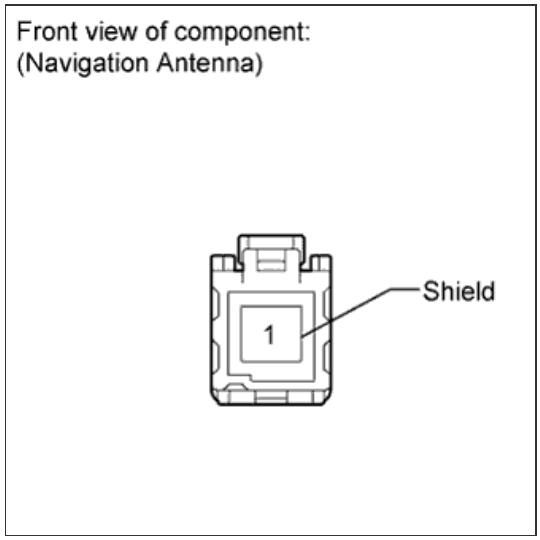
**2.INSPECT NAVIGATION ANTENNA**

a. Disconnect the navigation antenna connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - Shield | Always | 50 to 500 Ω |




NG → REPLACE NAVIGATION ANTENNA (Click here)

OK ↓

3.CLEAR AND RECHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → REPLACE NAVIGATION ECU (**Click here**)

OK → END

## DTC 01-D5 Absence of Registration Unit

## DTC 01-D8 No Response for Connection Check

## DTC 01-D9 Last Mode Error

## DTC 01-DA No Response Against ON / OFF Command

## DTC 01-DB Mode Status Error

## DTC 01-DE Slave Reset

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-D5*1, *3 | When either condition below is met:<br>• The component shown by the sub-code is (was) disconnected from the system when turning the engine switch on (ACC) or on (IG).<br>• The communication condition with the device that the code shows cannot be obtained when the engine starts. | • Power source circuit of component shown by sub-code<br>• AVC-LAN circuit between multi-display and component shown by sub-code<br>• Component shown by sub-code |
| 01-D8*2, *3 | The component shown by the sub-code is (was) disconnected from the system after the engine starts. | |
| 01-D9*1, *3 | The device that had functioned before the engine stopped is (was) disconnected from the system when the engine switch is (was) on (IG) or on (ACC). | |
| 01-DA*3 | When either condition below is met:<br>• No response is identified when changing modes.<br>• Sound and image do not change by switch operation. | |
| 01-DB*1, *3 | Dual alarm is detected. | |
| 01-DE*3 | The slave device has been disconnected after the engine starts. | |

**HINT:**

*1: Even if no fault is present, this trouble code may be stored depending on the battery condition or engine start voltage.

*2: If the power connector is disconnected after the engine starts, this code is stored after 180 seconds.

*3: If it is reported that the device does not exist during verification, check the power source circuit and AVC-LAN circuit for the device.

**NOTICE:**

- **Before starting troubleshooting, be sure to clear DTCs to clear codes stored due to the reasons described in the HINT above. Then, check for DTCs and troubleshoot according to the output DTCs.**
- **The multi-display is the master unit.**
- **Be sure to clear and recheck DTCs after the inspection is completed to confirm that no DTCs are output.**

### INSPECTION PROCEDURE

**NOTICE:**

Be sure to read the Description before performing the following procedures.

**1.CHECK "MULTI-DISPLAY COMMUNICATION ERROR" IN FLOWCHART**

a. Refer to the Multi-display Communication Error (Click here).


NEXT
END

## DTC 58-40 GPS Antenna Error

## DTC 58-41 GPS Antenna Power Source Error

## DTC 80-40 GPS Antenna Error

## DTC 80-41 GPS Antenna Power Source Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 58-40 | A navigation antenna error. | • Harness or connector<br>• Navigation antenna<br>• Navigation ECU |
| 58-41 | An error of the power source to the navigation antenna. | |
| 80-40 | A navigation antenna error. | |
| 80-41 | An error of the power source to the navigation antenna. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK HARNESS AND CONNECTOR (NAVIGATION ANTENNA - NAVIGATION ECU)**

a. Check that the navigation antenna cord is securely connected to the navigation ECU.

**OK:**
**The cord is securely connected.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

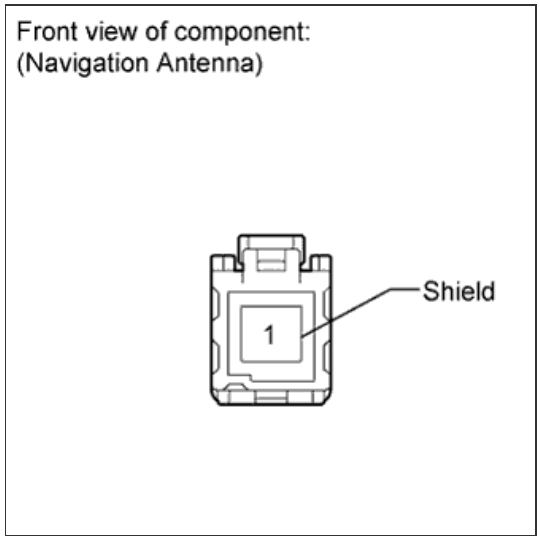
**2.INSPECT NAVIGATION ANTENNA**

a. Disconnect the navigation antenna connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - Shield | Always | 50 to 500 Ω |




NG → REPLACE NAVIGATION ANTENNA (Click here)

OK ↓

3.CLEAR AND RECHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → REPLACE NAVIGATION ECU (**Click here**)

OK → END

## DTC 01-D5 Absence of Registration Unit

## DTC 01-D8 No Response for Connection Check

## DTC 01-D9 Last Mode Error

## DTC 01-DA No Response Against ON / OFF Command

## DTC 01-DB Mode Status Error

## DTC 01-DE Slave Reset

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-D5*1, *3 | When either condition below is met:<br>• The component shown by the sub-code is (was) disconnected from the system when turning the engine switch on (ACC) or on (IG).<br>• The communication condition with the device that the code shows cannot be obtained when the engine starts. | • Power source circuit of component shown by sub-code<br>• AVC-LAN circuit between multi-display and component shown by sub-code<br>• Component shown by sub-code |
| 01-D8*2, *3 | The component shown by the sub-code is (was) disconnected from the system after the engine starts. | |
| 01-D9*1, *3 | The device that had functioned before the engine stopped is (was) disconnected from the system when the engine switch is (was) on (IG) or on (ACC). | |
| 01-DA*3 | When either condition below is met:<br>• No response is identified when changing modes.<br>• Sound and image do not change by switch operation. | |
| 01-DB*1, *3 | Dual alarm is detected. | |
| 01-DE*3 | The slave device has been disconnected after the engine starts. | |

**HINT:**

*1: Even if no fault is present, this trouble code may be stored depending on the battery condition or engine start voltage.

*2: If the power connector is disconnected after the engine starts, this code is stored after 180 seconds.

*3: If it is reported that the device does not exist during verification, check the power source circuit and AVC-LAN circuit for the device.

**NOTICE:**

- **Before starting troubleshooting, be sure to clear DTCs to clear codes stored due to the reasons described in the HINT above. Then, check for DTCs and troubleshoot according to the output DTCs.**
- **The multi-display is the master unit.**
- **Be sure to clear and recheck DTCs after the inspection is completed to confirm that no DTCs are output.**

### INSPECTION PROCEDURE

**NOTICE:**

Be sure to read the Description before performing the following procedures.

**1.CHECK "MULTI-DISPLAY COMMUNICATION ERROR" IN FLOWCHART**

a. Refer to the Multi-display Communication Error (Click here).


NEXT
END

## DTC 58-42 Map Disc Read Error

## DTC 80-42 Map Disc Read Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 58-42 | When one of the following conditions is met:<br>• A player error.<br>• Scratches or dirt is on the disc.<br>• Access to an invalid address due to a software error. | • Map disc<br>• Navigation ECU |
| 80-42 | When one of the following conditions is met:<br>• A player error.<br>• Scratches or dirt is on the disc.<br>• Access to an invalid address due to a software error. | |

### INSPECTION PROCEDURE

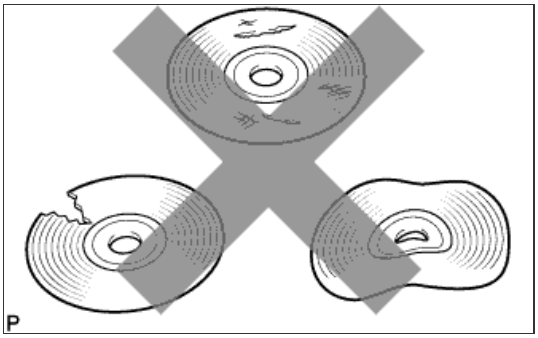
**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK MAP DISC**

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on the map disc.**




NG → Go to step 4

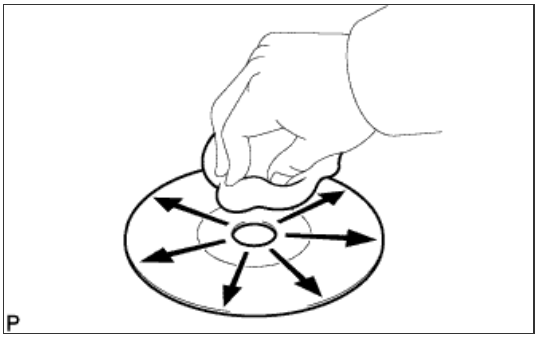
OK

**2.DISC CLEANING**

a. If dirt is on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

**NOTICE:**

Do not use a conventional record cleaner or antistatic preservative.




NEXT

3.CLEAR AND RECHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → **Go to step 4**

OK →

END

4.REPLACE MAP DISC

a. Replace the map disc.

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → REPLACE NAVIGATION ECU (**Click here**)

OK →

END

## DTC 01-D5 Absence of Registration Unit

## DTC 01-D8 No Response for Connection Check

## DTC 01-D9 Last Mode Error

## DTC 01-DA No Response Against ON / OFF Command

## DTC 01-DB Mode Status Error

## DTC 01-DE Slave Reset

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-D5*1, *3 | When either condition below is met:<br>• The component shown by the sub-code is (was) disconnected from the system when turning the engine switch on (ACC) or on (IG).<br>• The communication condition with the device that the code shows cannot be obtained when the engine starts. | • Power source circuit of component shown by sub-code<br>• AVC-LAN circuit between multi-display and component shown by sub-code<br>• Component shown by sub-code |
| 01-D8*2, *3 | The component shown by the sub-code is (was) disconnected from the system after the engine starts. | |
| 01-D9*1, *3 | The device that had functioned before the engine stopped is (was) disconnected from the system when the engine switch is (was) on (IG) or on (ACC). | |
| 01-DA*3 | When either condition below is met:<br>• No response is identified when changing modes.<br>• Sound and image do not change by switch operation. | |
| 01-DB*1, *3 | Dual alarm is detected. | |
| 01-DE*3 | The slave device has been disconnected after the engine starts. | |

**HINT:**

*1: Even if no fault is present, this trouble code may be stored depending on the battery condition or engine start voltage.

*2: If the power connector is disconnected after the engine starts, this code is stored after 180 seconds.

*3: If it is reported that the device does not exist during verification, check the power source circuit and AVC-LAN circuit for the device.

**NOTICE:**

- **Before starting troubleshooting, be sure to clear DTCs to clear codes stored due to the reasons described in the HINT above. Then, check for DTCs and troubleshoot according to the output DTCs.**
- **The multi-display is the master unit.**
- **Be sure to clear and recheck DTCs after the inspection is completed to confirm that no DTCs are output.**

### INSPECTION PROCEDURE

**NOTICE:**

Be sure to read the Description before performing the following procedures.

**1.CHECK "MULTI-DISPLAY COMMUNICATION ERROR" IN FLOWCHART**

a. Refer to the Multi-display Communication Error (Click here).


NEXT
END

## DTC 58-42 Map Disc Read Error

## DTC 80-42 Map Disc Read Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 58-42 | When one of the following conditions is met:<br>• A player error.<br>• Scratches or dirt is on the disc.<br>• Access to an invalid address due to a software error. | • Map disc<br>• Navigation ECU |
| 80-42 | When one of the following conditions is met:<br>• A player error.<br>• Scratches or dirt is on the disc.<br>• Access to an invalid address due to a software error. | |

### INSPECTION PROCEDURE

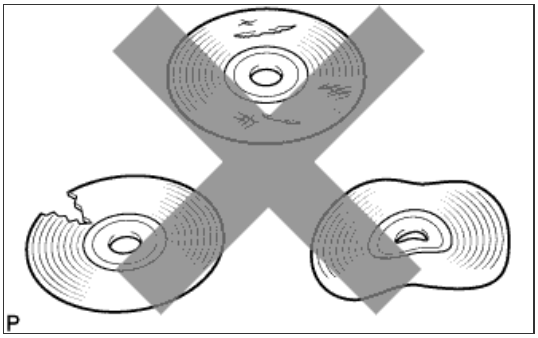
**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK MAP DISC**

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on the map disc.**




NG → Go to step 4

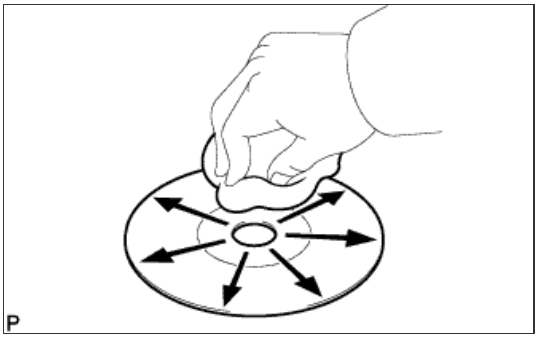
OK

**2.DISC CLEANING**

a. If dirt is on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

**NOTICE:**

Do not use a conventional record cleaner or antistatic preservative.




NEXT

3.CLEAR AND RECHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → **Go to step 4**

OK →

END

4.REPLACE MAP DISC

a. Replace the map disc.

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → REPLACE NAVIGATION ECU (**Click here**)

OK →

END

## DTC 01-D5 Absence of Registration Unit

## DTC 01-D8 No Response for Connection Check

## DTC 01-D9 Last Mode Error

## DTC 01-DA No Response Against ON / OFF Command

## DTC 01-DB Mode Status Error

## DTC 01-DE Slave Reset

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-D5*1, *3 | When either condition below is met:<br>• The component shown by the sub-code is (was) disconnected from the system when turning the engine switch on (ACC) or on (IG).<br>• The communication condition with the device that the code shows cannot be obtained when the engine starts. | • Power source circuit of component shown by sub-code<br>• AVC-LAN circuit between multi-display and component shown by sub-code<br>• Component shown by sub-code |
| 01-D8*2, *3 | The component shown by the sub-code is (was) disconnected from the system after the engine starts. | |
| 01-D9*1, *3 | The device that had functioned before the engine stopped is (was) disconnected from the system when the engine switch is (was) on (IG) or on (ACC). | |
| 01-DA*3 | When either condition below is met:<br>• No response is identified when changing modes.<br>• Sound and image do not change by switch operation. | |
| 01-DB*1, *3 | Dual alarm is detected. | |
| 01-DE*3 | The slave device has been disconnected after the engine starts. | |

**HINT:**

*1: Even if no fault is present, this trouble code may be stored depending on the battery condition or engine start voltage.

*2: If the power connector is disconnected after the engine starts, this code is stored after 180 seconds.

*3: If it is reported that the device does not exist during verification, check the power source circuit and AVC-LAN circuit for the device.

**NOTICE:**

- **Before starting troubleshooting, be sure to clear DTCs to clear codes stored due to the reasons described in the HINT above. Then, check for DTCs and troubleshoot according to the output DTCs.**
- **The multi-display is the master unit.**
- **Be sure to clear and recheck DTCs after the inspection is completed to confirm that no DTCs are output.**

### INSPECTION PROCEDURE

**NOTICE:**

Be sure to read the Description before performing the following procedures.

**1.CHECK "MULTI-DISPLAY COMMUNICATION ERROR" IN FLOWCHART**

a. Refer to the Multi-display Communication Error (Click here).


NEXT
END

## DTC 58-43 SPD Signal Error

## DTC 80-43 SPD Signal Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 58-43 | A difference between the GPS speed and SPD pulse is detected. | • Speed signal circuit<br>• Navigation ECU |
| 80-43 | A difference between the GPS speed and SPD pulse is detected. | |

### INSPECTION PROCEDURE

**HINT:**

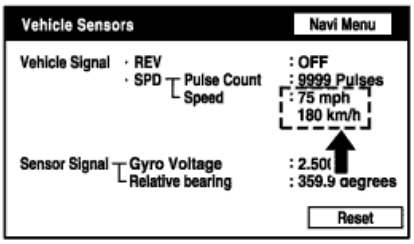
After the inspection is completed, clear the DTCs (Click here).

**1.CHECK VEHICLE SENSOR (NAVIGATION CHECK MODE)**

a. Enter the "Navigation Check" mode and select "Vehicle Sensors" (Click here).

b. While driving the vehicle, compare the "SPD" indicator to the reading on the speedometer. Check if these readings are almost equal.

**OK:**
**The readings are almost equal.**




P

NG → Go to step 2

OK

**REPLACE NAVIGATION ECU (Click here)**

**2.PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

a. Refer to "Speed signal does not change in the navigation check mode" in the problem symptoms table ( Click here).

NEXT

**END**

## DTC 01-D5 Absence of Registration Unit

## DTC 01-D8 No Response for Connection Check

## DTC 01-D9 Last Mode Error

## DTC 01-DA No Response Against ON / OFF Command

## DTC 01-DB Mode Status Error

## DTC 01-DE Slave Reset

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-D5*1, *3 | When either condition below is met:<br>• The component shown by the sub-code is (was) disconnected from the system when turning the engine switch on (ACC) or on (IG).<br>• The communication condition with the device that the code shows cannot be obtained when the engine starts. | • Power source circuit of component shown by sub-code<br>• AVC-LAN circuit between multi-display and component shown by sub-code<br>• Component shown by sub-code |
| 01-D8*2, *3 | The component shown by the sub-code is (was) disconnected from the system after the engine starts. | |
| 01-D9*1, *3 | The device that had functioned before the engine stopped is (was) disconnected from the system when the engine switch is (was) on (IG) or on (ACC). | |
| 01-DA*3 | When either condition below is met:<br>• No response is identified when changing modes.<br>• Sound and image do not change by switch operation. | |
| 01-DB*1, *3 | Dual alarm is detected. | |
| 01-DE*3 | The slave device has been disconnected after the engine starts. | |

**HINT:**

*1: Even if no fault is present, this trouble code may be stored depending on the battery condition or engine start voltage.

*2: If the power connector is disconnected after the engine starts, this code is stored after 180 seconds.

*3: If it is reported that the device does not exist during verification, check the power source circuit and AVC-LAN circuit for the device.

**NOTICE:**

- **Before starting troubleshooting, be sure to clear DTCs to clear codes stored due to the reasons described in the HINT above. Then, check for DTCs and troubleshoot according to the output DTCs.**
- **The multi-display is the master unit.**
- **Be sure to clear and recheck DTCs after the inspection is completed to confirm that no DTCs are output.**

### INSPECTION PROCEDURE

**NOTICE:**

Be sure to read the Description before performing the following procedures.

**1.CHECK "MULTI-DISPLAY COMMUNICATION ERROR" IN FLOWCHART**

a. Refer to the Multi-display Communication Error (Click here).


NEXT
END

## DTC 58-43 SPD Signal Error

## DTC 80-43 SPD Signal Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 58-43 | A difference between the GPS speed and SPD pulse is detected. | • Speed signal circuit<br>• Navigation ECU |
| 80-43 | A difference between the GPS speed and SPD pulse is detected. | |

### INSPECTION PROCEDURE

**HINT:**

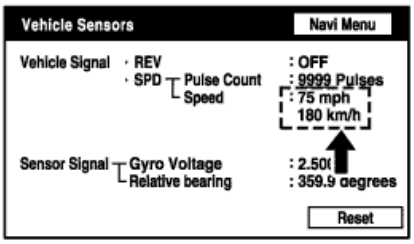
After the inspection is completed, clear the DTCs (Click here).

**1.CHECK VEHICLE SENSOR (NAVIGATION CHECK MODE)**

a. Enter the "Navigation Check" mode and select "Vehicle Sensors" (Click here).

b. While driving the vehicle, compare the "SPD" indicator to the reading on the speedometer. Check if these readings are almost equal.

**OK:**
**The readings are almost equal.**




P

NG → Go to step 2

OK

**REPLACE NAVIGATION ECU (Click here)**

**2.PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

a. Refer to "Speed signal does not change in the navigation check mode" in the problem symptoms table ( Click here).

NEXT

**END**

## DTC 01-D6 No Master

## DTC 01-D7 Connection Check Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-D6*1 | When either of the following conditions is met:<br>• The component which has stored the code has (had) been disconnected when the engine switch is on (ACC) or on (IG).<br>• The master device has (had) been disconnected when this code is stored. | • Multi-display power source circuit<br>• Power source circuit of component which has stored this code<br>• AVC-LAN circuit between multi-display and component which has stored this code<br>• Component which has stored this code<br>• Multi-display |
| 01-D7*2 | When either of the following conditions is met:<br>• The component which has stored the code has (had) been disconnected after the engine starts (started).<br>• The master device has (had) been disconnected when this code is (was) stored. | |

**HINT:**

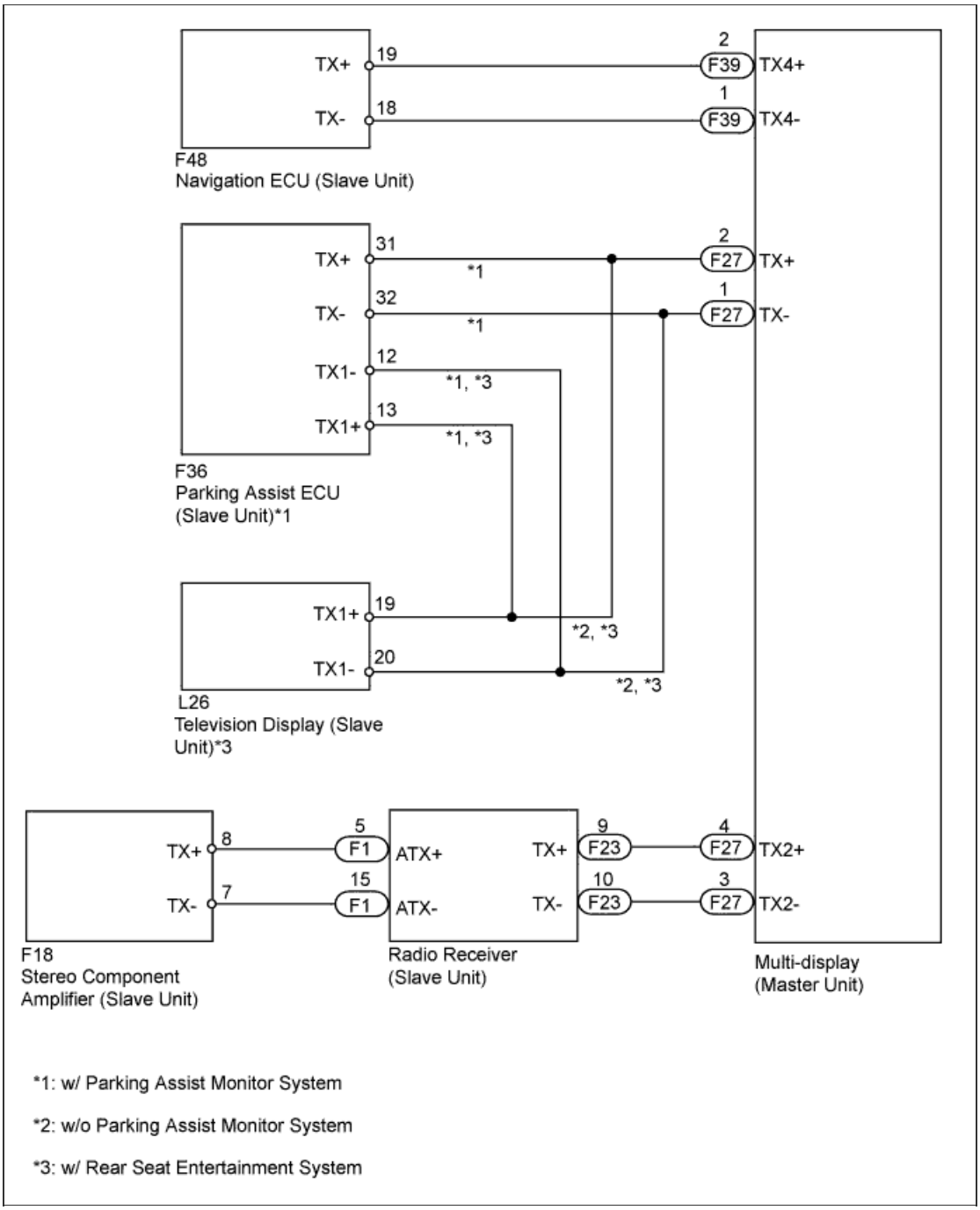
*1: Even if no fault is present, this trouble code may be stored depending on the battery condition or engine start voltage.

*2: When 210 seconds have elapsed after disconnecting the power supply connector of the master component with the engine switch on (ACC) or on (IG), this code is stored.

**NOTICE:**

- **Before starting troubleshooting, be sure to clear DTCs to clear codes stored due to the reasons described in the HINT above. Then, check for DTCs and troubleshoot according to the output DTCs.**
- **The multi-display is the master unit.**
- **Be sure to clear and recheck DTCs after the inspection is completed to confirm that no DTCs are output.**

### WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Be sure to read the Description before performing the following procedures.

### 1.CHECK MULTI-DISPLAY POWER SOURCE CIRCUIT

a. Refer to the Multi-display Power Source Circuit ( Click here).
If the power source circuit is operating normally, proceed to the next step.

**NEXT**

### 2.IDENTIFY COMPONENT WHICH HAS STORED THIS CODE

a. Enter the diagnostic mode.

b. Press the "LAN Mon" switch to change to "LAN Monitor" mode.

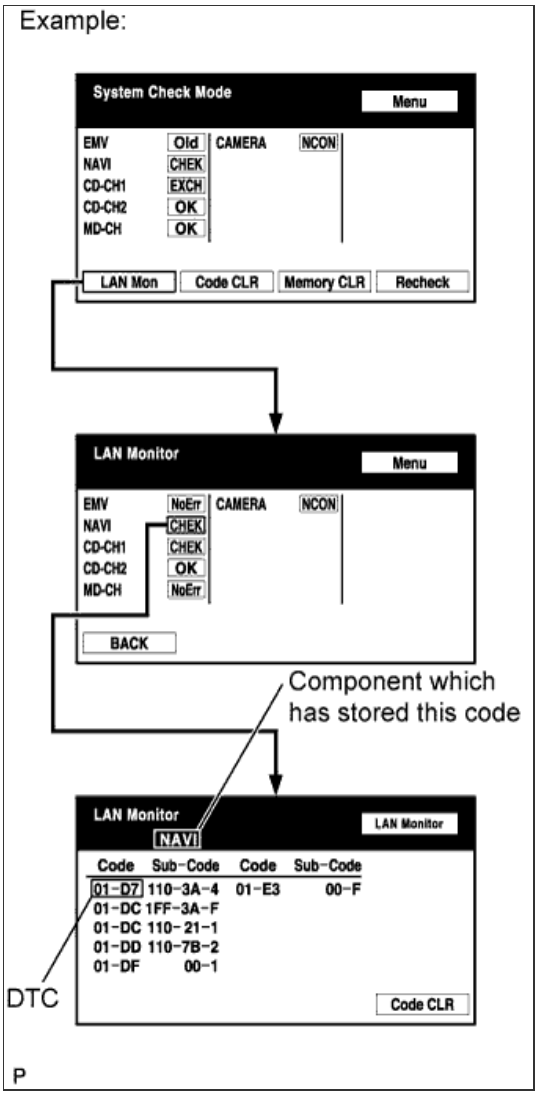
c. Identify the component which has stored this code.

**Component Table**

| Display | Component |
|---|---|
| AUDIO | Radio receiver |
| DSP-AMP | Stereo component amplifier |
| EMV | Multi-display |
| NAVI | Navigation ECU |
| CAMERA-C | Parking assist ECU |
| RSE | Television display |

**HINT:**

"NAVI" is the component which has stored this code in the example shown in the illustration.




NEXT

## 3.CHECK POWER SOURCE CIRCUIT OF COMPONENT WHICH HAS STORED THIS CODE

a. Inspect the power source circuit of the component which has stored this code.
If the power source circuit is operating normally, proceed to the next step.

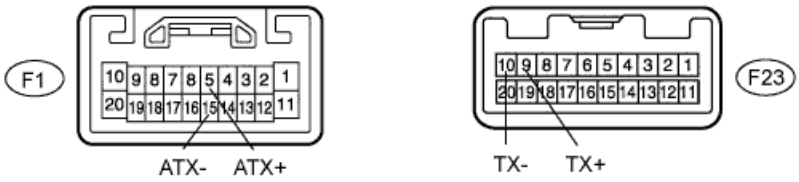
**Component Table**

| Component | Proceed to |
|---|---|
| Radio receiver (AUDIO) | Radio receiver power source circuit (Click here) |
| Stereo component amplifier (DSP-AMP) | Stereo component amplifier power source circuit (Click here) |
| Multi-display (EMV) | Multi-display power source circuit (Click here) |
| Navigation ECU (NAVI) | Navigation ECU power source circuit (Click here) |
| Parking assist ECU (CAMERA-C) | Parking assist ECU power source circuit (Click here) |
| Television display (RSE) | Television display power source circuit (Click here) |

NEXT

## 4.INSPECT RADIO RECEIVER ASSEMBLY

Component without harness connected:
(Radio Receiver)




a. Disconnect the F1 and F23 receiver connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-5 (ATX+) - F1-15 (ATX-) | Always | 60 to 80 Ω |
| F23-9 (TX+) - F23-10 (TX-) | Always | 60 to 80 Ω |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

**5.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - COMPONENT WHICH HAS STORED THIS CODE)**

**HINT:**

For details of the connectors, refer to Terminals of ECU ( Click here).

a. Check the AVC-LAN circuit between the multi-display and the component which has stored this code.

i. Disconnect all connectors between the multi-display and the component which has stored this code.

ii. Check for an open or short in the AVC-LAN circuit between the multi-display and the component which has stored this code.

**OK:**
**There is no open or short circuit.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**6.REPLACE COMPONENT WHICH HAS STORED THIS CODE**

a. Replace the component which has stored this code with a normal one and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

NG → REPLACE MULTI-DISPLAY (Click here)

OK

**END**

## DTC 58-44 Player Error

## DTC 80-44 Player Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 58-44 | A map player error is detected. | Navigation ECU |
| 80-44 | A map player error is detected. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK NAVIGATION ECU**

a. Check if a disc can be inserted or ejected normally.

**OK:**
**A disc can be inserted or ejected normally.**

NG → **REPLACE NAVIGATION ECU (Click here)**

OK ↓

**2.CLEAR AND RECHECK DTC**

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → **REPLACE NAVIGATION ECU (Click here)**

OK ↓

**END**

## DTC 01-D6 No Master

## DTC 01-D7 Connection Check Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-D6*1 | When either of the following conditions is met:<br>• The component which has stored the code has (had) been disconnected when the engine switch is on (ACC) or on (IG).<br>• The master device has (had) been disconnected when this code is stored. | • Multi-display power source circuit<br>• Power source circuit of component which has stored this code<br>• AVC-LAN circuit between multi-display and component which has stored this code<br>• Component which has stored this code<br>• Multi-display |
| 01-D7*2 | When either of the following conditions is met:<br>• The component which has stored the code has (had) been disconnected after the engine starts (started).<br>• The master device has (had) been disconnected when this code is (was) stored. | |

**HINT:**

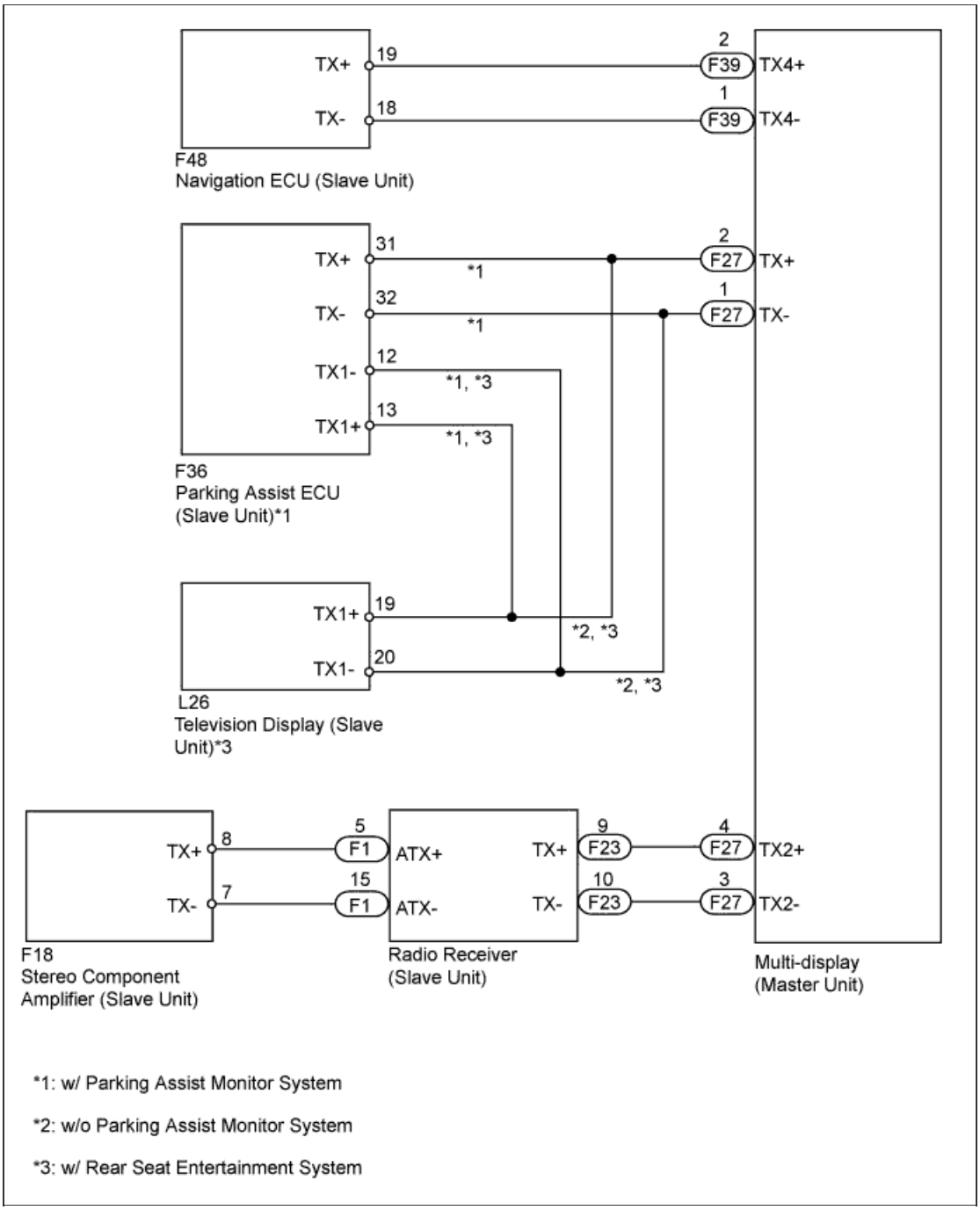
*1: Even if no fault is present, this trouble code may be stored depending on the battery condition or engine start voltage.

*2: When 210 seconds have elapsed after disconnecting the power supply connector of the master component with the engine switch on (ACC) or on (IG), this code is stored.

**NOTICE:**

- **Before starting troubleshooting, be sure to clear DTCs to clear codes stored due to the reasons described in the HINT above. Then, check for DTCs and troubleshoot according to the output DTCs.**
- **The multi-display is the master unit.**
- **Be sure to clear and recheck DTCs after the inspection is completed to confirm that no DTCs are output.**

### WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Be sure to read the Description before performing the following procedures.

### 1.CHECK MULTI-DISPLAY POWER SOURCE CIRCUIT

a. Refer to the Multi-display Power Source Circuit ( Click here).
If the power source circuit is operating normally, proceed to the next step.

**NEXT**

### 2.IDENTIFY COMPONENT WHICH HAS STORED THIS CODE

a. Enter the diagnostic mode.

b. Press the "LAN Mon" switch to change to "LAN Monitor" mode.

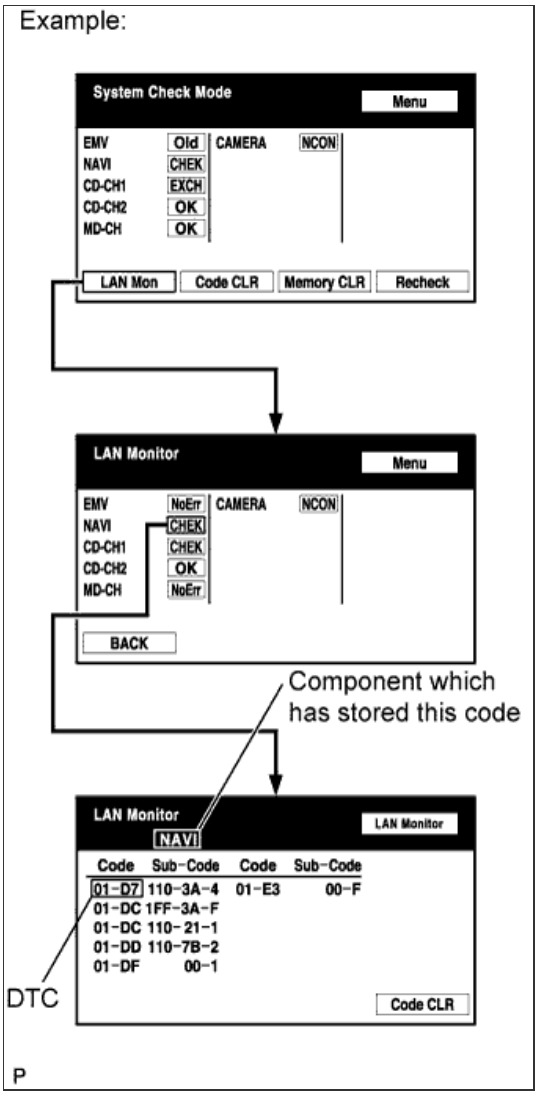
c. Identify the component which has stored this code.

**Component Table**

| Display | Component |
|---|---|
| AUDIO | Radio receiver |
| DSP-AMP | Stereo component amplifier |
| EMV | Multi-display |
| NAVI | Navigation ECU |
| CAMERA-C | Parking assist ECU |
| RSE | Television display |

**HINT:**

"NAVI" is the component which has stored this code in the example shown in the illustration.




NEXT

## 3.CHECK POWER SOURCE CIRCUIT OF COMPONENT WHICH HAS STORED THIS CODE

a. Inspect the power source circuit of the component which has stored this code.
If the power source circuit is operating normally, proceed to the next step.

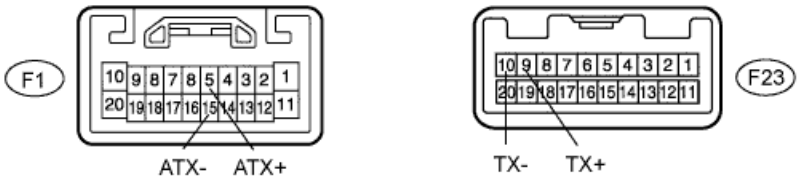
**Component Table**

| Component | Proceed to |
|---|---|
| Radio receiver (AUDIO) | Radio receiver power source circuit (Click here) |
| Stereo component amplifier (DSP-AMP) | Stereo component amplifier power source circuit (Click here) |
| Multi-display (EMV) | Multi-display power source circuit (Click here) |
| Navigation ECU (NAVI) | Navigation ECU power source circuit (Click here) |
| Parking assist ECU (CAMERA-C) | Parking assist ECU power source circuit (Click here) |
| Television display (RSE) | Television display power source circuit (Click here) |

NEXT

## 4.INSPECT RADIO RECEIVER ASSEMBLY

Component without harness connected:
(Radio Receiver)




a. Disconnect the F1 and F23 receiver connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-5 (ATX+) - F1-15 (ATX-) | Always | 60 to 80 Ω |
| F23-9 (TX+) - F23-10 (TX-) | Always | 60 to 80 Ω |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

**5.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - COMPONENT WHICH HAS STORED THIS CODE)**

**HINT:**

For details of the connectors, refer to Terminals of ECU ( Click here).

a. Check the AVC-LAN circuit between the multi-display and the component which has stored this code.

i. Disconnect all connectors between the multi-display and the component which has stored this code.

ii. Check for an open or short in the AVC-LAN circuit between the multi-display and the component which has stored this code.

**OK:**
**There is no open or short circuit.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**6.REPLACE COMPONENT WHICH HAS STORED THIS CODE**

a. Replace the component which has stored this code with a normal one and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

NG → REPLACE MULTI-DISPLAY (Click here)

OK

**END**

## DTC 58-44 Player Error

## DTC 80-44 Player Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 58-44 | A map player error is detected. | Navigation ECU |
| 80-44 | A map player error is detected. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK NAVIGATION ECU**

a. Check if a disc can be inserted or ejected normally.

**OK:**
**A disc can be inserted or ejected normally.**

NG → **REPLACE NAVIGATION ECU (Click here)**

OK ↓

**2.CLEAR AND RECHECK DTC**

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → **REPLACE NAVIGATION ECU (Click here)**

OK ↓

**END**

# DTC 01-DC Transmission Error

**for Preparation** Click here

## DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-DC | Transmission to the component shown by the sub-code failed (the storing of this DTC does not always mean actual failure). | If same sub-code is recorded in other components, check harness for power supply and communication system of all components shown by code |

**NOTICE:**

- **The multi-display is the master unit.**
- **Be sure to clear and recheck DTCs after the inspection is completed to confirm that no DTCs are output.**

## INSPECTION PROCEDURE

**NOTICE:**

Be sure to read the Description before performing the following procedures.

### 1.CHECK FOR DTC OF OTHER COMPONENTS

a. Check if the component shown by the sub-code is displayed in the check result of the other components.

i. Check if "01-DC" is output for the other components.

ii. If "01-DC" is output for any other components, check if the same physical address is displayed.

**HINT:**

For the list of the components shown by sub-codes, refer to the table in the next step.

**Result**

| Result | Proceed to |
|---|---|
| "01-DC" is output and the same physical address is displayed | A |
| "01-DC" is not output or the same physical address is not displayed | B |

B → Go to step 4

A

### 2.IDENTIFY COMPONENT WHICH HAS STORED THIS CODE

a. Enter the diagnostic mode.

b. Press the "LAN Mon" switch to change to "LAN Monitor" mode.

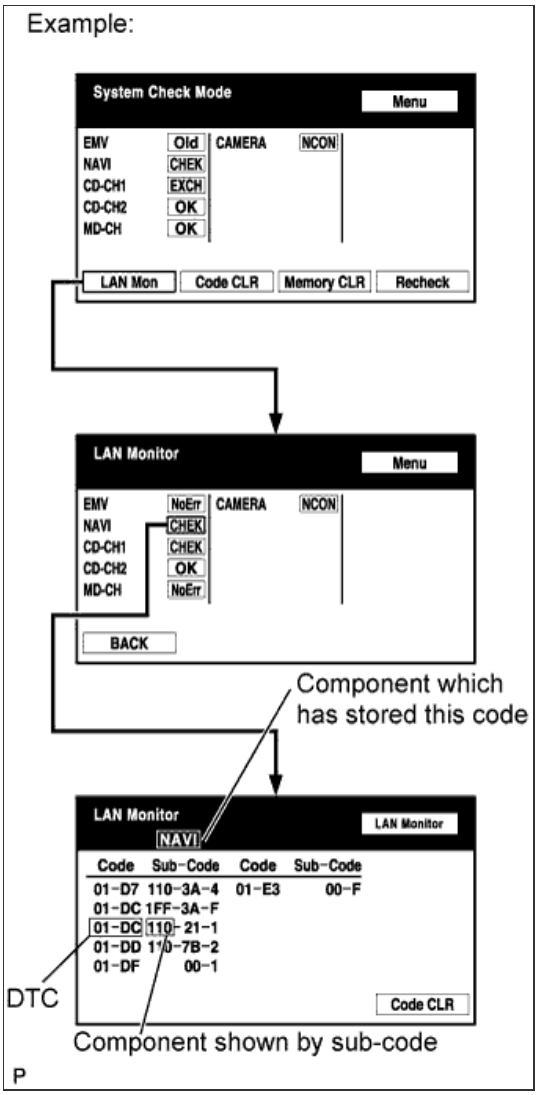
c. Identify the component which has stored this code.

**Component Table**

| Display | Component |
|---|---|
| AUDIO | Radio receiver |
| DSP-AMP | Stereo component amplifier |
| EMV | Multi-display |
| NAVI | Navigation ECU |
| CAMERA-C | Parking assist ECU |
| RSE | Television display |

**HINT:**

"NAVI" is the component which has stored this code in the example shown in the illustration.




NEXT

## 3.CHECK COMPONENT WHICH HAS STORED THIS CODE

a. Select the component which has stored this code.

**Component Table**

| Component | Proceed to |
|---|---|
| Radio receiver (AUDIO) | Radio receiver communication error (Click here) |
| Stereo component amplifier (DSP-AMP) | Stereo component amplifier communication error (Click here) |
| Multi-display (EMV) | Multi-display communication error (Click here) |
| Navigation ECU (NAVI) | Navigation ECU communication error (Click here) |
| Parking assist ECU (CAMERA-C) | Parking assist ECU communication error (Click here) |
| Television display (RSE) | Television display communication error (Click here) |

NEXT

## END

## 4.CLEAR DTC

a. Clear the DTCs (Click here).

**HINT:**

If "01-DC" is output for only one component, this may not indicate a malfunction.

NEXT

5.RECHECK DTC

a. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → Go to step 6

OK

END

6.CHECK COMPONENT WHICH HAS STORED THIS CODE

a. Select the component which has stored this code.

**Component Table**

| Component | Proceed to |
|---|---|
| Radio receiver (AUDIO) | Radio receiver communication error (Click here) |
| Stereo component amplifier (DSP-AMP) | Stereo component amplifier communication error (Click here) |
| Multi-display (EMV) | Multi-display communication error (Click here) |
| Navigation ECU (NAVI) | Navigation ECU communication error (Click here) |
| Parking assist ECU (CAMERA-C) | Parking assist ECU communication error (Click here) |
| Television display (RSE) | Television display communication error (Click here) |

NEXT

END

## DTC 58-45 High Temperature

## DTC 80-45 High Temperature

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 58-45 | The condition that the temperature of the map disc player is high (higher than 80°C (176°F)) is detected. | Navigation ECU |
| 80-45 | The condition that the temperature of the map disc player is high (higher than 80°C (176°F)) is detected. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK NAVIGATION ECU**

a. Park the vehicle in a cool place.

b. Check that the temperature of the navigation ECU has become sufficiently low, then start the engine to verify the malfunction symptom.

**OK:**
**Same problem does not occur.**

**NG** → **REPLACE NAVIGATION ECU (Click here)**

**OK**

**END**

## DTC 01-DD Master Reset

## DTC 01-E1 Voice Processing Device ON Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-DD | The device that should be the master has been disconnected after the engine starts. | • Multi-display power source circuit<br>• AVC-LAN circuit between multi-display and component which has stored this code<br>• Multi-display<br>• Component which has stored this code |
| 01-E1* | The amplifier device records that the amplifier output does not function even while the source device is operating. | |

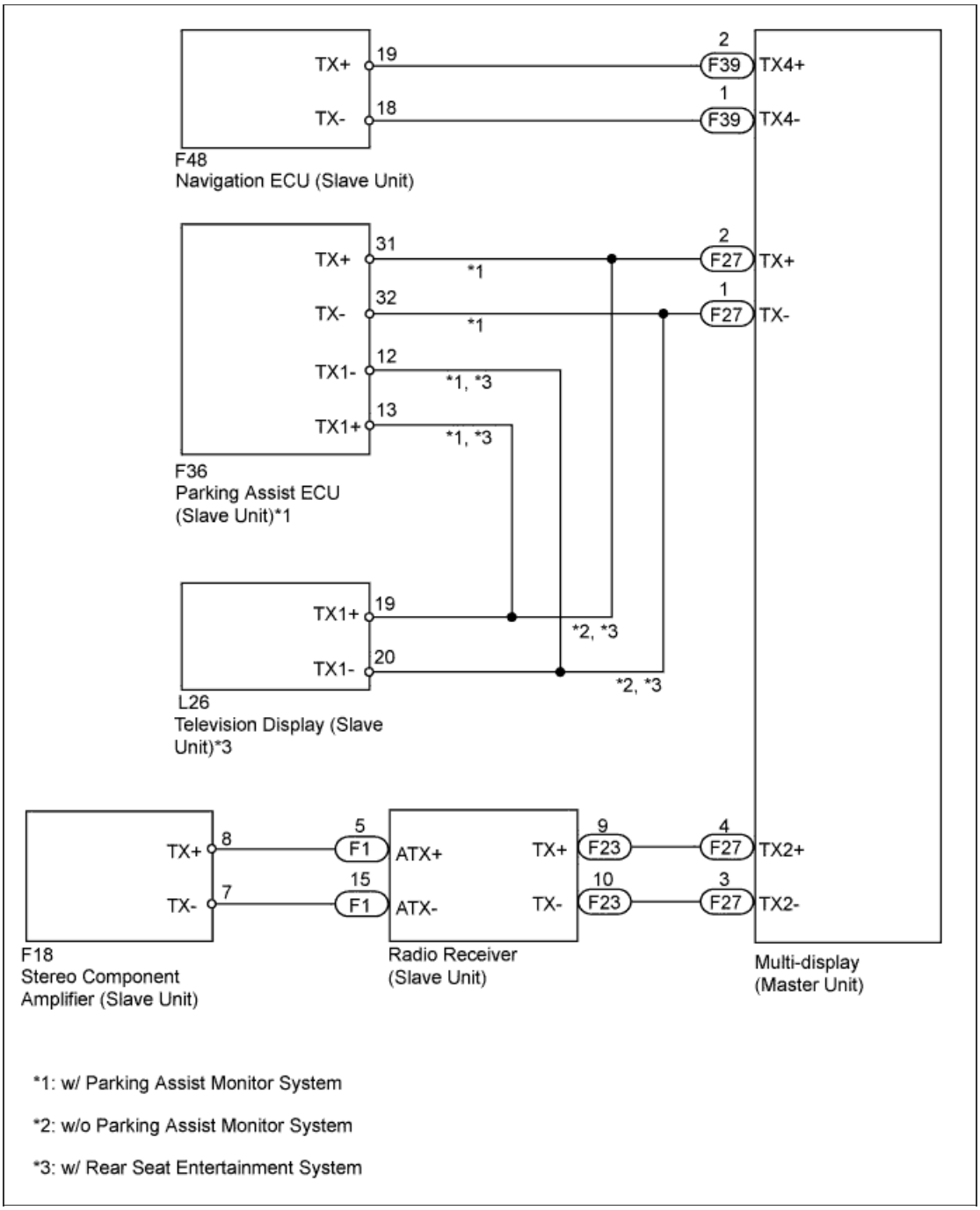
**HINT:**

*: Even if no fault is present, this trouble code may be stored depending on the battery condition or engine start voltage.

**NOTICE:**

- **Before starting troubleshooting, be sure to clear DTCs to clear codes stored due to the reasons described in the HINT above. Then, check for DTCs and troubleshoot according to the output DTCs.**
- **The multi-display is the master unit.**
- **Be sure to clear and recheck DTCs after the inspection is completed to confirm that no DTCs are output.**

### WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Be sure to read the Description before performing the following procedures.

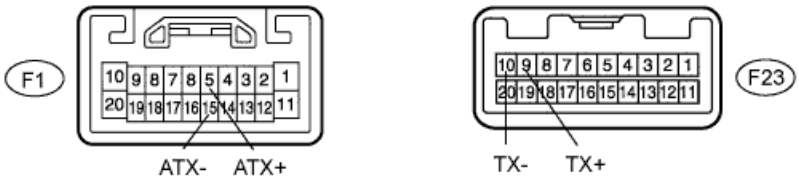
### 1.CHECK MULTI-DISPLAY POWER SOURCE CIRCUIT

a. Refer to the Multi-display Power Source Circuit ( Click here).
If the power source circuit is operating normally, proceed to the next step.

**NEXT**

### 2.INSPECT RADIO RECEIVER ASSEMBLY

Component without harness connected:
(Radio Receiver)




a. Disconnect the F1 and F23 receiver connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-5 (ATX+) - F1-15 (ATX-) | Always | 60 to 80 Ω |
| F23-9 (TX+) - F23-10 (TX-) | Always | 60 to 80 Ω |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

## 3.IDENTIFY COMPONENT WHICH HAS STORED THIS CODE

a. Enter the diagnostic mode.

b. Press the "LAN Mon" switch to change to "LAN Monitor" mode.

c. Identify the component which has stored this code.

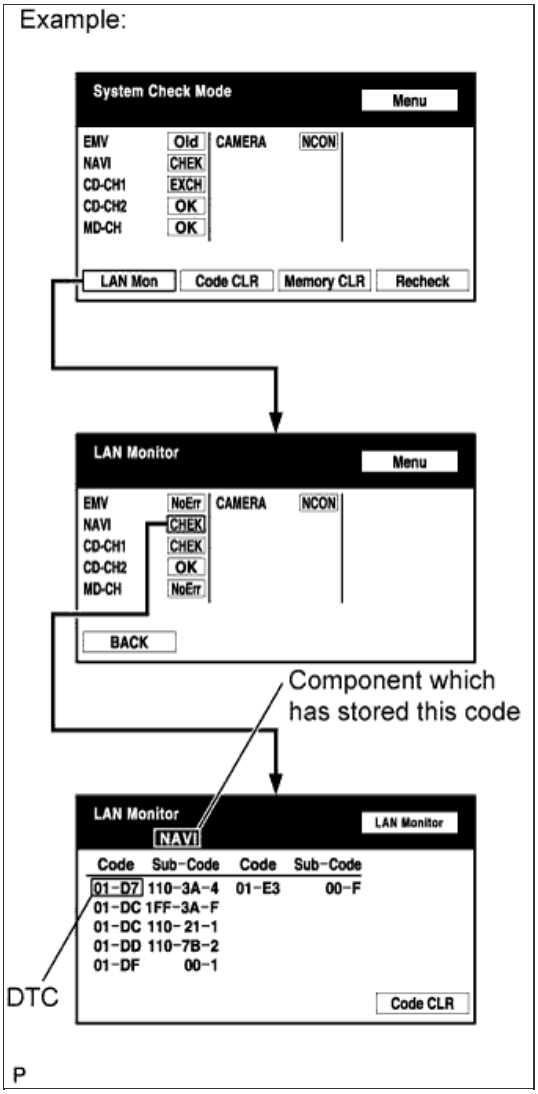
**Component Table**

| Display | Component |
|---|---|
| AUDIO | Radio receiver |
| DSP-AMP | Stereo component amplifier |
| EMV | Multi-display |
| NAVI | Navigation ECU |
| CAMERA-C | Parking assist ECU |
| RSE | Television display |

**HINT:**

"NAVI" is the component which has stored this code in the example shown in the illustration.

Example:




P

NEXT

4.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - COMPONENT WHICH HAS STORED THIS CODE)

**HINT:**

For details of the connectors, refer to Terminals of ECU ( Click here).

a. Referring to the AVC-LAN wiring diagram, check the AVC-LAN circuit between the multi-display and the component which has stored this code.

i. Disconnect all connectors between the multi-display and the component which has stored this code.

ii. Check for an open or short in the AVC-LAN circuit between the multi-display and the component which has stored this code.

**OK:**
**There is no open or short circuit.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

5.REPLACE MULTI-DISPLAY

a. Replace the multi-display with a normal one ( Click here) and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

NG → REPLACE COMPONENT WHICH HAS STORED THIS CODE

OK

END

## DTC 58-45 High Temperature

## DTC 80-45 High Temperature

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 58-45 | The condition that the temperature of the map disc player is high (higher than 80°C (176°F)) is detected. | Navigation ECU |
| 80-45 | The condition that the temperature of the map disc player is high (higher than 80°C (176°F)) is detected. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK NAVIGATION ECU**

a. Park the vehicle in a cool place.

b. Check that the temperature of the navigation ECU has become sufficiently low, then start the engine to verify the malfunction symptom.

**OK:**
**Same problem does not occur.**

**NG** → **REPLACE NAVIGATION ECU (Click here)**

**OK**

**END**

## DTC 01-DD Master Reset

## DTC 01-E1 Voice Processing Device ON Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-DD | The device that should be the master has been disconnected after the engine starts. | • Multi-display power source circuit<br>• AVC-LAN circuit between multi-display and component which has stored this code<br>• Multi-display<br>• Component which has stored this code |
| 01-E1* | The amplifier device records that the amplifier output does not function even while the source device is operating. | |

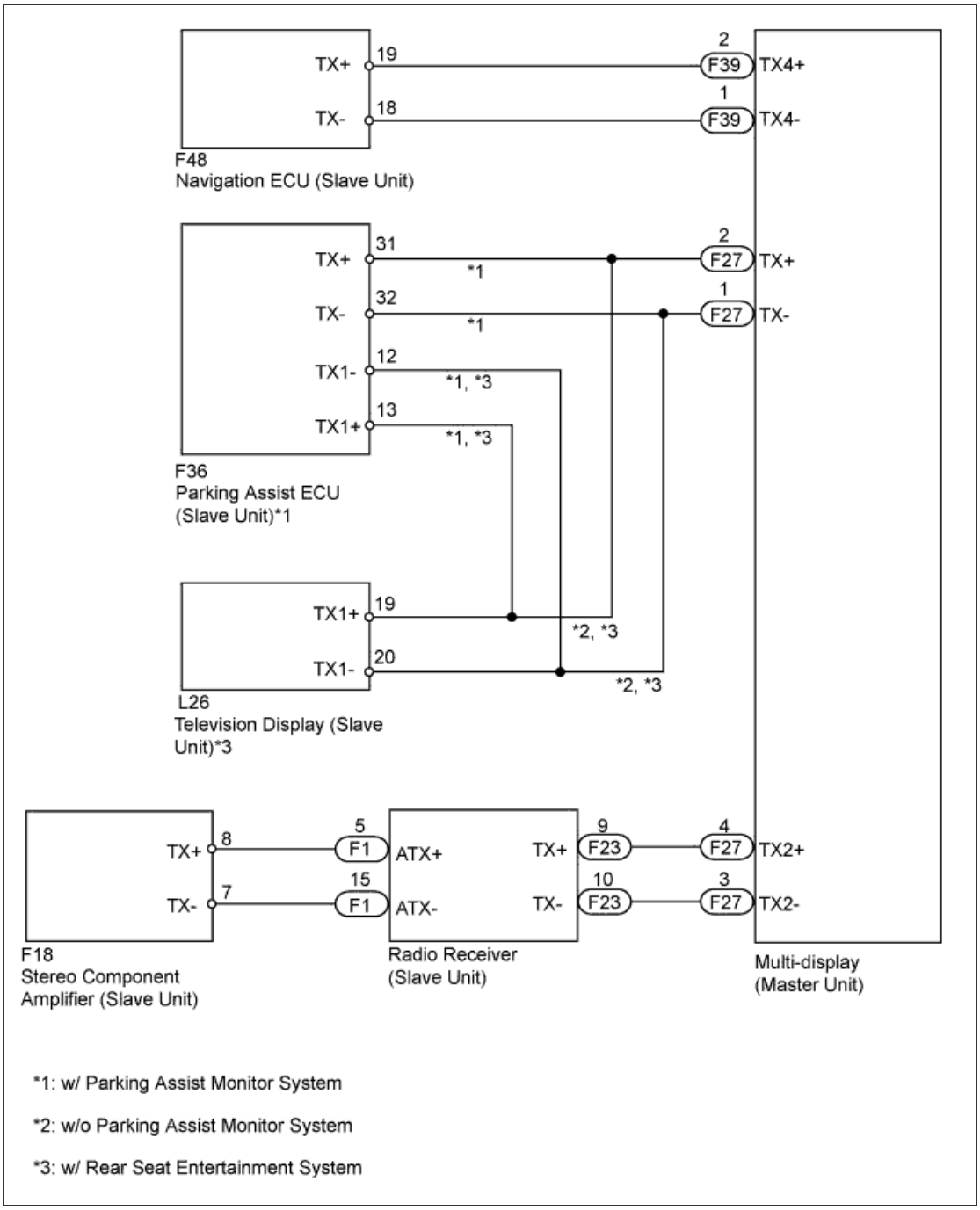
**HINT:**

*: Even if no fault is present, this trouble code may be stored depending on the battery condition or engine start voltage.

**NOTICE:**

- **Before starting troubleshooting, be sure to clear DTCs to clear codes stored due to the reasons described in the HINT above. Then, check for DTCs and troubleshoot according to the output DTCs.**
- **The multi-display is the master unit.**
- **Be sure to clear and recheck DTCs after the inspection is completed to confirm that no DTCs are output.**

### WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Be sure to read the Description before performing the following procedures.

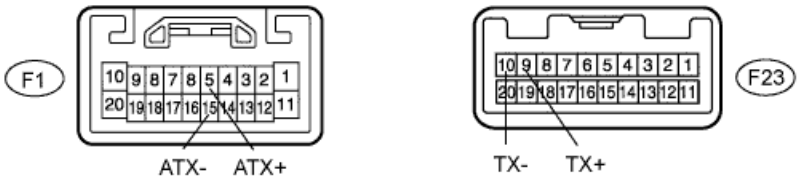
### 1.CHECK MULTI-DISPLAY POWER SOURCE CIRCUIT

a. Refer to the Multi-display Power Source Circuit ( Click here).
If the power source circuit is operating normally, proceed to the next step.

**NEXT**

### 2.INSPECT RADIO RECEIVER ASSEMBLY

Component without harness connected:
(Radio Receiver)




a. Disconnect the F1 and F23 receiver connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-5 (ATX+) - F1-15 (ATX-) | Always | 60 to 80 Ω |
| F23-9 (TX+) - F23-10 (TX-) | Always | 60 to 80 Ω |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

## 3.IDENTIFY COMPONENT WHICH HAS STORED THIS CODE

a. Enter the diagnostic mode.

b. Press the "LAN Mon" switch to change to "LAN Monitor" mode.

c. Identify the component which has stored this code.

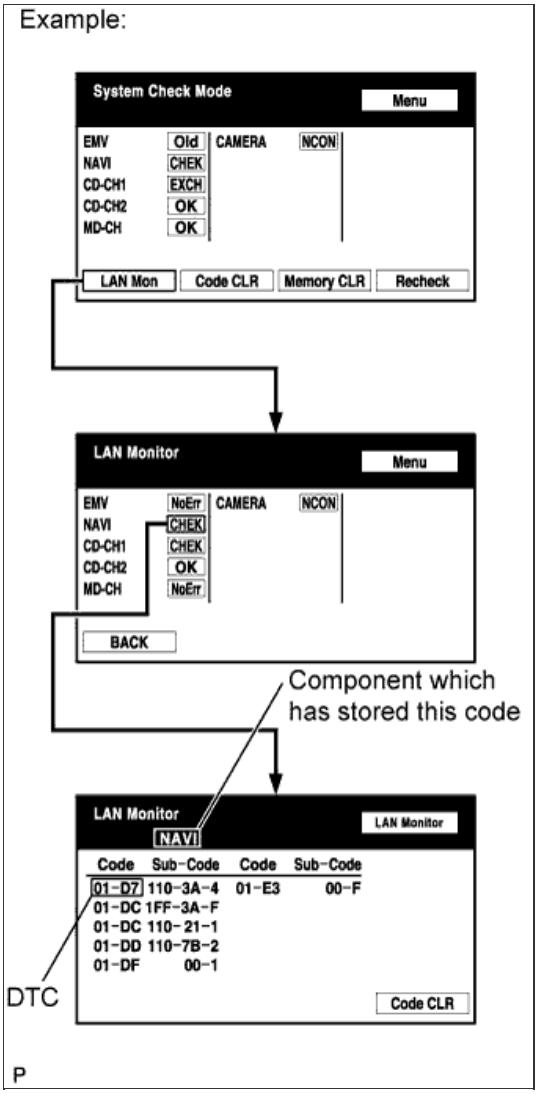
**Component Table**

| Display | Component |
|---|---|
| AUDIO | Radio receiver |
| DSP-AMP | Stereo component amplifier |
| EMV | Multi-display |
| NAVI | Navigation ECU |
| CAMERA-C | Parking assist ECU |
| RSE | Television display |

**HINT:**

"NAVI" is the component which has stored this code in the example shown in the illustration.

Example:




P

NEXT

4.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - COMPONENT WHICH HAS STORED THIS CODE)

**HINT:**

For details of the connectors, refer to Terminals of ECU ( Click here).

a. Referring to the AVC-LAN wiring diagram, check the AVC-LAN circuit between the multi-display and the component which has stored this code.

i. Disconnect all connectors between the multi-display and the component which has stored this code.

ii. Check for an open or short in the AVC-LAN circuit between the multi-display and the component which has stored this code.

**OK:**
**There is no open or short circuit.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

5.REPLACE MULTI-DISPLAY

a. Replace the multi-display with a normal one ( Click here) and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

NG → REPLACE COMPONENT WHICH HAS STORED THIS CODE

OK

END

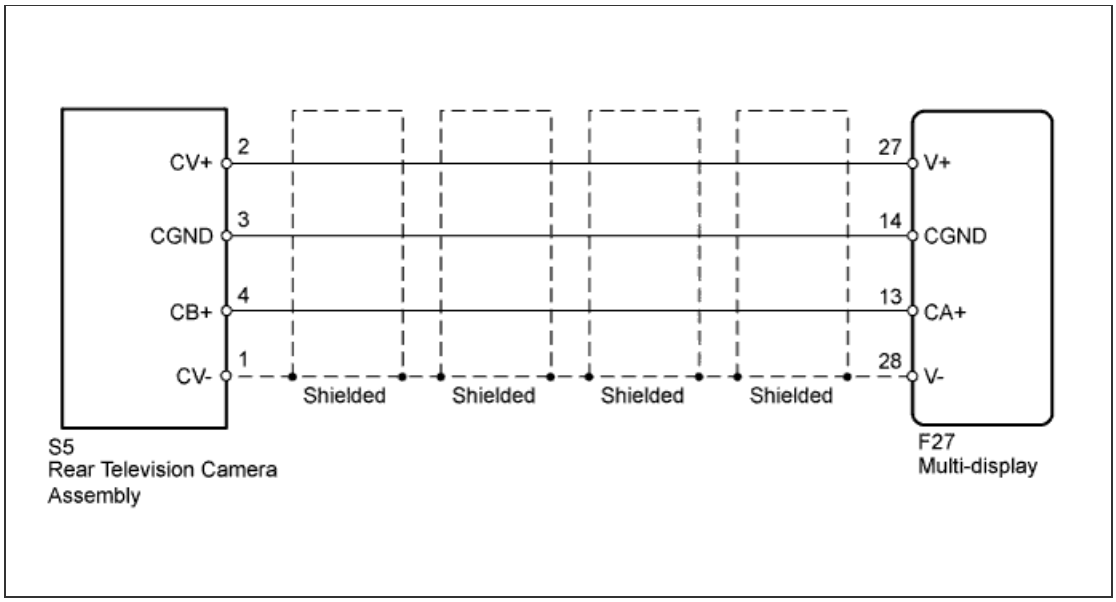
## DTC 5C-40 Camera Picture Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 5C-40 | A synchronous signal from the camera cannot be transmitted. | • Harness or connector<br>• Television camera<br>• Multi-display |

### WIRING DIAGRAM

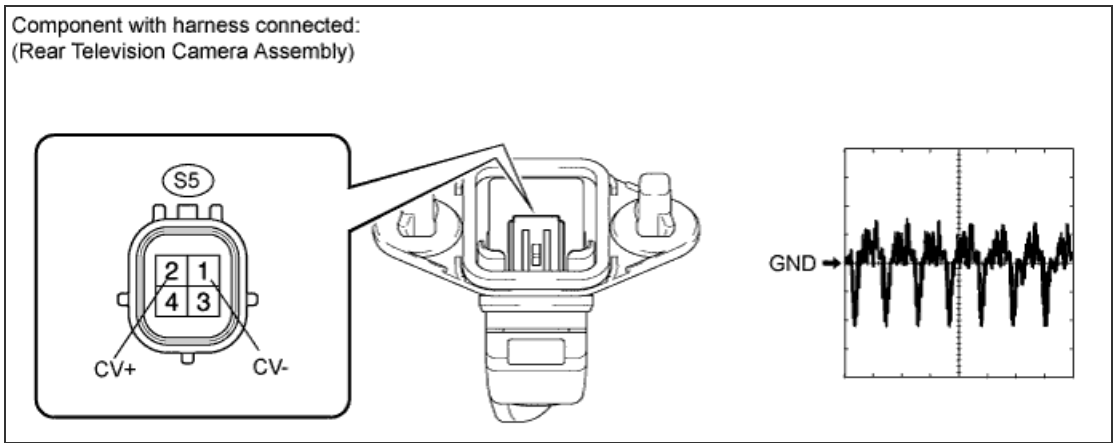



### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

#### 1.CHECK REAR TELEVISION CAMERA ASSEMBLY




a. Using an oscilloscope, check the waveform.

**Measurement Condition**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | S5-2 (CV+) - S5-1 (CV-) |
| Tool Setting | 0.2 V/DIV., 50 µs/DIV. |
| | |

| | |
|---|---|
| Condition | Engine switch on (IG), shift lever moved to R |

**OK:**

**Pulse generation**

NG → REPLACE REAR TELEVISION CAMERA ASSEMBLY (Click here)

OK

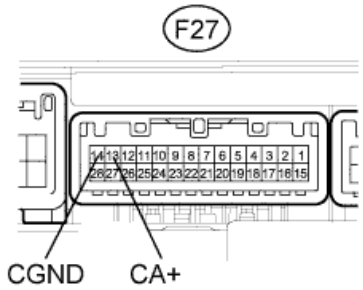
## 2.CHECK MULTI-DISPLAY (CA+ VOLTAGE)

a. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F27-13 (CA+) - F27-14 (CGND) | Engine switch on (IG), shift lever moved to R | 5.8 to 6.5 V |

Component with harness connected:
(Multi-display)




NG → REPLACE MULTI-DISPLAY (Click here)

OK

## 3.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - REAR TELEVISION CAMERA)

a. Disconnect the F27 display connector.

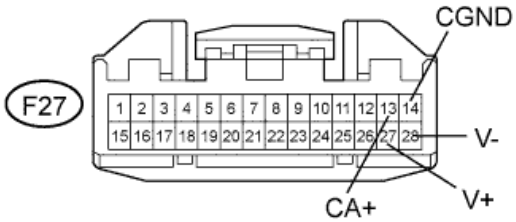
b. Disconnect the S5 camera connector.

c. Measure the resistance according to the value(s) in the table below.

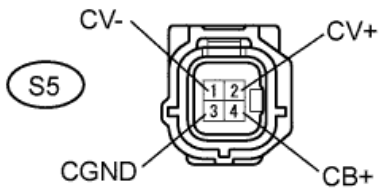
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| S5-4 (CB+) - F27-13 (CA+) | Always | Below 1 Ω |
| S5-3 (CGND) - F27-14 (CGND) | Always | Below 1 Ω |
| S5-2 (CV+) - F27-27 (V+) | Always | Below 1 Ω |
| S5-1 (CV-) - F27-28 (V-) | Always | Below 1 Ω |
| S5-4 (CB+) - Body ground | Always | 10 kΩ or higher |
| S5-3 (CGND) - Body ground | Always | 10 kΩ or higher |
| S5-2 (CV+) - Body ground | Always | 10 kΩ or higher |
| S5-1 (CV-) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to Multi-display)




Front view of wire harness connector:
(to Rear Television Camera Assembly)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE MULTI-DISPLAY (Click here)

## DTC 01-DF Master Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-DF* | When either condition below is met:<br>• The device with a display fails and the master is switched to the audio device.<br>• A communication error between the sub-master (radio receiver) and master occurs. | • Multi-display power source circuit<br>• AVC-LAN circuit between multi-display and component which has stored this code<br>• AVC-LAN circuit between multi-display and radio receiver<br>• Multi-display<br>• Component which has stored this code |

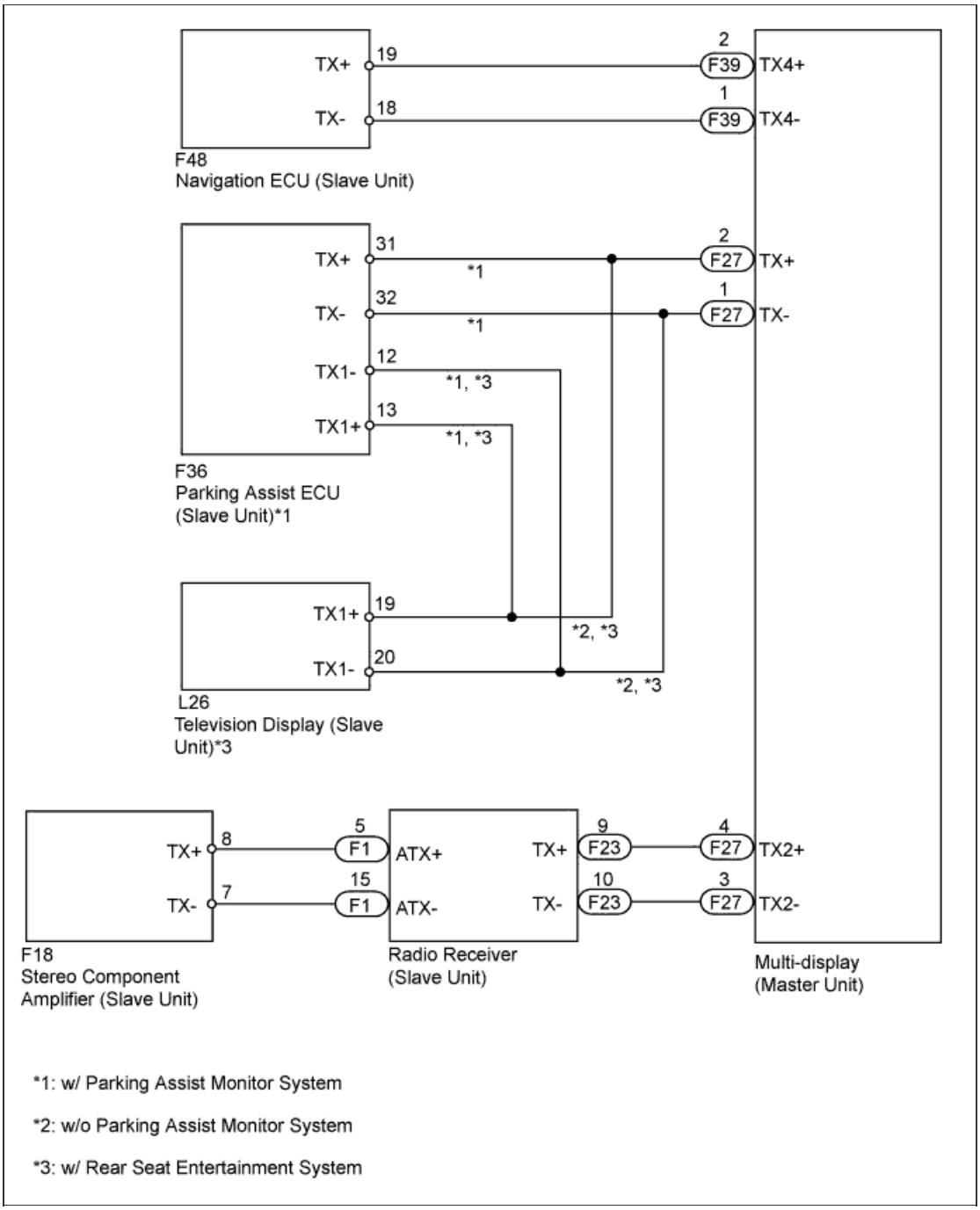
**HINT:**

*: When 210 seconds have elapsed after disconnecting the power supply connector of the master component with the engine switch on (ACC) or on (IG), this code is stored.

**NOTICE:**

- **Before starting troubleshooting, be sure to clear DTCs to clear codes stored due to the reasons described in the HINT above. Then, check for DTCs and troubleshoot according to the output DTCs.**
- **The multi-display is the master unit.**
- **Be sure to clear and recheck DTCs after the inspection is completed to confirm that no DTCs are output.**

### WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Be sure to read the Description before performing the following procedures.

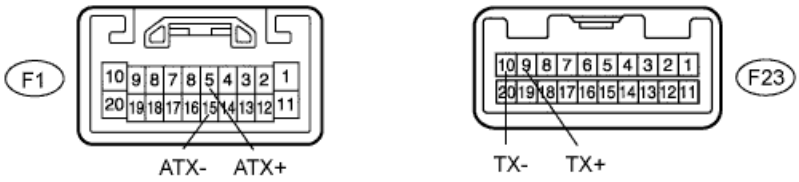
### 1.CHECK MULTI-DISPLAY POWER SOURCE CIRCUIT

a. Refer to the Multi-display Power Source Circuit ( Click here).
If the power source circuit is operating normally, proceed to the next step.

**NEXT**

### 2.INSPECT RADIO RECEIVER ASSEMBLY

Component without harness connected:
(Radio Receiver)




a. Disconnect the F1 and F23 receiver connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-5 (ATX+) - F1-15 (ATX-) | Always | 60 to 80 Ω |
| F23-9 (TX+) - F23-10 (TX-) | Always | 60 to 80 Ω |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

## 3.IDENTIFY COMPONENT WHICH HAS STORED THIS CODE

a. Enter the diagnostic mode.

b. Press the "LAN Mon" switch to change to "LAN Monitor" mode.

c. Identify the component which has stored this code.

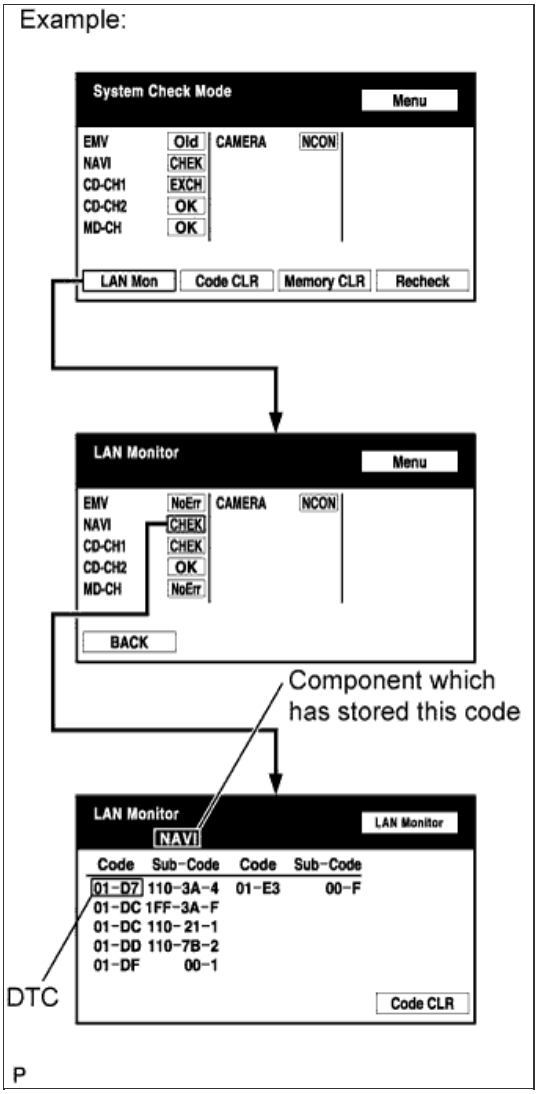
**Component Table**

| Display | Component |
|---|---|
| AUDIO | Radio receiver |
| DSP-AMP | Stereo component amplifier |
| EMV | Multi-display |
| NAVI | Navigation ECU |
| CAMERA-C | Parking assist ECU |
| RSE | Television display |

**HINT:**

"NAVI" is the component which has stored this code in the example shown in the illustration.

Example:




P

NEXT

4.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - COMPONENT WHICH HAS STORED THIS CODE)

**HINT:**

For details of the connectors, refer to Terminals of ECU ( Click here).

a. Referring to the AVC-LAN wiring diagram, check the AVC-LAN circuit between the multi-display and the component which has stored this code.

i. Disconnect all connectors between the multi-display and the component which has stored this code.

ii. Check for an open or short in the AVC-LAN circuit between the multi-display and the component which has stored this code.

**OK:**
**There is no open or short circuit.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

5.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - RADIO RECEIVER)

**HINT:**

For details of the connectors, refer to Terminals of ECU ( Click here).

a. Referring to the AVC-LAN wiring diagram, check the AVC-LAN circuit between the multi-display and the radio receiver.

i. Disconnect all connectors between the multi-display and the radio receiver.

ii. Check for an open or short in the AVC-LAN circuit between the multi-display and the radio receiver.

**OK:**
**There is no open or short circuit.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

6.REPLACE MULTI-DISPLAY

a. Replace the multi-display with a normal one ( Click here) and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

NG → REPLACE COMPONENT WHICH HAS STORED THIS CODE

OK

END

## DTC 60-10 AM Tuner PLL does not Lock

## DTC 60-11 FM Tuner PLL does not Lock

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 60-10 | AM tuner PLL (phase locked loop) synchronization is impossible. | Radio receiver |
| 60-11 | FM tuner PLL (phase locked loop) synchronization is impossible. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE RADIO RECEIVER ASSEMBLY**

a. Replace the radio receiver (Click here).

**NEXT**

**END**

## DTC 01-E0 Registration Complete Indication Error

## DTC 01-E3 Registration Demand Transmission

## DTC 01-E4 Multiple Frame Incomplete

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-E0 | A "Registration complete" signal from the master device cannot be received. | - |
| 01-E3 | A registration demand signal from the slave device is output. Or a registration demand signal is output by receiving a connection confirmation signal from the sub-master device. | - |
| 01-E4 | Multiple frame transmission is incomplete. | - |

**HINT:**

Even if no fault is present, this trouble code may be stored depending on the battery condition or engine start voltage.

### INSPECTION PROCEDURE

**HINT:**

- **After the inspection is completed, clear the DTCs (Click here).**
- **These DTCs do not indicate a malfunction.**

## DTC 60-10 AM Tuner PLL does not Lock

## DTC 60-11 FM Tuner PLL does not Lock

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 60-10 | AM tuner PLL (phase locked loop) synchronization is impossible. | Radio receiver |
| 60-11 | FM tuner PLL (phase locked loop) synchronization is impossible. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE RADIO RECEIVER ASSEMBLY**

a. Replace the radio receiver (Click here).

**NEXT**

**END**

## DTC 01-E0 Registration Complete Indication Error

## DTC 01-E3 Registration Demand Transmission

## DTC 01-E4 Multiple Frame Incomplete

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-E0 | A "Registration complete" signal from the master device cannot be received. | - |
| 01-E3 | A registration demand signal from the slave device is output. Or a registration demand signal is output by receiving a connection confirmation signal from the sub-master device. | - |
| 01-E4 | Multiple frame transmission is incomplete. | - |

**HINT:**

Even if no fault is present, this trouble code may be stored depending on the battery condition or engine start voltage.

### INSPECTION PROCEDURE

**HINT:**

- **After the inspection is completed, clear the DTCs (Click here).**
- **These DTCs do not indicate a malfunction.**

## DTC 60-42 Tuner Power Source Error

## DTC 60-43 AM Tuner Error

## DTC 60-44 FM Tuner Error

## DTC 60-50 Malfunction in Internal IC

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 60-42 | The power source of the tuner is abnormal. | Radio receiver |
| 60-43 | The AM tuner is abnormal. | |
| 60-44 | The FM tuner is abnormal. | |
| 60-50 | A problem occurs in the IC inside the tuner unit and the radio reception is not normal. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.RECHECK DTC**

a. Recheck for DTCs and check if the same trouble code is output.

**HINT:**

If DTCs are output frequently, replace the radio receiver.

**OK:**
**No DTC is output.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**END**

## DTC 01-E0 Registration Complete Indication Error

## DTC 01-E3 Registration Demand Transmission

## DTC 01-E4 Multiple Frame Incomplete

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-E0 | A "Registration complete" signal from the master device cannot be received. | - |
| 01-E3 | A registration demand signal from the slave device is output. Or a registration demand signal is output by receiving a connection confirmation signal from the sub-master device. | - |
| 01-E4 | Multiple frame transmission is incomplete. | - |

**HINT:**

Even if no fault is present, this trouble code may be stored depending on the battery condition or engine start voltage.

### INSPECTION PROCEDURE

**HINT:**

- **After the inspection is completed, clear the DTCs (Click here).**
- **These DTCs do not indicate a malfunction.**

## DTC 60-42 Tuner Power Source Error

## DTC 60-43 AM Tuner Error

## DTC 60-44 FM Tuner Error

## DTC 60-50 Malfunction in Internal IC

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 60-42 | The power source of the tuner is abnormal. | Radio receiver |
| 60-43 | The AM tuner is abnormal. | |
| 60-44 | The FM tuner is abnormal. | |
| 60-50 | A problem occurs in the IC inside the tuner unit and the radio reception is not normal. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.RECHECK DTC**

a. Recheck for DTCs and check if the same trouble code is output.

**HINT:**

If DTCs are output frequently, replace the radio receiver.

**OK:**
**No DTC is output.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**END**

## DTC 01-E2 ON / OFF Indication Parameter Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 01-E2 | A signal for ON/OFF control from the master device has a problem. | Multi-display |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY**

a. Replace the multi-display (Click here).

**NEXT**

**END**

## DTC 60-42 Tuner Power Source Error

## DTC 60-43 AM Tuner Error

## DTC 60-44 FM Tuner Error

## DTC 60-50 Malfunction in Internal IC

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 60-42 | The power source of the tuner is abnormal. | Radio receiver |
| 60-43 | The AM tuner is abnormal. | |
| 60-44 | The FM tuner is abnormal. | |
| 60-50 | A problem occurs in the IC inside the tuner unit and the radio reception is not normal. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.RECHECK DTC**

a. Recheck for DTCs and check if the same trouble code is output.

**HINT:**

If DTCs are output frequently, replace the radio receiver.

**OK:**
**No DTC is output.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**END**

## DTC 21-10 Panel Switch Error

## DTC 21-11 Touch Switch Error

## DTC 23-10 Panel Switch Error

## DTC 23-11 Touch Switch Error

## DTC 24-10 Panel Switch Error

## DTC 24-11 Touch Switch Error

## DTC 25-10 Panel Switch Error

## DTC 25-11 Touch Switch Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 21-10 | The panel switch detection circuit has a problem. | Multi-display |
| 21-11 | The touch panel switch has a problem. | |
| 23-10 | The panel switch detection circuit has a problem. | |
| 23-11 | The touch panel switch has a problem. | |
| 24-10 | The panel switch detection circuit has a problem. | |
| 24-11 | The touch panel switch has a problem. | |
| 25-10 | The panel switch detection circuit has a problem. | |
| 25-11 | The touch panel switch has a problem. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY**

a. Replace the multi-display (Click here).

**NEXT**

**END**

## DTC 60-42 Tuner Power Source Error

## DTC 60-43 AM Tuner Error

## DTC 60-44 FM Tuner Error

## DTC 60-50 Malfunction in Internal IC

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 60-42 | The power source of the tuner is abnormal. | Radio receiver |
| 60-43 | The AM tuner is abnormal. | |
| 60-44 | The FM tuner is abnormal. | |
| 60-50 | A problem occurs in the IC inside the tuner unit and the radio reception is not normal. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.RECHECK DTC**

a. Recheck for DTCs and check if the same trouble code is output.

**HINT:**

If DTCs are output frequently, replace the radio receiver.

**OK:**
**No DTC is output.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**END**

## DTC 21-10 Panel Switch Error

## DTC 21-11 Touch Switch Error

## DTC 23-10 Panel Switch Error

## DTC 23-11 Touch Switch Error

## DTC 24-10 Panel Switch Error

## DTC 24-11 Touch Switch Error

## DTC 25-10 Panel Switch Error

## DTC 25-11 Touch Switch Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 21-10 | The panel switch detection circuit has a problem. | Multi-display |
| 21-11 | The touch panel switch has a problem. | |
| 23-10 | The panel switch detection circuit has a problem. | |
| 23-11 | The touch panel switch has a problem. | |
| 24-10 | The panel switch detection circuit has a problem. | |
| 24-11 | The touch panel switch has a problem. | |
| 25-10 | The panel switch detection circuit has a problem. | |
| 25-11 | The touch panel switch has a problem. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY**

a. Replace the multi-display (Click here).

**NEXT**

**END**

# DTC B1574 GVIF Disconnected (from Park Assist/Monitoring ECU to EMV/MM Integrated Device)

**for Preparation** Click here

## DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1574 | GVIF disconnected (from Parking assist ECU to Multi-display) | • Harness or connector (GVIF cable)<br>• Multi-display assembly |

## INSPECTION PROCEDURE

### 1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

### 2.CHECK DTC

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

NG → **Go to step 3**

OK

### USE SIMULATION METHOD TO CHECK (Click here)

### 3.CHECK HARNESS AND CONNECTOR (GVIF CABLE)

a. Check that the digital signal lines between the multi-display assembly and parking assist ECU are not sharply bent or pinched, and that the connectors are properly connected and there are no other installation problems.

**OK:**
**There are no installation problems.**

NG → REPLACE HARNESS AND CONNECTOR (GVIF CABLE)

OK

### 4.REPLACE HARNESS AND CONNECTOR (GVIF CABLE)

a. Replace the harness and connector (GVIF cable) with a new or normally functioning one.

NEXT

### 5.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

### 6.CHECK DTC

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

**NG** → REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

**OK**

END (GVIF CABLE IS DEFECTIVE)

## DTC 21-10 Panel Switch Error

## DTC 21-11 Touch Switch Error

## DTC 23-10 Panel Switch Error

## DTC 23-11 Touch Switch Error

## DTC 24-10 Panel Switch Error

## DTC 24-11 Touch Switch Error

## DTC 25-10 Panel Switch Error

## DTC 25-11 Touch Switch Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 21-10 | The panel switch detection circuit has a problem. | Multi-display |
| 21-11 | The touch panel switch has a problem. | |
| 23-10 | The panel switch detection circuit has a problem. | |
| 23-11 | The touch panel switch has a problem. | |
| 24-10 | The panel switch detection circuit has a problem. | |
| 24-11 | The touch panel switch has a problem. | |
| 25-10 | The panel switch detection circuit has a problem. | |
| 25-11 | The touch panel switch has a problem. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY**

a. Replace the multi-display (Click here).

**NEXT**

**END**

# DTC B1575 GVIF Disconnected (from EMV/MM Integrated Device to Multi Display)

**for Preparation** Click here

## DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1575 | GVIF disconnected (from Multi-media module receiver assembly to Multi-display assembly) | • Harness or connector (GVIF cable)<br>• Multi-media module receiver assembly |

## INSPECTION PROCEDURE

### 1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

### 2.CHECK DTC

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

NG → **Go to step 3**

OK

### USE SIMULATION METHOD TO CHECK (Click here)

### 3.CHECK HARNESS AND CONNECTOR (GVIF CABLE)

a. Check that the digital signal lines between the multi-display assembly and parking assist ECU are not sharply bent or pinched, and that the connectors are properly connected and there are no other installation problems.

**OK:**
**There are no installation problems.**

NG → REPLACE HARNESS AND CONNECTOR (GVIF CABLE)

OK

### 4.REPLACE HARNESS AND CONNECTOR (GVIF CABLE)

a. Replace the harness and connector (GVIF cable) with a new or normally functioning one.

NEXT

### 5.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

### 6.CHECK DTC

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

**NG** → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

**OK**

END (GVIF CABLE IS DEFECTIVE)

## DTC 21-10 Panel Switch Error

## DTC 21-11 Touch Switch Error

## DTC 23-10 Panel Switch Error

## DTC 23-11 Touch Switch Error

## DTC 24-10 Panel Switch Error

## DTC 24-11 Touch Switch Error

## DTC 25-10 Panel Switch Error

## DTC 25-11 Touch Switch Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 21-10 | The panel switch detection circuit has a problem. | Multi-display |
| 21-11 | The touch panel switch has a problem. | |
| 23-10 | The panel switch detection circuit has a problem. | |
| 23-11 | The touch panel switch has a problem. | |
| 24-10 | The panel switch detection circuit has a problem. | |
| 24-11 | The touch panel switch has a problem. | |
| 25-10 | The panel switch detection circuit has a problem. | |
| 25-11 | The touch panel switch has a problem. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY**

a. Replace the multi-display (Click here).

**NEXT**

**END**

## DTC B1579 Voice Recognition Microphone Disconnected

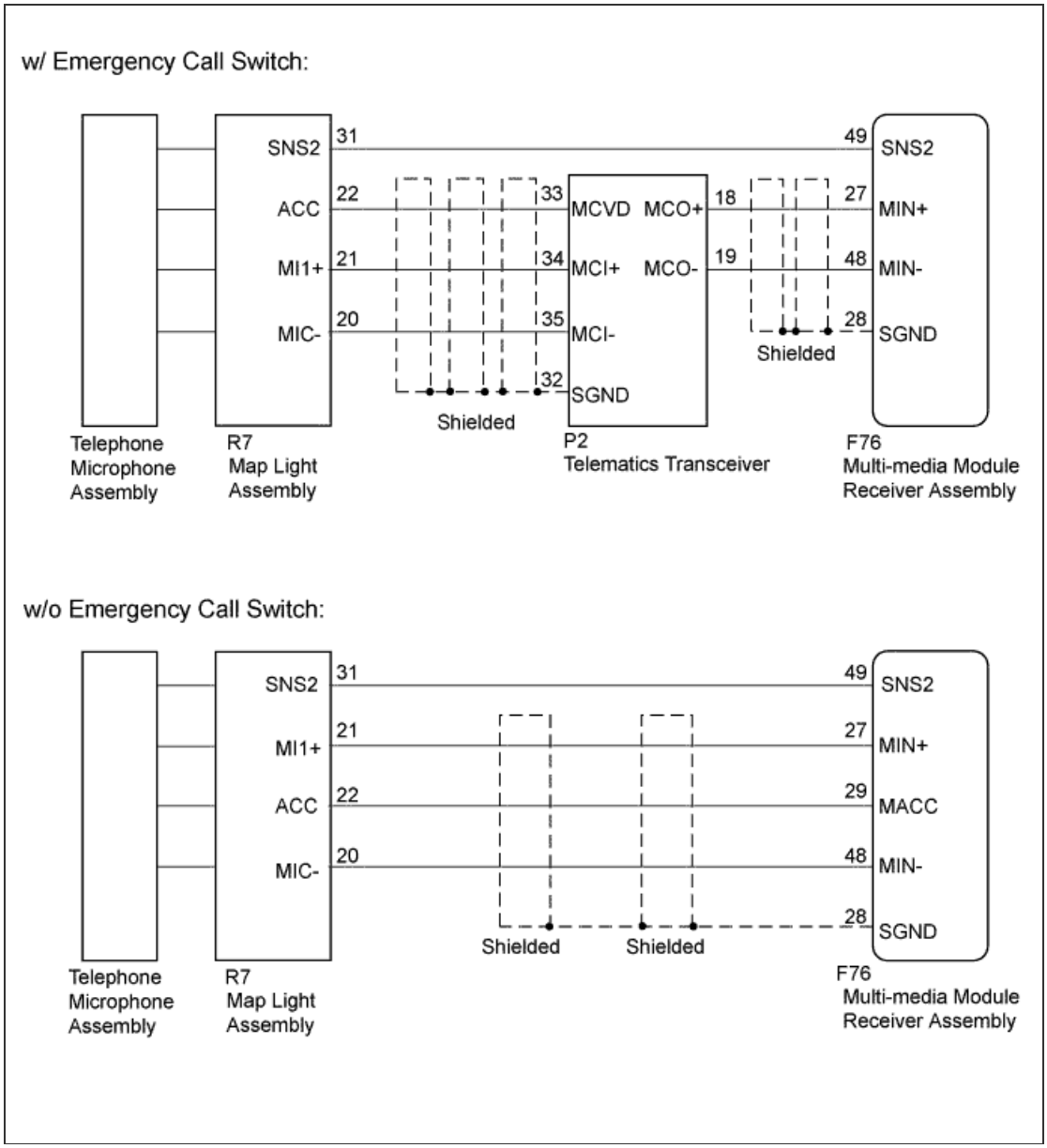
**for Preparation** Click here

### DESCRIPTION

The multi-media module receiver assembly and map light assembly (telephone microphone assembly) are connected to each other using the microphone connection detection signal lines.
This DTC is stored when a microphone connection detection signal line is disconnected.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1579 | Telephone microphone signal is lost. | • Multi-media module receiver assembly<br>• Map light assembly<br>• Telephone microphone assembly<br>• Telematics Transceiver (w/ Emergency Call Switch)<br>• Harness or connector |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**HINT:**

When replacing the multi-media module receiver assembly or the telematics transceiver, perform the vehicle contract setting ( Click here).

## 1.CONFIRM MODEL

a. Choose the model to be inspected.

**Model**

| Model | Proceed to |
|---|---|
| w/o Emergency Call Switch | A |
| w/ Emergency Call Switch | B |

B → Go to step 7

A →

## 2.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - MAP LIGHT ASSEMBLY)

a. Disconnect the F76 multi-media module receiver assembly connector.

b. Disconnect the R7 map light assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-27 (MIN+) - R7-21 (MI1+) | Always | Below 1 Ω |
| F76-48 (MIN-) - R7-20 (MIC-) | Always | Below 1 Ω |
| F76-29 (MACC) - R7-22 (ACC) | Always | Below 1 Ω |
| F76-49 (SNS2) - R7-31 (SNS2) | Always | Below 1 Ω |
| F76-27 (MIN+) - Body ground | Always | 10 kΩ or higher |
| F76-48 (MIN-) - Body ground | Always | 10 kΩ or higher |
| F76-28 (SGND) - Body ground | Always | 10 kΩ or higher |
| F76-49 (SNS2) - Body ground | Always | 10 kΩ or higher |
| F76-29 (MACC) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK →

## 3.CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY

a. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

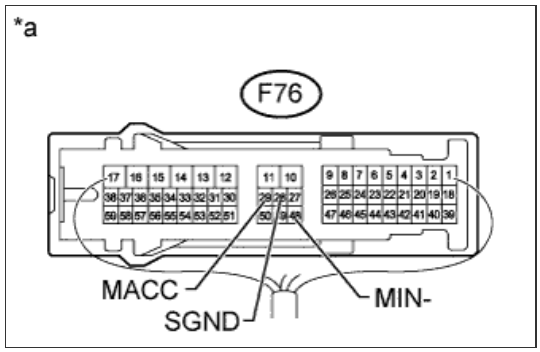
| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F76-29 (MACC) - Body ground | Engine switch on (ACC) | 4 to 6 V |

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| | | Specified |
|---|---|---|

| Tester Connection | Condition | Condition |
|---|---|---|
| F76-28 (SGND) - Body ground | Always | Below 1 Ω |
| F76-48 (MIN-) - Body ground | Always | Below 1 Ω |




**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Multi-media Module Receiver Assembly) |

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

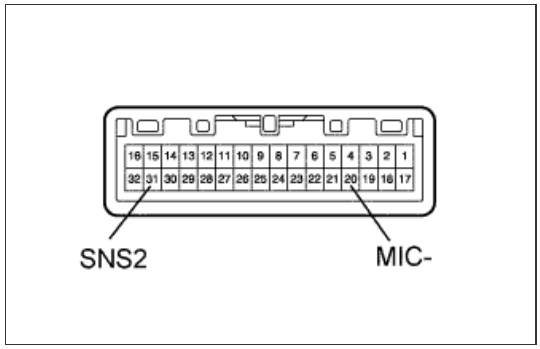
## 4.INSPECT MAP LIGHT ASSEMBLY

a. Remove the map light assembly (Click here).

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 20 (MIC-) - 31 (SNS2) | Always | Below 1 Ω |




NG → Go to step 6

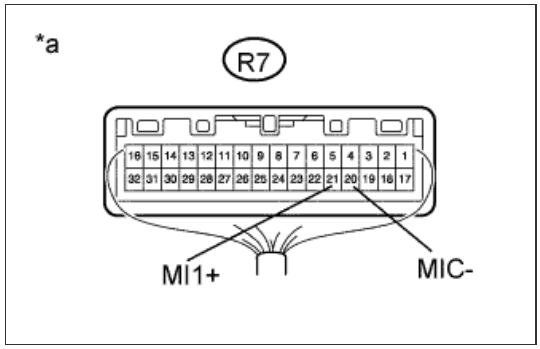
OK

## 5.CHECK MAP LIGHT ASSEMBLY

a. Turn the engine switch on (ACC).

b. Connect an oscilloscope to terminals R7-21 (MI1+) and R7-20 (MIC-) of the map light assembly connector.

c. Check the waveform of the telephone microphone assembly using the oscilloscope.




**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Map Light Assembly) |

**Result**

| Result | Proceed to |
|---|---|
| A waveform synchronized with the voice input to the map light assembly is output. | A |
| A waveform synchronized with the voice input to the map light assembly is not output. | B |

B → Go to step 6

A

REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

### 6.CHECK TELEPHONE MICROPHONE ASSEMBLY

a. Replace the telephone microphone assembly with a new or normally functioning one ( Click here).

b. Check if the same DTC is output again.

**Result**

| Result | Proceed to |
|---|---|
| No DTCs are output. | A |
| DTCs are output. | B |

B → REPLACE MAP LIGHT ASSEMBLY (Click here)

A →

### END (TELEPHONE MICROPHONE ASSEMBLY IS DEFECTIVE)

### 7.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - MAP LIGHT ASSEMBLY)

a. Disconnect the F76 multi-media module receiver assembly connector.

b. Disconnect the R7 map light assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-49 (SNS2) - R7-31 (SNS2) | Always | Below 1 Ω |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK →

### 8.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - TELEMATICS TRANSCEIVER)

a. Disconnect the F76 multi-media module receiver assembly connector.

b. Disconnect the P2 telematics transceiver connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-27 (MIN+) - P2-18 (MCO+) | Always | Below 1 Ω |
| F76-48 (MIN-) - P2-19 (MCO-) | Always | Below 1 Ω |
| F76-27 (MIN+) - Body ground | Always | 10 kΩ or higher |
| F76-48 (MIN-) - Body ground | Always | 10 kΩ or higher |
| F76-28 (SGND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK →

### 9.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - MAP LIGHT ASSEMBLY)

a. Disconnect the P2 telematics transceiver connector.

b. Disconnect the R7 map light assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P2-33 (MCVD) - R7-22 (ACC) | Always | Below 1 Ω |
| P2-34 (MCI+) - R7-21 (MI1+) | Always | Below 1 Ω |
| P2-35 (MCI-) - R7-20 (MIC-) | Always | Below 1 Ω |
| P2-33 (MCVD) - Body ground | Always | 10 kΩ or higher |
| P2-34 (MCI+) - Body ground | Always | 10 kΩ or higher |
| P2-35 (MCI-) - Body ground | Always | 10 kΩ or higher |
| P2-32 (SGND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

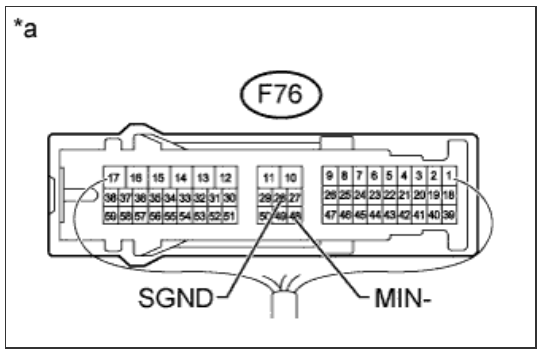
## 10.CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY

a. Disconnect the P2 telematics transceiver connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-28 (SGND) - Body ground | Always | Below 1 Ω |
| F76-48 (MIN-) - Body ground | Always | Below 1 Ω |




**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Multi-media Module Receiver Assembly) |

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

## 11.CHECK TELEMATICS TRANSCEIVER

a. Measure the voltage according to the value(s) in the table below.

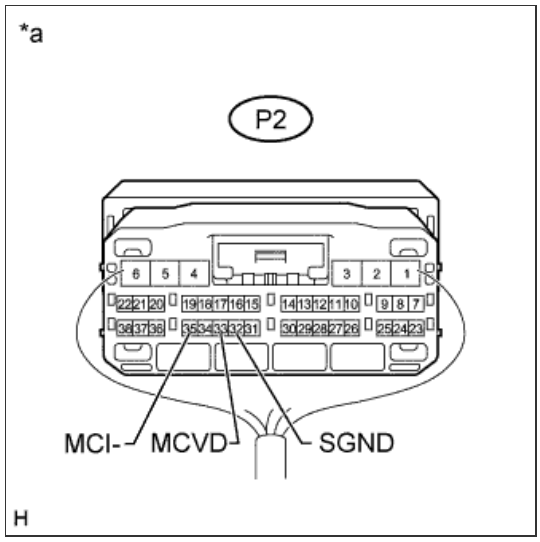
**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| P2-33 (MCVD) - Body ground | Engine switch on (ACC) | 4 to 6 V |

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P2-32 (SGND) - Body ground | Always | Below 1 Ω |
| P2-35 (MCI-) - Body ground | Always | Below 1 Ω |




**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Telematics Transceiver) |

NG → REPLACE TELEMATICS TRANSCEIVER (Click here)

OK

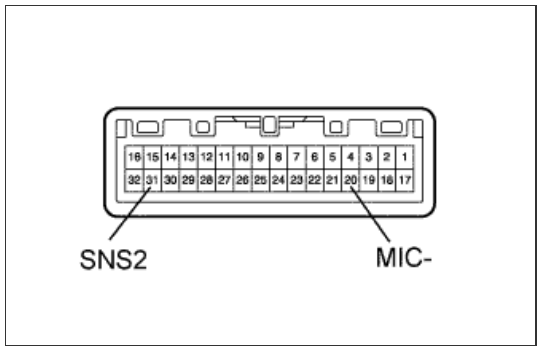
## 12.INSPECT MAP LIGHT ASSEMBLY

a. Remove the map light assembly (Click here).

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 20 (MIC-) - 31 (SNS2) | Always | Below 1 Ω |




NG → Go to step 14

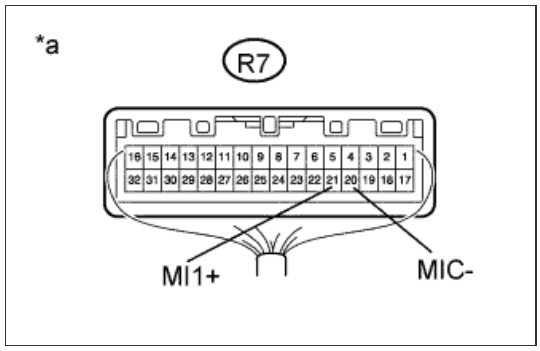
OK

## 13.CHECK MAP LIGHT ASSEMBLY

a. Turn the engine switch on (ACC).

b. Connect an oscilloscope to terminals R7-21 (MI1+) and R7-20 (MIC-) of the map light assembly connector.

c. Check the waveform of the telephone microphone assembly using the oscilloscope.




**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Map Light Assembly) |

**Result**

| Result | Proceed to |
|---|---|
| A waveform synchronized with the voice input to the map light assembly is output. | A |
| A waveform synchronized with the voice input to the map light assembly is not output. | B |

B → Go to step 14

A

REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

14.CHECK TELEPHONE MICROPHONE ASSEMBLY

a. Replace the telephone microphone assembly with a new or normally functioning one ( Click here).

b. Check if the same DTC is output again.

**Result**

| Result | Proceed to |
|---|---|
| No DTCs are output. | A |
| DTCs are output. | B |

B → REPLACE MAP LIGHT ASSEMBLY (Click here)

A

END (TELEPHONE MICROPHONE ASSEMBLY IS DEFECTIVE)

## DTC 21-10 Panel Switch Error

## DTC 21-11 Touch Switch Error

## DTC 23-10 Panel Switch Error

## DTC 23-11 Touch Switch Error

## DTC 24-10 Panel Switch Error

## DTC 24-11 Touch Switch Error

## DTC 25-10 Panel Switch Error

## DTC 25-11 Touch Switch Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 21-10 | The panel switch detection circuit has a problem. | Multi-display |
| 21-11 | The touch panel switch has a problem. | |
| 23-10 | The panel switch detection circuit has a problem. | |
| 23-11 | The touch panel switch has a problem. | |
| 24-10 | The panel switch detection circuit has a problem. | |
| 24-11 | The touch panel switch has a problem. | |
| 25-10 | The panel switch detection circuit has a problem. | |
| 25-11 | The touch panel switch has a problem. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY**

a. Replace the multi-display (Click here).

**NEXT**

**END**

## DTC B15A0 LAN Master Malfunction

## DTC B15AD Navigation Processor Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the multi-media module receiver assembly.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A0 | When one of the conditions below is met:<br>• Bus malfunction<br>• Sub-microprocessor malfunction<br>• EEPROM error | Multi-media module receiver assembly |
| B15AD | When either of the conditions below is met:<br>• A short to ground, short to +B or open occurs in the gyro signal circuit<br>• Gyro sensor malfunction | |

### INSPECTION PROCEDURE

**NOTICE:**

After replacing the multi-media module receiver assembly of vehicles subscribed to pay-type satellite radio broadcasts, XM radio ID registration is necessary (w/ SDARS System).

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

**2.CHECK DTC**

a. Recheck for DTCs and check if the same DTCs are output again ( Click here).

**OK:**
**No DTCs are output.**

NG → **REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)**

OK

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC 21-10 Panel Switch Error

## DTC 21-11 Touch Switch Error

## DTC 23-10 Panel Switch Error

## DTC 23-11 Touch Switch Error

## DTC 24-10 Panel Switch Error

## DTC 24-11 Touch Switch Error

## DTC 25-10 Panel Switch Error

## DTC 25-11 Touch Switch Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 21-10 | The panel switch detection circuit has a problem. | Multi-display |
| 21-11 | The touch panel switch has a problem. | |
| 23-10 | The panel switch detection circuit has a problem. | |
| 23-11 | The touch panel switch has a problem. | |
| 24-10 | The panel switch detection circuit has a problem. | |
| 24-11 | The touch panel switch has a problem. | |
| 25-10 | The panel switch detection circuit has a problem. | |
| 25-11 | The touch panel switch has a problem. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY**

a. Replace the multi-display (Click here).

**NEXT**

**END**

## DTC B15A0 LAN Master Malfunction

## DTC B15AD Navigation Processor Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the multi-media module receiver assembly.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A0 | When one of the conditions below is met:<br>• Bus malfunction<br>• Sub-microprocessor malfunction<br>• EEPROM error | Multi-media module receiver assembly |
| B15AD | When either of the conditions below is met:<br>• A short to ground, short to +B or open occurs in the gyro signal circuit<br>• Gyro sensor malfunction | |

### INSPECTION PROCEDURE

**NOTICE:**

After replacing the multi-media module receiver assembly of vehicles subscribed to pay-type satellite radio broadcasts, XM radio ID registration is necessary (w/ SDARS System).

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

**2.CHECK DTC**

a. Recheck for DTCs and check if the same DTCs are output again ( Click here).

**OK:**
**No DTCs are output.**

NG → **REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)**

OK

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC 21-10 Panel Switch Error

## DTC 21-11 Touch Switch Error

## DTC 23-10 Panel Switch Error

## DTC 23-11 Touch Switch Error

## DTC 24-10 Panel Switch Error

## DTC 24-11 Touch Switch Error

## DTC 25-10 Panel Switch Error

## DTC 25-11 Touch Switch Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 21-10 | The panel switch detection circuit has a problem. | Multi-display |
| 21-11 | The touch panel switch has a problem. | |
| 23-10 | The panel switch detection circuit has a problem. | |
| 23-11 | The touch panel switch has a problem. | |
| 24-10 | The panel switch detection circuit has a problem. | |
| 24-11 | The touch panel switch has a problem. | |
| 25-10 | The panel switch detection circuit has a problem. | |
| 25-11 | The touch panel switch has a problem. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY**

a. Replace the multi-display (Click here).

**NEXT**

**END**

# DTC B15A3 Stereo Component Amplifier Malfunction

**for Preparation** Click here

## DESCRIPTION

These DTCs are stored when a malfunction occurs in the stereo component amplifier assembly.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A3 | When one of the conditions below is met:<br>• Internal power supply malfunction<br>• DSP error<br>• EEPROM error | Stereo component amplifier assembly |

## INSPECTION PROCEDURE

### 1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

### 2.CHECK DTC

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

NG → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (**Click here**)

OK

### USE SIMULATION METHOD TO CHECK (**Click here**)

## DTC 21-10 Panel Switch Error

## DTC 21-11 Touch Switch Error

## DTC 23-10 Panel Switch Error

## DTC 23-11 Touch Switch Error

## DTC 24-10 Panel Switch Error

## DTC 24-11 Touch Switch Error

## DTC 25-10 Panel Switch Error

## DTC 25-11 Touch Switch Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 21-10 | The panel switch detection circuit has a problem. | Multi-display |
| 21-11 | The touch panel switch has a problem. | |
| 23-10 | The panel switch detection circuit has a problem. | |
| 23-11 | The touch panel switch has a problem. | |
| 24-10 | The panel switch detection circuit has a problem. | |
| 24-11 | The touch panel switch has a problem. | |
| 25-10 | The panel switch detection circuit has a problem. | |
| 25-11 | The touch panel switch has a problem. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY**

a. Replace the multi-display (Click here).

**NEXT**

**END**

# DTC B15A6 Display Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when a malfunction occurs in the multi-display assembly.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A6 | When one of the conditions below is met:<br>• RAM error<br>• Drawing controller malfunction<br>• Internal hard drive malfunction | Multi-display assembly |

## INSPECTION PROCEDURE

### 1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

### 2.CHECK DTC

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

NG → REPLACE MULTI-DISPLAY ASSEMBLY (**Click here**)

OK

USE SIMULATION METHOD TO CHECK (**Click here**)

## DTC 34-10 Error in Picture Circuit

## DTC 34-11 No Current in Back-light

## DTC 34-12 Excess Current in Back-light

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 34-10 | An error in the power supply system for the picture circuit. | Multi-display |
| 34-11 | A decline in power output from the inverter circuit for the back-light. | |
| 34-12 | Excess power output from the inverter circuit for the back-light. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY**

a. Replace the multi-display (Click here).

**NEXT**

**END**

## DTC B15B0 Display Screen Malfunction

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a malfunction occurs in the multi-display assembly.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15B0 | Picture circuit (TFT unit) malfunction | Multi-display assembly |

### INSPECTION PROCEDURE

**1.CLEAR DTC**

a. Clear the DTC (Click here).

**NEXT**

**2.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

**NG** → **REPLACE MULTI-DISPLAY ASSEMBLY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC 34-10 Error in Picture Circuit

## DTC 34-11 No Current in Back-light

## DTC 34-12 Excess Current in Back-light

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 34-10 | An error in the power supply system for the picture circuit. | Multi-display |
| 34-11 | A decline in power output from the inverter circuit for the back-light. | |
| 34-12 | Excess power output from the inverter circuit for the back-light. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY**

a. Replace the multi-display (Click here).

**NEXT**

**END**

# DTC B15B8 Harddisk Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when the hard disc which is built into the multi-media module receiver assembly has an initialization malfunction or read/write errors occur more than a specified number of times.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15B8 | Hard disk drive (HDD) malfunction | Hard disc |

## INSPECTION PROCEDURE

### 1.CHECK HARD DISC (OPERATION CHECK)

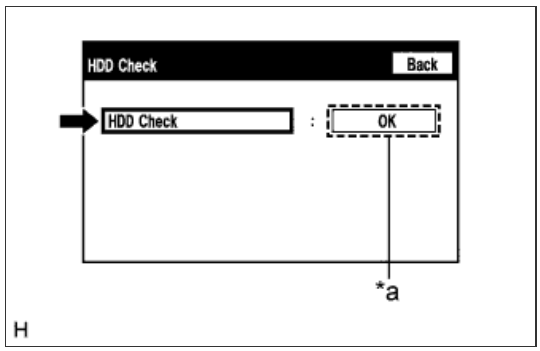
a. Enter the "Failure Diagnosis" screen. Refer to Check Hard disc in Operation Check (Click here).

b. Select "HDD Check" and check the result.

**OK:**
**"OK" is displayed.**

**HINT:**

- **After selecting "HDD Check", it may take a while until the result is displayed.**
- **If the cabin temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher, the HDD may not operate normally, and "NG" may be shown on the display. Make sure to perform the inspection with the cabin at an appropriate temperature.**




Text in Illustration

| | |
|---|---|
| *a | Result |

NG → Go to step 4

OK ↓

### 2.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT ↓

### 3.CHECK DTC

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

**HINT:**

The hard disc may be malfunctioning even if DTC B15B8 is not output.

NG → REPLACE HARD DISC (**Click here**)

OK ↓

USE SIMULATION METHOD TO CHECK (**Click here**)

### 4.REPLACE HARD DISC

a. Replace the hard disc with a new or normally functioning one ( Click here).

NEXT

5.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

6.CHECK DTC

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

**HINT:**

The hard disc may be malfunctioning even if DTC B15B8 is not output.

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (**Click here**)

OK

END (HARD DISC IS DEFECTIVE)

## DTC 34-10 Error in Picture Circuit

## DTC 34-11 No Current in Back-light

## DTC 34-12 Excess Current in Back-light

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 34-10 | An error in the power supply system for the picture circuit. | Multi-display |
| 34-11 | A decline in power output from the inverter circuit for the back-light. | |
| 34-12 | Excess power output from the inverter circuit for the back-light. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY**

a. Replace the multi-display (Click here).

**NEXT**

**END**

## DTC B15C0 Short in GPS Antenna

## DTC B15C1 Open in GPS Antenna

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the navigation antenna assembly.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15C0 | Navigation antenna error | • Navigation antenna assembly<br>• Multi-media module receiver assembly |
| B15C1 | Error of the power source to the navigation antenna | |

### INSPECTION PROCEDURE

**NOTICE:**

After replacing the multi-media module receiver assembly of vehicles subscribed to pay-type satellite radio broadcasts, XM radio ID registration is necessary (w/ SDARS System).

**1.CHECK CONNECTION OF NAVIGATION ANTENNA ASSEMBLY**

a. Check if the navigation antenna assembly is securely connected to the multi-media module receiver assembly.

**OK:**
**Navigation antenna assembly is securely connected.**

NG → **SECURELY CONNECT NAVIGATION ANTENNA ASSEMBLY**

OK ↓

**2.REPLACE NAVIGATION ANTENNA ASSEMBLY**

a. Replace the navigation antenna assembly with a known good one ( Click here).

NEXT ↓

**3.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT ↓

**4.CHECK DTC**

a. Recheck for DTCs and check if the same DTCs are output again ( Click here).

**OK:**
**No DTCs are output.**

NG → **REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)**

OK ↓

**END (NAVIGATION ANTENNA ASSEMBLY IS DEFECTIVE)**

## DTC 45-10 DVD Changer Mechanical Error

## DTC 45-11 DVD Insertion and Ejection Error

## DTC 45-12 DVD Reading Abnormal

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-10 | A mechanical error in the DVD changer is detected while a disc is not being inserted or ejected. | Radio receiver |
| 45-11 | Disc insertion or ejection fails. | |
| 45-12 | A disc read problem occurs. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE RADIO RECEIVER ASSEMBLY**

a. Replace the radio receiver (Click here).

**NEXT**

**END**

## DTC B15C0 Short in GPS Antenna

## DTC B15C1 Open in GPS Antenna

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the navigation antenna assembly.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15C0 | Navigation antenna error | • Navigation antenna assembly<br>• Multi-media module receiver assembly |
| B15C1 | Error of the power source to the navigation antenna | |

### INSPECTION PROCEDURE

**NOTICE:**

After replacing the multi-media module receiver assembly of vehicles subscribed to pay-type satellite radio broadcasts, XM radio ID registration is necessary (w/ SDARS System).

**1.CHECK CONNECTION OF NAVIGATION ANTENNA ASSEMBLY**

a. Check if the navigation antenna assembly is securely connected to the multi-media module receiver assembly.

**OK:**
**Navigation antenna assembly is securely connected.**

NG → **SECURELY CONNECT NAVIGATION ANTENNA ASSEMBLY**

OK ↓

**2.REPLACE NAVIGATION ANTENNA ASSEMBLY**

a. Replace the navigation antenna assembly with a known good one ( Click here).

NEXT ↓

**3.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT ↓

**4.CHECK DTC**

a. Recheck for DTCs and check if the same DTCs are output again ( Click here).

**OK:**
**No DTCs are output.**

NG → **REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)**

OK ↓

**END (NAVIGATION ANTENNA ASSEMBLY IS DEFECTIVE)**

## DTC 45-10 DVD Changer Mechanical Error

## DTC 45-11 DVD Insertion and Ejection Error

## DTC 45-12 DVD Reading Abnormal

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-10 | A mechanical error in the DVD changer is detected while a disc is not being inserted or ejected. | Radio receiver |
| 45-11 | Disc insertion or ejection fails. | |
| 45-12 | A disc read problem occurs. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE RADIO RECEIVER ASSEMBLY**

a. Replace the radio receiver (Click here).

**NEXT**

**END**

# DTC B15C2 Speed Signal Malfunction

**for Preparation** Click here

## DESCRIPTION

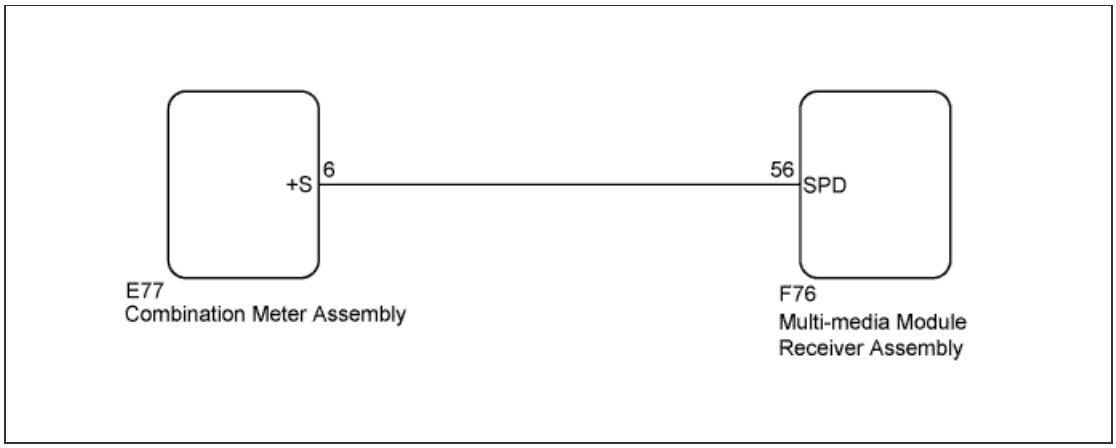
The multi-media module receiver assembly receives a vehicle speed signal from the combination meter assembly and information from the navigation antenna, and then adjusts the vehicle position on the map. The multi-media module receiver assembly stores this DTC when the difference between the speed information that the navigation antenna assembly receives and the SPD pulse received from the combination meter assembly becomes large.

**HINT:**

- **A voltage of 12 V or 5 V is output from each ECU and then input to the combination meter assembly. The signal is changed to a pulse signal at the transistor in the combination meter assembly. Each ECU controls the respective systems based on the pulse signal.**
- **If a short occurs in any of the ECUs or in the wire harness connected to an ECU, all systems in the diagram below will not operate normally.**

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15C2 | A difference between the GPS speed and SPD pulse is detected | • Meter / gauge system<br>• Multi-media module receiver assembly |

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CLEAR DTC

a. Clear the DTCs (Click here).

**NEXT**

### 2.CHECK DTC

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

**NG** → **Go to step 3**

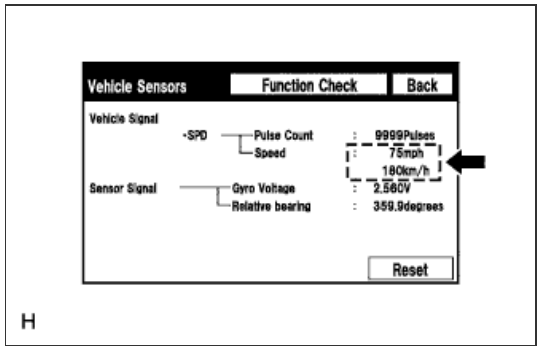
**OK**

USE SIMULATION METHOD TO CHECK (**Click here**)

### 3.CHECK VEHICLE SENSOR (OPERATION CHECK)

a. Enter the "Vehicle Sensors" screen. Refer to Check GPS & Vehicle Sensor in Operation Check (Click here).

b. While driving the vehicle, compare the "Speed" indicator to the reading on the speedometer. Check if these readings are almost equal.




**HINT:**

The combination meter assembly receives the vehicle speed signal from the skid control ECU via CAN communication. Therefore, perform the following inspection referring to values on the Data List of the skid control ECU because it is the source of the vehicle speed signal.

**OK:**

**Vehicle speed displayed on the "Vehicle Sensors" screen is almost the same as the actual vehicle speed measured using the intelligent tester (Click here).**

NG → GO TO METER / GAUGE SYSTEM (Click here)

OK → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

## DTC 45-10 DVD Changer Mechanical Error

## DTC 45-11 DVD Insertion and Ejection Error

## DTC 45-12 DVD Reading Abnormal

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-10 | A mechanical error in the DVD changer is detected while a disc is not being inserted or ejected. | Radio receiver |
| 45-11 | Disc insertion or ejection fails. | |
| 45-12 | A disc read problem occurs. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE RADIO RECEIVER ASSEMBLY**

a. Replace the radio receiver (Click here).

**NEXT**

**END**

# DTC B15D0 MOST Communication Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when the MOST network cannot be established after the master unit is activated.

**HINT:**

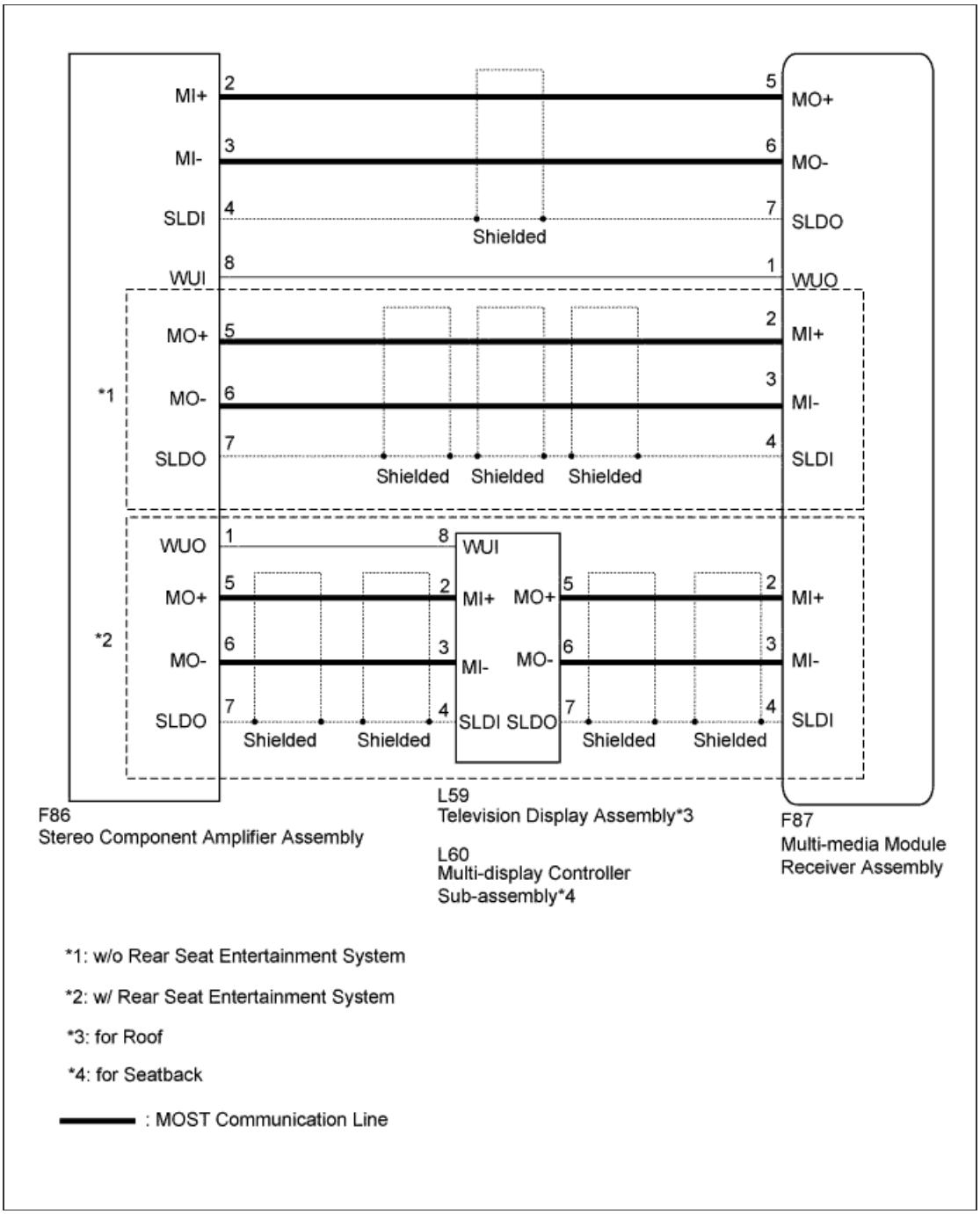
- **If a short occurs in a speaker circuit, the sound from the corresponding speaker will be low or almost impossible to hear. If the volume is turned up in this situation, to prevent excessive current flow due to the short circuit, the stereo component amplifier assembly stops operating when its output exceeds a certain level. When the operation of the stereo component amplifier assembly stops, the navigation system will not function normally. This is because MOST communication will stop due to the shut down of the amplifier causing an error in the MOST network. The stereo component amplifier assembly will start operating again when the engine switch is turned off and back on (ACC) again. However, the amplifier will stop operating again if its output exceeds a certain level.**
- **When the stereo component amplifier assembly stops operating and a malfunction occurs in the navigation system due to a short in a speaker circuit, this DTC will be stored.**

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15D0 | MOST network cannot be established. | • MOST line check<br>• MOST communication line connector<br>• MOST communication line<br>• Television display assembly (w/ Rear Seat Entertainment System [for Roof])<br>• Multi-display controller sub-assembly (w/ Rear Seat Entertainment System [for Seatback])<br>• Stereo component amplifier assembly<br>• Multi-media module receiver assembly |

**HINT:**

- **For the MOST network, the multi-media module receiver assembly is the master unit.**
- **Errors may occur in MOST communication between devices due to problems such as electrical noise.**

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are installed.<br>DTCs are not output. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect AVC-LAN communication.**
- **These DTCs may be stored when an AVC-LAN communication error occurs due to electrical noise.**

| | |
|---|---|
| B | Go to step 3 |

A

## 2.CONFIRM SYMPTOMS

a. Turn the engine switch off.

b. Turn the engine switch on (ACC) and check if the audio system activates and if the speakers operate.

**HINT:**

- **Choose a source such as radio so that sound can be output from the speakers.**
- **If sound from the speakers is low, turn up the volume.**

**Result**

| Result | Proceed to |
|---|---|
| Even after the engine switch is turned on (ACC), the navigation system does not activate and sound is not output from the speakers. (w/o Rear Seat Entertainment System) | A |
| Even after the engine switch is turned on (ACC), the navigation system does not activate and sound is not output from the speakers. (w/ Rear Seat Entertainment System) | B |
| The audio system activates when the engine switch is turned on (ACC) but the sound stops being output when the amplifier output exceeds a certain level. | C |

**HINT:**

- **If a short occurs in a speaker circuit, the sound from the corresponding speaker will be low or almost impossible to hear. If the volume is turned up in this situation, to prevent excessive current flow due to the short circuit, the stereo component amplifier assembly stops operating when its output exceeds a certain level. When the operation of the stereo component amplifier assembly stops, the navigation system will not function normally. This is because MOST communication will stop due to the shut down of the amplifier causing an error in the MOST network. The stereo component amplifier assembly will start operating again when the engine switch is turned off and back on (ACC) again. However, the amplifier will stop operating again if its output exceeds a certain level.**
- **When the stereo component amplifier assembly stops operating and a malfunction occurs in the navigation system due to a short in a speaker circuit, this DTC will be stored. In this case, check each speaker circuit and repair or replace malfunctioning parts, and then recheck for DTCs.**

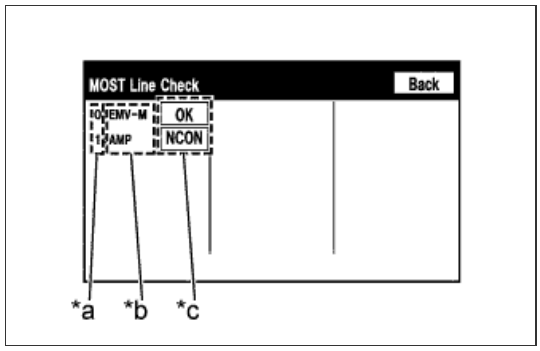
| | |
|---|---|
| B | Go to step 11 |
| C | GO TO AUDIO AND VISUAL SYSTEM (Click here) |

A

## 3.CHECK MOST COMMUNICATION CONNECTORS

a. Display the "MOST Line Check" screen (Click here).

b. Check the result on the "MOST Line Check" screen.




**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "AMP". | A |
| "OK" is displayed for all items. | B |

- When "NCON" is displayed for more than 1 item, proceed to the step for the device that has the smallest node position number.
- The "MOST Line Check" screen can be displayed only when DTC B15D0 is stored.

**Text in Illustration**

| | |
|---|---|
| *a | Node position number for devices that use MOST communication |
| *b | Device name |
| | |

| *c | Result |
|---|---|

B → Go to step 7

A

## 4.CONFIRM SYMPTOMS

a. Check the MOST communication line connectors.

i. Check if the MOST communication line connector between the multi-media module receiver assembly and stereo component amplifier assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "AMP". | A |
| The screen cannot be changed to the "MOST Line Check" screen. | B |

**HINT:**

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

B → USE SIMULATION METHOD TO CHECK (Click here)

A

## 5.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY WAKE UP LINE)

a. Disconnect the stereo component amplifier assembly connector.

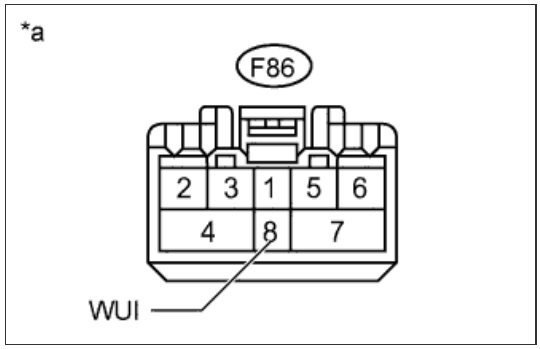
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F86-8 (WUI) - Body ground | Engine switch on (ACC) | 4.5 V or higher |

**Text in Illustration**

| *a | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |
|---|---|




NG → Go to step 6

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 6.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - STEREO COMPONENT AMPLIFIER ASSEMBLY)

a. Disconnect the F87 multi-media module receiver assembly connector.

b. Disconnect the F86 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F87-1 (WUO) - | Always | Below 1 Ω |

| | | |
|---|---|---|
| F86-8 (WUI) | | |
| F87-1 (WUO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**7.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - STEREO COMPONENT AMPLIFIER ASSEMBLY)**

a. Disconnect the F87 multi-media module receiver assembly connector.

b. Disconnect the F86 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F87-2 (MI+) - F86-5 (MO+) | Always | Below 1 Ω |
| F87-3 (MI-) - F86-6 (MO-) | Always | Below 1 Ω |
| F87-4 (SLDI) - F86-7 (SLDO) | Always | Below 1 Ω |
| F87-5 (MO+) - F86-2 (MI+) | Always | Below 1 Ω |
| F87-6 (MO-)- F86-3 (MI-) | Always | Below 1 Ω |
| F87-7 (SLDO) - F86-4 (SLDI) | Always | Below 1 Ω |
| F87-2 (MI+) - Body ground | Always | 10 kΩ or higher |
| F87-3 (MI-) - Body ground | Always | 10 kΩ or higher |
| F87-4 (SLDI) - Body ground | Always | 10 kΩ or higher |
| F87-5 (MO+) - Body ground | Always | 10 kΩ or higher |
| F87-6 (MO-) - Body ground | Always | 10 kΩ or higher |
| F87-7 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**8.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Replace the stereo component amplifier assembly with a new or normally functioning one ( Click here).

NEXT

**9.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

## 10.CHECK DTC

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output**

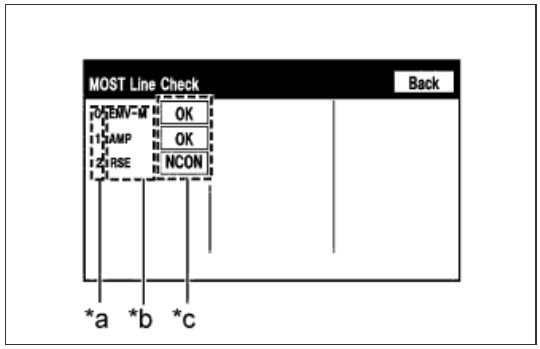
NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (**Click here**)

OK

END (STEREO COMPONENT AMPLIFIER ASSEMBLY IS DEFECTIVE)

## 11.MOST COMMUNICATION CONNECTORS

a. Display the "MOST Line Check" screen ( Click here).




**Text in Illustration**

| | |
|---|---|
| *a | Node position number for devices that use MOST communication |
| *b | Device name |
| *c | Result |

b. Check the result on the "MOST Line Check" screen.

**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "AMP". | A |
| "NCON" is displayed for "RSE". | B |
| "OK" is displayed for all items. | C |

- When "NCON" is displayed for more than 1 item, proceed to the step for the device that has the smallest node position number.
- The "MOST Line Check" screen can be displayed only when DTC B15D0 is stored.

B → **Go to step 15**

C → **Go to step 20**

A

## 12.CONFIRM SYMPTOMS

a. Check the MOST communication line connectors.

i. Check if the MOST communication line connector between the multi-media module receiver assembly and stereo component amplifier assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "AMP". | A |
| The screen cannot be changed to the "MOST Line Check" screen. | B |

**HINT:**

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

B → USE SIMULATION METHOD TO CHECK (**Click here**)

A

## 13.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY WAKE UP LINE)

a. Disconnect the stereo component amplifier assembly connector.

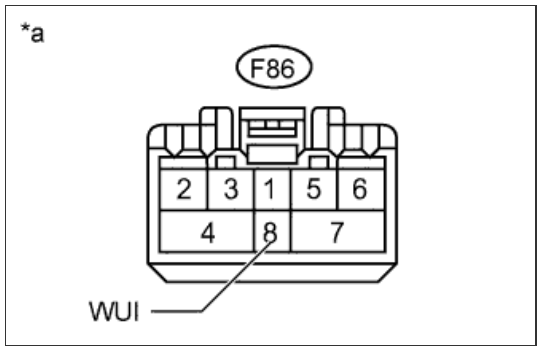
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F86-8 (WUI) - Body ground | Engine switch on (ACC) | 4.5 V or higher |

**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |




NG → Go to step 14

OK →

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 14.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - STEREO COMPONENT AMPLIFIER ASSEMBLY)

a. Disconnect the F87 multi-media module receiver assembly connector.

b. Disconnect the F86 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F87-1 (WUO) - F86-8 (WUI) | Always | Below 1 Ω |
| F87-1 (WUO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK →

REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

## 15.CONFIRM SYMPTOMS

a. Check the MOST communication line connectors.

i. Check if the MOST communication line connector between the multi-media module receiver assembly and stereo component amplifier assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "RSE" (for Roof). | A |
| "NCON" is displayed for "RSE" (for Seatback). | B |
| The screen cannot be changed to the "MOST Line Check" screen. | C |

**HINT:**

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

B → Go to step 18

C → USE SIMULATION METHOD TO CHECK (Click here)

A

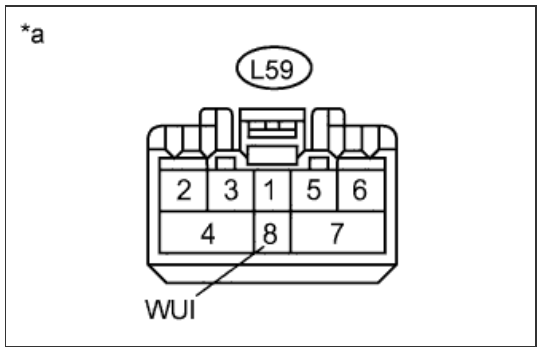
## 16.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY Wake Up LINE)

a. Disconnect the television display assembly connector.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| L59-8 (WUI) - Body ground | Engine switch on (ACC) | 4.5 V or higher |




**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Television Display Assembly) |

NG → Go to step 17

OK

REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

## 17.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - TELEVISION DISPLAY ASSEMBLY)

a. Disconnect the F86 stereo component amplifier assembly connector.

b. Disconnect the L59 television display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F86-1 (WUO) - L59-8 (WUI) | Always | Below 1 Ω |
| F86-1 (WUO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 18.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY Wake Up LINE)

a. Disconnect the multi-display controller sub-assembly connector.

b. Measure the voltage according to the value(s) in the table below.

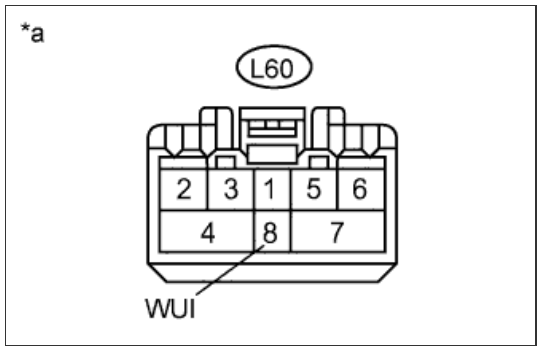
**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| L60-8 (WUI) - | Engine switch on | 4.5 V or higher |

| | | |
|---|---|---|
| Body ground | (ACC) | |

**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Multi-display Controller Sub-assembly) |




NG → Go to step 19

OK

REPLACE MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY (Click here)

19.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY)

a. Disconnect the F86 stereo component amplifier assembly connector.

b. Disconnect the L60 multi-display controller sub-assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F86-1 (WUO) - L60-8 (WUI) | Always | Below 1 Ω |
| F86-1 (WUO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

20.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - STEREO COMPONENT AMPLIFIER ASSEMBLY)

a. Disconnect the F87 multi-media module receiver assembly connector.

b. Disconnect the F86 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F87-5 (MO+) - F86-2 (MI+) | Always | Below 1 Ω |
| F87-6 (MO-) - F86-3 (MI-) | Always | Below 1 Ω |
| F87-7 (SLDO) - F86-4 (SLDI) | Always | Below 1 Ω |
| F87-5 (MO+) - Body ground | Always | 10 kΩ or higher |
| F87-6 (MO-) - Body ground | Always | 10 kΩ or higher |
| F87-7 (SLDO) - Body ground | Always | 10 kΩ or higher |

**Result**

| Result | Proceed to |
|---|---|
| OK (for Roof) | A |

| | |
|---|---|
| (OK (for Seatback) | B |
| NG | C |

| | |
|---|---|
| B | Go to step 26 |
| C | REPAIR OR REPLACE HARNESS OR CONNECTOR |

A

21.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - TELEVISION DISPLAY ASSEMBLY)

a. Disconnect the F86 stereo component amplifier assembly connector.

b. Disconnect the L59 television display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F86-5 (MO+) - L59-2 (MI+) | Always | Below 1 Ω |
| F86-6 (MO-) - L59-3 (MI-) | Always | Below 1 Ω |
| F86-7 (SLDO) - L59-4 (SLDI) | Always | Below 1 Ω |
| F86-5 (MO+) - Body ground | Always | 10 kΩ or higher |
| F86-6 (MO-) - Body ground | Always | 10 kΩ or higher |
| F86-7 (SLDO) - Body ground | Always | 10 kΩ or higher |

| | |
|---|---|
| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR |

OK

22.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - TELEVISION DISPLAY ASSEMBLY)

a. Disconnect the F87 multi-media module receiver assembly connector.

b. Disconnect the L59 television display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F87-2 (MI+) - L59-5 (MO+) | Always | Below 1 Ω |
| F87-3 (MI-) - L59-6 (MO-) | Always | Below 1 Ω |
| F87-4 (SLDI) - L59-7 (SLDO) | Always | Below 1 Ω |
| F87-2 (MI+) - Body ground | Always | 10 kΩ or higher |
| F87-3 (MI-) - Body ground | Always | 10 kΩ or higher |
| F87-4 (SLDI) - Body ground | Always | 10 kΩ or higher |

| | |
|---|---|
| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR |

OK

**23.REPLACE TELEVISION DISPLAY ASSEMBLY**

a. Replace the television display assembly with a new or normally functioning one ( Click here).

NEXT

**24.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

**25.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

NG → **REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)**

OK

**END (TELEVISION DISPLAY ASSEMBLY IS DEFECTIVE)**

**26.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY)**

a. Disconnect the F86 stereo component amplifier assembly connector.

b. Disconnect the L60 multi-display controller sub-assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F86-5 (MO+) - L60-2 (MI+) | Always | Below 1 Ω |
| F86-6 (MO-) - L60-3 (MI-) | Always | Below 1 Ω |
| F86-7 (SLDO) - L60-4 (SLDI) | Always | Below 1 Ω |
| F86-5 (MO+) - Body ground | Always | 10 kΩ or higher |
| F86-6 (MO-) - Body ground | Always | 10 kΩ or higher |
| F86-7 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

**27.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY)**

a. Disconnect the F87 multi-media module receiver assembly connector.

b. Disconnect the L60 multi-display controller sub-assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F87-2 (MI+) - L60-5 (MO+) | Always | Below 1 Ω |
| F87-3 (MI-) - L60-6 (MO-) | Always | Below 1 Ω |
| F87-4 (SLDI) - L60-7 (SLDO) | Always | Below 1 Ω |
| F87-2 (MI+) - Body ground | Always | 10 kΩ or higher |
| F87-3 (MI-) - Body ground | Always | 10 kΩ or higher |
| F87-4 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**28.REPLACE MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY**

a. Replace the multi-display controller sub-assembly with a new or normally functioning one ( Click here).

NEXT

**29.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

**30.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

NG → USE SIMULATION METHOD TO CHECK (**Click here**)

OK

**END (MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY IS DEFECTIVE)**

## DTC 45-41 Wrong Disc

## DTC 45-42 Disc cannot be Read

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-41 | Unsuitable disc is inserted. | • Disc<br>• Radio receiver |
| 45-42 | A disc cannot be read. | |

### INSPECTION PROCEDURE

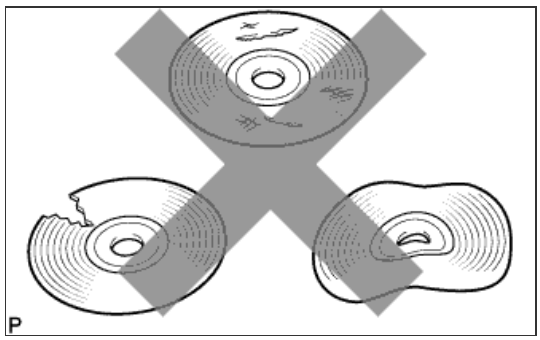
**HINT:**

After the inspection is completed, clear the DTCs (Click here).

#### 1.CHECK DISC

a. Check that the disc is not deformed or cracked.

**OK:**
**No deformation or cracks on the disc.**




NG → REPLACE DISC

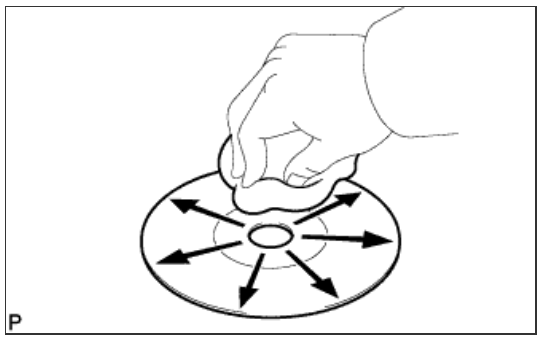
OK

#### 2.DISC CLEANING

a. If dirt is on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

**NOTICE:**

Do not use a conventional record cleaner or antistatic preservative.




NEXT

#### 3.CLEAR DTC

a. Clear the DTC (Click here).

NEXT

4.RECHECK DTC

a. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → Go to step 5

OK →

END

5.REPLACE DISC WITH ANOTHER AND RECHECK

a. Replace the disc with a normal one.

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK →

END

# DTC B15D3 Stereo Component Amplifier Disconnected

**for Preparation** Click here

## DESCRIPTION

The multi-media module receiver assembly, stereo component amplifier assembly, television display assembly*1 and multi-display controller sub-assembly*2 are connected by the MOST communication line.
When a MOST communication error occurs between the multi-media module receiver assembly, stereo component amplifier assembly, television display assembly*1 and multi-display controller sub-assembly*2, these DTCs will be stored.

*1: w/ Rear Seat Entertainment System (for Roof)
*2: w/ Rear Seat Entertainment System (for Seatback)

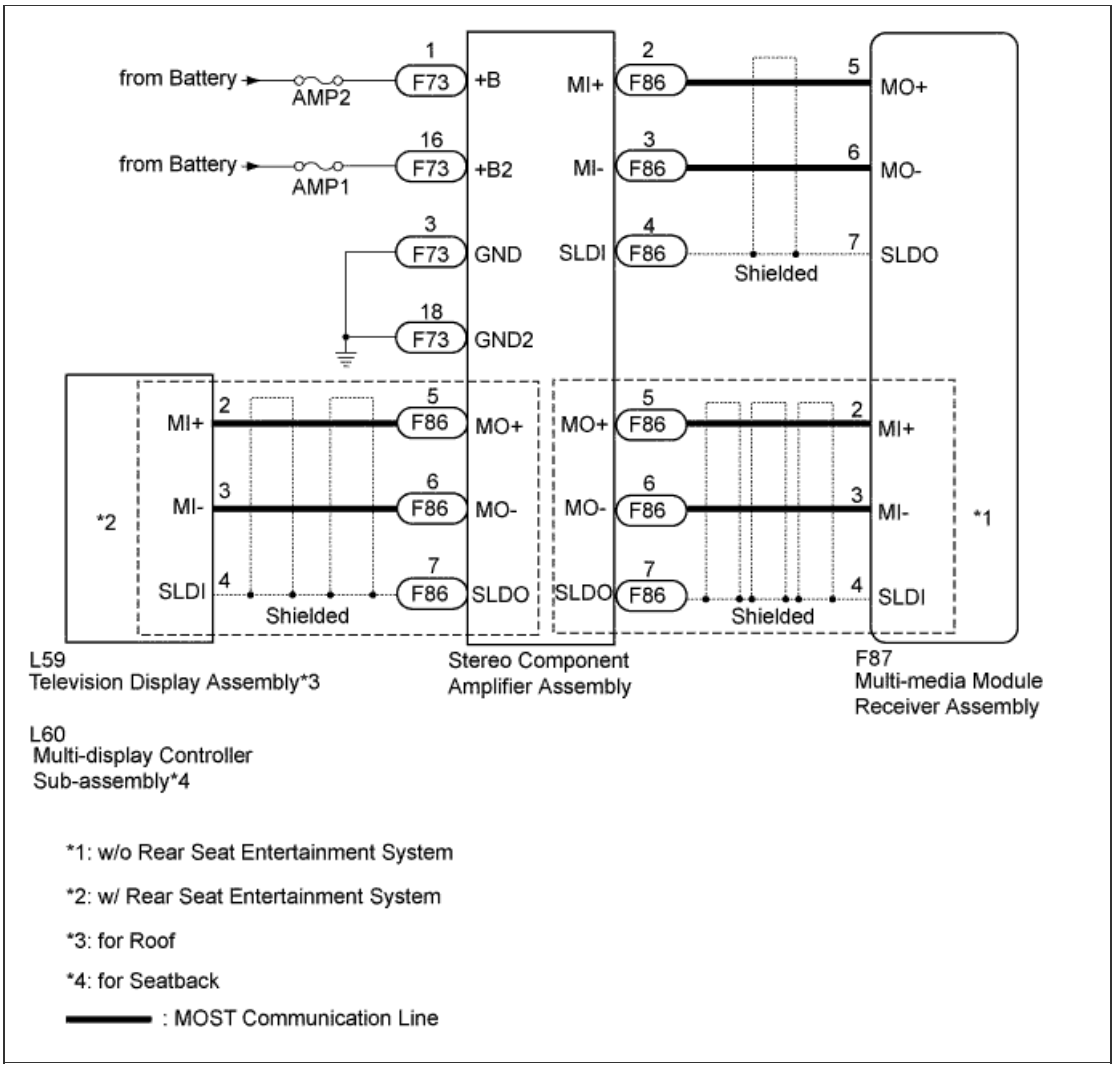
| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15D3 | A device that is listed in the MOST network connected device record of the master unit is missing. | • Stereo component amplifier assembly power source circuit<br>• MOST circuit between multi-media module receiver assembly and stereo component amplifier assembly<br>• MOST circuit between stereo component amplifier and television display assembly*1<br>• MOST circuit between stereo component amplifier and multi-display controller sub-assembly*2<br>• Stereo component amplifier assembly<br>• Multi-media module receiver assembly<br>• Television display assembly*1<br>• Multi-display controller sub-assembly*2 |

*1: w/ Rear Seat Entertainment System (for Roof)
*2: w/ Rear Seat Entertainment System (for Seatback)

**HINT:**

For the MOST network, the multi-media module receiver assembly is the master unit.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when a MOST communication error occurs due to electrical noise.**

**B** → Go to step 3

**A**

### 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

### 3.CLEAR DTC

a. Clear the DTCs (Click here).

**NEXT**

### 4.CHECK DTC

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

**NG** → **Go to step 5**

**OK**

### END (COMMUNICATION MALFUNCTION DUE TO NOISE)

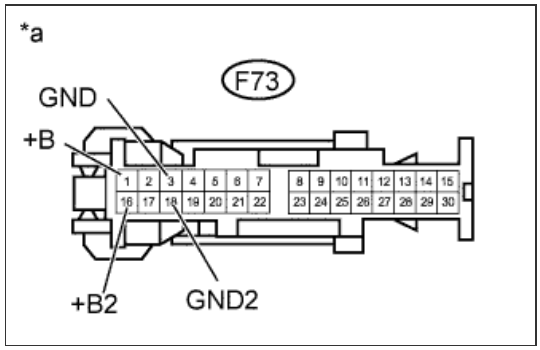
### 5.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - BATTERY AND BODY GROUND)

a. Disconnect the stereo component amplifier assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F73-3 (GND) - Body ground | Always | Below 1 Ω |
| F73-18 (GND2) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F73-1 (+B) - F73-3 (GND) | Always | 11 to 14 V |
| F73-16 (+B2) - F73-3 (GND) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |

**Result**

| Result | Proceed to |
|---|---|
| OK (w/o Rear Seat Entertainment System) | A |
| OK (w/ Rear Seat Entertainment System [for Roof]) | B |
| OK (w/ Rear Seat Entertainment System [for Seatback]) | C |
| NG | D |

**B** → **Go to step 10**

C → Go to step 14

D → REPAIR OR REPLACE HARNESS OR CONNECTOR

A

**6.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - STEREO COMPONENT AMPLIFIER ASSEMBLY)**

a. Disconnect the F87 multi-media module receiver assembly connector.

b. Disconnect the F86 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F87-2 (MI+) - F86-5 (MO+) | Always | Below 1 Ω |
| F87-3 (MI-) - F86-6 (MO-) | Always | Below 1 Ω |
| F87-4 (SLDI) - F86-7 (SLDO) | Always | Below 1 Ω |
| F87-5 (MO+) - F86-2 (MI+) | Always | Below 1 Ω |
| F87-6 (MO-) - F86-3 (MI-) | Always | Below 1 Ω |
| F87-7 (SLDO) - F86-4 (SLDI) | Always | Below 1 Ω |
| F87-2 (MI+) - Body ground | Always | 10 kΩ or higher |
| F87-3 (MI-) - Body ground | Always | 10 kΩ or higher |
| F87-4 (SLDI) - Body ground | Always | 10 kΩ or higher |
| F87-5 (MO+) - Body ground | Always | 10 kΩ or higher |
| F87-6 (MO-) - Body ground | Always | 10 kΩ or higher |
| F87-7 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**7.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Replace the stereo component amplifier assembly with a new or normally functioning one ( Click here).

NEXT

**8.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

Go to step 10

**9.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (**Click here**)

OK

END (STEREO COMPONENT AMPLIFIER ASSEMBLY IS DEFECTIVE)

10.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - MULTI-MEDIA MODULE RECEIVER AND TELEVISION DISPLAY)

a. Disconnect the F87 multi-media module receiver assembly connector.

b. Disconnect the F86 stereo component amplifier assembly connector.

c. Disconnect the L59 television assembly connector.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F87-5 (MO+) - F86-2 (MI+) | Always | Below 1 Ω |
| F87-6 (MO-) - F86-3 (MI-) | Always | Below 1 Ω |
| F87-7 (SLDO) - F86-4 (SLDI) | Always | Below 1 Ω |
| F86-5 (MO+) - L59-2 (MI+) | Always | Below 1 Ω |
| F86-6 (MO-) - L59-3 (MI-) | Always | Below 1 Ω |
| F86-7 (SLDO) - L59-4 (SLDI) | Always | Below 1 Ω |
| F86-2 (MI+) - Body ground | Always | 10 kΩ or higher |
| F86-3 (MI-) - Body ground | Always | 10 kΩ or higher |
| F86-4 (SLDI) - Body ground | Always | 10 kΩ or higher |
| F86-5 (MO+) - Body ground | Always | 10 kΩ or higher |
| F86-6 (MO-) - Body ground | Always | 10 kΩ or higher |
| F86-7 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

11.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY

a. Replace the stereo component amplifier assembly with a new or normally functioning one ( Click here).

NEXT

12.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

13.CHECK DTC

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (**Click here**)

OK

END (STEREO COMPONENT AMPLIFIER ASSEMBLY IS DEFECTIVE)

14.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - MULTI-MEDIA MODULE RECEIVER AND MULTI-DISPLAY CONTROLLER)

a. Disconnect the F87 multi-media module receiver assembly connector.

b. Disconnect the F86 stereo component amplifier assembly connector.

c. Disconnect the L60 multi-display controller sub-assembly connector.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F87-5 (MO+) - F86-2 (MI+) | Always | Below 1 Ω |
| F87-6 (MO-) - F86-3 (MI-) | Always | Below 1 Ω |
| F87-7 (SLDO) - F86-4 (SLDI) | Always | Below 1 Ω |
| F86-5 (MO+) - L60-2 (MI+) | Always | Below 1 Ω |
| F86-6 (MO-) - L60-3 (MI-) | Always | Below 1 Ω |
| F86-7 (SLDO) - L60-4 (SLDI) | Always | Below 1 Ω |
| F86-2 (MI+) - Body ground | Always | 10 kΩ or higher |
| F86-3 (MI-) - Body ground | Always | 10 kΩ or higher |
| F86-4 (SLDI) - Body ground | Always | 10 kΩ or higher |
| F86-5 (MO+) - Body ground | Always | 10 kΩ or higher |
| F86-6 (MO-) - Body ground | Always | 10 kΩ or higher |
| F86-7 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

15.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY

a. Replace the stereo component amplifier assembly with a new or normally functioning one ( Click here).

NEXT

**16.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

**17.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

NG → **REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)**

OK

**END (STEREO COMPONENT AMPLIFIER ASSEMBLY IS DEFECTIVE)**

## DTC 45-41 Wrong Disc

## DTC 45-42 Disc cannot be Read

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-41 | Unsuitable disc is inserted. | • Disc<br>• Radio receiver |
| 45-42 | A disc cannot be read. | |

### INSPECTION PROCEDURE

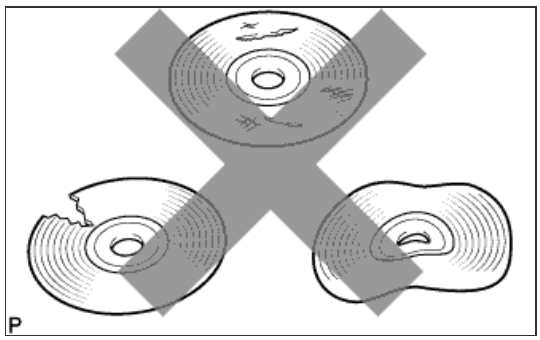
**HINT:**

After the inspection is completed, clear the DTCs (Click here).

#### 1.CHECK DISC

a. Check that the disc is not deformed or cracked.

**OK:**
**No deformation or cracks on the disc.**




NG → REPLACE DISC

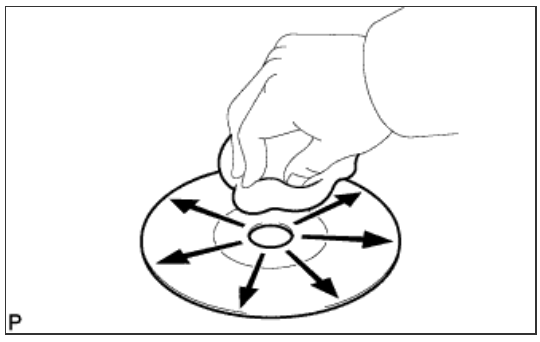
OK

#### 2.DISC CLEANING

a. If dirt is on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

**NOTICE:**

Do not use a conventional record cleaner or antistatic preservative.




NEXT

#### 3.CLEAR DTC

a. Clear the DTC (Click here).

NEXT

4.RECHECK DTC

a. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → Go to step 5

OK →

END

5.REPLACE DISC WITH ANOTHER AND RECHECK

a. Replace the disc with a normal one.

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK →

END

## DTC B15D5 Rear Seat Entertainment System Disconnected

**for Preparation** Click here

### DESCRIPTION

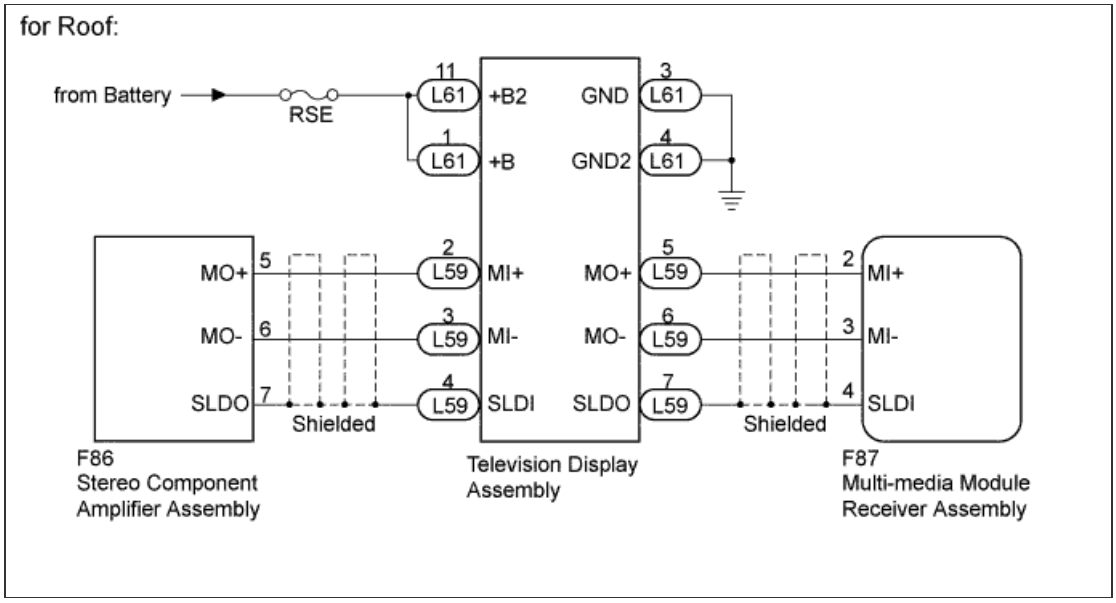
The multi-media module receiver assembly and television display assembly (for Roof) or multi-display controller sub-assembly (for Seatback) are connected by the MOST communication line.
When a MOST communication error occurs between the multi-media module receiver assembly and television display assembly (for Roof) or multi-display controller sub-assembly (for Seatback), these DTCs will be stored.

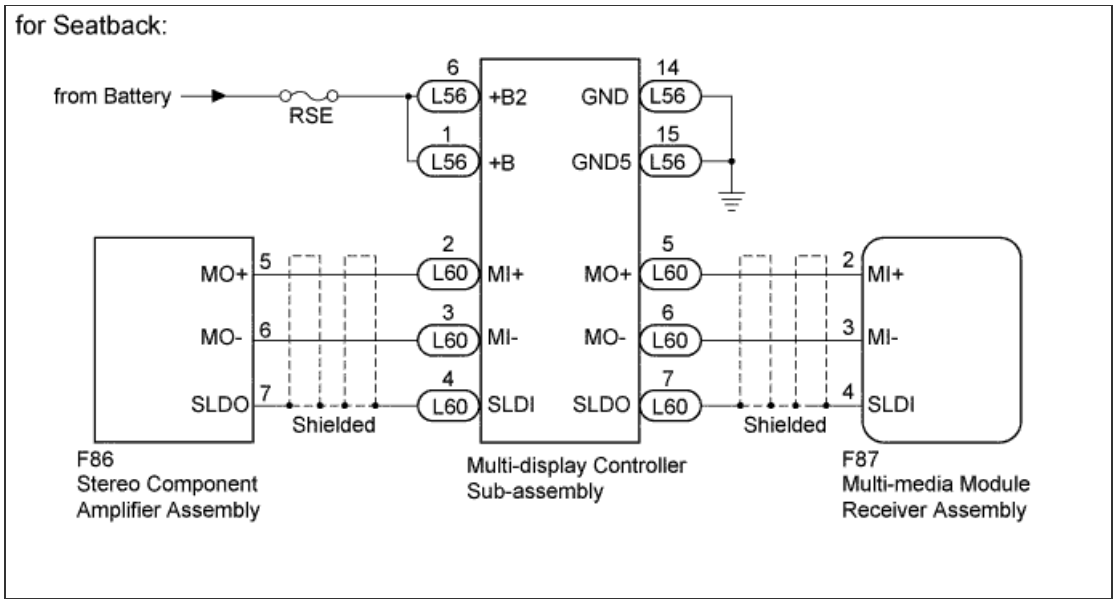
| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15D5 | A device that is listed in the MOST network connected device record of the master unit is missing. | **for Roof:**<br>• Television display assembly power source circuit<br>• MOST circuit between stereo component amplifier assembly and television display assembly<br>• MOST circuit between television display assembly and multi-media module receiver assembly<br>• Television display assembly<br>• Multi-media module receiver assembly<br>**for Seatback:**<br>• Multi-display controller sub-assembly power source circuit<br>• MOST circuit between stereo component amplifier assembly and multi-display controller sub-assembly<br>• MOST circuit between multi-display controller sub-assembly and multi-media module receiver assembly<br>• Multi-display controller sub-assembly<br>• Multi-media module receiver assembly |

**HINT:**

For the MOST network, the multi-media module receiver assembly is the master unit.

### WIRING DIAGRAM






## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when a MOST communication error occurs due to electrical noise.**

**B** → **Go to step 3**

**A**

### 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

### 3.CLEAR DTC

a. Clear the DTCs (Click here).

**NEXT**

## 4.CHECK DTC

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| No DTCs are output | A |
| DTCs are output (for Roof) | B |
| DTCs are output (for Seatback) | C |

B → Go to step 5

C → Go to step 11

A

## END (COMMUNICATION MALFUNCTION DUE TO NOISE)

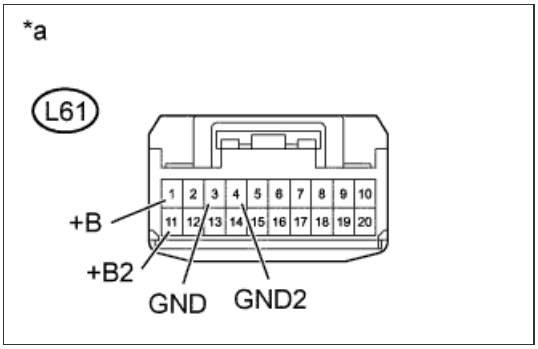
## 5.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY - BATTERY AND BODY GROUND)

a. Disconnect the television display assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L61-3 (GND) - Body ground | Always | Below 1 Ω |
| L61-4 (GND2) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L61-11 (+B2) - L61-3 (GND) | Always | 11 to 14 V |
| L61-1 (+B) - L61-3 (GND) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Television Display Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 6.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY - STEREO COMPONENT AMPLIFIER ASSEMBLY)

a. Disconnect the L59 television display assembly connector.

b. Disconnect the F86 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L59-2 (MI+) - F86-5 (MO+) | Always | Below 1 Ω |
| L59-3 (MI-) - F86-6 | Always | Below 1 Ω |

| | | |
|---|---|---|
| (MO-) | | |
| L59-4 (SLDI) - F86-7 (SLDO) | Always | Below 1 Ω |
| L59-2 (MI+) - Body ground | Always | 10 kΩ or higher |
| L59-3 (MI-) - Body ground | Always | 10 kΩ or higher |
| L59-4 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**7.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY - MULTI-MEDIA MODULE RECEIVER ASSEMBLY)**

a. Disconnect the L59 television display assembly connector.

b. Disconnect the F87 multi-media module receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L59-5 (MO+) - F87-2 (MI+) | Always | Below 1 Ω |
| L59-6 (MO-) - F87-3 (MI-) | Always | Below 1 Ω |
| L59-7 (SLDO) - F87-4 (SLDI) | Always | Below 1 Ω |
| L59-5 (MO+) - Body ground | Always | 10 kΩ or higher |
| L59-6 (MO-) - Body ground | Always | 10 kΩ or higher |
| L59-7 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**8.REPLACE TELEVISION DISPLAY ASSEMBLY**

a. Replace the television display assembly (Click here).

NEXT

**9.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

**10.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**

**No DTCs are output.**

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

END (TELEVISION DISPLAY ASSEMBLY IS DEFECTIVE)

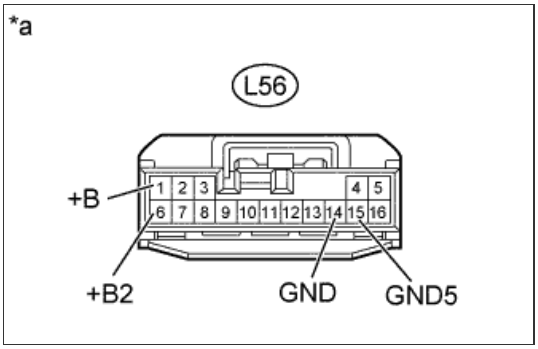
11.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY - POWER SOURCE AND BODY GROUND)

a. Disconnect the multi-display controller sub-assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L56-14 (GND) - Body ground | Always | Below 1 Ω |
| L56-15 (GND5) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L56-6 (+B2) - L56-14 (GND) | Always | 11 to 14 V |
| L56-1 (+B) - L56-14 (GND) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Multi-display Controller Sub-assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

12.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY - STEREO COMPONENT AMPLIFIER ASSEMBLY)

a. Disconnect the L60 multi-display controller sub-assembly connector.

b. Disconnect the F86 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L60-2 (MI+) - F86-5 (MO+) | Always | Below 1 Ω |
| L60-3 (MI-) - F86-6 (MO-) | Always | Below 1 Ω |
| L60-4 (SLDI) - F86-7 (SLDO) | Always | Below 1 Ω |
| L60-2 (MI+) - Body ground | Always | 10 kΩ or higher |
| L60-3 (MI-) - Body ground | Always | 10 kΩ or higher |
| L60-4 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**13.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY - MULTI-MEDIA MODULE RECEIVER ASSEMBLY)**

a. Disconnect the L60 multi-display controller sub-assembly connector.

b. Disconnect the F87 multi-media module receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L60-5 (MO+) - F87-2 (MI+) | Always | Below 1 Ω |
| L60-6 (MO-) - F87-3 (MI-) | Always | Below 1 Ω |
| L60-7 (SLDO) - F87-4 (SLDI) | Always | Below 1 Ω |
| L60-5 (MO+) - Body ground | Always | 10 kΩ or higher |
| L60-6 (MO-) - Body ground | Always | 10 kΩ or higher |
| L60-7 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**14.REPLACE MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY**

a. Replace the multi-display controller sub-assembly (Click here).

NEXT

**15.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

**16.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY

OK

**END (MULTI-DISPLAY CONTROLLER SUB-ASSEMBLY IS DEFECTIVE)**

## DTC 45-43 DVD-ROM Abnormal

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-43 | Disc operation is abnormal. | • Disc<br>• Radio receiver |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK IF PROPER DISC IS INSERTED**

a. Make sure that the DVD is a video DVD or a CD with an MP3 or WMA file, and that it is not deformed, flawed, stained, burred, or otherwise defective.

**OK:**
**Normal disc**

**HINT:**

- **Translucent or uniquely-shaped DVDs or CDs cannot be played.**
- **For details on playable DVDs or CDs, refer to the Owner's Manual.**

**NG** → **DISC IS FAULTY**

**OK**

**2.REPLACE DISC WITH ANOTHER AND RECHECK**

a. Replace the disc with a normal one.

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**END**

## DTC B15D6 Display Disconnected

**for Preparation** Click here

### DESCRIPTION

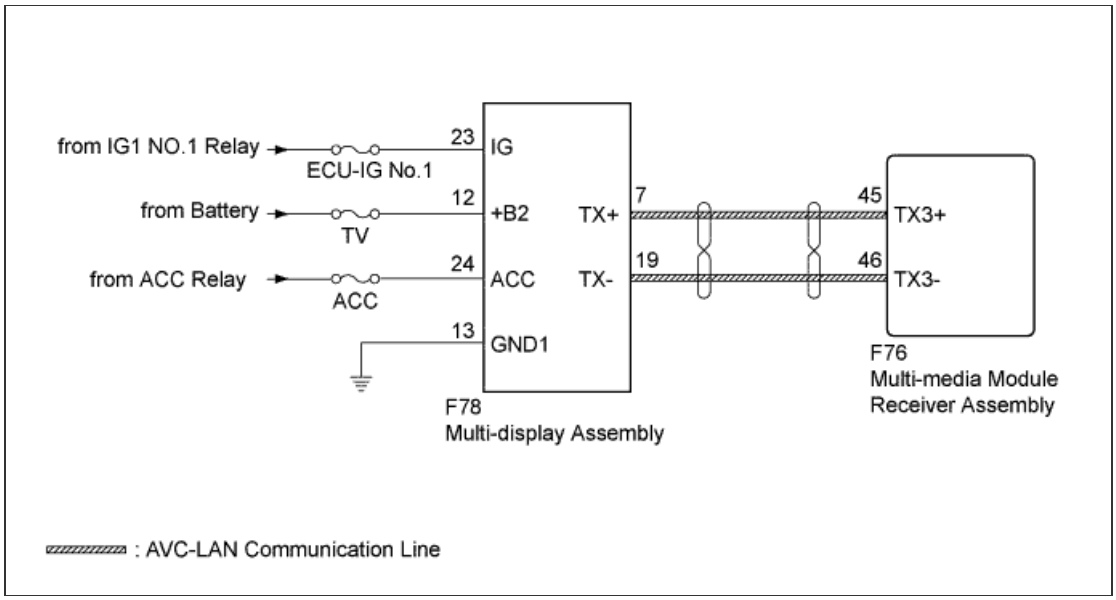
The multi-display assembly and multi-media module receiver assembly are connected by an AVC-LAN communication line.
When an AVC-LAN communication error occurs between the multi-media module receiver assembly and multi-display assembly, these DTCs will be stored.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15D6* | A device that is listed in the AVC-LAN connected device record of the master unit is missing. | • Multi-display power source circuit<br>• AVC-LAN circuit<br>• Multi-display assembly<br>• Multi-media module receiver assembly |

**HINT:**

- ***: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The multi-media module receiver assembly is the master unit.**

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output**

NG → Go to step 3

OK

USE SIMULATION METHOD TO CHECK (Click here)

## 3.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY ASSEMBLY - BATTERY AND BODY GROUND)

a. Disconnect the multi-display assembly connector.

b. Measure the resistance according to the value(s) in the table below.

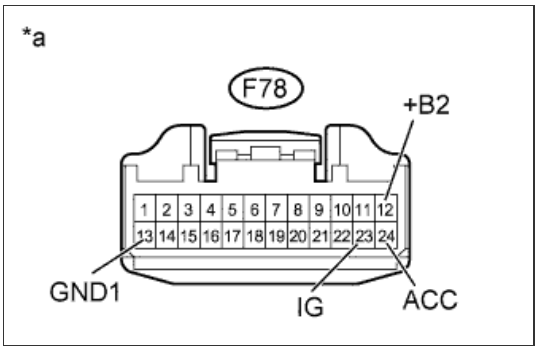
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F78-13 (GND1) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F78-12 (+B2) - F78-13 (GND1) | Always | 11 to 14 V |
| F78-23 (IG) - F78-13 (GND1) | Engine switch on (IG) | 11 to 14 V |
| F78-24 (ACC) - F78-13 (GND1) | Engine switch on (ACC) | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Multi-display Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

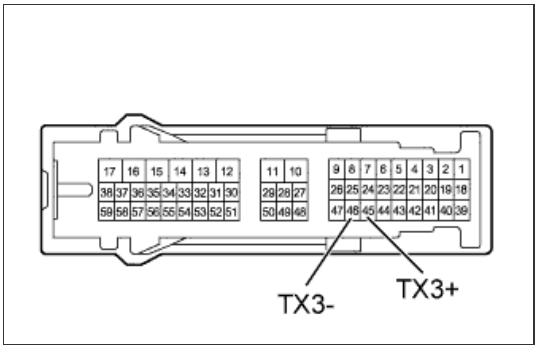
## 4.INSPECT MULTI-MEDIA MODULE RECEIVER ASSEMBLY

a. Remove the multi-media module receiver assembly (Click here).

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 45 (TX3+) - 46 (TX3-) | Always | 60 to 80 Ω |




NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

## 5.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - MULTI-DISPLAY ASSEMBLY)

a. Disconnect the F76 multi-media module receiver assembly connector.

b. Disconnect the F78 multi-display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-45 (TX3+) - F78-7 (TX+) | Always | Below 1 Ω |
| F76-46 (TX3-) - F78-19 (TX-) | Always | Below 1 Ω |
| F76-45 (TX3+) - Body ground | Always | 10 kΩ or higher |
| 76-46 (TX3-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**6.REPLACE MULTI-DISPLAY ASSEMBLY**

a. Replace the multi-display assembly with a new or normally functioning one ( Click here).

NEXT

**7.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

**8.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output**

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (**Click here**)

OK

**END (MULTI-DISPLAY ASSEMBLY IS DEFECTIVE)**

## DTC 45-44 DVD Malfunction

## DTC 45-48 Excess Current

## DTC 45-50 Tray Insertion / Ejection Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-44 | An operation error in the DVD mechanism. | Radio receiver |
| 45-48 | Excess current is present in the DVD changer. | |
| 45-50 | A malfunction in the insertion/ejection system. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.RECHECK DTC**

a. Recheck for DTCs and check if the same trouble code is output.

**HINT:**

If DTCs are output frequently, replace the radio receiver.

**OK:**
**No DTC is output.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**END**

## DTC B15D8 Monitor Disconnected

**for Preparation** Click here

### DESCRIPTION

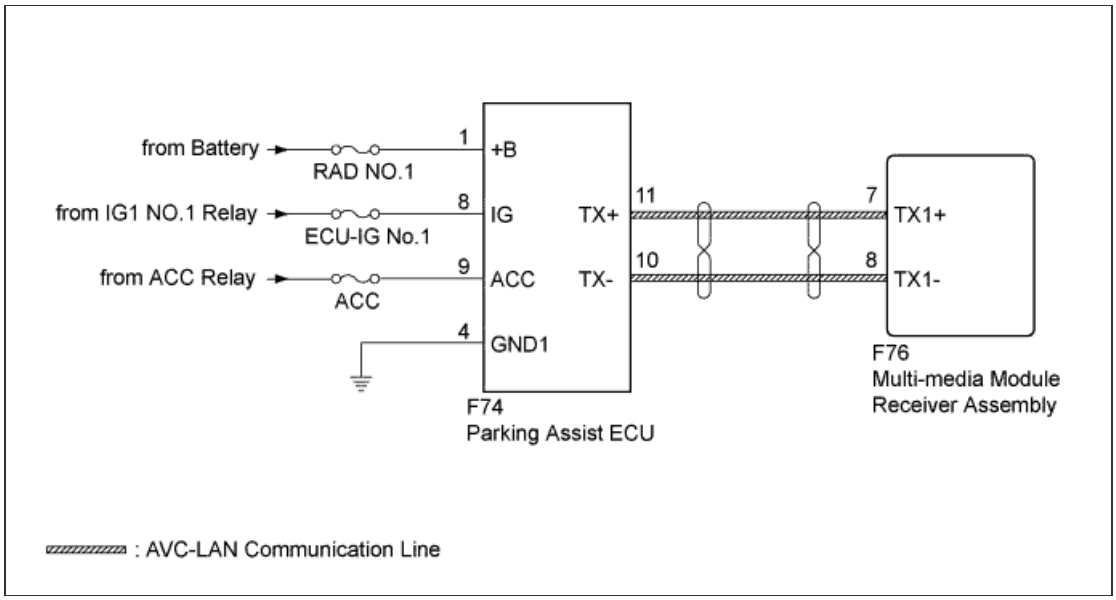
The parking assist ECU and multi-media module receiver assembly are connected by an AVC-LAN communication line. When an AVC-LAN communication error occurs between the multi-media module receiver assembly and parking assist ECU, these DTCs will be stored.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15D8* | A device that is listed in the AVC-LAN connected device record of the master unit is missing. | • Parking assist ECU power source circuit<br>• AVC-LAN circuit<br>• Parking assist ECU<br>• Multi-media module receiver assembly |

**HINT:**

- ***: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The multi-media module receiver assembly is the master unit.**

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**

**No DTCs are output**

NG → Go to step 3

OK

USE SIMULATION METHOD TO CHECK (Click here)

3.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - BATTERY AND BODY GROUND)

a. Disconnect the parking assist ECU connector.

b. Measure the resistance according to the value(s) in the table below.

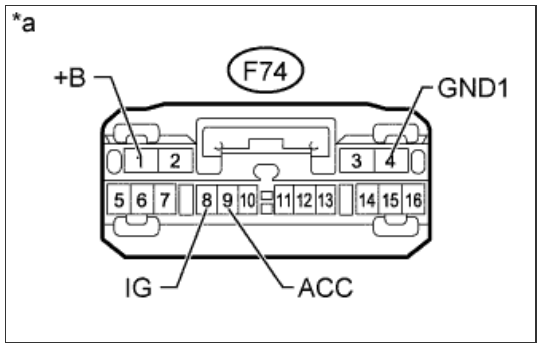
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F74-4 (GND1) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F74-1 (+B) - F74-4 (GND1) | Always | 11 to 14 V |
| F74-8 (IG) - F74-4 (GND1) | Engine switch on (IG) | 11 to 14 V |
| F74-9 (ACC) - F74-4 (GND1) | Engine switch on (ACC) | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Parking Assist ECU) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

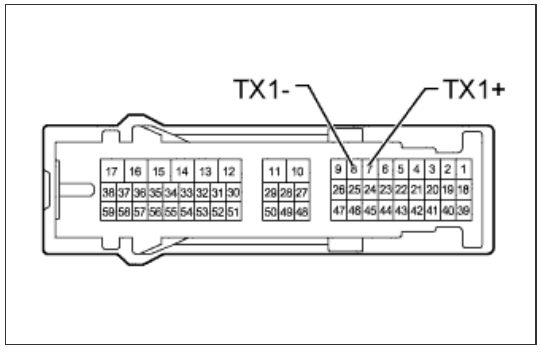
4.INSPECT MULTI-MEDIA MODULE RECEIVER ASSEMBLY

a. Remove the multi-media module receiver assembly (Click here).

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 7 (TX1+) - 8 (TX1-) | Always | 60 to 80 Ω |




NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

5.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - PARKING ASSIST ECU)

a. Disconnect the F76 multi-media module receiver assembly connector.

b. Disconnect the F74 parking assist ECU connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-7 (TX1+) - F74-11 (TX+) | Always | Below 1 Ω |
| F76-8 (TX1-) - F74-10 (TX-) | Always | Below 1 Ω |
| F76-7 (TX1+) - Body ground | Always | 10 kΩ or higher |
| F76-8 (TX1-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**6.REPLACE PARKING ASSIST ECU**

a. Replace the parking assist ECU with a new or normally functioning one ( Click here).

NEXT

**7.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

**8.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (**Click here**)

OK

**END (PARKING ASSIST ECU IS DEFECTIVE)**

## DTC 45-44 DVD Malfunction

## DTC 45-48 Excess Current

## DTC 45-50 Tray Insertion / Ejection Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-44 | An operation error in the DVD mechanism. | Radio receiver |
| 45-48 | Excess current is present in the DVD changer. | |
| 45-50 | A malfunction in the insertion/ejection system. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.RECHECK DTC**

a. Recheck for DTCs and check if the same trouble code is output.

**HINT:**

If DTCs are output frequently, replace the radio receiver.

**OK:**
**No DTC is output.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**END**

## DTC B15E5 Electric Throttle Malfunction

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15E5 | Electric throttle malfunction | • CAN communication system<br>• SFI system<br>• Multi-media module receiver assembly |

### INSPECTION PROCEDURE

**1.CHECK DTC (CAN COMMUNICATION SYSTEM)**

a. Check for DTCs and check if the same DTCs are output.

for LHD: Click here
for RHD: Click here

**Result**

| Result | Proceed to |
|---|---|
| No DTCs are output | A |
| DTCs are output (for LHD) | B |
| DTCs are output (for RHD) | C |

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

**2.CHECK DTC (SFI SYSTEM)**

a. Check for DTCs and check if the same DTCs are output.

**HINT:**

Refer to SFI system or ECD system.

**Result**

| Result | Proceed to |
|---|---|
| No DTCs are output | A |
| DTCs are output (1UR-FE) | B |
| DTCs are output (3UR-FE) | C |

B → GO TO SFI SYSTEM (Click here)

C → GO TO SFI SYSTEM (Click here)

A

**3.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

**4.CHECK DTC**

a. Recheck for DTCs and check if the same DTC are output again ( Click here).

**OK:**
**No DTCs are output.**

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (**Click here**)

OK

USE SIMULATION METHOD TO CHECK (**Click here**)

## DTC 45-44 DVD Malfunction

## DTC 45-48 Excess Current

## DTC 45-50 Tray Insertion / Ejection Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-44 | An operation error in the DVD mechanism. | Radio receiver |
| 45-48 | Excess current is present in the DVD changer. | |
| 45-50 | A malfunction in the insertion/ejection system. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.RECHECK DTC**

a. Recheck for DTCs and check if the same trouble code is output.

**HINT:**

If DTCs are output frequently, replace the radio receiver.

**OK:**
**No DTC is output.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**END**

## DTC B15E7 Harddisk Reading/Writing Malfunction(Low Temperature)

## DTC B15E8 Harddisk Reading/Writing Malfunction(High Temperature)

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when the temperature is higher or lower than the operation range of the hard disc built into the multi-media module receiver assembly, and hard disc read/write errors occur more than a specified number of times.

**HINT:**

The hard disk drive may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15E7 | Hard disc read/write error at low temperature. | Hard disc |
| B15E8 | Hard disc read/write error at high temperature. | |

### INSPECTION PROCEDURE

**1.CHECK CABIN**

a. Move the vehicle to an area that is at room temperature and allow the cabin temperature to adjust to between -20°C (-4°F) and 65°C (149°F).

**HINT:**

- **The hard disc may not operate normally at very high or low temperatures.**
- **Perform the DTC check at room temperature.**

**NEXT**

**2.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**3.CHECK DTC**

a. Recheck for DTCs and check if the same DTCs are output again ( Click here).

**OK:**
**No DTCs are output.**

**NG** → **REPLACE HARD DISC (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC 45-45 Eject Error

## DTC 45-51 Elevator Error

## DTC 45-52 Clamp Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-45 | The disc cannot be ejected. | Radio receiver |
| 45-51 | A mechanical error occurs during elevator operation. | |
| 45-52 | An error occurs in the DVD changer clamp. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK RADIO RECEIVER ASSEMBLY**

a. Check if a disc can be changed, inserted, or ejected normally.

**OK:**
**Malfunction disappears.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

**END**

## DTC B15E7 Harddisk Reading/Writing Malfunction(Low Temperature)

## DTC B15E8 Harddisk Reading/Writing Malfunction(High Temperature)

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when the temperature is higher or lower than the operation range of the hard disc built into the multi-media module receiver assembly, and hard disc read/write errors occur more than a specified number of times.

**HINT:**

The hard disk drive may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15E7 | Hard disc read/write error at low temperature. | Hard disc |
| B15E8 | Hard disc read/write error at high temperature. | |

### INSPECTION PROCEDURE

**1.CHECK CABIN**

a. Move the vehicle to an area that is at room temperature and allow the cabin temperature to adjust to between -20°C (-4°F) and 65°C (149°F).

**HINT:**

- **The hard disc may not operate normally at very high or low temperatures.**
- **Perform the DTC check at room temperature.**

**NEXT**

**2.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**3.CHECK DTC**

a. Recheck for DTCs and check if the same DTCs are output again ( Click here).

**OK:**
**No DTCs are output.**

**NG** → **REPLACE HARD DISC (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC 45-45 Eject Error

## DTC 45-51 Elevator Error

## DTC 45-52 Clamp Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-45 | The disc cannot be ejected. | Radio receiver |
| 45-51 | A mechanical error occurs during elevator operation. | |
| 45-52 | An error occurs in the DVD changer clamp. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK RADIO RECEIVER ASSEMBLY**

a. Check if a disc can be changed, inserted, or ejected normally.

**OK:**
**Malfunction disappears.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

**END**

# DTC B15F5 A/C ECU Vehicle Information Reading/Writing Processor Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when items controlled by the Air conditioning amplifier assembly cannot be customized via the navigation system vehicle customization screen.

**HINT:**

The Air conditioning amplifier assembly controls the air conditioning system related items that are customizable via the multi-display screen.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15F5 | Air conditioning amplifier assembly vehicle setting processing error. | • CAN communication system<br>• Air conditioning system<br>• Air conditioning amplifier assembly<br>• Multi-media module receiver assembly |

## INSPECTION PROCEDURE

### 1.CHECK CAN COMMUNICATION SYSTEM

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

for LHD: Click here
for RHD: Click here

**Result**

| Result | Proceed to |
|---|---|
| No DTCs are output | A |
| DTCs are output (for LHD) | B |
| DTCs are output (for RHD) | C |

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

### 2.CHECK AIR CONDITIONING SYSTEM

a. Check if the air conditioning system is malfunctioning (Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the air conditioning system.

**OK:**

**No malfunctions are present in the air conditioning system.**

NG → GO TO AIR CONDITIONING SYSTEM (Click here)

OK

### 3.CHECK CUSTOMIZE ITEMS

a. Display the "Vehicle Customization" screen.

b. Make a note of the customizable items for the air conditioning system.

**HINT:**

These air conditioning system items shown as customizable via the multi-display vehicle customization screen can also be changed using the intelligent tester. In the following steps, the intelligent tester will be used.

i. To match-up the items in the multi-display with the items on the intelligent tester, check the customize parameters list for the air conditioning system related items that can be customized via the multi-display screen (Click here).

c. Using the intelligent tester, confirm that it is possible to change the settings of the air conditioning system related customize parameters that are shown as customizable via the multi-display screen.

**OK:**
**The items available for customization via the multi-display screen can be customized successfully using the intelligent tester.**

NG → REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY (**Click here**)

OK

REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (**Click here**)

## DTC 45-45 Eject Error

## DTC 45-51 Elevator Error

## DTC 45-52 Clamp Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-45 | The disc cannot be ejected. | Radio receiver |
| 45-51 | A mechanical error occurs during elevator operation. | |
| 45-52 | An error occurs in the DVD changer clamp. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK RADIO RECEIVER ASSEMBLY**

a. Check if a disc can be changed, inserted, or ejected normally.

**OK:**
**Malfunction disappears.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

**END**

# DTC B15F6 Main Body ECU Vehicle Information Reading/Writing Process Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when items controlled by the main body ECU (cowl side junction block LH) cannot be customized via the navigation system vehicle customization screen.

**HINT:**

**The main body ECU (cowl side junction block LH) controls the items for the following systems that are customizable via the multi-display screen:**

- **Power door lock control system**
- **Wireless door lock control system**
- **Lighting system**

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15F6 | Main body ECU (cowl side junction block LH) vehicle setting processing error. | • CAN communication system<br>• Power door lock control system<br>• Wireless door lock control system<br>• Lighting system<br>• Main body ECU (cowl side junction block LH)<br>• Multi-media module receiver assembly |

## INSPECTION PROCEDURE

### 1.CHECK CAN COMMUNICATION SYSTEM

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

for LHD: Click here
for RHD: Click here

**Result**

| Result | Proceed to |
|---|---|
| No DTCs are output | A |
| DTCs are output (for LHD) | B |
| DTCs are output (for RHD) | C |

**B** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**C** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**A**

### 2.CHECK POWER DOOR LOCK CONTROL SYSTEM

a. Check if the power door lock control system is malfunctioning ( Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the power door lock control system.

**OK:**

**No malfunctions are present in the power door lock control system.**

**NG** → GO TO POWER DOOR LOCK CONTROL SYSTEM (Click here)

**OK**

### 3.CHECK WIRELESS DOOR LOCK CONTROL SYSTEM

a. Check if the wireless door lock control system is malfunctioning ( Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the wireless door lock control system.

**OK:**

**No malfunctions are present in the wireless door lock control system.**

NG → GO TO WIRELESS DOOR LOCK CONTROL SYSTEM (**Click here**)

OK

**4.CHECK LIGHTING SYSTEM**

a. Check if the lighting system is malfunctioning (Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the lighting system.

**OK:**

**No malfunctions are present in the lighting system.**

NG → GO TO LIGHTING SYSTEM (**Click here**)

OK

**5.CHECK CUSTOMIZE ITEMS**

a. Display the "Vehicle Customization" screen.

b. Make a note of the customizable items for each main body ECU (cowl side junction block LH) related system.

**HINT:**

These items shown as customizable via the navigation system vehicle customization screen can also be changed using the intelligent tester. In a following step, the intelligent tester will be used.

i. To match-up the items in the multi-display with the items on the intelligent tester, check the customize parameters list for the power door lock control system related items that can be customized via the multi-display screen (Click here).

ii. To match-up the items in the multi-display with the items on the intelligent tester, check the customize parameters list for the wireless door lock control system related items that can be customized via the multi-display screen (Click here).

iii. To match-up the items in the multi-display with the items on the intelligent tester, check the customize parameters list for the lighting system related items that can be customized via the multi-display screen (Click here).

c. Using the intelligent tester, confirm that it is possible to change the settings of the customize parameters that are available for customization via the multi-display screen.

**OK:**

**The items available for customization via the multi-display screen can be customized successfully using the intelligent tester.**

NG → REPLACE MAIN BODY ECU (COWL SIDE JUNCTION BLOCK LH)

OK

REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (**Click here**)

# DTC 45-46 Scratched/Reversed Disc

**for Preparation** Click here

## DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-46 | Scratches or dirt is found on the disc surface or the disc is inserted upside down. | • Disc<br>• Radio receiver |

## INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

### 1.CHECK THAT DISC IS INSERTED PROPERLY

a. Check whether or not the disc is inserted upside down.

**OK:**
**Disc is properly inserted.**

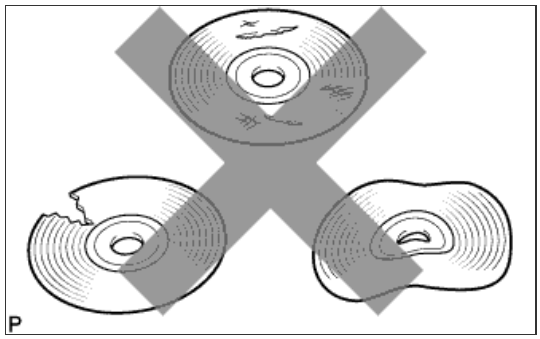
NG → INSERT DISC PROPERLY

OK

### 2.CHECK DISC

a. Check that the disc is not deformed or cracked.

**OK:**
**No deformation or cracks on the disc.**




NG → CHANGE DISC

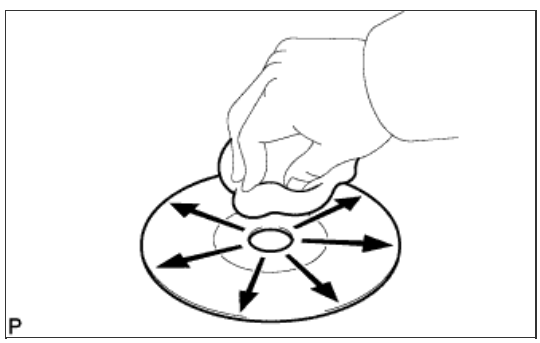
OK

### 3.DISC CLEANING

a. If dirt is on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

**NOTICE:**

Do not use a conventional record cleaner or antistatic preservative.



NEXT

4.CLEAR DTC

a. Clear the DTC (Click here).

NEXT

5.RECHECK DTC

a. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → Go to step 6

OK

END

6.REPLACE DISC WITH ANOTHER AND RECHECK

a. Replace the disc with a normal one.

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

END

## DTC B15F7 Certification ECU Vehicle Information Reading/Writing Process Malfunction

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when items controlled by the certification ECU cannot be customized via the navigation system vehicle customization screen.

**HINT:**

The certification ECU controls the entry and start system (for entry function) related items that are customizable via the multi-display screen.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15F7 | Certification ECU vehicle setting processing error. | • CAN communication system<br>• Entry and start system (for entry function)<br>• Certification ECU<br>• Multi-media module receiver assembly |

### INSPECTION PROCEDURE

**NOTICE:**

Before replacing the certification ECU, refer to the entry and start system (for entry function) precaution (See page ).

**1.CHECK CAN COMMUNICATION SYSTEM**

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

for LHD: Click here
for RHD: Click here

**Result**

| Result | Proceed to |
|---|---|
| No DTCs are output | A |
| DTCs are output (for LHD) | B |
| DTCs are output (for RHD) | C |

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

**2.CHECK ENTRY AND START SYSTEM (for Entry Function)**

a. Check if the entry and start system (for entry function) is malfunctioning ( Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the entry and start system (for entry function).

**OK:**

**No malfunctions are present in the entry and start system (for entry function).**

NG → GO TO ENTRY AND START SYSTEM (for Entry Function) ( Click here)

OK

**3.CHECK CUSTOMIZE ITEMS**

a. Display the "Vehicle Customization" screen.

b. Make a note of the customizable items for each certification ECU related system.

**HINT:**

These items shown as customizable via the navigation system vehicle customization screen can also be changed manually. In a following step, a manual procedure will be used.

i. Check the customize parameters list for the entry and start system (for entry function) related items that can be customized via the multi-display screen (Click here).

c. Manually change and confirm that it was possible to successfully change the settings of the customize parameters for each system that are available for customization via the multi-display screen.

**OK:**
**The items available for customization via the multi-display screen can be customized successfully using the manual procedure.**

NG → REPLACE CERTIFICATION ECU

OK → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (**Click here**)

## DTC 45-47 High Temperature

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-47 | The sensor detects that the DVD unit temperature is high (higher than 80°C (176°F)). | Radio receiver |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHECK RADIO RECEIVER ASSEMBLY**

a. Park the vehicle in a cool place.

b. Check that the temperature of the radio receiver has become sufficiently low, and start the engine. Check that the malfunction disappears.

**OK:**
**Malfunction disappears.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**END**

# DTC B15F8 Driver Seat ECU Vehicle Information Reading/Writing Process Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when items controlled by the position control ECU assembly cannot be customized via the navigation system vehicle customization screen.

**HINT:**

The front power seat switch controls the front power seat control system related items that are customizable via the multi-display screen.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15F8 | Position control ECU assembly vehicle setting processing error. | • CAN communication system<br>• Front power seat control system<br>• Front power seat switch<br>• Multi-media module receiver assembly |

## INSPECTION PROCEDURE

### 1.CHECK CAN COMMUNICATION SYSTEM

a. Use the Techstream to check if the CAN communication system is functioning normally.

for LHD: Click here
for RHD: Click here

**Result**

| Result | Proceed to |
|---|---|
| No DTCs are output | A |
| DTCs are output (for LHD) | B |
| DTCs are output (for RHD) | C |

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

### 2.CHECK FRONT POWER SEAT CONTROL SYSTEM

a. Check if the front power seat control system is malfunctioning ( Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the front power seat control system.

**OK:**

**No malfunctions are present in the front power seat control system.**

NG → GO TO FRONT POWER SEAT CONTROL SYSTEM ( Click here)

OK

### 3.CHECK CUSTOMIZE ITEMS

a. Display the "Vehicle Customization" screen.

b. Make a note of the customizable items for each position control ECU assembly related system.

**HINT:**

These items shown as customizable via the navigation system vehicle customization screen can also be changed manually. In a following step, a manual procedure will be used.

i. Check the customize parameters list for the front power seat control system related items that can be customized via the multi-display screen (Click here).

c. Manually change and confirm that it was possible to successfully change the settings of the customize parameters for each system that are available for customization via the multi-display screen.

**OK:**
**The items available for customization via the multi-display screen can be customized successfully using the manual procedure.**

| | | |
|---|---|---|
| | NG | REPLACE FRONT POWER SEAT SWITCH (Click here) |
| OK | | |
| REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here) | | |

## DTC 45-78 DSP Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-78 | An error occurs during the decode process (MP3/WMA). | Radio receiver |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**NOTICE:**

- **This code may be output even if there is no malfunction.**
- **If this code is output frequently, replace the radio receiver.**

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.RECHECK DTC**

a. Recheck for DTCs and check if the same trouble code is output.

**OK:**
**No DTC is output.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**END**

## DTC B15F9 UART Communication Malfunction(for A/C)

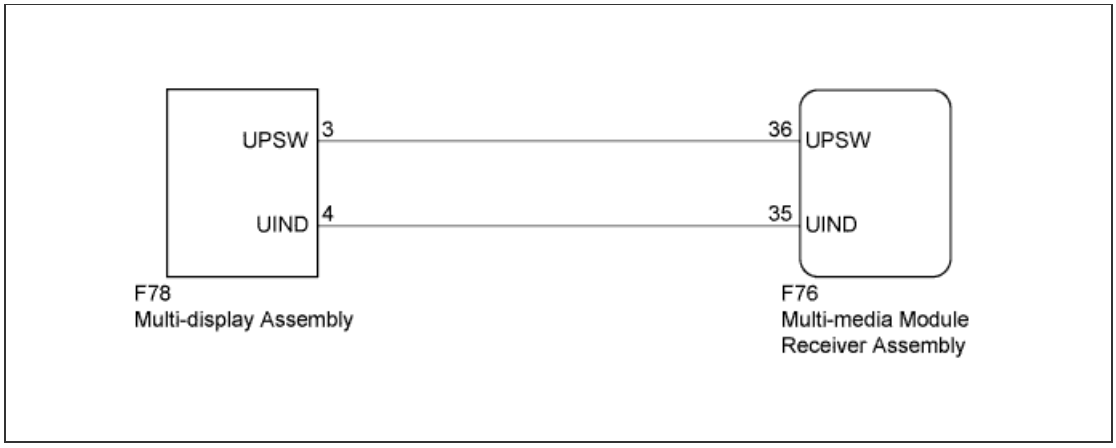
**for Preparation** Click here

### DESCRIPTION

The multi-media module receiver assembly and multi-display assembly are connected by the UART communication line.
When a UART communication error occurs between the multi-media module receiver assembly and multi-display assembly, these DTCs will be stored.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15F9 | Multi-display for air conditioning switch operation signal input malfunction. | • Harness or connector<br>• Multi-display assembly<br>• Multi-media module receiver assembly |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

**NEXT**

**2.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

**NG** → **Go to step 3**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

**3.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - MULTI-DISPLAY ASSEMBLY)**

a. Disconnect the F76 multi-media module receiver assembly connector.

b. Disconnect the F78 multi-display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| | | |

| | | |
|---|---|---|
| F76-36 (UPSW) - F78-3 (UPSW) | Always | Below 1 Ω |
| F76-35 (UIND) - F78-4 (UIND) | Always | Below 1 Ω |
| F76-36 (UPSW) - Body ground | Always | 10 kΩ or higher |
| F76-35 (UIND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**4.REPLACE MULTI-DISPLAY ASSEMBLY**

a. Replace the multi-display assembly with a new or normally functioning one ( Click here).

NEXT

**5.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

**6.CHECK DTC**

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**OK:**
**No DTCs are output.**

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (**Click here**)

OK

**END (MULTI-DISPLAY ASSEMBLY IS DEFECTIVE)**

## DTC 45-7D Disc cannot be Played

## DTC 45-7E No Playable Files

## DTC 45-7F Copyright Protection Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-7D | When either condition below is met:<br>• An incompatible MP3 - WMA file is used.<br>• Although the file has an extension of ".mp3" or ".wma", the header information cannot be read. | • Disc<br>• Radio receiver |
| 45-7E | When either condition below is met:<br>• A disc with no music data is used.<br>• Playable files are not on the disc (MP3 - WMA). | |
| 45-7F | A copy-protected file which cannot be played is used. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHANGE DISC**

a. Insert a disc with a playable file and check if the disc can be played correctly.

**HINT:**

For details on playable files and discs, refer to the Owner's Manual.

**OK:**

**The disc can be played correctly.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**DISC IS FAULTY**

# DTC C1610 Camera ECU Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTCs is stored when a malfunction occurs in the park assist/monitoring section.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1610 | Park assist/monitoring error | • Parking assist monitor system (w/ Side monitor system)<br>• Wide view front monitor system<br>• Side monitor system |

## INSPECTION PROCEDURE

### 1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

### 2.CHECK DTC

a. Recheck for DTCs and check if the same DTC is output again ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| No DTCs are output. | A |
| DTCs for parking assist monitor system are output. | B |
| DTCs for wide view front monitor system are output. | C |
| DTCs for side monitor system are output. | D |

B → GO TO PARKING ASSIST MONITOR SYSTEM (w/ SIDE MONITOR SYSTEM) (Click here)

C → GO TO WIDE VIEW FRONT MONITOR SYSTEM (Click here)

D → GO TO SIDE MONITOR SYSTEM (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

## DTC 45-7D Disc cannot be Played

## DTC 45-7E No Playable Files

## DTC 45-7F Copyright Protection Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-7D | When either condition below is met:<br>• An incompatible MP3 - WMA file is used.<br>• Although the file has an extension of ".mp3" or ".wma", the header information cannot be read. | • Disc<br>• Radio receiver |
| 45-7E | When either condition below is met:<br>• A disc with no music data is used.<br>• Playable files are not on the disc (MP3 - WMA). | |
| 45-7F | A copy-protected file which cannot be played is used. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHANGE DISC**

a. Insert a disc with a playable file and check if the disc can be played correctly.

**HINT:**

For details on playable files and discs, refer to the Owner's Manual.

**OK:**

**The disc can be played correctly.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**DISC IS FAULTY**

## DTC U0073 Sending Malfunction (Navigation to APGS)

## DTC U0100 Engine ECU Communication

## DTC U0126 Steering Sensor Communication

## DTC U0140 Lost Communication with Body Control Module

## DTC U0155 Meter ECU Communication

## DTC U1110 Clearance Sonar ECU Communication

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the CAN communication circuit.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN bus connection error | CAN communication system |
| U0100 | CAN reception error | |
| U0126 | CAN reception error | |
| U0140 | CAN reception error | |
| U0155 | CAN reception error | |
| U1110 | CAN reception error | |

### INSPECTION PROCEDURE

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

**2.CHECK DTC (CAN COMMUNICATION SYSTEM)**

a. Recheck for DTCs and check if the same DTCs are output again.

for LHD: Click here
for RHD: Click here

**Result**

| Result | Proceed to |
|---|---|
| No DTCs are output | A |
| DTCs are output (for LHD) | B |
| DTCs are output (for RHD) | C |

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

## DTC 45-7D Disc cannot be Played

## DTC 45-7E No Playable Files

## DTC 45-7F Copyright Protection Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 45-7D | When either condition below is met:<br>• An incompatible MP3 - WMA file is used.<br>• Although the file has an extension of ".mp3" or ".wma", the header information cannot be read. | • Disc<br>• Radio receiver |
| 45-7E | When either condition below is met:<br>• A disc with no music data is used.<br>• Playable files are not on the disc (MP3 - WMA). | |
| 45-7F | A copy-protected file which cannot be played is used. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.CHANGE DISC**

a. Insert a disc with a playable file and check if the disc can be played correctly.

**HINT:**

For details on playable files and discs, refer to the Owner's Manual.

**OK:**

**The disc can be played correctly.**

**NG** → **REPLACE RADIO RECEIVER ASSEMBLY (Click here)**

**OK**

**DISC IS FAULTY**

## DTC U0073 Sending Malfunction (Navigation to APGS)

## DTC U0100 Engine ECU Communication

## DTC U0126 Steering Sensor Communication

## DTC U0140 Lost Communication with Body Control Module

## DTC U0155 Meter ECU Communication

## DTC U1110 Clearance Sonar ECU Communication

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the CAN communication circuit.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN bus connection error | CAN communication system |
| U0100 | CAN reception error | |
| U0126 | CAN reception error | |
| U0140 | CAN reception error | |
| U0155 | CAN reception error | |
| U1110 | CAN reception error | |

### INSPECTION PROCEDURE

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

**2.CHECK DTC (CAN COMMUNICATION SYSTEM)**

a. Recheck for DTCs and check if the same DTCs are output again.

for LHD: Click here
for RHD: Click here

**Result**

| Result | Proceed to |
|---|---|
| No DTCs are output | A |
| DTCs are output (for LHD) | B |
| DTCs are output (for RHD) | C |

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

## DTC 57-47 Bluetooth Module Initialization Failed

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 57-47 | When one of following conditions is met:<br>• The Bluetooth module is not installed.<br>• A problem with the Bluetooth module.<br>• A problem in the communication line to the Bluetooth module. | Multi-display |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE MULTI-DISPLAY**

a. Replace the multi-display (Click here).

**NEXT**

**END**

## DTC U0073 Sending Malfunction (Navigation to APGS)

## DTC U0100 Engine ECU Communication

## DTC U0126 Steering Sensor Communication

## DTC U0140 Lost Communication with Body Control Module

## DTC U0155 Meter ECU Communication

## DTC U1110 Clearance Sonar ECU Communication

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the CAN communication circuit.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN bus connection error | CAN communication system |
| U0100 | CAN reception error | |
| U0126 | CAN reception error | |
| U0140 | CAN reception error | |
| U0155 | CAN reception error | |
| U1110 | CAN reception error | |

### INSPECTION PROCEDURE

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

**2.CHECK DTC (CAN COMMUNICATION SYSTEM)**

a. Recheck for DTCs and check if the same DTCs are output again.

for LHD: Click here
for RHD: Click here

**Result**

| Result | Proceed to |
|---|---|
| No DTCs are output | A |
| DTCs are output (for LHD) | B |
| DTCs are output (for RHD) | C |

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

## DTC 58-10 Gyro Error

## DTC 80-10 Gyro Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 58-10 | A ground short, power supply short, or open circuit in the gyro signal. | • Gyro sensor<br>• Navigation ECU |
| 80-10 | A ground short, power supply short, or open circuit in the gyro signal. | |

### INSPECTION PROCEDURE

**HINT:**

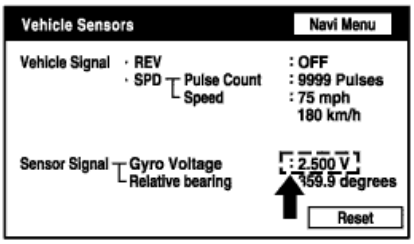
After the inspection is completed, clear the DTCs (Click here).

**1.CHECK VEHICLE SENSOR (NAVIGATION CHECK MODE)**

a. Enter the "Navigation Check" mode and select "Vehicle Sensors" (Click here).

b. Check the gyro voltage.

**Standard voltage:**
**0.5 to 4.5 V**




P

NG → REPLACE NAVIGATION ECU (Click here)

OK ↓

**2.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT ↓

**3.RECHECK DTC**

a. Recheck for DTCs and check if the same trouble code is output.

**HINT:**

If DTCs are output frequently, replace the navigation ECU.

**OK:**
**No DTC is output.**

NG → REPLACE NAVIGATION ECU (Click here)

OK ↓

END

## DTC U0073 Sending Malfunction (Navigation to APGS)

## DTC U0100 Engine ECU Communication

## DTC U0126 Steering Sensor Communication

## DTC U0140 Lost Communication with Body Control Module

## DTC U0155 Meter ECU Communication

## DTC U1110 Clearance Sonar ECU Communication

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the CAN communication circuit.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN bus connection error | CAN communication system |
| U0100 | CAN reception error | |
| U0126 | CAN reception error | |
| U0140 | CAN reception error | |
| U0155 | CAN reception error | |
| U1110 | CAN reception error | |

### INSPECTION PROCEDURE

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

**2.CHECK DTC (CAN COMMUNICATION SYSTEM)**

a. Recheck for DTCs and check if the same DTCs are output again.

for LHD: Click here
for RHD: Click here

**Result**

| Result | Proceed to |
|---|---|
| No DTCs are output | A |
| DTCs are output (for LHD) | B |
| DTCs are output (for RHD) | C |

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

## DTC 58-10 Gyro Error

## DTC 80-10 Gyro Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 58-10 | A ground short, power supply short, or open circuit in the gyro signal. | • Gyro sensor<br>• Navigation ECU |
| 80-10 | A ground short, power supply short, or open circuit in the gyro signal. | |

### INSPECTION PROCEDURE

**HINT:**

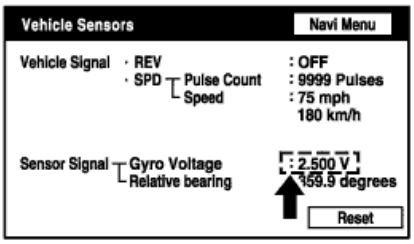
After the inspection is completed, clear the DTCs (Click here).

**1.CHECK VEHICLE SENSOR (NAVIGATION CHECK MODE)**

a. Enter the "Navigation Check" mode and select "Vehicle Sensors" (Click here).

b. Check the gyro voltage.

**Standard voltage:**
**0.5 to 4.5 V**




P

NG → REPLACE NAVIGATION ECU (Click here)

OK ↓

**2.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT ↓

**3.RECHECK DTC**

a. Recheck for DTCs and check if the same trouble code is output.

**HINT:**

If DTCs are output frequently, replace the navigation ECU.

**OK:**
**No DTC is output.**

NG → REPLACE NAVIGATION ECU (Click here)

OK ↓

END

## DTC U0073 Sending Malfunction (Navigation to APGS)

## DTC U0100 Engine ECU Communication

## DTC U0126 Steering Sensor Communication

## DTC U0140 Lost Communication with Body Control Module

## DTC U0155 Meter ECU Communication

## DTC U1110 Clearance Sonar ECU Communication

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the CAN communication circuit.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN bus connection error | CAN communication system |
| U0100 | CAN reception error | |
| U0126 | CAN reception error | |
| U0140 | CAN reception error | |
| U0155 | CAN reception error | |
| U1110 | CAN reception error | |

### INSPECTION PROCEDURE

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

**2.CHECK DTC (CAN COMMUNICATION SYSTEM)**

a. Recheck for DTCs and check if the same DTCs are output again.

for LHD: Click here
for RHD: Click here

**Result**

| Result | Proceed to |
|---|---|
| No DTCs are output | A |
| DTCs are output (for LHD) | B |
| DTCs are output (for RHD) | C |

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

## DTC 58-11 GPS Receiver Error

## DTC 80-11 GPS Receiver Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 58-11 | When either condition below is met:<br>• An RTC, ROM, and RAM error of the GPS receiver and TCXO error.<br>• The GPS receiver has failed. | Navigation ECU |
| 80-11 | When either condition below is met:<br>• An RTC, ROM, and RAM error of the GPS receiver and TCXO error.<br>• The GPS receiver has failed. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE NAVIGATION ECU**

a. Replace the navigation ECU (Click here).

**NEXT**

**END**

## DTC U0073 Sending Malfunction (Navigation to APGS)

## DTC U0100 Engine ECU Communication

## DTC U0126 Steering Sensor Communication

## DTC U0140 Lost Communication with Body Control Module

## DTC U0155 Meter ECU Communication

## DTC U1110 Clearance Sonar ECU Communication

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the CAN communication circuit.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN bus connection error | CAN communication system |
| U0100 | CAN reception error | |
| U0126 | CAN reception error | |
| U0140 | CAN reception error | |
| U0155 | CAN reception error | |
| U1110 | CAN reception error | |

### INSPECTION PROCEDURE

**1.CLEAR DTC**

a. Clear the DTCs (Click here).

NEXT

**2.CHECK DTC (CAN COMMUNICATION SYSTEM)**

a. Recheck for DTCs and check if the same DTCs are output again.

for LHD: Click here
for RHD: Click here

**Result**

| Result | Proceed to |
|---|---|
| No DTCs are output | A |
| DTCs are output (for LHD) | B |
| DTCs are output (for RHD) | C |

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

## DTC 58-11 GPS Receiver Error

## DTC 80-11 GPS Receiver Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 58-11 | When either condition below is met:<br>• An RTC, ROM, and RAM error of the GPS receiver and TCXO error.<br>• The GPS receiver has failed. | Navigation ECU |
| 80-11 | When either condition below is met:<br>• An RTC, ROM, and RAM error of the GPS receiver and TCXO error.<br>• The GPS receiver has failed. | |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs (Click here).

**1.REPLACE NAVIGATION ECU**

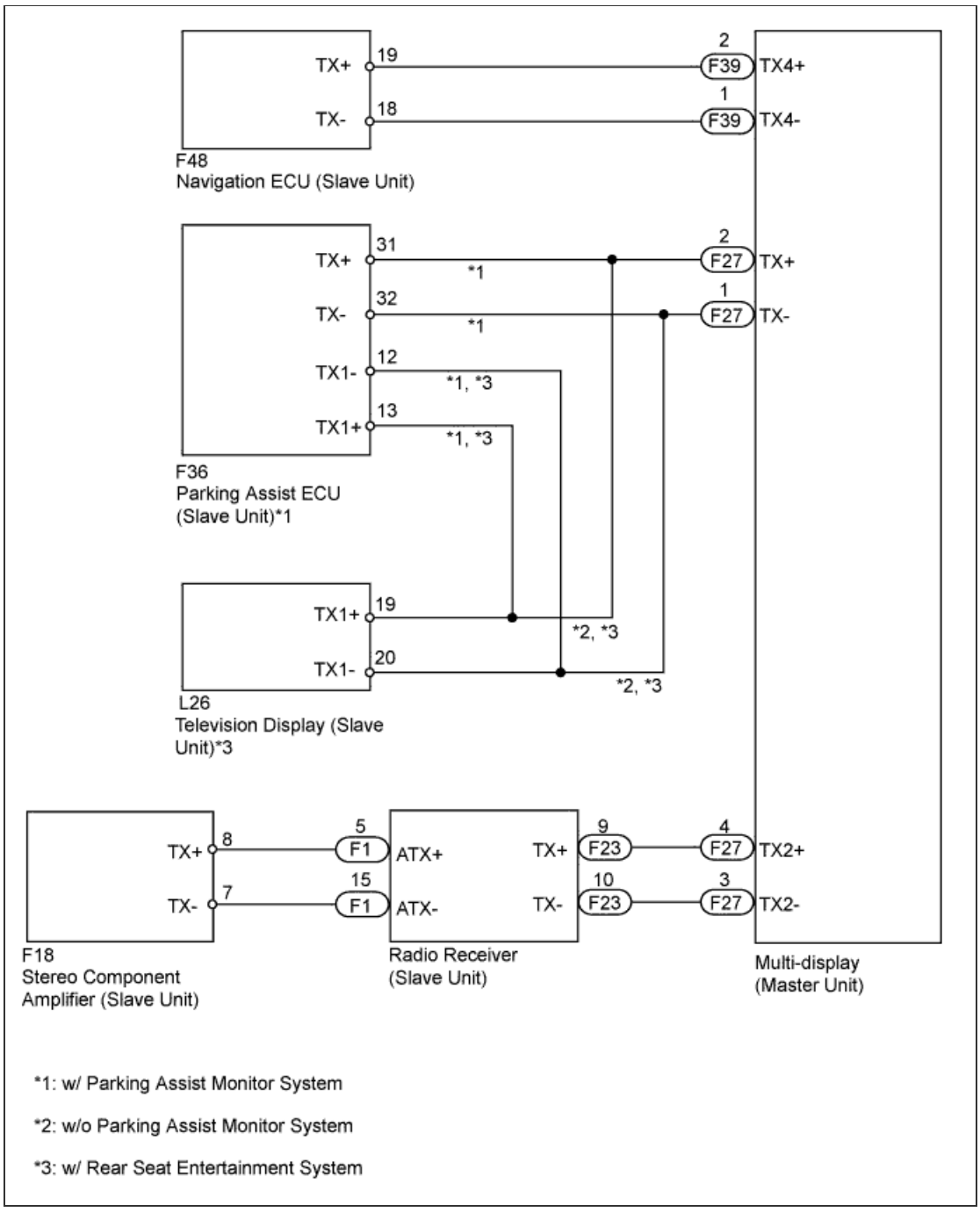
a. Replace the navigation ECU (Click here).

**NEXT**

**END**

**for Preparation** Click here

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.IDENTIFY COMPONENT SHOWN BY SUB-CODE

a. Enter the diagnostic mode.

b. Press the "LAN Mon" switch to change to "LAN Monitor" mode.

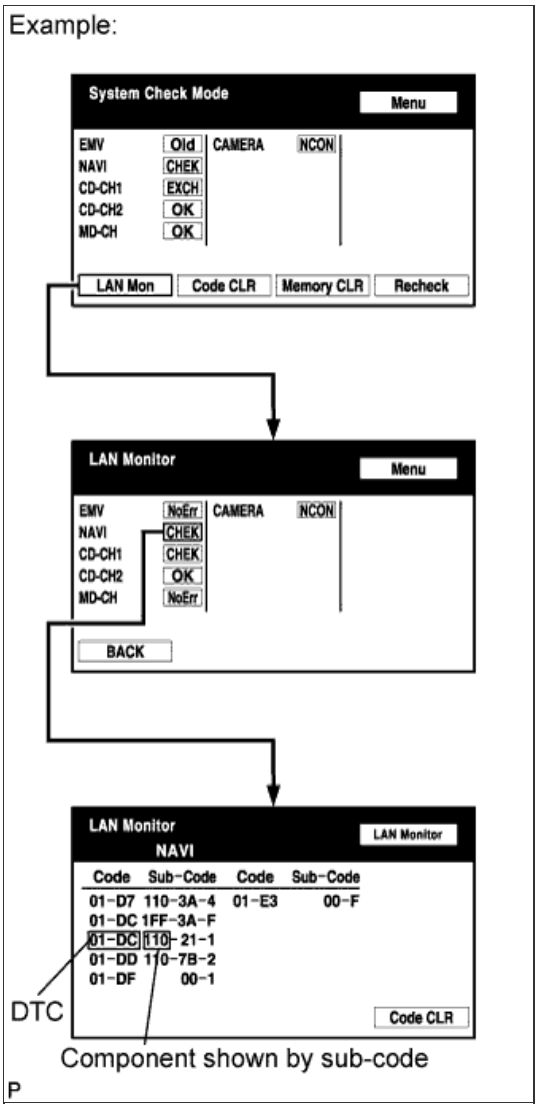
c. Identify the component shown by the sub-code.

**HINT:**

- **"110 (multi-display)" is the component shown by the sub-code**

in the example shown in the illustration.

- The sub-code will be indicated by its physical address.
- For the component list, refer to Diagnosis Display Detailed Description on System Description (Click here).




NEXT

## 2.CHECK POWER SOURCE CIRCUIT OF COMPONENT SHOWN BY SUB-CODE

a. Inspect the power source circuit of the component shown by the sub-code.
If the power source circuit is operating normally, proceed to the next step.

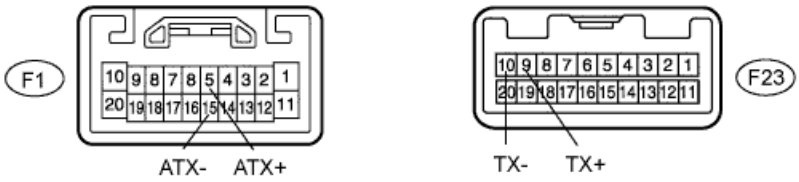
**Component Table**

| Component | Proceed to |
|---|---|
| Radio receiver (190) | Radio receiver power source circuit (Click here) |
| Stereo component amplifier (440) | Stereo component amplifier power source circuit (Click here) |
| Multi-display (110) | Multi-display power source circuit (Click here) |
| Navigation ECU (178) | Navigation ECU power source circuit (Click here) |
| Television display (1F6) | Television display power source circuit (Click here) |

NEXT

## 3.INSPECT RADIO RECEIVER ASSEMBLY

Component without harness connected:
(Radio Receiver)




a. Disconnect the F1 and F23 receiver connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-5 (ATX+) - F1-15 (ATX-) | Always | 60 to 80 Ω |
| F23-9 (TX+) - F23-10 (TX-) | Always | 60 to 80 Ω |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

## 4.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - COMPONENT SHOWN BY SUB-CODE)

**HINT:**

- **Start the check from the circuit that is near the component shown by the sub-code first.**
- **For details of the connectors, refer to Terminals of ECU (Click here).**

a. Referring to the AVC-LAN wiring diagram below, check the AVC-LAN circuit between the parking assist ECU and the component shown by the sub-code.

i. Disconnect all the connectors between the parking assist ECU and the component shown by sub-code.

ii. Check for an open or short in the AVC-LAN circuit between the parking assist ECU and the component shown by the sub-code.

**OK:**
**There is no open or short circuit.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.REPLACE COMPONENT SHOWN BY SUB-CODE

a. Replace the component shown by the sub-code with a normal one and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

NG → REPLACE PARKING ASSIST ECU (Click here)

OK

END

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK SOUND SETTING

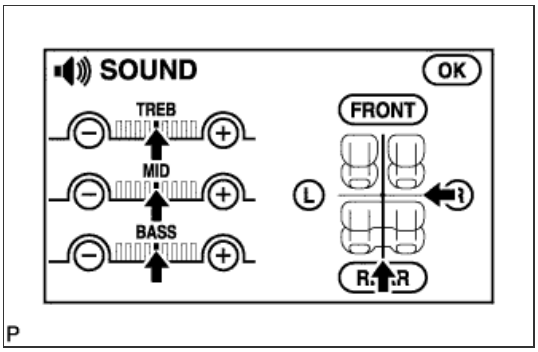
a. Enter the sound adjustment screen by pressing the "SOUND" switch on the AUDIO display.

b. Set volume, fader, and balance to the initial values and check that the sound is normal.

**OK:**
**Sound returns to normal.**

**HINT:**

Sound quality adjustment items vary depending on the type of the amplifier.



P

NG → GO TO "NAVIGATION VOICE SPEAKER CIRCUIT" ( Click here)

OK

END

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK DISPLAY SETTING

a. Check that the display is not in "Screen Off" mode.

**OK:**
**The display setting is not in "Screen Off" mode.**

NG → CHANGE SCREEN TO "SCREEN ON" MODE

OK ↓

### 2.CHECK IMAGE QUALITY SETTING

a. Check that the screen color quality can be set.

**OK:**
**Setting is possible.**

NG → Go to step 3

OK ↓

PRESS PANEL SWITCH "DISPLAY" AND SET SCREEN COLOR QUALITY TO NORMAL

### 3.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

**HINT:**

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may short circuit the screen.**
- **The appropriate cabin temperature is 20 to 30°C (68 to 86°F).**

**OK:**
**Condensation is not likely and temperature is not high or extremely low.**

NG → SET CABIN TO APPROPRIATE TEMPERATURE

OK ↓

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

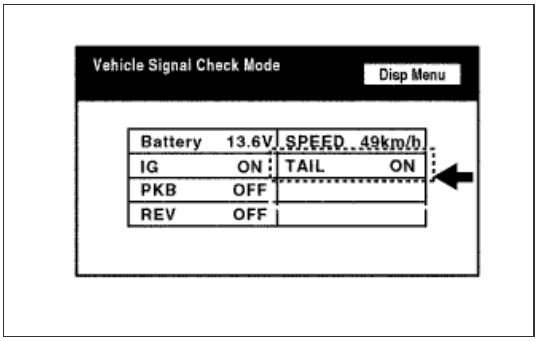
**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK VEHICLE SIGNAL (DISPLAY CHECK MODE)

a. Enter the "Display Check" mode and select "Vehicle Signal Check" ( Click here).

b. Check that the display changes between ON and OFF according to the light control switch operation.




**OK:**

| Light Control Switch | Display |
|---|---|
| TAIL or HEAD | ON |
| OFF | OFF |

**HINT:**

This display is updated once per second. As a result, it is normal for the display to lag behind the actual change in the switch.

NG → GO TO "ILLUMINATION CIRCUIT" (Click here)

OK → REPLACE MULTI-DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

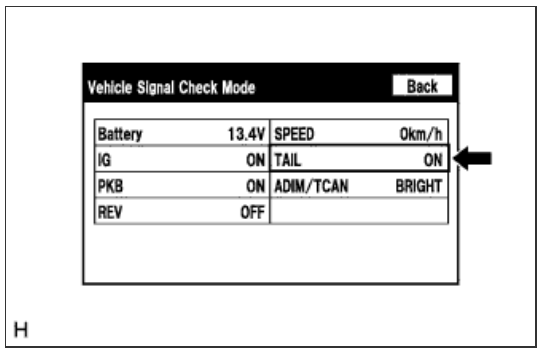
### 1.CHECK VEHICLE SIGNAL (OPERATION CHECK)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check (Click here).

b. Check that the display changes between ON and OFF according to the light control switch operation.

**OK:**

| Light Control Switch | Display |
|---|---|
| Tail or head | ON |
| Off | OFF |




**HINT:**

This display is updated once per second. As a result, it is normal for the display to lag behind the actual switch operation.

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

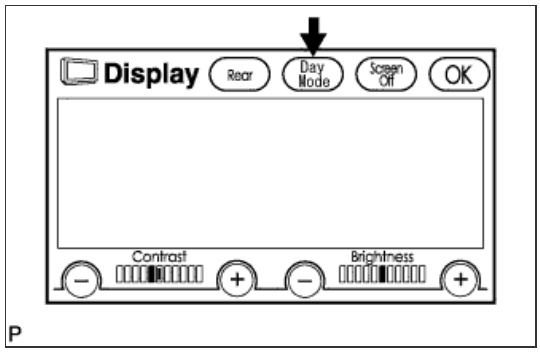
### 1.CHECK IMAGE QUALITY SETTING

a. Enter the display adjustment screen by pressing the "DISPLAY" switch.

b. Turn the light control switch to the TAIL position.

c. Check if "Day Mode" on the display is ON.

**OK:**
**"Day Mode" is ON.**




NG → Go to step 2

OK →

### TURN "DAY MODE" SETTING OFF

### 2.CHECK VEHICLE SIGNAL (DISPLAY CHECK MODE)

a. Enter the "Display Check" mode (Vehicle Signal Check) (Click here).

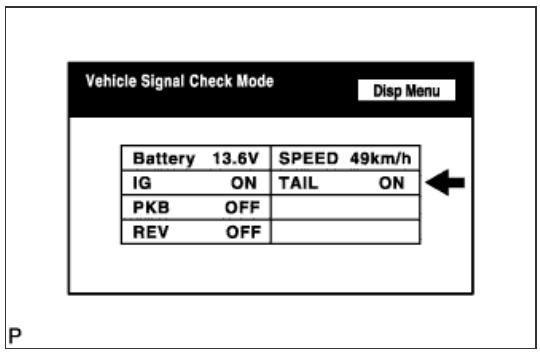
b. Check that the display changes between ON and OFF according to the light control switch operation.

**OK:**

| Light Control Switch | Display |
|---|---|
| TAIL or HEAD | ON |
| OFF | OFF |

**HINT:**

The display is updated once per second. It is normal for the display to lag behind the actual switch operation.




NG → PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK →

### REPLACE MULTI-DISPLAY (Click here)

**for Preparation** Click here

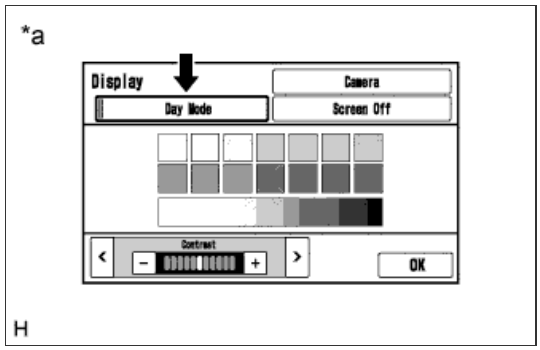
## INSPECTION PROCEDURE

### 1.CHECK IMAGE QUALITY SETTING

a. Display the "Display" screen.

b. Turn the light control switch to the tail or head position.

c. Check if "Day Mode" setting on the display adjustment screen is on.




**Text in Illustration**

| | |
|---|---|
| *a | Example |

**Result**

| Result | Proceed to |
|---|---|
| "Day Mode" setting is on | A |
| "Day Mode" setting is off | B |

B → Go to step 2

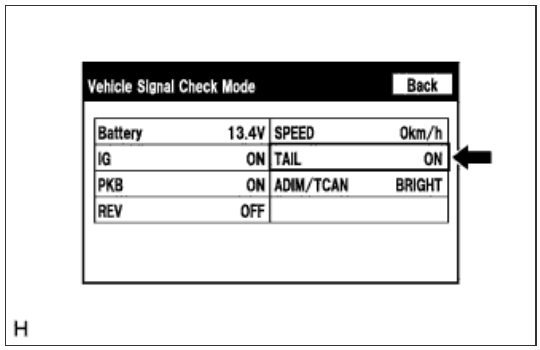
A

### TURN "Day Mode" SETTING OFF

### 2.CHECK VEHICLE SIGNAL (OPERATION CHECK)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check (Click here).

b. Check that the display changes between ON and OFF according to the light control switch operation.




**OK:**

| Light Control Switch | Display |
|---|---|
| Tail or head | ON |
| Off | OFF |

**HINT:**

The display is updated once per second. It is normal for the display to lag behind the actual switch operation.

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

### REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK PANEL SWITCH

a. Check for foreign matter around the switch that might prevent operation.

**OK:**
**No foreign matter is found.**

NG → REMOVE ANY FOREIGN MATTER

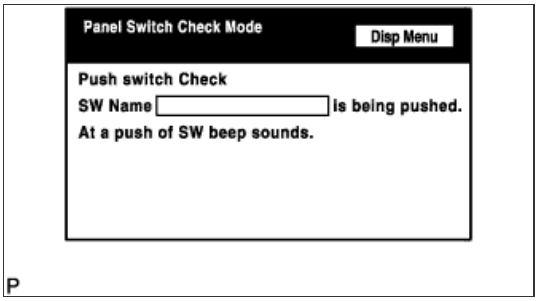
OK

### 2.CHECK PANEL SWITCH (DISPLAY CHECK MODE)

a. Enter the "Display Check" mode and select "Panel Switch Check" ( Click here).

b. Operate the abnormal switch and check if the switch name and status are correctly displayed.

**OK:**
**The switch name and status are correctly displayed as operated.**




NG → GO TO "STEERING PAD SWITCH CIRCUIT" (Click here)

OK

REPLACE MULTI-DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK PANEL SWITCH

a. Check for foreign matter around the switches that might prevent operation.

**OK:**
**No foreign matter is found.**

NG → REMOVE ANY FOREIGN MATTER FOUND

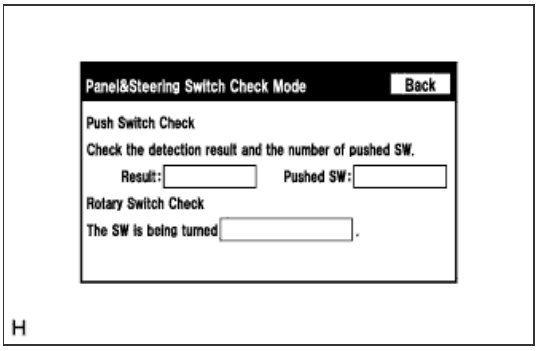
OK ↓

### 2.CHECK PANEL SWITCH (OPERATION CHECK)

a. Enter the "Panel & Steering Switch Check Mode" screen. Refer to Check Panel & Steering Switch in Operation Check (Click here).

b. Operate the abnormal switch and check if the switch name is correctly displayed.

**OK:**
**The switch status is correctly displayed as operated.**




NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK ↓

REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK TOUCH PANEL

a. Check for foreign matter on the display.

**OK:**
**The display is clean.**

NG → CLEAN DISPLAY AND RECHECK TOUCH PANEL

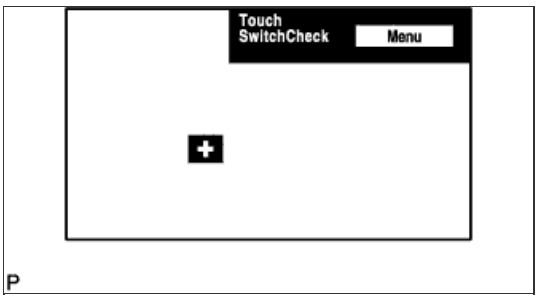
OK

### 2.CHECK TOUCH SWITCH (DISPLAY CHECK MODE)

a. Enter the "Display Check" mode and select "Touch Switch Check" ( Click here).

b. Touch the display in the area where the switch malfunction occurs.

**OK:**
**A "+" mark appears at the touched position.**




NG → REPLACE MULTI-DISPLAY (Click here)

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK MULTI-DISPLAY

a. Check if there is any foreign matter caught between the display and exterior frame of the multi-display.

**OK:**
**No foreign matter is caught between the display and exterior frame of the multi-display.**

**HINT:**

If there is foreign matter between the display and exterior frame of the multi-display, the touch panel will remain pressed, preventing touch switch operation.

NG → REMOVE FOREIGN MATTER

OK ↓

### 2.CHECK TOUCH PANEL

a. Check for foreign matter on the display.

**OK:**
**The display is clean.**

NG → CLEAN DISPLAY AND RECHECK TOUCH PANEL

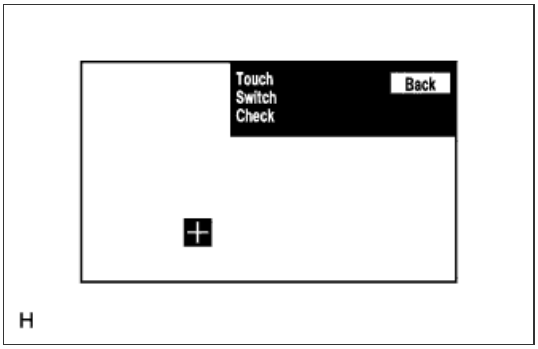
OK ↓

### 3.CHECK TOUCH SWITCH (OPERATION CHECK)

a. Enter the "Touch Switch Check" screen. Refer to Check Touch Switch in Operation Check (Click here).

b. Touch the display in the area where the switch malfunction occurs.

**OK:**
**A "+" mark appears at the touched position.**




NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK ↓

REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

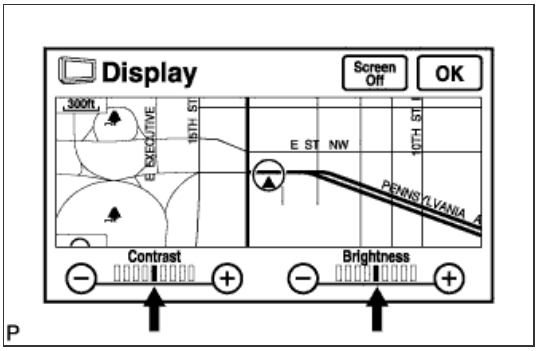
**for Preparation** Click here

## INSPECTION PROCEDURE

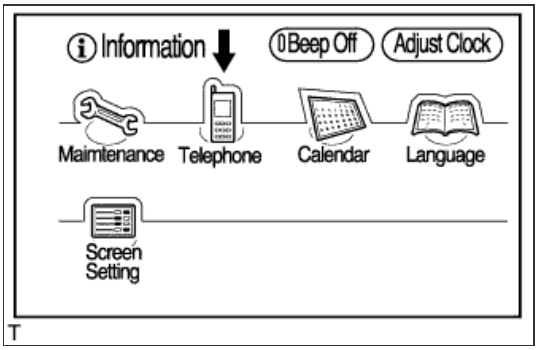
### 1.CHECK DISPLAY SETTING

a. Enter the display adjustment screen by pressing the "DISP" switch.

b. Reset the display settings (contrast, brightness) and check that the screen appears normal.

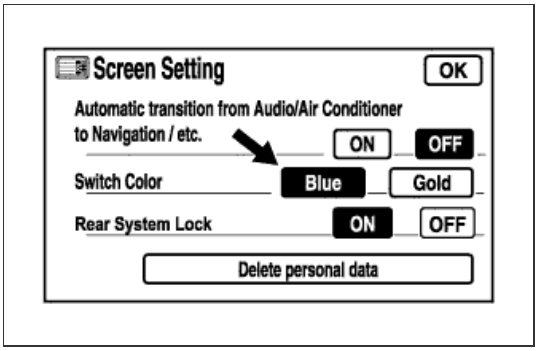



c. Press the "INFO" switch and then select "Screen Setting".




d. Set the "Switch Color" to "Blue" (initial setting) and check if the display returns to normal.

**OK:**
**Returns to normal.**




NG → Go to step 2

OK →

END

### 2.CHECK CABIN

a. Check that the cabin temperature is higher than -20°C (-4.0°F).

**OK:**
**Cabin temperature is higher than -20°C (-4.0°F).**

NG → HEAT CABIN AND RECHECK TEMPERATURE

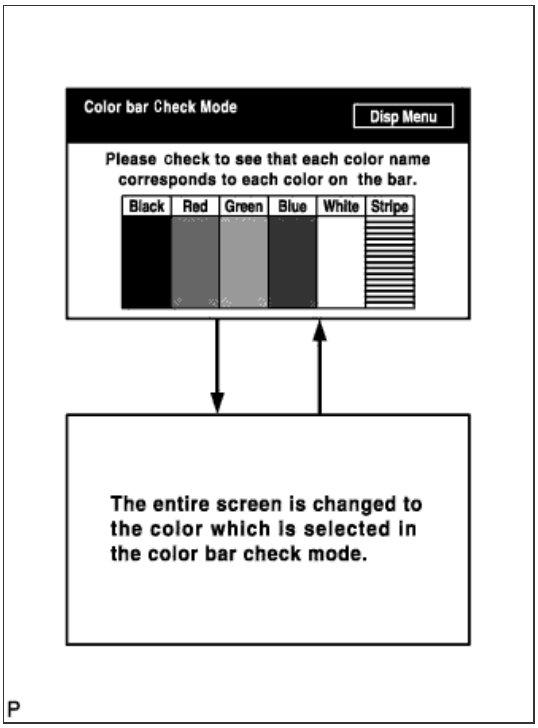
OK →

## 3.CHECK COLOR BAR (DISPLAY CHECK MODE)

a. Enter the "Display Check" mode and select "Color Bar Check" ( Click here).

b. Check that the color bars match the displayed names.

**OK:**
**Color bars match the displayed names.**




NG → REPLACE MULTI-DISPLAY (Click here)

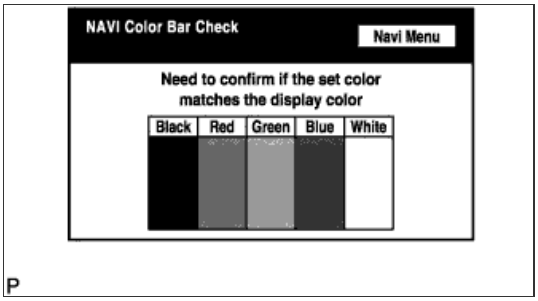
OK

## 4.CHECK NAVI COLOR BAR (NAVIGATION CHECK MODE)

a. Enter the "Navigation Check" mode and select "NAVI Color Bar Check" ( Click here).

b. Check that the color bars match the displayed names.

**OK:**
**Color bars match the displayed names.**




NG → REPLACE NAVIGATION ECU (Click here)

OK

REPLACE MULTI-DISPLAY (Click here)

**for Preparation** Click here

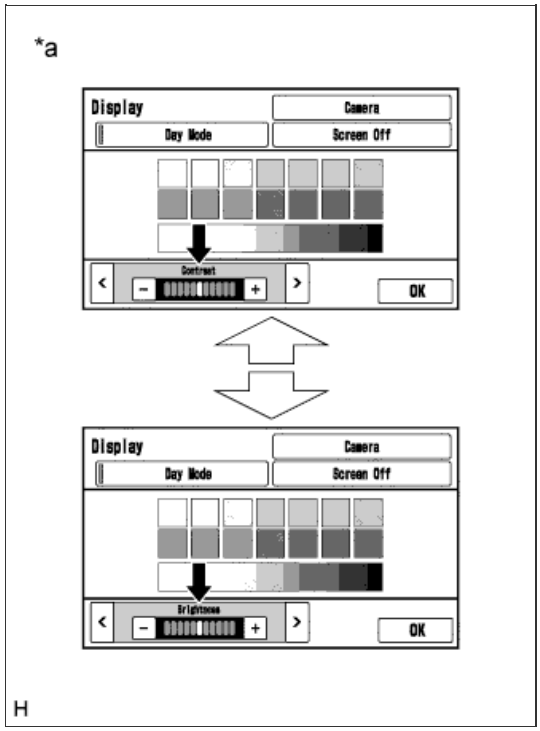
## INSPECTION PROCEDURE

### 1.CHECK DISPLAY SETTING

a. Display the "DISP" screen.

b. Reset display settings (contrast, brightness) and check that the screen appears normally.

**OK:**
**The display returns to normal.**




Text in Illustration

| | |
|---|---|
| *a | Example |

NG → Go to step 2

OK

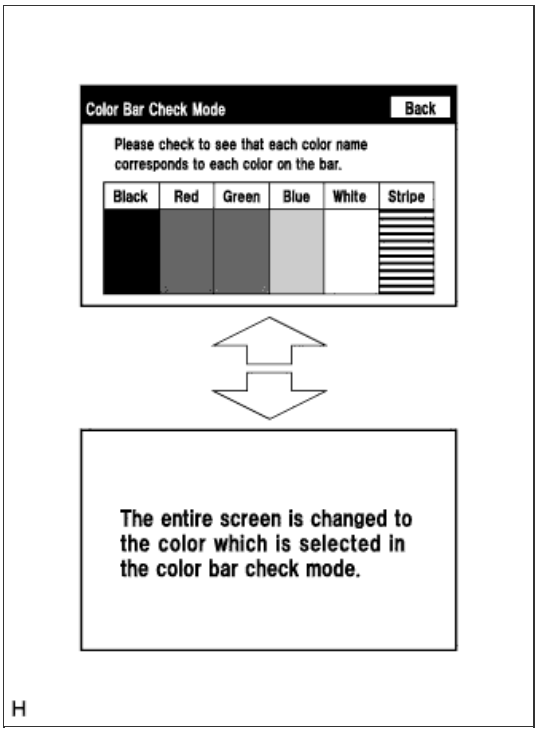
### END

### 2.CHECK COLOR BAR (OPERATION CHECK)

a. Enter the "Color Bar Check Mode" screen. Refer to Check Color Bar in Operation Check (Click here).

b. Check that the color bars match the displayed names.

**OK:**
**Color bars match the displayed names.**




NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

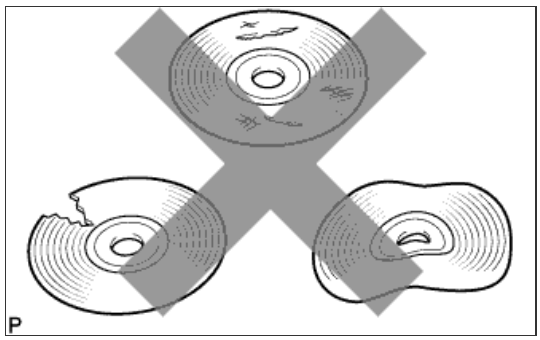
**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK MAP DISC

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on the map disc.**




NG → REPLACE MAP DISC

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK MULTI-DISPLAY

a. Turn the engine switch on (ACC).

b. Keep pressing the MAP eject switch for 5 seconds and check if the disc is ejected by forced ejection.

**OK:**
**The disc is ejected.**

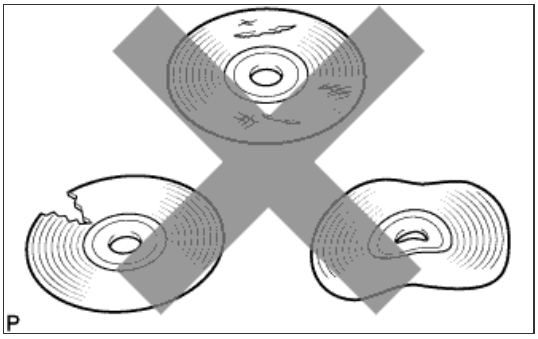
NG → GO TO "NAVIGATION ECU POWER SOURCE CIRCUIT" ( Click here)

OK

### 2.CHECK MAP DISC

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on the map disc.**




NG → REPLACE MAP DISC

OK

### END

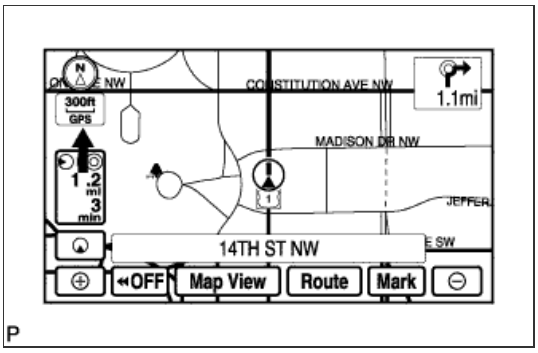
**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK GPS MARK

a. Check that the GPS mark is displayed.

**OK:**
**GPS mark is displayed.**




NG → GO TO "GPS MARK IS NOT DISPLAYED" IN PROBLEM SYMPTOMS TABLE (Click here)

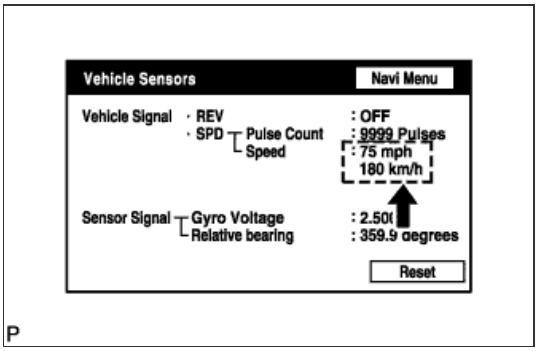
OK

### 2.CHECK VEHICLE SENSOR (NAVIGATION CHECK MODE)

a. Enter the "Navigation Check" mode and select "Vehicle Sensors" ( Click here).

b. While driving the vehicle, compare the "Speed" indicator to the reading on the speedometer. Check that these readings are almost equal.

**OK:**
**The readings are almost equal.**




NG → GO TO "VEHICLE SPEED SIGNAL CIRCUIT" (Click here)

OK

### 3.CHECK VEHICLE SENSOR (NAVIGATION CHECK MODE)

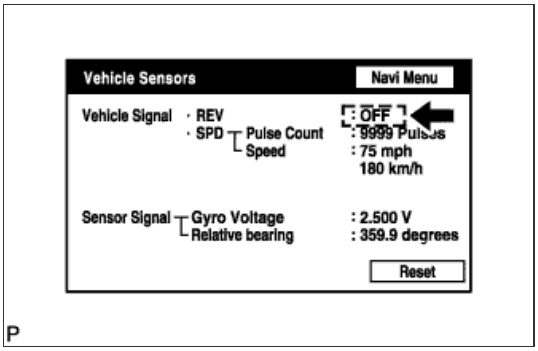
a. Check that the display changes between ON and OFF according to the shift lever operation (P and R).

**OK:**

| Shift Lever Position | Display |
|---|---|
| P | OFF |
| R | ON |

**HINT:**

The display is updated once per second. It is normal for the display to lag behind the actual switch operation.



NG → GO TO "REVERSE SIGNAL CIRCUIT" (Click here)

OK

END

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.CHECK CONDITION**

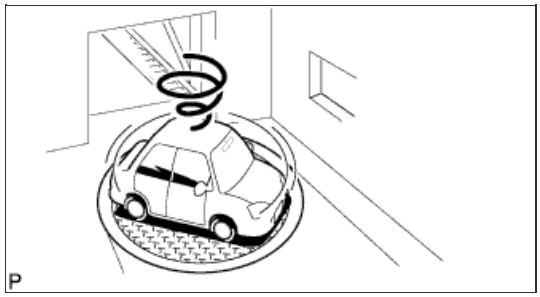
a. Check with the customer if the vehicle has been turned by a turntable at parking.

**OK:**

**Vehicle has not been turned by turntable.**

**HINT:**

If the engine switch is turned on (ACC) or on (IG) while the vehicle is being turned by a turntable, the system may store the angular velocity at this time. For this reason, the vehicle position cursor may deviate.




NG → TURN ENGINE SWITCH ON (IG) WHEN VEHICLE IS COMPLETELY STOPPED

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.CHECK CONDITION**

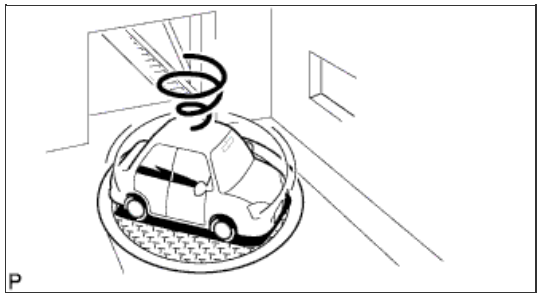
a. Check with the customer if the vehicle has been turned by a turntable.

**OK:**

**Vehicle has not been turned by a turntable.**

**HINT:**

If the vehicle is turned on a turntable with the engine switch on (IG), the system may store the angular velocity. As a result, the vehicle position cursor may deviate. In this case, the vehicle position cursor will return to normal by turning the engine switch off and back to on (IG) again with the vehicle completely stopped.




NG → TURN ENGINE SWITCH ON (IG) WHEN VEHICLE IS COMPLETELY STOPPED

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

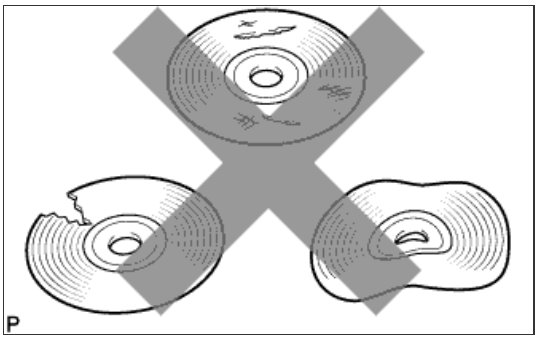
**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK MAP DISC

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on map disc.**




NG → REPLACE MAP DISC

OK

### 2.CHECK MAP DISPLAY

a. Check if a touch scroll can be performed on the map display.

**OK:**
**Touch scroll can be performed.**

NG → REPLACE MULTI-DISPLAY (Click here)

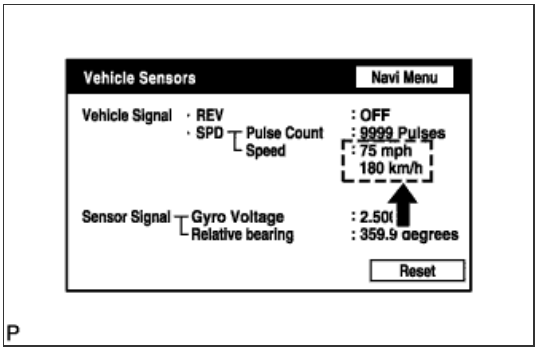
OK

### 3.CHECK VEHICLE SENSOR (NAVIGATION CHECK MODE)

a. Enter the "Navigation Check" mode and select "Vehicle Sensors" ( Click here).

b. While driving the vehicle, compare the "Speed" indicator to the reading on the speedometer. Check if these readings are almost equal.

**OK:**
**The readings are almost equal.**




NG → GO TO "VEHICLE SPEED SIGNAL CIRCUIT" (Click here)

OK

END

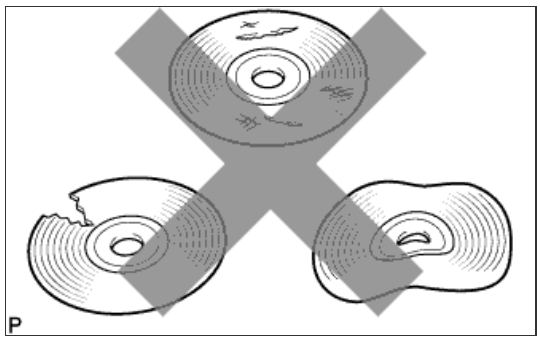
**for Preparation** Click here

## INSPECTION PROCEDURE

**1.CHECK MAP DISC**

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on the map disc.**




NG → REPLACE MAP DISC

OK

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)**

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CABIN

a. Check the cabin for any object that might interrupt radio reception on the instrument panel. If such an object exists, remove it and check if the GPS mark reappears.

**HINT:**

The GPS uses extremely weak radio waves originating from satellites. If the signal is interrupted by obstructions or other radio waves, the GPS may not be able to properly receive the signal.

**OK:**
**Mark appears.**

NG → Go to step 2

OK

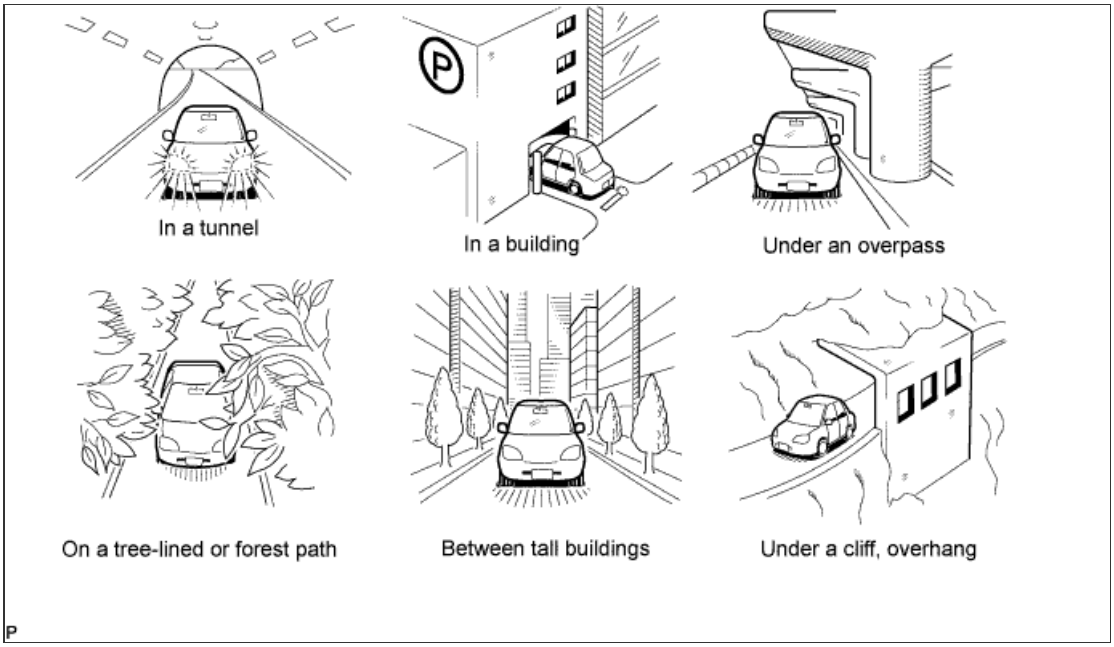
### NORMAL OPERATION

### 2.CHECK SURROUNDINGS

a. Check if the vehicle is in a location where GPS signal reception is poor. If the vehicle is in such a place, relocate the vehicle and check if the GPS mark reappears.

**HINT:**

The GPS uses 24 satellites in 6 orbits. At any point in time, 4 satellites should be able to pinpoint the vehicle. However, GPS signals may not reach the vehicle due to influence from the surroundings, vehicle direction, and time. For examples, see illustration below.




**OK:**
**GPS mark is displayed.**

NG → Go to step 3

OK

SYSTEM RETURN TO NORMAL

## 3.CHECK GPS INFORMATION (NAVIGATION CHECK MODE)

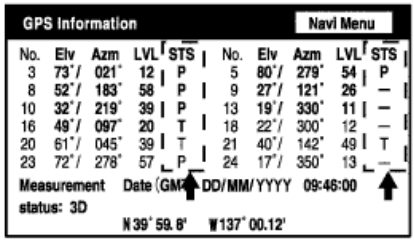
a. Enter the "Navigation Check" mode and select "GPS Information" ( Click here).

b. Check how many of the following codes appear in the "STS" column.

**for DENSO Made:**
**T, P**

**for AISIN AW Made:**
**08H, 04H**

**OK:**
**At least 3 codes appear.**




NG → REPLACE NAVIGATION ANTENNA (Click here)

OK

REPLACE NAVIGATION ECU (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CABIN

a. Check the cabin for any object that might interrupt radio reception on the instrument panel. If such an object exists, remove it and check if the GPS mark reappears.

**HINT:**

The GPS uses extremely weak radio waves originating from satellites. If the signal is interrupted by obstructions or other radio waves, the GPS may not be able to properly receive the signal.

**OK:**
**The GPS mark appears.**

**NG** → Go to step 2

**OK**

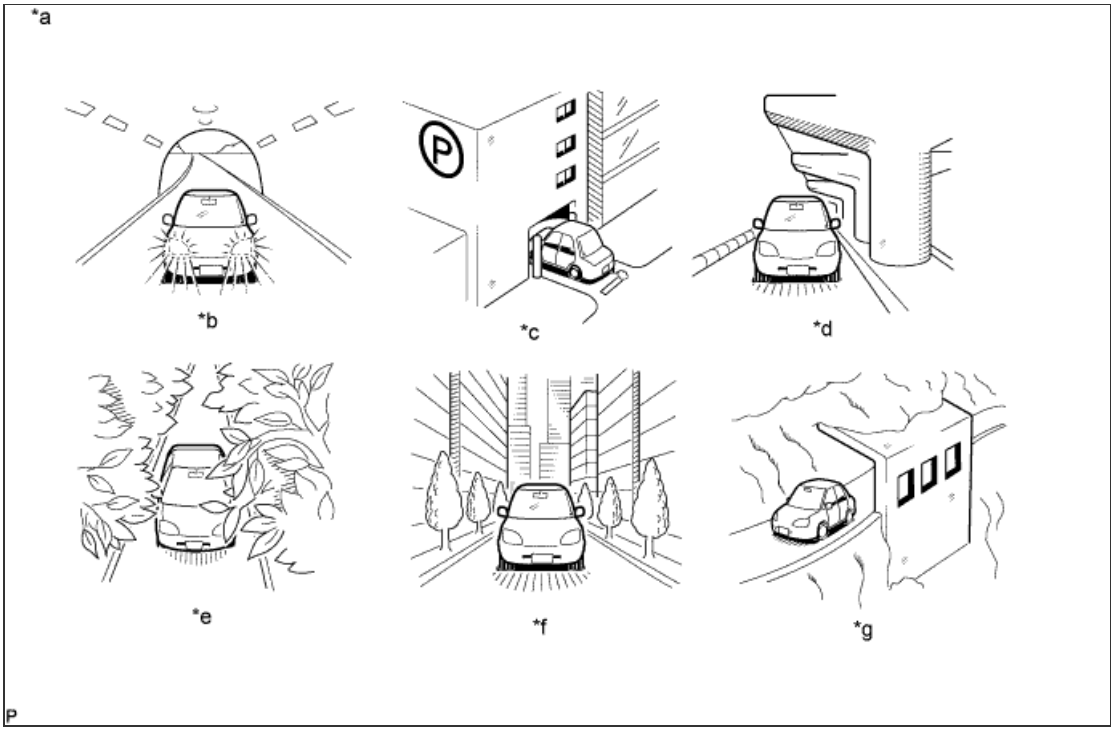
### NORMAL OPERATION

### 2.CHECK SURROUNDINGS

a. Check if the vehicle is in a location where GPS signal reception is poor. If the vehicle is in such a place, relocate the vehicle and check if the GPS mark reappears.

**HINT:**

The GPS uses 24 satellites in 6 orbits. At any point in time, 4 satellites should be able to pinpoint your vehicle. However, GPS signals may not reach the vehicle due to influence from the surroundings, vehicle direction and time. For examples, see the following illustration.




**Text in Illustration**

| | | | |
|---|---|---|---|
| *a | Example | *b | In a tunnel |
| *c | In a building | *d | Under an overpass |
| *e | On a forest or tree-lined path | *f | Between tall buildings |

| | | | |
|---|---|---|---|
| *g | Under a cliff or overhang | - | - |

**OK:**
**The GPS mark is displayed.**

NG → Go to step 3

OK

SYSTEM RETURNS TO NORMAL

3.CHECK GPS INFORMATION (OPERATION CHECK)

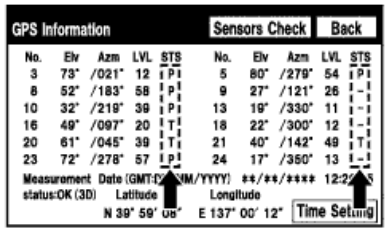
a. Enter the "GPS Information" screen. Refer to Check GPS & Vehicle Sensors in Operation Check (Click here).

b. Check how many of the following codes appear in the "STS" column.

**HINT:**

T, U or P appears.

**OK:**
**At least 3 codes appear.**



H

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

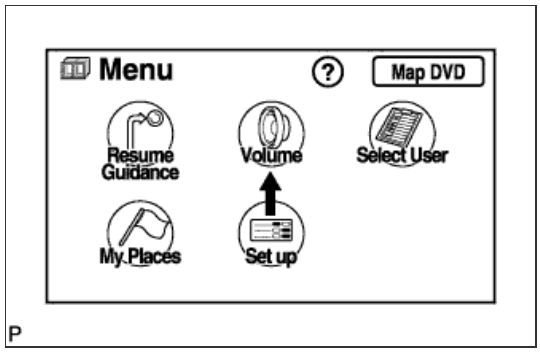
**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK NAVIGATION SYSTEM SETTING

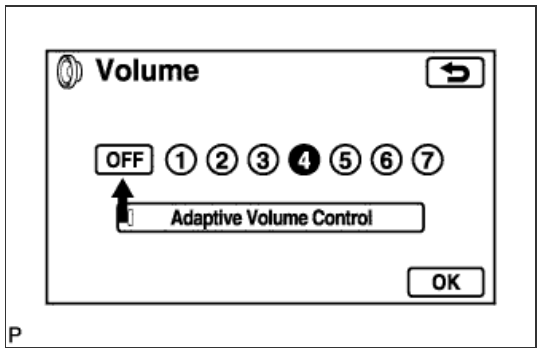
a. Enter the "Menu" screen by pressing the "MENU" switch.

b. Select "Volume".




c. Check that "OFF" is not selected.

**OK:**
**OFF is not selected.**



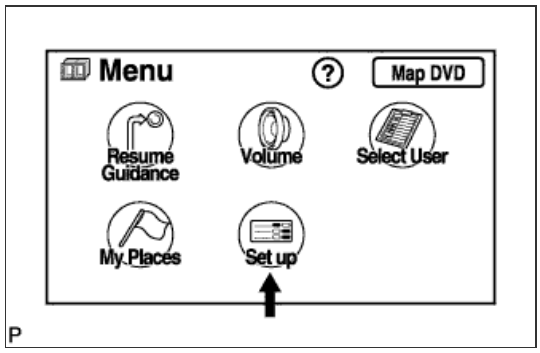

NG → TURN VOICE GUIDANCE VOLUME UP TO 4 USING VOICE ADJUSTMENT SWITCHES

OK

### 2.CHECK NAVIGATION SETTING

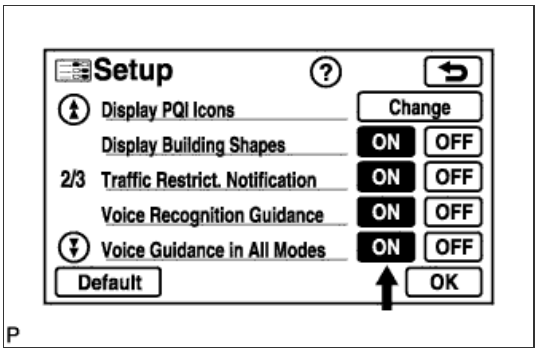
a. Enter the "Menu" screen by pressing the "MENU" switch.

b. Select "Setup".




c. Check that "Voice Guidance in All Modes" is not OFF.

**OK:**
**"Voice Guidance in All Modes" is not OFF.**



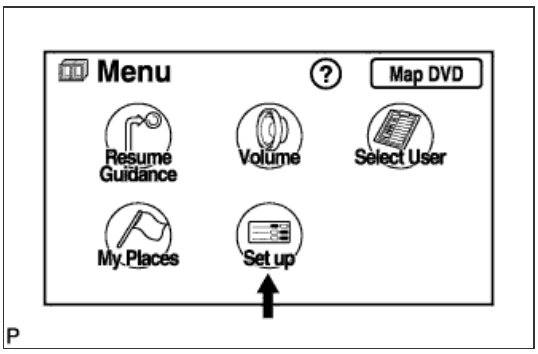

NG → TURN VOICE GUIDANCE IN ALL MODES "ON"

OK

## 3.CHECK NAVIGATION SETTING

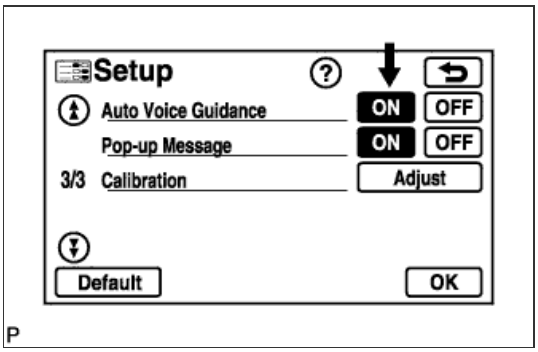
a. Enter the "Menu" screen by pressing the "MENU" switch.

b. Select "Setup".




c. Check that "Auto Voice Guidance" is not OFF.

**OK:**
**"Auto Voice Guidance" is not OFF.**




NG → TURN AUTO VOICE GUIDANCE "ON"

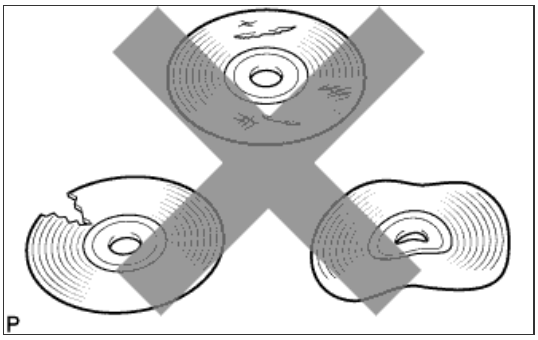
OK

[Go to step 5]

## 4.CHECK MAP DISC

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on map disc.**




NG → REPLACE MAP DISC

OK

5.CHECK RADIO RECEIVER ASSEMBLY

a. Check that audio can be heard from the speakers.

**OK:**
**Audio can be heard.**

NG → GO TO AUDIO AND VISUAL SYSTEM (Click here)

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK NAVIGATION SETTING

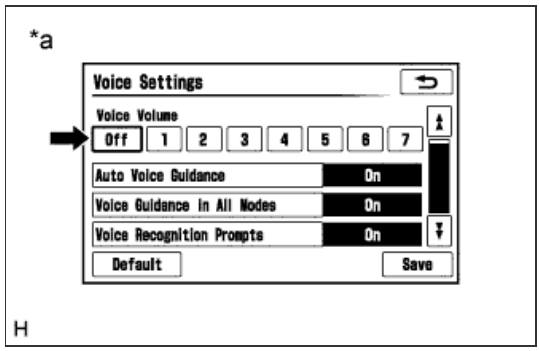
a. Display the "Voice Settings" screen.

b. Check that "Off" is not selected.

**OK:**
**"Off" is not selected.**

Text in Illustration

| | |
|---|---|
| *a | Example |




NG → SELECT VOICE VOLUME SETTING OTHER THAN "Off"

OK

### 2.CHECK NAVIGATION SETTING

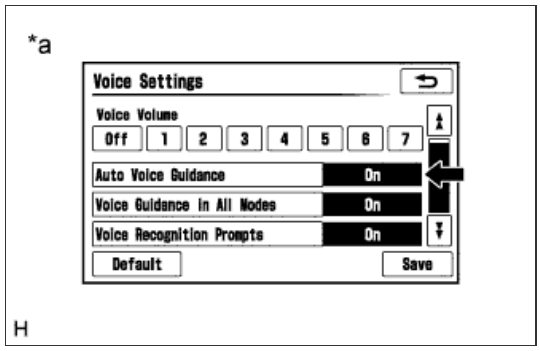
a. Display the "Voice Settings" screen.

b. Check that "Auto Voice Guidance" is not "Off".

**OK:**
**"Auto Voice Guidance" is not "Off".**

Text in Illustration

| | |
|---|---|
| *a | Example |




NG → TURN AUTO VOICE GUIDANCE "On"

OK

### 3.CHECK NAVIGATION SETTING

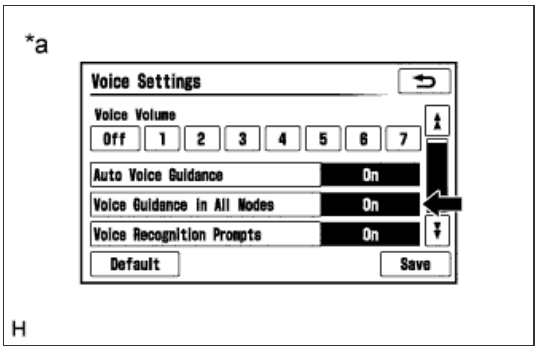
a. Display the "Voice Settings" screen.

b. Check that "Voice Guidance in All Modes" is not "Off".

**OK:**
**"Voice Guidance in All Modes" is not "Off".**

Text in Illustration

| | |
|---|---|
| *a | Example |




NG → TURN VOICE GUIDANCE IN ALL MODES "On"

OK

4.CHECK AUDIO FUNCTION

a. Check that sound can be heard from a front speaker.

**OK:**
**Sound can be heard.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

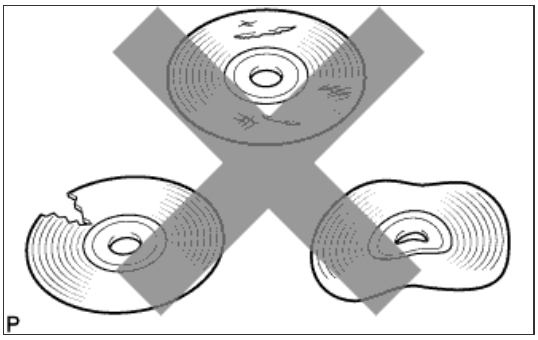
**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK MAP DISC

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on map disc.**




NG → REPLACE MAP DISC

OK

### 2.CHECK NAVIGATION DISPLAY

a. Check that displays other than the navigation display are complete.

**OK:**
**No other incomplete displays are found.**

NG → REPLACE NAVIGATION ECU (Click here)

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

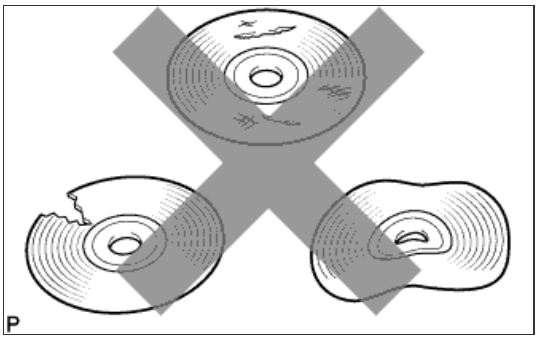
**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK MAP DISC

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on map disc.**




NG → REPLACE MAP DISC

OK

### 2.SET DESTINATION

a. Set another destination and check if the system can calculate the route correctly.

**OK:**
**Route can be correctly calculated.**

NG → REPLACE NAVIGATION ECU (Click here)

OK

### END

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CONFIRM SYMPTOMS

a. Confirm the information about the situation when the route calculation did not complete.

**Result**

| Result | Proceed to |
|---|---|
| Route cannot be calculated for any destination. | A |
| A road in the route is closed or has not been officially opened yet. | B |
| A ferry crossing is included in the route. | B |
| The destination is too close. | B |
| The route cannot be calculated only when driving on a bumpy road. | B |

**HINT:**

A route cannot be calculated if the route is unavailable, a ferry crossing is included in the route, the destination is too close or when driving on bumpy roads.

B → NORMAL OPERATION

A

### 2.REPLACE HARD DISC

a. Replace the hard disc (Click here).

b. Set another destination and check if the system can calculate the route correctly.

**OK:**
**Route can be correctly calculated.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

END

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK MAP DISC

a. Check for dirt on the map disc surface.

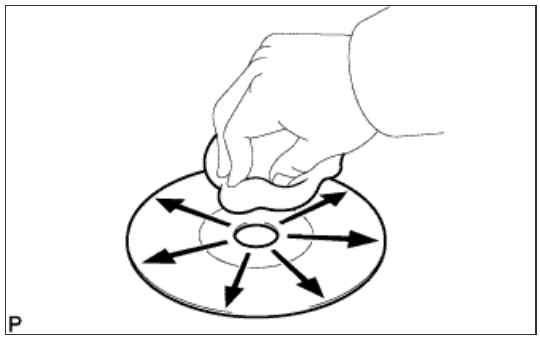
**OK:**
**No dirt is on the map disc surface.**

**HINT:**

If the disc is dirty, clean the disc by wiping the disc surface radially with a soft cloth.

**NOTICE:**

Do not use a conventional record cleaner or antistatic preservative.



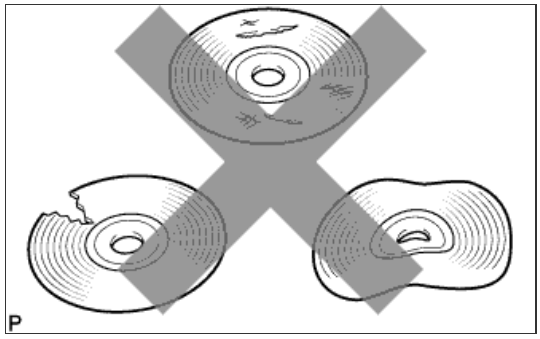

NG → CLEAN MAP DISC

OK

### 2.CHECK MAP DISC

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks appear on the map disc.**




NG → REPLACE MAP DISC

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CONDITION

a. Check if the voice recognition level of the system is low by using only one particular voice.

**OK:**
**Voice recognition level of the system is low with any voice.**

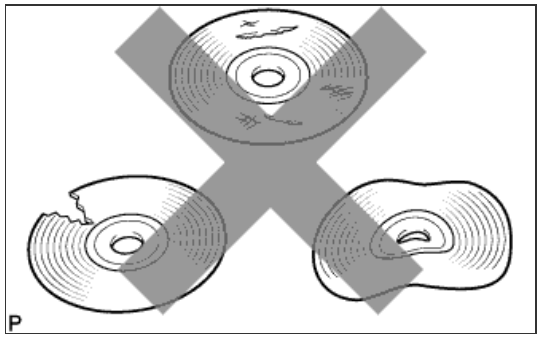
NG → VOICE RECOGNITION LEVEL OF THE SYSTEM VARIES DEPENDING ON VOICE AND PRONUNCIATION. THIS IS NOT A MALFUNCTION.

OK

### 2.CHECK MAP DISC

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on map disc.**




NG → REPLACE MAP DISC

OK

### 3.CHECK MAP DISC

a. Check for dirt on the map disc surface.

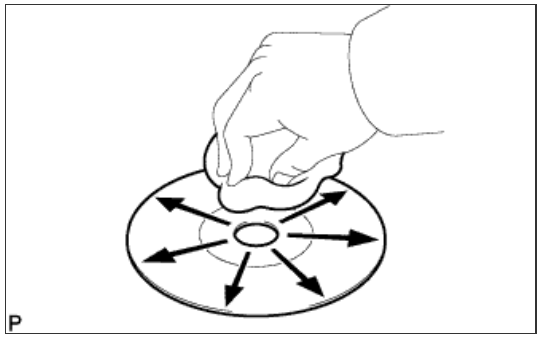
**OK:**
**No dirt is on map disc surface.**

**HINT:**

If the disc is dirty, clean the disc by wiping the disc surface radially with a soft cloth.

**NOTICE:**

Do not use a conventional record cleaner or antistatic preservative.




NG → CLEAN MAP DISC

OK

### 4.CHECK MICROPHONE (NAVIGATION CHECK MODE)

a. Enter the "Mic & Voice Recognition Check" mode ( Click here).

b. When a voice is input into the microphone, check that the microphone input level meter changes according to the input voice.

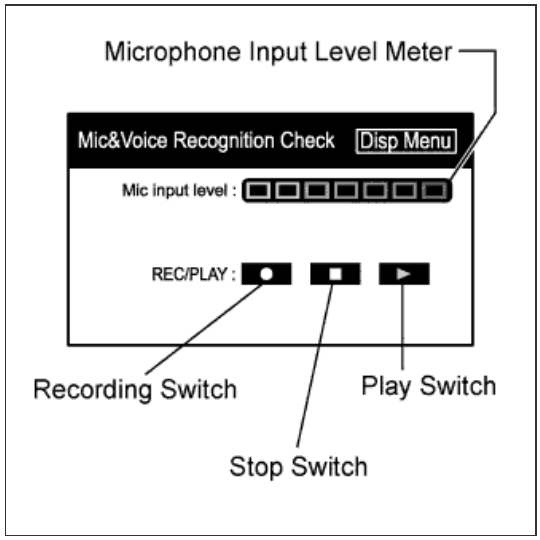
c. Push the recording switch and perform voice recording.

**HINT:**

The recording limit is 5 seconds.

d. Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.

**OK:**
**All check results are normal.**




NG → REPLACE NAVIGATION ECU (Click here)

OK → END

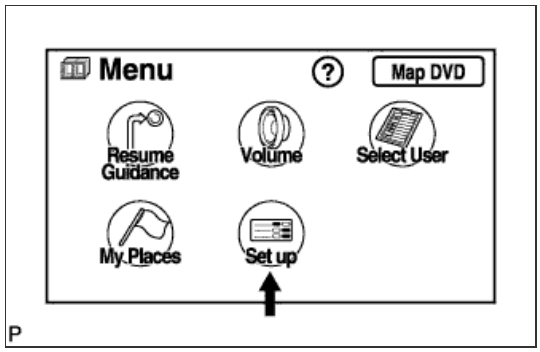
**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK NAVIGATION SETTINGS

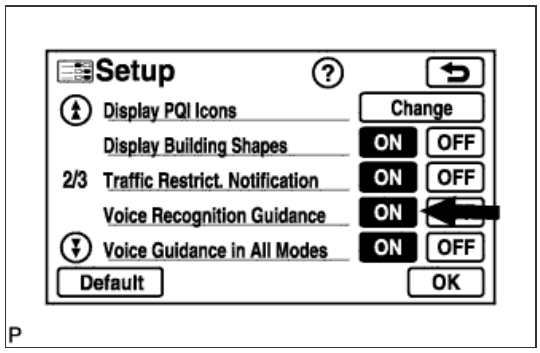
a. Enter the "Menu" screen by pressing the "MENU" switch.

b. Select "Set up".




c. Check that "Voice Recognition Guidance" is not OFF.

**OK:**
**Voice Recognition Guidance is not OFF.**



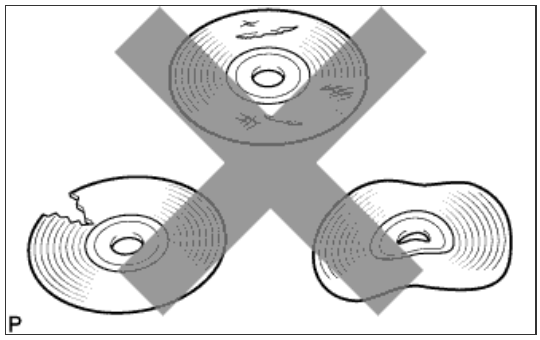

NG → TURN VOICE RECOGNITION GUIDANCE "ON"

OK

### 2.CHECK MAP DISC

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on map disc.**




NG → REPLACE MAP DISC

OK

### 3.CHECK MAP DISC

a. Check for dirt on the map disc surface.

a. Check for dirt on the map disc surface.

**OK:**

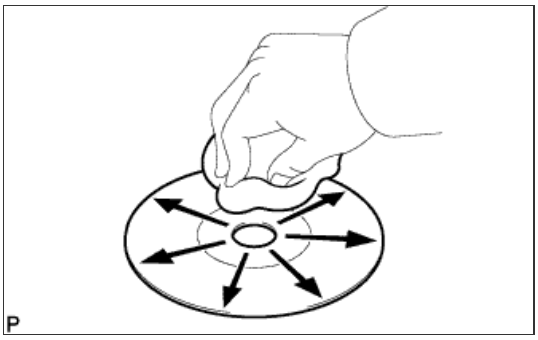
**No dirt is on the map disc surface.**

**HINT:**

If the disc is dirty, clean the disc by wiping the disc surface radially with a soft cloth.

**NOTICE:**

Do not use a conventional record cleaner or antistatic preservative.




NG → CLEAN MAP DISC

OK

**4.CHECK MICROPHONE (NAVIGATION CHECK MODE)**

a. Enter the "Mic & Voice Recognition Check" mode ( Click here).

b. When a voice is input into the microphone, check that the microphone input level meter changes according to the input voice.

c. Push the recording switch and perform voice recording.

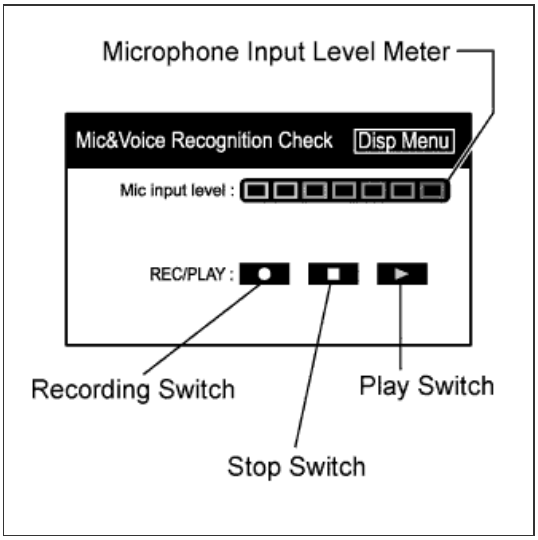
**HINT:**

The recording limit is 5 seconds.

d. Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.

**OK:**

**All check results are normal.**




NG → GO TO "MICROPHONE CIRCUIT BETWEEN OVERHEAD J/B AND MULTI-DISPLAY" (Click here)

OK

END

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CONDITION

a. Check if the system voice recognition level is low when recognizing a particular voice.

**Result**

| Result | Proceed to |
|---|---|
| System voice recognition level is low with any voice. | A |
| System voice recognition level is low only for a particular voice. | B |

**HINT:**

System voice recognition level varies depending on voice and pronunciation. This is not a malfunction.

B → END

A

### 2.CHECK MICROPHONE AND VOICE RECOGNITION (OPERATION CHECK)

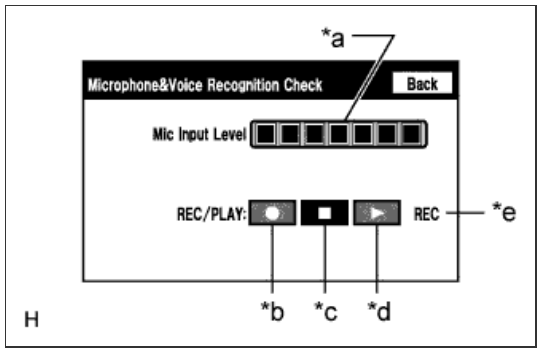
a. Enter the "Microphone & Voice Recognition Check" screen. Refer to Check Mic & Voice Recognition in Operation Check (Click here).

b. When voice is input into the microphone, check that the microphone input level meter changes according to the input voice.

c. Select the recording switch and perform voice recording.

**HINT:**

- **Select the recording switch with the blower motor of the air conditioning system stopped. If an outlet of the air conditioning system is facing the microphone, noise may be recorded.**
- **Voice can be recorded up to 5 seconds.**




d. Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.

**OK:**
**All check results are normal.**

**Text in Illustration**

| | |
|---|---|
| *a | Microphone Input Level Meter |
| *b | Recording Switch |
| *c | Stop Switch |
| *d | Play Switch |
| *e | Recording Indicator |

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

### 3.REPLACE HARD DISC

a. Replace the hard disc (Click here).

b. Check that voice recognition is normal.

**OK:**

**Voice can be recognized normally.**

**NG** → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

**OK**

END (HARD DISC IS DEFECTIVE)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CURRENT CONDITION

a. Check for "Bluetooth" capable cellular phones and vehicles in the area.

**Result**

| Conditions | Proceed to |
|---|---|
| Another "Bluetooth" compatible cellular phone is present | A |
| Another "Bluetooth" compatible vehicle is present | B |
| None of the above | C |

B → Go to step 3

C → Go to step 4

A

### 2.CHECK USING ANOTHER CELLULAR PHONE

a. Check if the system functions using another "Bluetooth" compatible cellular phone.

**HINT:**

- **Confirm that either the same or a different version of another "Bluetooth" compatible cellular phone complies with the system.**
- **Depending on the version, some "Bluetooth" compatible cellular phones cannot be used.**

**OK:**
**System functions.**

NG → REPLACE MULTI-DISPLAY (Click here)

OK

### USE "BLUETOOTH" COMPATIBLE CELLULAR PHONE (DEPENDING ON THE VERSION)

### 3.CHECK USING ANOTHER "BLUETOOTH" CAPABLE VEHICLE

a. Register the cellular phone with another vehicle and check if the system functions normally.

**HINT:**

Depending on the version, some "Bluetooth" compatible cellular phones cannot be used.

**OK:**
**System functions.**

NG → USE "BLUETOOTH" COMPATIBLE CELLULAR PHONE

OK

### REPLACE MULTI-DISPLAY (Click here)

### 4.CHECK CELLULAR PHONE

a. Check if the cellular phone is "Bluetooth" compatible.

**HINT:**

Some versions of "Bluetooth" compatible cellular phones may not function.

**OK:**

**The phone is "Bluetooth" compatible.**

NG → USE "BLUETOOTH" COMPATIBLE CELLULAR PHONE

OK ↓

5.CHECK CELLULAR PHONE

a. Check if a call can be made from the cellular phone.

**HINT:**

When the battery is low, registration or directory transfer cannot be done.

**OK:**

**A call can be made from the cellular phone.**

NG → REPLACE CELLULAR PHONE

OK ↓

REPLACE MULTI-DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK OPERATION

a. Place the cellular phone close to the multi-media module receiver assembly.

b. Check if the cellular phone can be registered.

**OK:**
**The cellular phone can be registered.**

**NG** → Go to step 2

**OK** ↓

### NORMAL OPERATION

### 2.CHECK CURRENT CONDITIONS

a. Proceed to the next step according to the table below.

**Result**

| Result | Proceed to |
|---|---|
| Another "Bluetooth" compatible cellular phone is available. | A |
| Another "Bluetooth" compatible vehicle is available. | B |
| None of the above | C |

**B** → Go to step 4

**C** → Go to step 5

**A** ↓

### 3.CHECK USING ANOTHER CELLULAR PHONE

a. Check if the system functions using another "Bluetooth" compatible cellular phone.

**HINT:**

- **Confirm that either the same or a different version of another "Bluetooth" compatible cellular phone complies with the system.**
- **Depending on the version, some "Bluetooth" compatible cellular phones cannot be used.**

**OK:**
**The system functions.**

**NG** → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

**OK** ↓

### USE A "Bluetooth" COMPATIBLE CELLULAR PHONE

### 4.CHECK USING ANOTHER "Bluetooth" COMPATIBLE VEHICLE

a. Register the cellular phone with another vehicle and check if the system functions normally.

**HINT:**

Depending on the version, some "Bluetooth" compatible cellular phones cannot be used.

**OK:**
**The system functions.**

NG → REPLACE CELLULAR PHONE

OK ↓

REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

5.CHECK CELLULAR PHONE

a. Check if the cellular phone is "Bluetooth" compatible.

**HINT:**

Some versions of "Bluetooth" compatible cellular phones may not function.

**OK:**
**The phone is "Bluetooth" compatible.**

NG → USE A "Bluetooth" COMPATIBLE CELLULAR PHONE

OK ↓

6.CHECK CELLULAR PHONE

a. Check if a call can be made from the cellular phone.

**HINT:**

When the battery is low, registration or directory transfer cannot be done.

**OK:**
**A call can be made from the cellular phone.**

NG → REPLACE CELLULAR PHONE

OK ↓

REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK "BLUETOOTH" SETTING

a. Check if the "Bluetooth" settings are correct.

**OK:**
**"Bluetooth" settings are correct.**

NG → SET SETTINGS CORRECTLY

OK

### 2.CHECK CELLULAR PHONE

a. Check if the cellular phone is "Bluetooth" compatible.

**HINT:**

Some versions of "Bluetooth" compatible cellular phones may not function.

**OK:**
**Phone is "Bluetooth" compatible.**

NG → END (ONLY A "BLUETOOTH" COMPATIBLE CELLULAR PHONE CAN BE USED)

OK

### 3.CHECK SETTING

a. Check if the cellular phone functions.

**HINT:**

The cellular phone is unable to call under any of the following conditions.

- **The cellular phone is locked.**
- **The directory is being transferred.**
- **The line is crossed.**
- **Transmission is regulated.**
- **The power is OFF.**
- **The cellular phone is not connected to "Bluetooth" ("Bluetooth" mark is displayed while connected).**

**OK:**
**Above conditions do not exist.**

NG → SET CORRECTLY

OK

### 4.CHECK CELLULAR PHONE

a. Check if the cellular phone can make calls.

**HINT:**

When the battery is low, calls cannot be made or received.

**OK:**
**Cellular phone can make calls.**

NG →

NG → REPLACE CELLULAR PHONE

OK

5.CHECK RECEPTION

a. Set the cellular phone so that it can receive calls.

b. Place the cellular phone close to the multi-display.

c. Check if the cellular phone has reception according to the multi-display.

**OK:**
**Cellular phone has reception.**

NG → REPLACE MULTI-DISPLAY (Click here)

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK "Bluetooth" SETTINGS

a. Check if the cellular phone is registered as a connected device and the "Bluetooth" settings are correct.

**OK:**
**The cellular phone is registered as a connected device and "Bluetooth" settings are correct.**

NG → SET SETTINGS CORRECTLY

OK ↓

### 2.CHECK SETTINGS AND CONDITIONS

a. Check the cellular phone functions.

**HINT:**

The cellular phone is unable to call under any of the following conditions:

- **The cellular phone is locked.**
- **The directory is being transferred.**
- **The line is crossed.**
- **The cellular phone is outside service range.**
- **The power is off.**
- **The battery is low.**
- **The cellular phone is not connected via "Bluetooth".**

**OK:**
**None of the above conditions exist.**

NG → SET CORRECTLY

OK ↓

### 3.CHECK RECEPTION

a. Place the cellular phone close to the multi-media module receiver assembly.

b. Set the cellular phone so that it can receive calls.

c. Check if the cellular phone has reception according to the multi-media module receiver assembly.

**OK:**
**The cellular phone has reception.**

NG → Go to step 4

OK ↓

END

### 4.CHECK CELLULAR PHONE

a. Check if the cellular phone can make a call.

**HINT:**

The purpose of this step is to inspect the cellular phone when it is not connected to the vehicle.

**OK:**
**Cellular phone can make a call.**

NG → REPLACE CELLULAR PHONE

OK

**5.RESTART CELLULAR PHONE**

a. Restart the cellular phone.

b. Register the cellular phone as a connected device again and check that the malfunction disappears.

**OK:**
**Malfunction disappears.**

NG → Go to step 6

OK

**END**

**6.CHECK CELLULAR PHONE**

a. Check if the cellular phone is "Bluetooth" compatible.

**HINT:**

Some versions of "Bluetooth" compatible cellular phones may not function.

**OK:**
**The phone is "Bluetooth" compatible.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

**END (ONLY A "Bluetooth" COMPATIBLE CELLULAR PHONE CAN BE USED)**

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK SURROUNDING CONDITION

a. Check if the cellular phone can make calls in a certain location.

**OK:**
**It can make calls.**

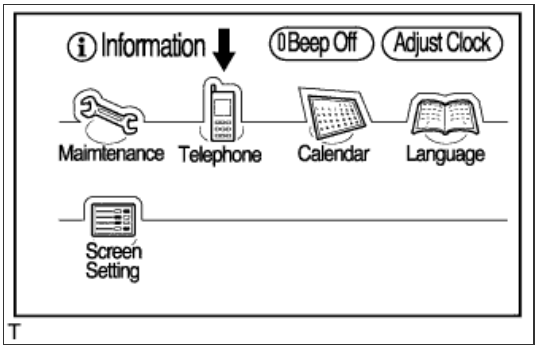
NG → END (CELLULAR PHONES CAN ONLY FUNCTION IN CELLULAR SERVICE AREAS)

OK

### 2.CHECK RECEPTION

a. Enter the "Information" screen by pressing the "INFO" switch.

b. Select "Telephone".

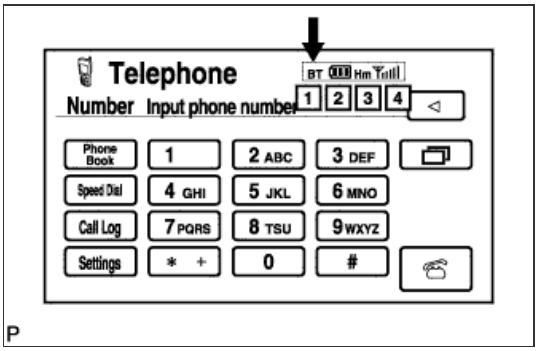


T

c. Check the "BT" mark.

**Result**

| Result | Proceed to |
|---|---|
| Yellow color | A |
| Blue color | B |
| No connection mark is displayed | C |



P

B → REPLACE MULTI-DISPLAY (Click here)

C → SELECT REGISTERED CELLULAR PHONE OR REGISTER BLUETOOTH COMPATIBLE PHONE

A

BRING CELLULAR PHONE TO LOCATION WHERE BT MARK TURNS BLUE

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CELLULAR PHONE

a. Check if the voice on the other side can be heard using a cellular phone.

**OK:**
**Voice can be heard.**

NG → REPAIR OR REPLACE CELLULAR PHONE

OK

### 2.CHECK NAVIGATION SYSTEM

a. Check that voice guidance can be heard from the driver side speaker.

**OK:**
**Voice guidance can be heard.**

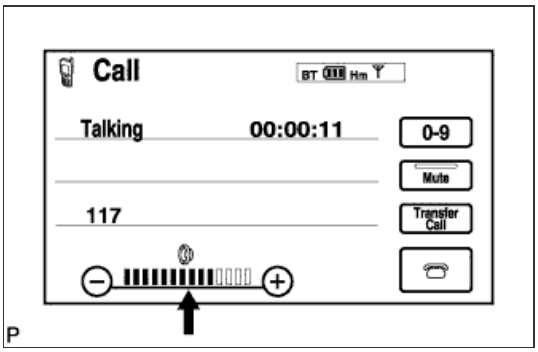
NG → GO TO "VOICE GUIDANCE DOES NOT FUNCTION" IN PROBLEM SYMPTOMS TABLE (Click here)

OK

### 3.CHECK SETTINGS

a. Check if the volume level is set to a low level on the CALL screen.

**OK:**
**The level is not low.**




NG → SET VOLUME TO HIGH

OK

### 4.CHECK SETTINGS

a. Enter the "Handsfree Voice Quality Set" mode (Click here).

b. Check if the Receive Voice Level is set to "0".

**HINT:**

The Receive Voice Level can be set to 11 different levels, -5 to +5, with a 3 dB difference.

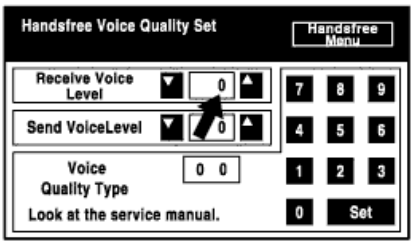
c. Check if the Receive Voice Level is set to the minimum or maximum level.

**HINT:**

When the Receive Voice Level is set to the minimum or maximum level, the sound may be distorted.

**OK:**

**The Receive Voice Level is set to "0".**




P

NG → SET RECEIVE VOICE LEVEL TO "0"

OK → PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CELLULAR PHONE

a. Check if the other caller's voice can be heard properly.

**OK:**
**Voice can be heard properly.**

**HINT:**

The purpose of this step is to inspect the cellular phone when it is not connected to the vehicle.

NG → REPAIR OR REPLACE CELLULAR PHONE

OK

### 2.CHECK NAVIGATION SYSTEM

a. Check that navigation system sound can be heard from the front speaker.

**OK:**
**Sound from the audio system can be heard.**

NG → GO TO "VOICE GUIDANCE DOES NOT FUNCTION" IN PROBLEM SYMPTOMS TABLE (Click here)

OK

### 3.CHECK SETTINGS

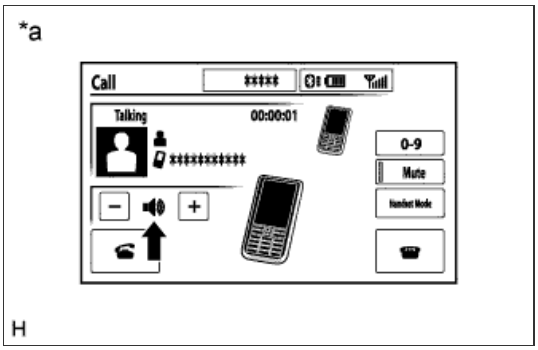
a. Display the "Call" screen.

b. Check that the volume level is not set to low.

**OK:**
**The level is not set to low.**

**Text in Illustration**

| | |
|---|---|
| *a | Example |




NG → SET VOLUME TO HIGH

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CELLULAR PHONE

a. Check if the other side can hear your voice properly.

**OK:**
**Your voice can be heard correctly.**

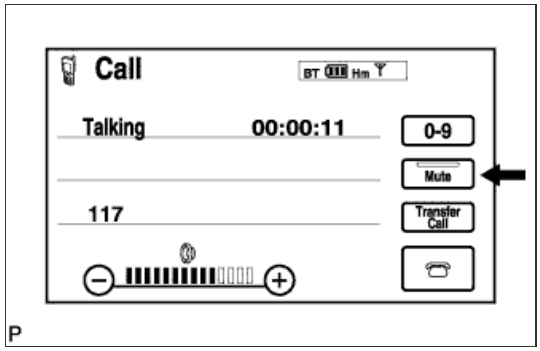
NG → REPLACE CELLULAR PHONE

OK

### 2.CHECK SETTINGS

a. Check if the mute switch is on.

**OK:**
**Mute switch is not on.**




NG → TURN MUTE SWITCH OFF

OK

### 3.CHECK SETTINGS

a. Enter the "Handsfree Voice Quality Set" mode (Click here).

b. Check if the Send Voice Level is set to "0".

**HINT:**

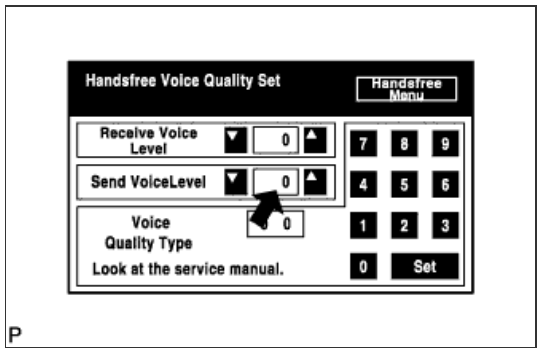
The Send Voice Level can be set to 11 different levels, -5 to +5, with a 3 dB difference.

c. Check if the Send Voice Level is set to the minimum or maximum level.

**HINT:**

When the Send Voice Level is set to the minimum or maximum level, the sound may be distorted.

**OK:**
**The Send Voice Level is set to "0".**




NG → SET SEND VOICE LEVEL TO "0"

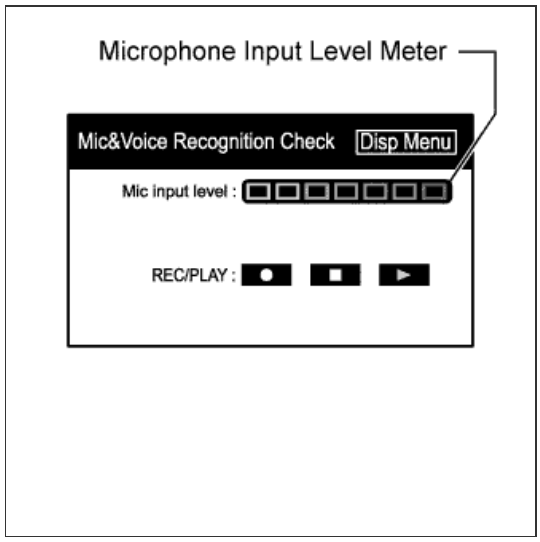
OK

### 4.CHECK MICROPHONE (DISPLAY CHECK MODE)

a. Enter the "Mic & Voice Recognition Check" mode ( Click here).

b. When a voice is input into the microphone, check that the microphone input level meter changes according to the input voice.

**OK:**
**All check results are normal.**




**NG** → GO TO "MICROPHONE CIRCUIT BETWEEN OVERHEAD J/B AND MULTI-DISPLAY" (Click here)

**OK**

REPLACE MULTI-DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

If an outlet of the air conditioning system is facing the microphone, noise may be recorded and the other caller may not be able to hear your voice properly.

### 1.CHECK CELLULAR PHONE

a. Check if the other caller can hear your voice properly.

**OK:**
**Your voice can be heard properly.**

**HINT:**

The purpose of this step is to inspect the cellular phone when it is not connected to the vehicle.

NG → REPLACE CELLULAR PHONE

OK

### 2.CHECK SETTINGS

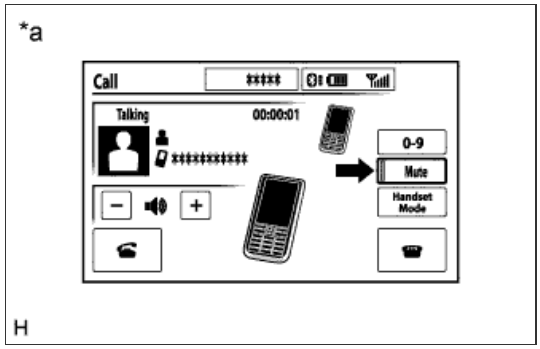
a. Display the "Call" screen.

b. Check if the "Mute" switch is set to on.

**OK:**
**"Mute" switch is not set to on.**

Text in Illustration

| | |
|---|---|
| *a | Example |




NG → TURN "Mute" SWITCH OFF

OK

### 3.CHECK MICROPHONE (OPERATION CHECK)

a. Enter the "Microphone & Voice Recognition Check" screen. Refer to Check Mic & Voice Recognition in Operation Check (Click here).

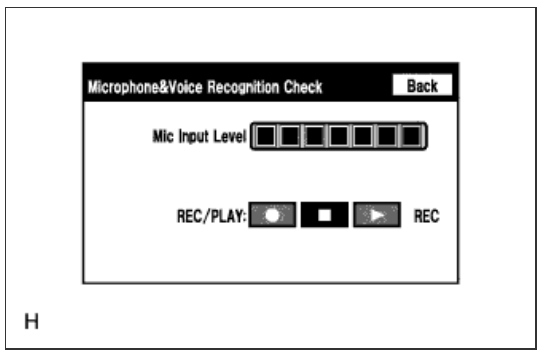
b. When voice is input into the microphone, check that the microphone input level meter changes according to the input voice.

c. Select the recording switch and perform voice recording.

- Select the recording switch with the blower motor of the air conditioning system stopped. If an outlet of the air conditioning system is facing the microphone, noise may be recorded.
- Voice can be recorded up to 5 seconds.

d. Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.

**OK:**



All check results are normal.

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK DISPLAY SETTING

a. Check that the display is not in "Screen Off" mode.

**OK:**
**The display setting is not in "Screen Off" mode.**

NG → CHANGE SCREEN TO "Screen On" MODE

OK

### 2.CHECK IMAGE QUALITY SETTING

a. Check that the screen color quality can be set.

**OK:**
**Setting is possible.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

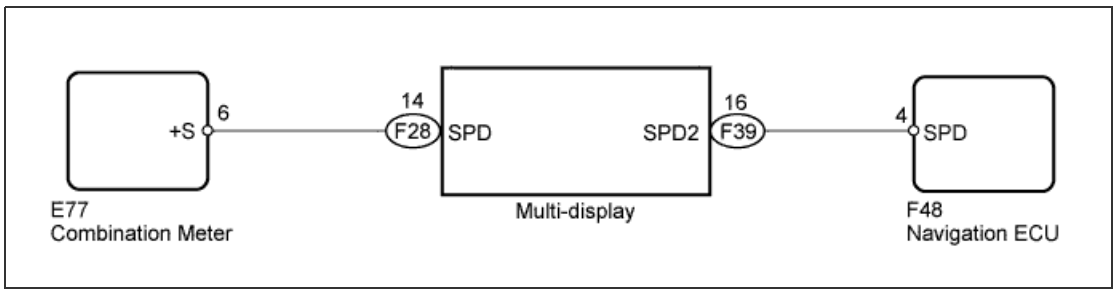
SET SCREEN COLOR QUALITY TO NORMAL

**for Preparation** Click here

## DESCRIPTION

This circuit sends a speed signal from the combination meter to the navigation ECU through the multi-display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK VEHICLE SPEED SIGNAL (DISPLAY CHECK MODE)

a. Enter the "Display Check" mode and select "Vehicle Signal Check" ( Click here).

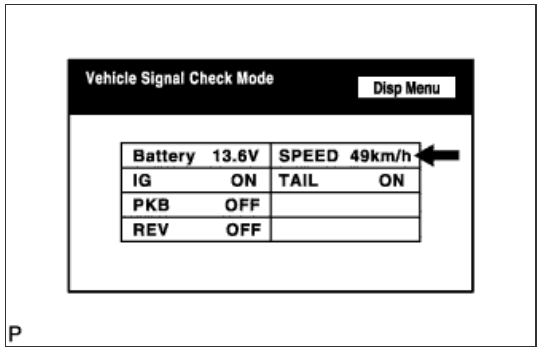
b. Check that the vehicle speed on the display changes according to the actual vehicle speed.

**OK:**

**The display changes according to the actual vehicle speed.**

**HINT:**

This display is updated once per second. As a result, it is normal for the display to lag behind the actual change in the vehicle speed.




NG → Go to step 4

OK

### 2.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - NAVIGATION ECU)

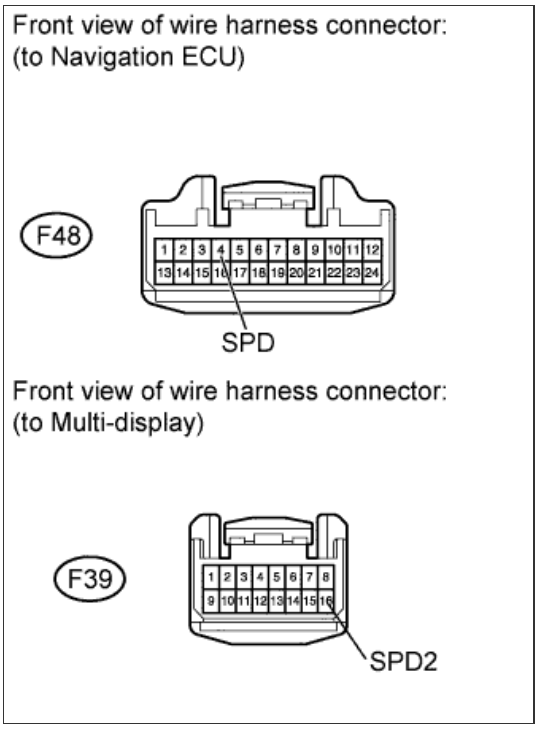
a. Disconnect the F39 display connector.

b. Disconnect the F48 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F39-16 (SPD2) - F48-4 (SPD) | Always | Below 1 Ω |
| F39-16 (SPD2) - Body ground | Always | 10 kΩ or higher |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

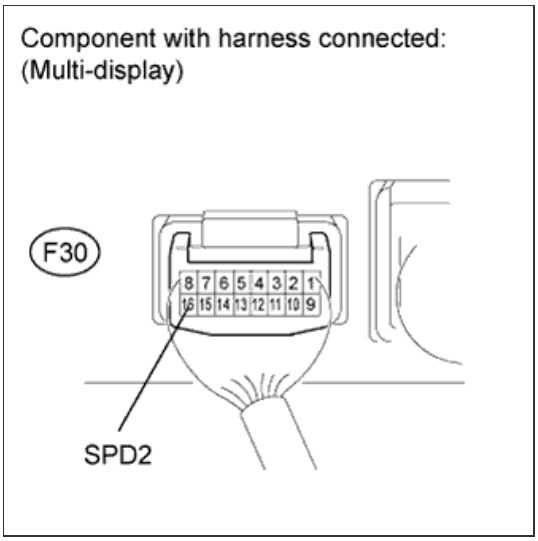
OK

## 3.CHECK MULTI-DISPLAY

a. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F39-16 (SPD2) - Body ground | Engine switch on (IG), shift lever moved to R | 11 to 14 V |
| F39-16 (SPD2) - Body ground | Engine switch on (IG), shift lever moved to P | Below 1 V |




NG → REPLACE MULTI-DISPLAY (Click here)

OK

REPLACE NAVIGATION ECU (Click here)

## 4.CHECK COMBINATION METER (SPEEDOMETER OPERATION)

a. Drive the vehicle and check if the function of the speedometer in the combination meter is normal.

**OK:**

**Actual vehicle speed and the speed indicated on the speedometer are the same.**

**HINT:**

The vehicle speed sensor is functioning normally when the indication on the speedometer is normal.

NG → GO TO METER / GAUGE SYSTEM (Click here)

OK

## 5.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - COMBINATION METER)

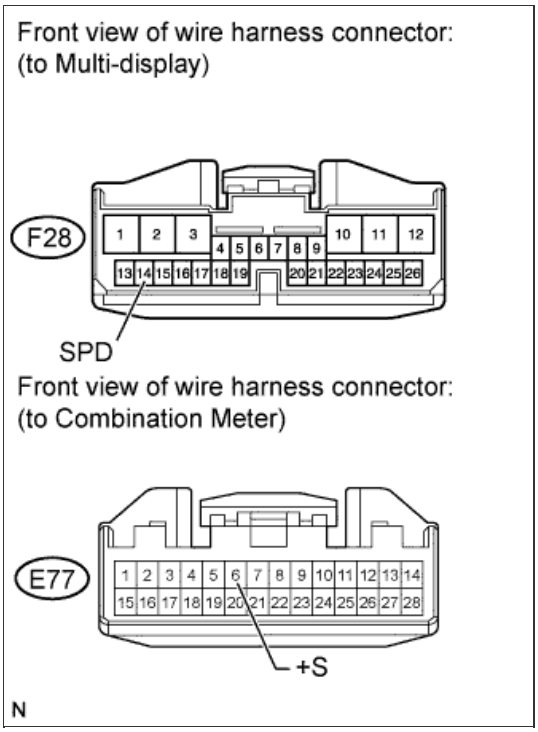
a. Disconnect the F28 display connector.

b. Disconnect the E77 meter connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F28-14 (SPD) - E77-6 (+S) | Always | Below 1 Ω |
| F28-14 (SPD) - Body ground | Always | 10 kΩ or higher |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

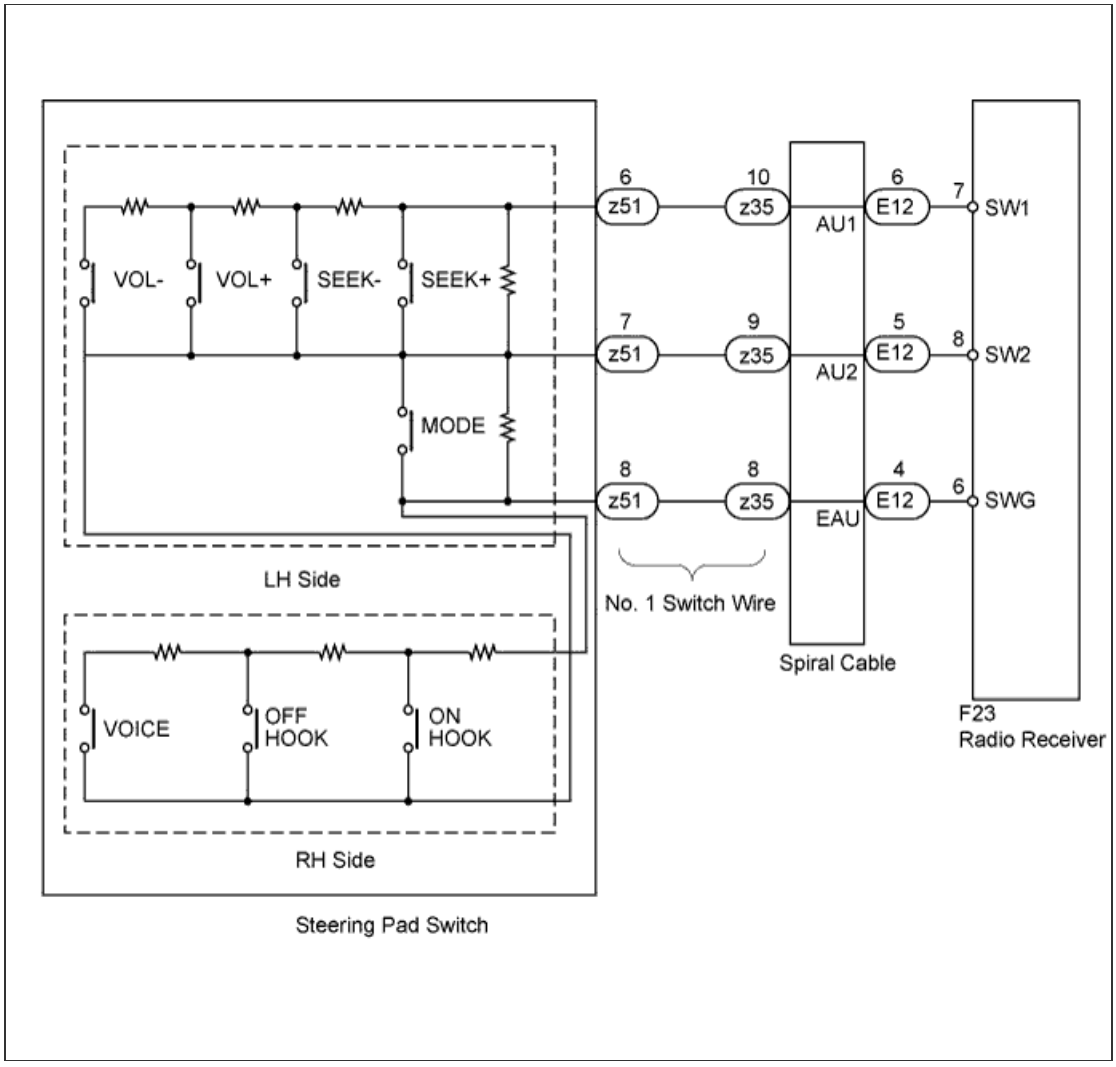
REPLACE MULTI-DISPLAY (Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit sends an operation signal from the steering pad switch to the radio receiver.
If there is an open in the circuit, the navigation system cannot be operated using the steering pad switch.
If there is a short in the circuit, the resulting condition is the same as if the switch were continuously depressed. Therefore, the navigation system cannot be operated using the steering pad switch, and the navigation system itself cannot function.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

The vehicle is equipped with an SRS (Supplemental Restraint System) which includes components such as airbags. Before servicing (including removal or installation of parts), be sure to read the Precaution in the Supplemental Restraint System (Click here).

### 1.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - SPIRAL CABLE)

a. Disconnect the F23 receiver connector.

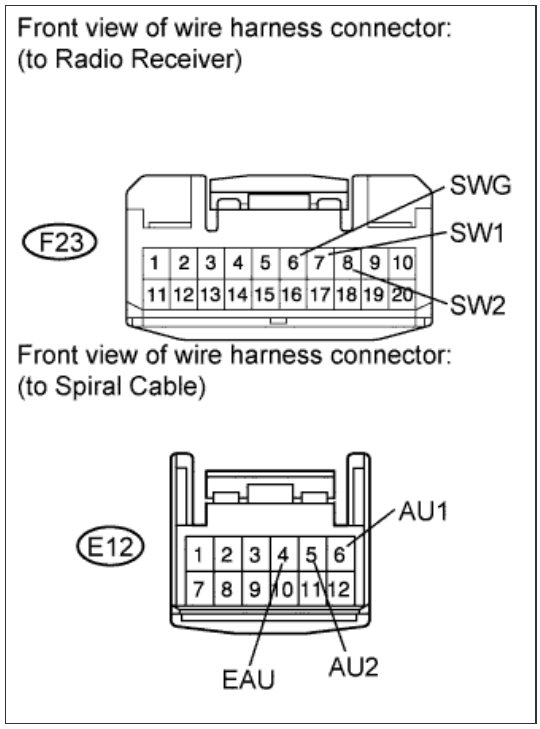
b. Disconnect the E12 cable connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| | | Specified |
|---|---|---|

| Tester Connection | Condition | Condition |
|---|---|---|
| F23-8 (SW2) - E12-5 (AU2) | Always | Below 1 Ω |
| F23-6 (SWG) - E12-4 (EAU) | Always | Below 1 Ω |
| F23-7 (SW1) - E12-6 (AU1) | Always | Below 1 Ω |
| F23-8 (SW2) - Body ground | Always | 10 kΩ or higher |
| F23-6 (SWG) - Body ground | Always | 10 kΩ or higher |
| F23-7 (SW1) - Body ground | Always | 10 kΩ or higher |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 2.CHECK NO. 1 SWITCH WIRE

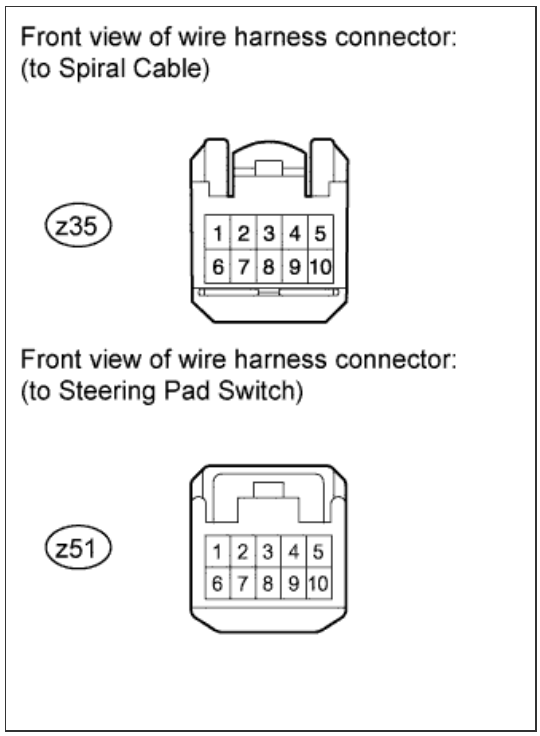
a. Disconnect the z35 cable connector.

b. Disconnect the z51 steering pad switch connector.

c. Measure the resistance according to the valve(s) in the table below.

**Standard Resistance:**

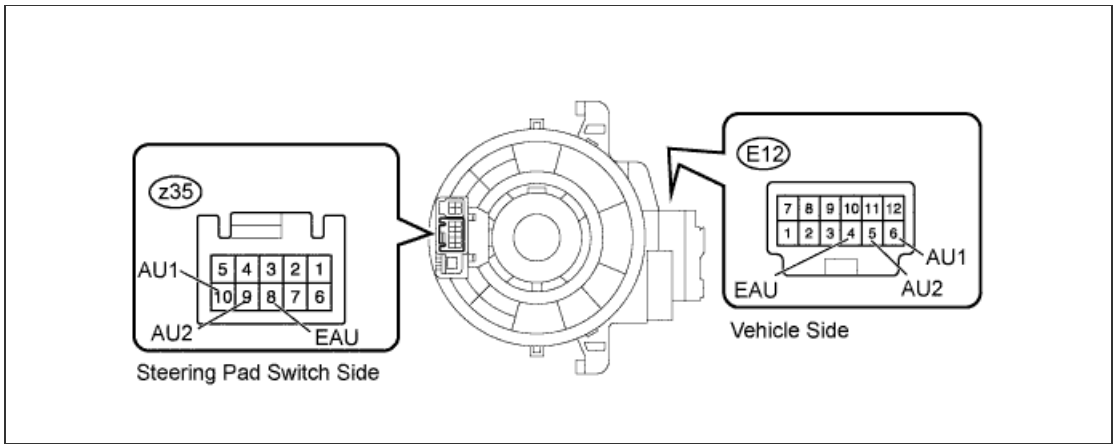
| Tester Connection | Condition | Specified Condition |
|---|---|---|
| z35-10 - z51-6 | Always | Below 1 Ω |
| z35-9 - z51-7 | Always | Below 1 Ω |
| z35-8 - z51-8 | Always | Below 1 Ω |
| z35-10 - Body ground | Always | 10 kΩ or higher |
| z35-9 - Body ground | Always | 10 kΩ or higher |
| z35-8 - Body ground | Always | 10 kΩ or higher |




NG → REPLACE NO. 1 SWITCH WIRE

OK

## 3.INSPECT SPIRAL CABLE




a. Disconnect the z35 and E12 cable connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E12-4 (EAU) - z35-8 (EAU) | Spiral cable is turned 2.5 rotations counterclockwise | Below 3 Ω |
| | Spiral cable is centered | |
| | Spiral cable is turned 2.5 rotations clockwise | |
| E12-5 (AU2) - z35-9 (AU2) | Spiral cable is turned 2.5 rotations counterclockwise | Below 3 Ω |
| | Spiral cable is centered | |
| | Spiral cable is turned 2.5 rotations clockwise | |
| E12-6 (AU1) - z35-10 (AU1) | Spiral cable is turned 2.5 rotations counterclockwise | Below 3 Ω |
| | Spiral cable is centered | |
| | Spiral cable is turned 2.5 rotations clockwise | |

**NOTICE:**

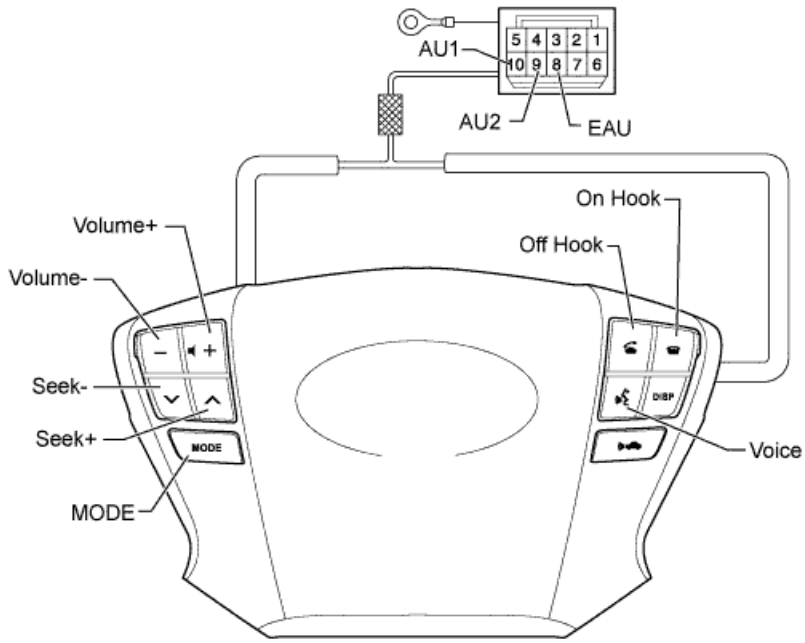
The spiral cable is an important part of the SRS airbag system. Incorrect removal or installation of the spiral cable may prevent the airbag from deploying. Be sure to read the Precaution for the supplemental restraint system (Click here).

NG → REPLACE SPIRAL CABLE SUB-ASSEMBLY (Click here)

OK

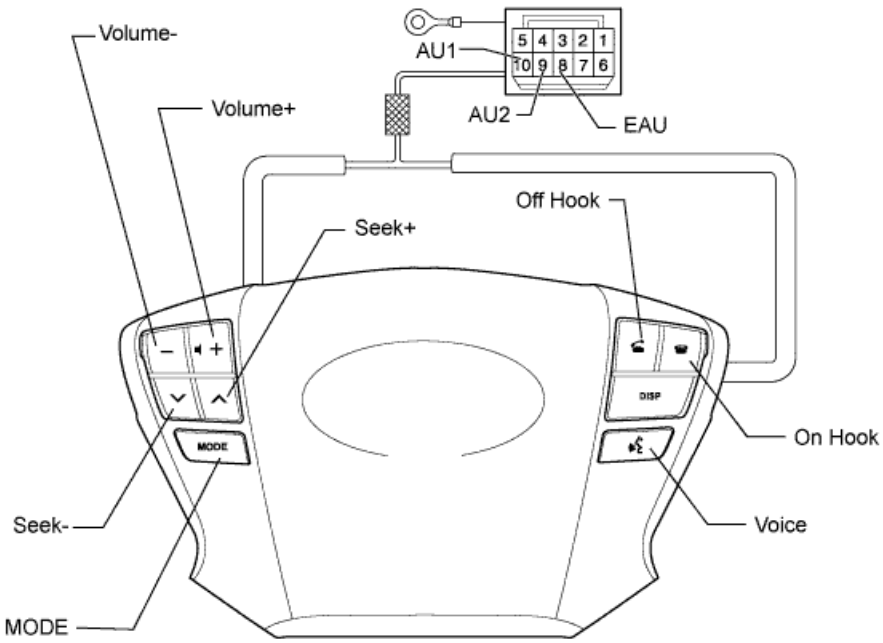
**4.INSPECT STEERING PAD (STEERING PAD SWITCH)**

w/ Dynamic Radar Cruise Control System:




T

w/o Dynamic Radar Cruise Control System:




T

a. Disconnect the z51 steering pad switch connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| 10 (AU1) - 8 (EAU) | No switch is pushed | 100 kΩ |
| 10 (AU1) - 8 (EAU) | Seek+ switch pushed | Below 2.5 Ω |
| 10 (AU1) - 8 (EAU) | Seek- switch pushed | 329 Ω |
| 10 (AU1) - 8 (EAU) | Volume+ switch pushed | 1000 Ω |
| 10 (AU1) - 8 (EAU) | Volume- switch pushed | 3110 Ω |
| 9 (AU2) - 8 (EAU) | No switch is pushed | 100 kΩ |
| 9 (AU2) - 8 (EAU) | MODE switch pushed | Below 2.5 Ω |
| 9 (AU2) - 8 (EAU) | On hook switch pushed | 329 Ω |
| 9 (AU2) - 8 (EAU) | Off hook switch pushed | 1000 Ω |
| 9 (AU2) - 8 (EAU) | Voice switch pushed | 3110 Ω |

NG → REPLACE STEERING PAD (Click here)

OK

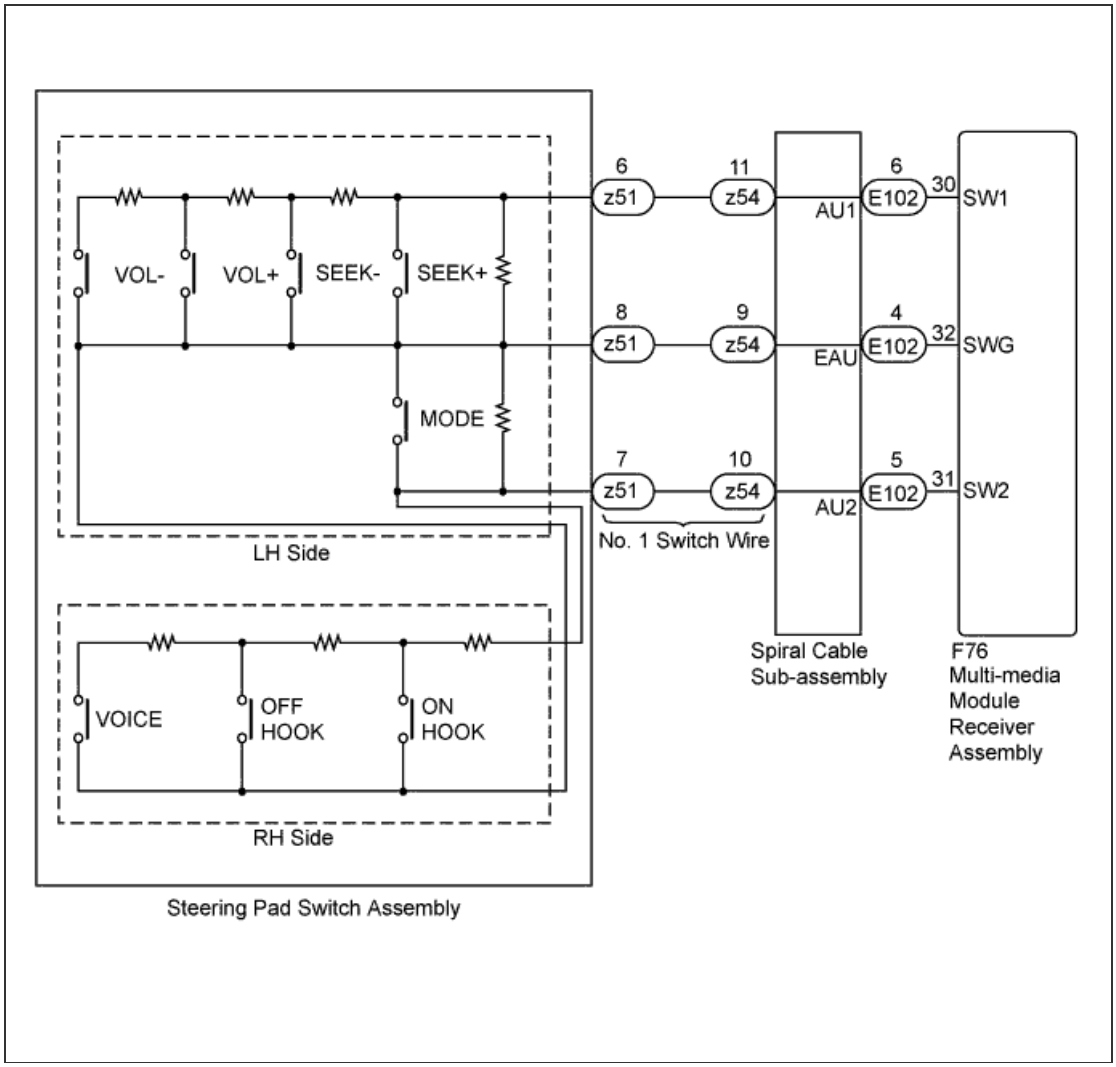
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit sends an operation signal from the steering pad switch assembly to the multi-media module receiver assembly.
If there is an open in the circuit, the audio system cannot be operated using the steering pad switch assembly.
If there is a short in the circuit, the same condition as when a switch is continuously depressed occurs.
Therefore, the multi-media module receiver assembly cannot be operated using the steering pad switch assembly, and also the multi-media module receiver assembly itself cannot function.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

The vehicle is equipped with a Supplemental Restraint System (SRS) which includes components such as airbags. Before servicing (including removal or installation of parts), be sure to read the precaution for Supplemental Restraint System (Click here).

### 1.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA NODULE RECEIVER ASSEMBLY - SPIRAL CABLE SUB-ASSEMBLY)

a. Disconnect the F76 multi-media module receiver assembly connector.

b. Disconnect the E102 spiral cable sub-assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F76-30 (SW1) - | | |

| | | |
|---|---|---|
| E102-6 (AU1) | Always | Below 1 Ω |
| F76-31 (SW2) - E102-5 (AU2) | Always | Below 1 Ω |
| F76-32 (SWG) - E102-4 (EAU) | Always | Below 1 Ω |
| F76-30 (SW1) - Body ground | Always | 10 kΩ or higher |
| F76-31 (SW2) - Body ground | Always | 10 kΩ or higher |
| F76-32 (SWG) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**2.CHECK NO. 1 SWITCH WIRE**

a. Disconnect the z54 and z51 No. 1 switch wire connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| z54-11 - z51-6 | Always | Below 1 Ω |
| z54-9 - z51-8 | Always | Below 1 Ω |
| z54-10 - z51-7 | Always | Below 1 Ω |
| z54-11 - Body ground | Always | 10 kΩ or higher |
| z54-9 - Body ground | Always | 10 kΩ or higher |
| z54-10 - Body ground | Always | 10 kΩ or higher |

NG → REPLACE NO. 1 SWITCH WIRE

OK

**3.INSPECT STEERING PAD SWITCH ASSEMBLY**

a. Remove the steering pad switch assembly (Click here).

b. Inspect the steering pad switch assembly (Click here).

NG → REPLACE STEERING PAD SWITCH ASSEMBLY (**Click here**)

OK

**4.INSPECT SPIRAL CABLE SUB-ASSEMBLY**

a. Remove the spiral cable sub-assembly (Click here).

b. Inspect the spiral cable sub-assembly (Click here).

NG → REPLACE SPIRAL CABLE SUB-ASSEMBLY (**Click here**)

OK

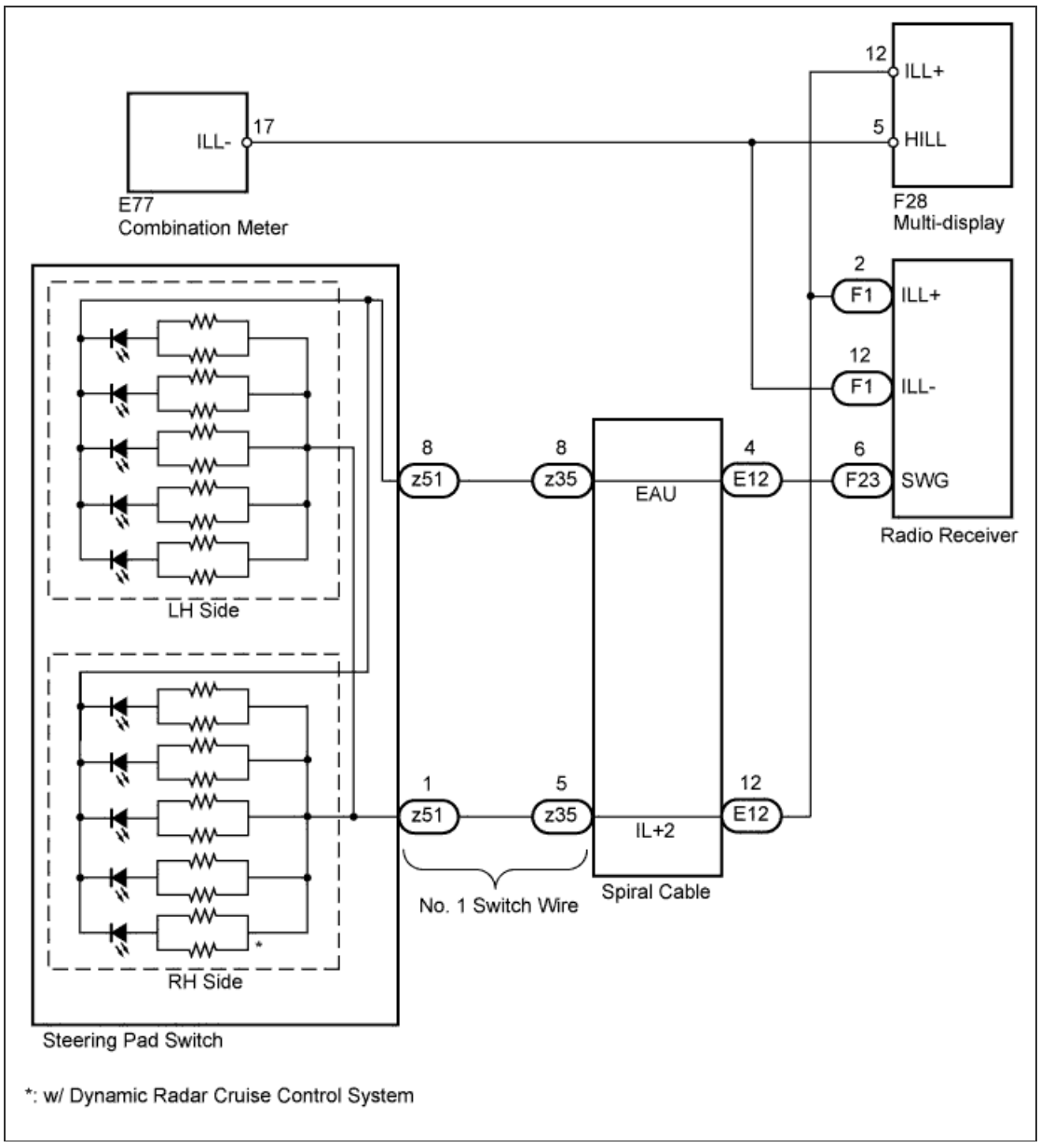
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (**Click here**)

**for Preparation** Click here

## DESCRIPTION

Power is supplied to the multi-display, radio receiver and steering pad switch illumination when the light control switch is in the TAIL or HEAD position.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

The vehicle is equipped with an SRS (Supplemental Restraint System) which includes components such as airbags. Before servicing (including removal or installation of parts), be sure to read the Precaution in the Supplemental Restraint System (Click here).

### 1.CHECK ILLUMINATION

a. Check if the illumination for the multi-display, steering pad switch, glove box light, cigarette lighter, or other parts (seat heater switch, front seat memory switch, etc.) comes on when the light control switch is turned to the HEAD or TAIL position.

**Result**

| Result | Proceed to |
|---|---|
| Illumination comes on for all components except steering pad switch. | A |
| Illumination comes on for all components except radio receiver. | B |

| | |
|---|---|
| Illumination comes on for all components except multi-display. | C |
| No illumination comes on all components. | D |

| | |
|---|---|
| B | Go to step 7 |
| C | Go to step 8 |
| D | GO TO LIGHTING SYSTEM (Click here) |

A

## 2.CHECK HARNESS AND CONNECTOR (BATTERY - SPIRAL CABLE)

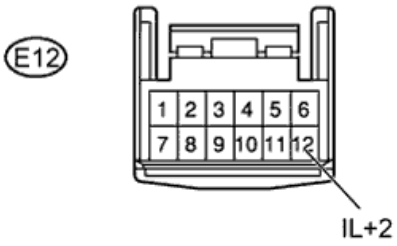
a. Disconnect the E12 cable connector.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E12-12 (IL+2) - Body ground | Light control switch TAIL or HEAD | 11 to 14 V |

Front view of wire harness connector:
(to Spiral Cable)




NG — REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 3.CHECK NO. 1 SWITCH WIRE

a. Disconnect the z35 cable connector.

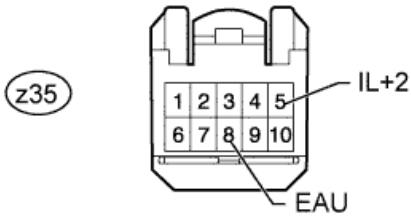
b. Disconnect the z51 steering pad switch connector.

c. Measure the resistance according to the valve(s) in the table below.

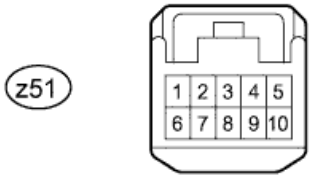
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| z35-8 (EAU) - z51-8 | Always | Below 1 Ω |
| z35-5 (IL+2) - z51-1 | Always | Below 1 Ω |

Front view of wire harness connector:
(to Spiral Cable)



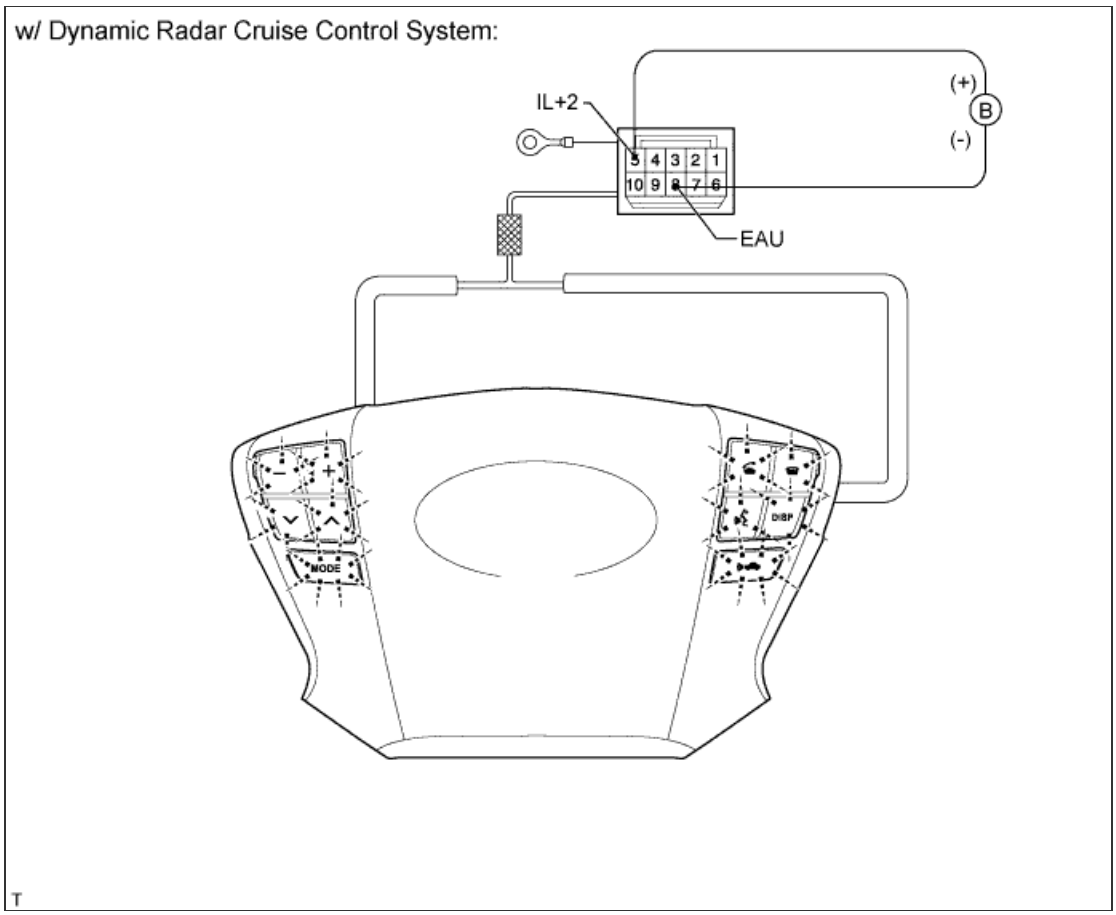

Front view of wire harness connector:
(to Steering Pad Switch)

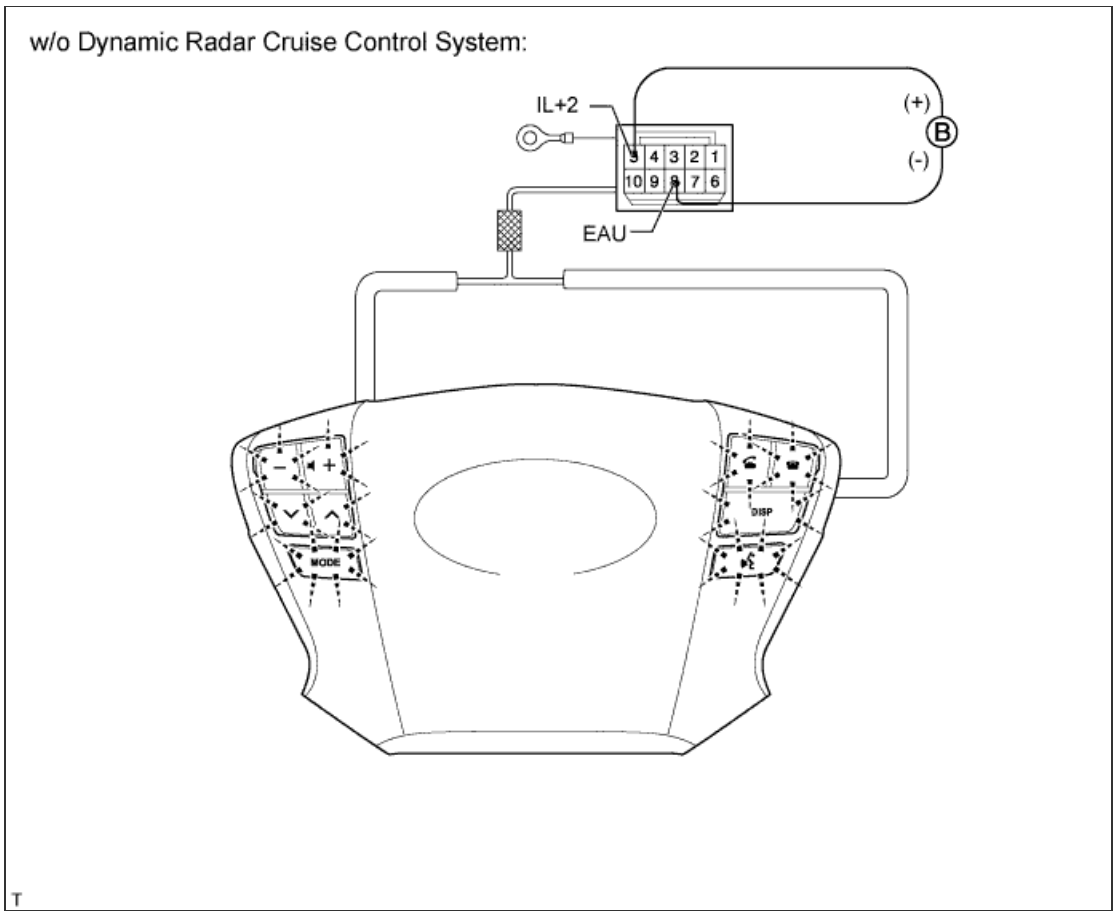



NG — REPLACE NO. 1 SWITCH WIRE

OK

## 4.CHECK STEERING PAD (STEERING PAD SWITCH)




a. Disconnect the z35 steering pad switch connector.

b. Connect the positive (+) lead to terminal 5 (IL+2) and the negative (-) lead to terminal 8 (EAU) of the steering pad switch connector.

c. Check if the illumination for the steering pad switch comes on.

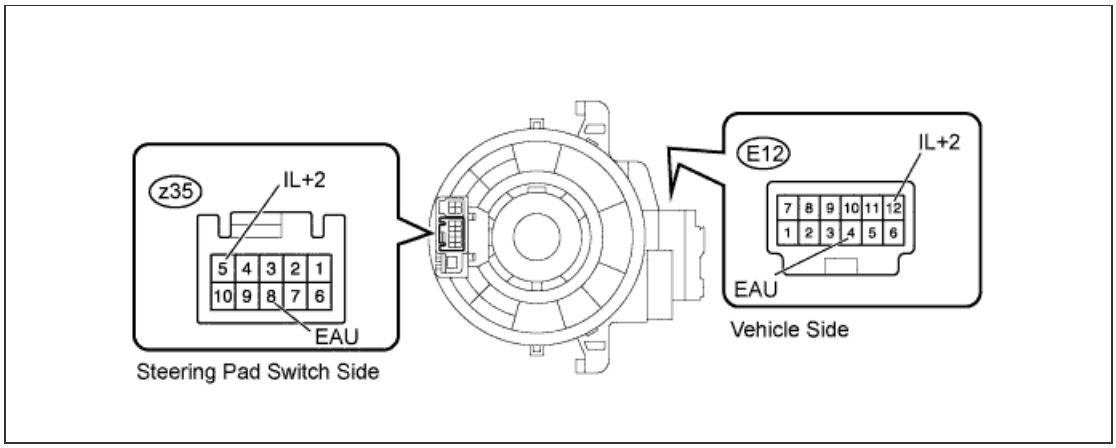
**OK:**

**Illumination for the steering pad switch comes on.**

NG → REPLACE STEERING PAD (Click here)

OK

## 5.INSPECT SPIRAL CABLE




a. Disconnect the cable connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Spiral Cable Position | Specified Condition |
|---|---|---|
| E12-12 (IL+2) - z35-5 (IL+2) | 2.5 rotations to left | Below 3 Ω |
| | Center | |
| | 2.5 rotations to right | |
| E12-4 (EAU) - z35-8 (EAU) | 2.5 rotations to left | Below 3 Ω |
| | Center | |
| | 2.5 rotations to right | |

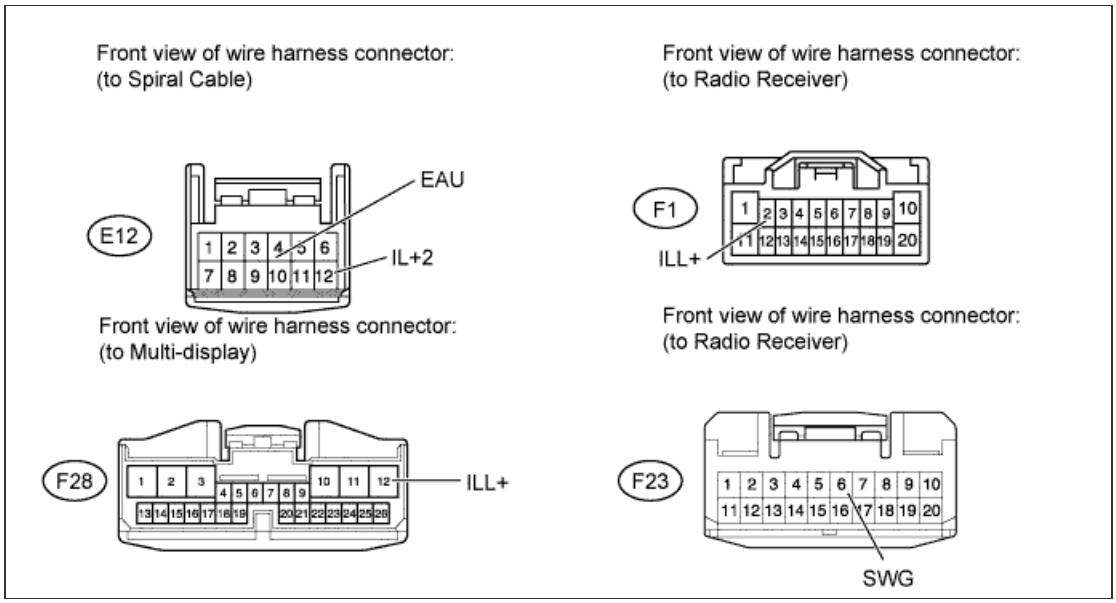
**NOTICE:**

The spiral cable is an important part of the SRS airbag system. Incorrect removal or installation of the spiral cable may prevent the airbag from deploying. Be sure to read the Precaution for the supplemental restraint system (Click here).

NG → REPLACE SPIRAL CABLE SUB-ASSEMBLY (Click here)

OK

## 6.CHECK HARNESS AND CONNECTOR (SPIRAL CABLE - MULTI-DISPLAY AND RADIO RECEIVER)




a. Disconnect the E12 spiral cable connector.

b. Disconnect the F1 and F23 receiver connectors.

c. Disconnect the F28 display connector.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E12-12 (IL+2) - F1-2 (ILL+) | Always | Below 1 Ω |
| E12-12 (IL+2) - F28-12 (ILL+) | Always | Below 1 Ω |
| E12-4 (EAU) - F23-6 (SWG) | Always | Below 1 Ω |
| E12-12 (IL+2) - Body ground | Always | 10 kΩ or higher |
| E12-4 (EAU) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

## 7.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - COMBINATION METER)

a. Disconnect the F1 receiver connector.

b. Disconnect the E77 meter connector.

c. Measure the resistance according to the value(s) in the table below.

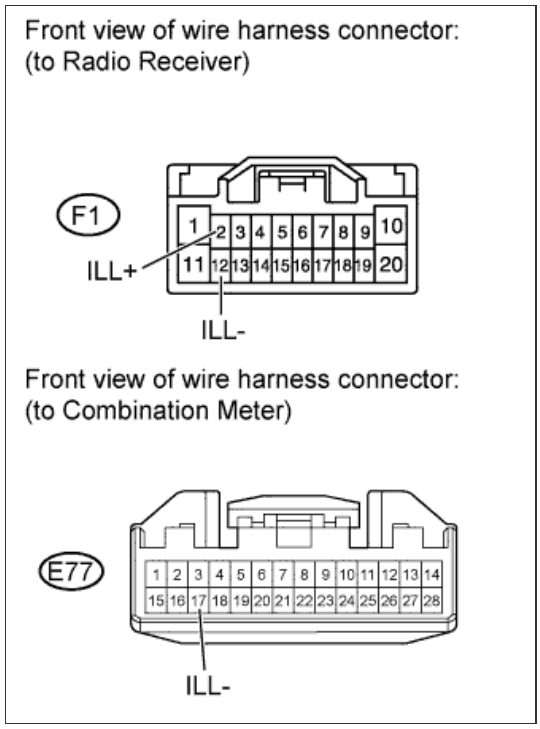
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-12 (ILL-) - E77-17 (ILL-) | Always | Below 1 Ω |
| F1-12 (ILL-) - Body ground | Always | 10 kΩ or higher |

d. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F1-2 (ILL+) - Body ground | Light control Switch TAIL or HEAD | 11 to 14 V |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

## 8.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - BATTERY AND COMBINATION METER)

a. Disconnect the F28 display connector.

b. Disconnect the E77 meter connector.

c. Measure the resistance according to the value(s) in the table below.

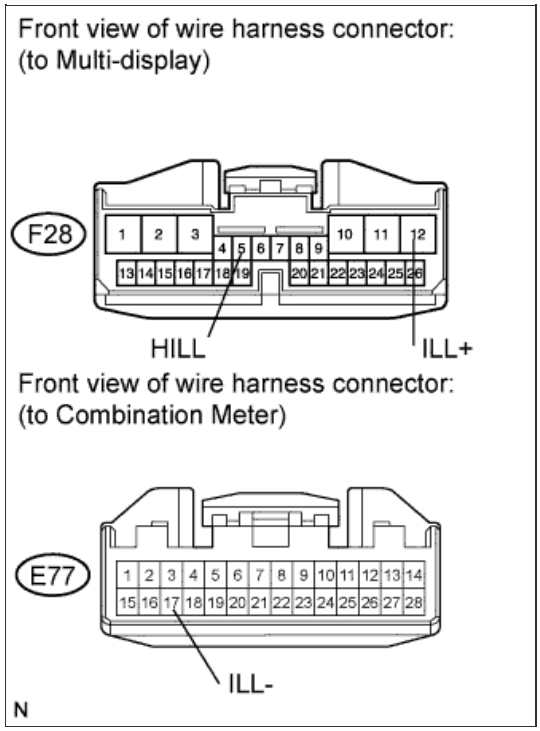
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F28-5 (HILL) - E77-17 (ILL-) | Always | Below 1 Ω |
| F28-5 (HILL) - Body ground | Always | 10 kΩ or higher |

d. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F28-12 (ILL+) - Body ground | Light control switch TAIL or HEAD | 11 to 14 V |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

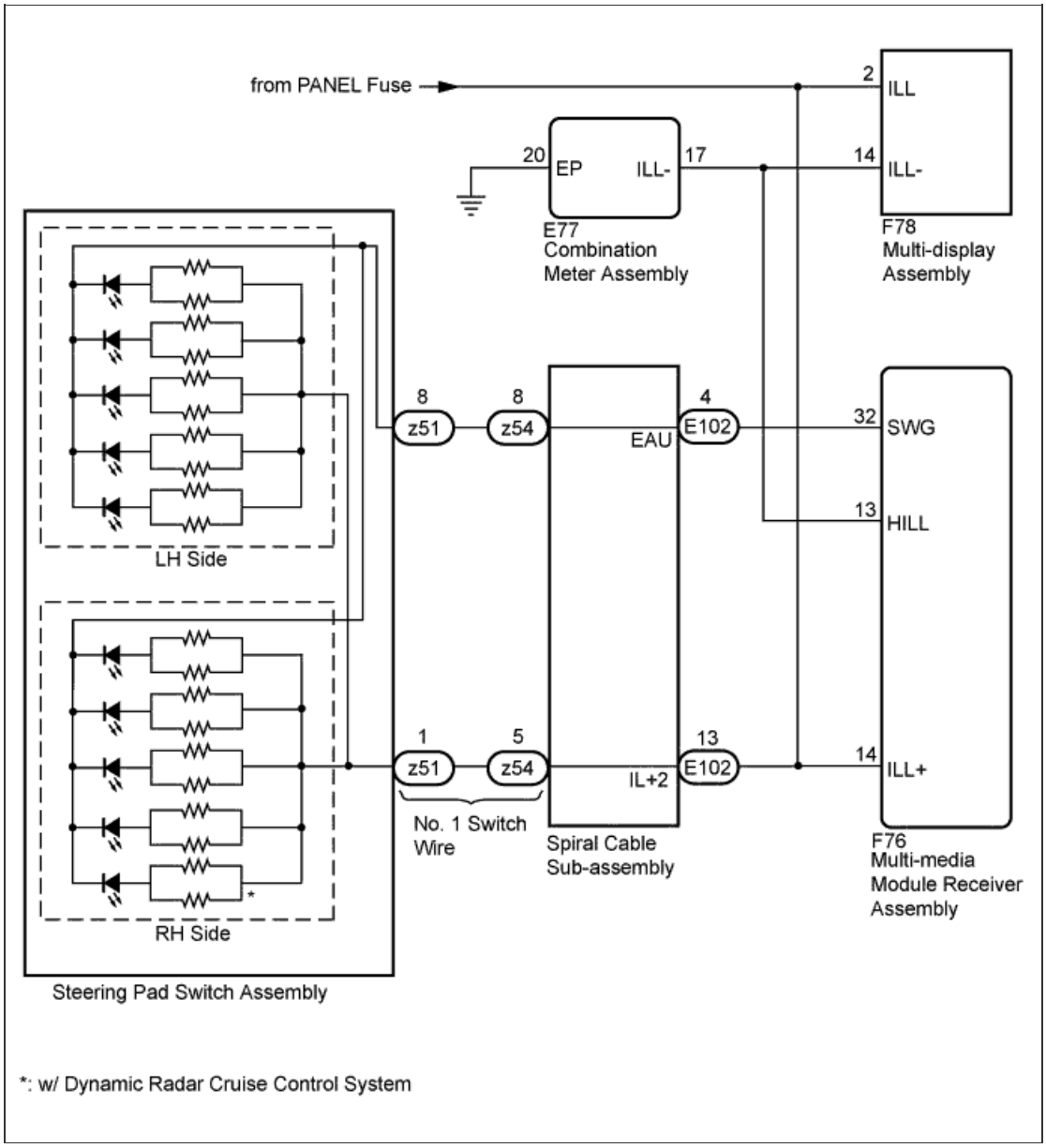
REPLACE MULTI-DISPLAY (Click here)

**for Preparation** Click here

## DESCRIPTION

Power is supplied to the multi-media module receiver assembly, multi-display assembly and steering pad switch assembly illumination when the light control switch is in the tail or head position.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

- **The vehicle is equipped with a Supplemental Restraint System (SRS) which includes components such as airbags. Before servicing (including removal or installation of parts), be sure to read the precaution for Supplemental Restraint System (Click here).**
- **Inspect the fuse for circuits related to this system before performing the following inspection procedure.**
- **After replacing the multi-media module receiver assembly of vehicles subscribed to pay-type satellite radio broadcasts, XM radio ID registration is necessary (w/ SDARS System).**

### 1.CHECK ILLUMINATION

a. Check if the illumination for the multi-media module receiver assembly, multi-display assembly, steering pad switch assembly or others (hazard switch etc.) comes on when the light control switch is turned to the head or tail position.

**Result**

| Result | Proceed to |
|---|---|
| Illumination comes on for all components except steering pad switch assembly. | A |
| Illumination comes on for all components except multi-display assembly. | B |
| Illumination comes on for all components except multi-media module receiver assembly. | C |
| No illumination comes on (multi-media module receiver assembly, steering pad switch, hazard switch, heater control switch, etc.). | D |

B → Go to step 7

C → Go to step 8

D → GO TO LIGHTING SYSTEM (Click here)

A

## 2.CHECK HARNESS AND CONNECTOR (ILLUMINATION SIGNAL)

a. Disconnect the spiral cable sub-assembly connector.

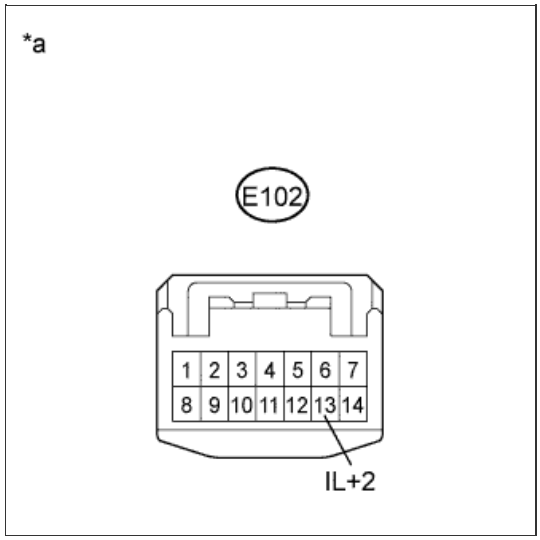
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| E102-13 (IL+2) - Body ground | Light control switch in the tail or head position | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Spiral Cable Sub-assembly) |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 3.CHECK NO. 1 SWITCH WIRE

a. Disconnect the z51 and z54 No. 1 switch wire connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| z54-8 - z51-8 | Always | Below 1 Ω |
| z54-5 - z51-1 | Always | Below 1 Ω |
| z54-8 - Body ground | Always | 10 kΩ or higher |
| z54-5 - Body ground | Always | 10 kΩ or higher |

NG → REPLACE NO. 1 SWITCH WIRE

OK

**4.INSPECT STEERING PAD SWITCH ASSEMBLY**

a. Remove the steering pad switch assembly (Click here).

b. Inspect the steering pad switch assembly (Click here).

NG → REPLACE STEERING PAD SWITCH ASSEMBLY (**Click here**)

OK

**5.INSPECT SPIRAL CABLE SUB-ASSEMBLY**

a. Remove the spiral cable sub-assembly (Click here).

b. Inspect the spiral cable sub-assembly (Click here).

NG → REPLACE SPIRAL CABLE SUB-ASSEMBLY (**Click here**)

OK

**6.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY, MULTI-DISPLAY ASSEMBLY - SPIRAL CABLE SUB-ASSEMBLY)**

a. Disconnect the F76 multi-media module receiver assembly connector.

b. Disconnect the F78 multi-display assembly connector.

c. Disconnect the E102 spiral cable sub-assembly connector.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-14 (ILL+) - E102-13 (IL+2) | Always | Below 1 Ω |
| F76-32 (SWG) - E102-4 (EAU) | Always | Below 1 Ω |
| F78-2 (ILL) - E102-13 (IL+2) | Always | Below 1 Ω |
| F76-14 (ILL+) - Body ground | Always | 10 kΩ or higher |
| F76-32 (SWG) - Body ground | Always | 10 kΩ or higher |
| F78-2 (ILL) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (**Click here**)

**7.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY ASSEMBLY - COMBINATION METER ASSEMBLY, BATTERY AND BODY GROUND)**

a. Disconnect the F78 multi-display assembly connector.

b. Disconnect the E77 combination meter assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F78-14 (ILL-) - E77-17 (ILL-) | Always | Below 1 Ω |
| F78-14 (ILL-) - Body ground | Always | 10 kΩ or higher |
| E77-20 (EP) - Body ground | Always | Below 1 Ω |

d. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F78-2 (ILL) - Body ground | Light control switch in the tail or head position | 11 to 14 V |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

**8.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - COMBINATION METER ASSEMBLY, BATTERY AND BODY GROUND)**

a. Disconnect the F76 multi-media module receiver assembly connector.

b. Disconnect the E77 combination meter assembly connector.

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F76-14 (ILL+) - Body ground | Light control switch in the tail or head position | 11 to 14 V |

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-13 (HILL) - E77-17 (ILL-) | Always | Below 1 Ω |
| E77-20 (EP) - Body ground | Always | Below 1 Ω |
| F76-13 (HILL) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

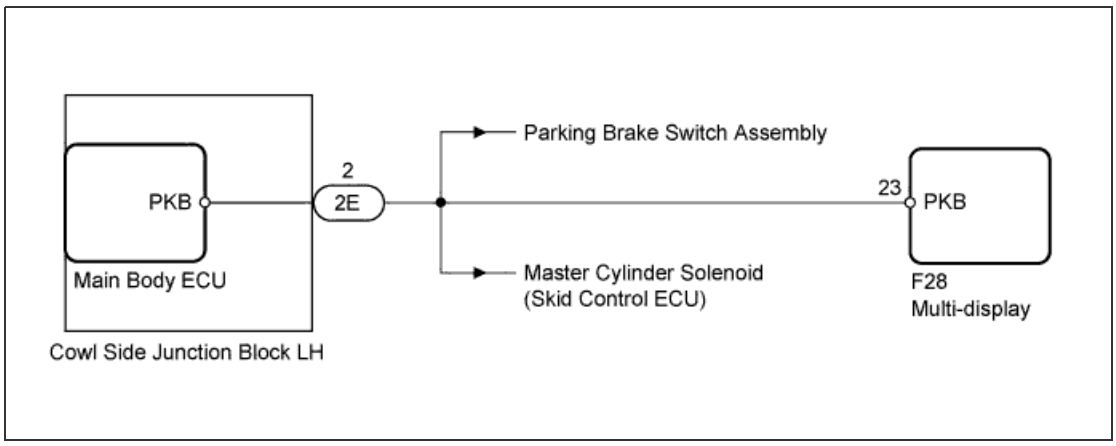
REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit is from the parking brake switch to the multi-display.

## WIRING DIAGRAM

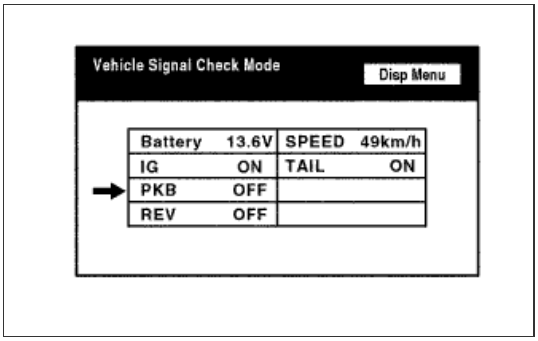



## INSPECTION PROCEDURE

### 1.CHECK PARKING BRAKE (DISPLAY CHECK MODE)

a. Enter the "Display Check" mode and select "Vehicle Signal Check" ( Click here).

b. Check that the display changes between ON and OFF according to the parking brake operation.




**OK:**

| Parking Brake Position | Display |
|---|---|
| Applied | ON |
| Released | OFF |

**HINT:**

This display is updated once per second. As a result, it is normal for the display to lag behind the actual change in the switch.

NG → Go to step 2

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

### 2.CHECK MAIN BODY ECU (PARKING BRAKE SIGNAL)

a. Disconnect the F28 display connector.

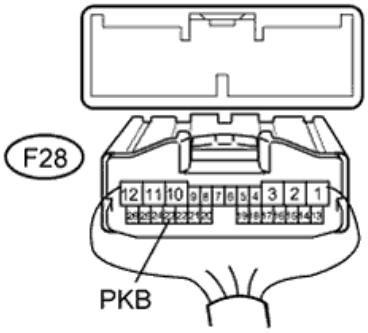
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F28-23 (PKB) - Body ground | Engine switch on (IG), parking brake applied | 11 to 14 V |

| | | |
|---|---|---|
| F28-23 (PKB) - Body ground | Engine switch on (IG), parking brake released | Below 1 V |

Rear view of wire harness connector:
(to Multi-display)




NG → Go to step 3

OK

REPLACE MULTI-DISPLAY (Click here)

3.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - MAIN BODY ECU)

a. Disconnect the F28 display connector.

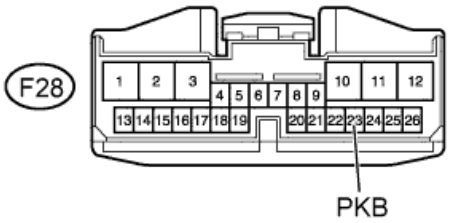
b. Disconnect the 2E ECU connector.

c. Measure the resistance according to the value(s) in the table below.

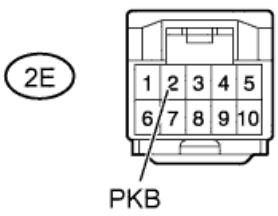
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F28-23 (PKB) - 2E-2 (PKB) | Always | Below 1 Ω |
| F28-23 (PKB) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to Multi-display)




Front view of wire harness connector:
(to Main Body ECU)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.REPLACE MAIN BODY ECU

a. Temporarily replace the ECU with a new or normally functioning one.

b. Check that the parking brake signal is displayed on the multi-display.

**OK:**

Parking brake signal is displayed on the multi-display.

NG → REPLACE MULTI-DISPLAY (Click here)

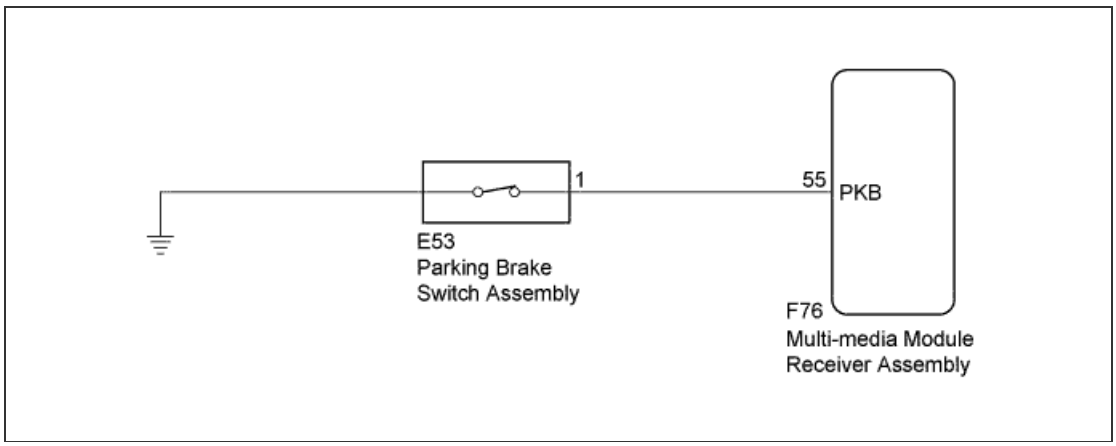
OK → END (MAIN BODY ECU IS DEFECTIVE)

**for Preparation** Click here

## DESCRIPTION

This circuit is from the parking brake switch assembly to the multi-media module receiver assembly.

## WIRING DIAGRAM

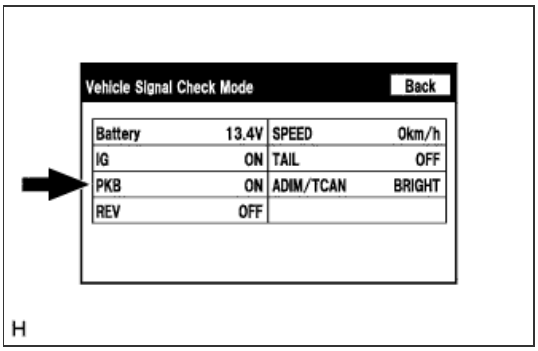



## INSPECTION PROCEDURE

### 1.CHECK VEHICLE SIGNAL (OPERATION CHECK)

a. Enter the "Function Check/Setting I" mode and select "Vehicle Signal" ( Click here).

b. Check that the display changes between ON and OFF according to the parking brake operation.




**OK:**

| Parking Brake Position | Display |
|---|---|
| Applied | ON |
| Released | OFF |

**HINT:**

This display is updated once per second. As a result, it is normal for the display to lag behind the actual change in the switch.

NG → Go to step 2

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

### 2.CHECK HARNESS AND CONNECTOR (PARKING BRAKE SWITCH ASSEMBLY - MULTI-MEDIA MODULE RECEIVER ASSEMBLY)

a. Disconnect the E53 parking brake switch assembly connector.

b. Disconnect the F76 multi-media module receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-55 (PKB) - E53-1 | Always | Below 1 Ω |
| F76-55 (PKB) - Body ground | Always | 10 kΩ or higher |

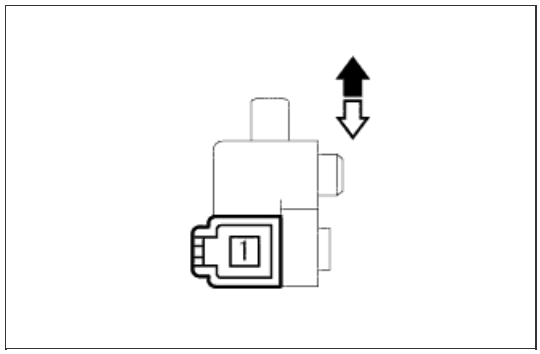
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 3.INSPECT PARKING BRAKE SWITCH ASSEMBLY

a. Remove the parking brake switch assembly connector (Click here).

b. Measure the resistance according to the value(s) in the table below.




**Standard Resistance:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| 1 - Switch body | ON (Shaft not pressed) | Below 1 Ω |
| | OFF (Shaft pressed) | 10 kΩ or higher |

**Text in Illustration**

| | |
|---|---|
| ➡ | ON |
| ⇨ | OFF |

NG → REPLACE PARKING BRAKE SWITCH ASSEMBLY (Click here)

OK

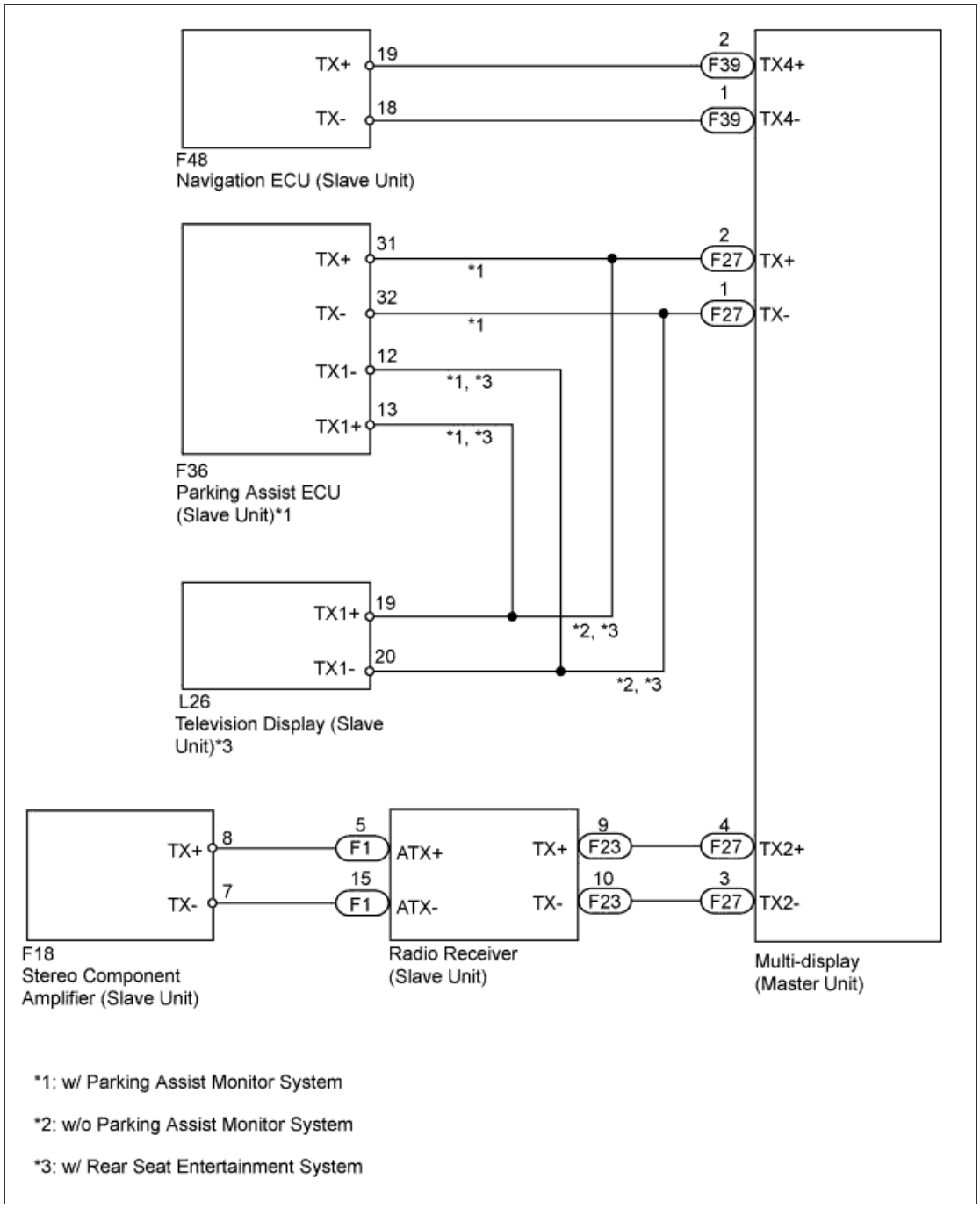
REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

**for Preparation** Click here

## DESCRIPTION

Each unit of the navigation system connected to the AVC-LAN (communication bus) transfers the signal of each switch by communication.
When a short to +B or short to ground occurs in the AVC-LAN, the navigation system will not function normally as the communication is discontinued.

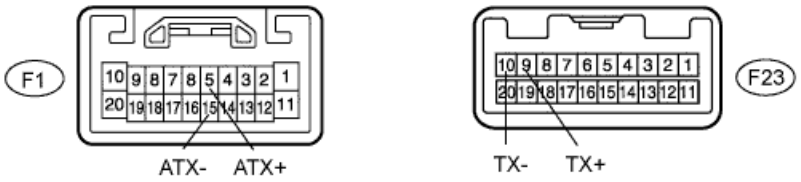
## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK RADIO RECEIVER ASSEMBLY

Component without harness connected:
(Radio Receiver)




a. Disconnect the F1 and F23 receiver connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-5 (ATX+) - F1-15 (ATX-) | Always | 60 to 80 Ω |
| F23-9 (TX+) - F23-10 (TX-) | Always | 60 to 80 Ω |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

**2.CHECK HARNESS AND CONNECTOR**

**HINT:**

For details of the connectors, refer to Terminals of ECU ( Click here).

a. Referring to the AVC-LAN wiring diagram, check all AVC-LAN circuits.

i. Disconnect all connectors in all AVC-LAN circuits.

ii. Check for an open or short in all AVC-LAN circuits.

**OK:**
**There is no open or short circuit.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

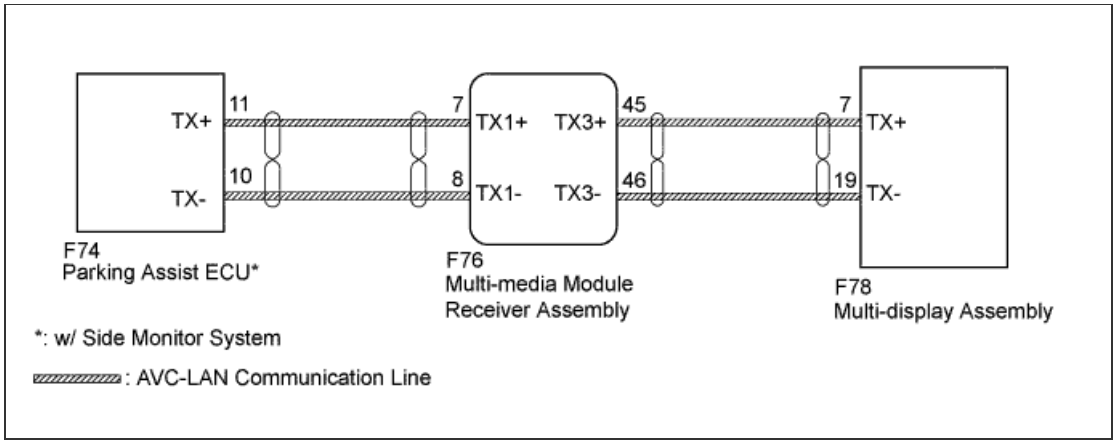
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

Each audio system component connected to the AVC-LAN (communication bus) transfers switch signals using the audio visual communication local area network.
If a short to +B or short to ground occurs in the AVC-LAN, the audio system will not function normally because communication is not possible.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

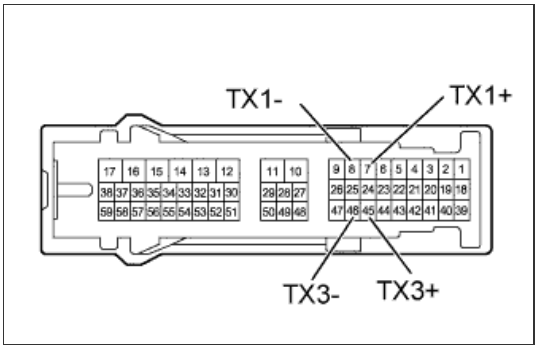
### 1.INSPECT MULTI-MEDIA MODULE RECEIVER ASSEMBLY

a. Remove the multi-media module receiver assembly (Click here).

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 7 (TX1+) - 8 (TX1-) | Always | 60 to 80 Ω |
| 45 (TX3+) - 46 (TX3-) | Always | 60 to 80 Ω |




NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

### 2.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - BATTERY AND BODY GROUND)

**HINT:**

For details of the connectors, refer to Terminals of ECU ( Click here).

a. Referring to the following AVC-LAN wiring diagram, check all AVC-LAN circuits.

i. Disconnect all connectors in all AVC-LAN circuits.

ii. Check for an open or short in all AVC-LAN circuits.

**OK:**
**There is no open or short circuit.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3.INSPECT MALFUNCTIONING PARTS

a. Disconnect and reconnect each slave unit one by one until the master unit returns to normal operation.

**HINT:**

- **Check all slave units.**
- **When disconnecting a slave unit causes the master unit to return to normal operation, this indicates that the slave unit is malfunctioning. Replace the malfunctioning slave unit.**

**OK:**
**Master unit returns to normal operation.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

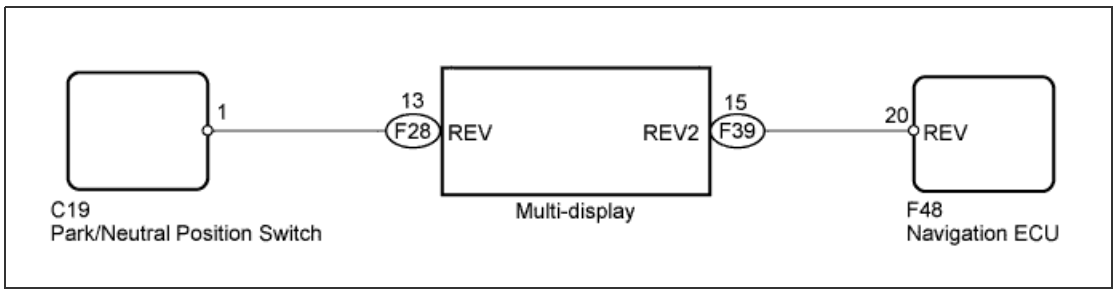
REPLACE MALFUNCTIONING PARTS

**for Preparation** Click here

## DESCRIPTION

This circuit sends a reverse signal from the park/neutral position switch to the navigation ECU through the multi-display.

## WIRING DIAGRAM

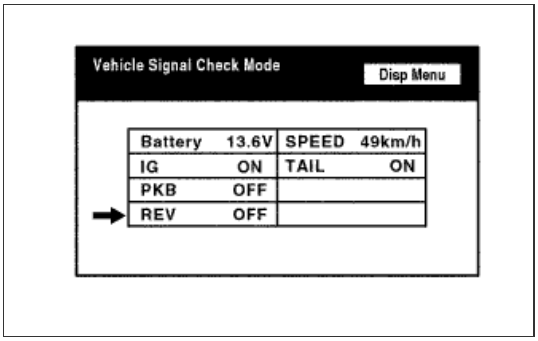



## INSPECTION PROCEDURE

### 1.CHECK REVERSE SIGNAL (DISPLAY CHECK MODE)

a. Enter the "Display Check" mode and select "Vehicle Signal Check" ( Click here).

b. Check that the display changes between ON and OFF according to the shift lever operation.




**OK:**

| Shift Lever Position | Display |
|---|---|
| R | ON |
| Except R | OFF |

**HINT:**

This display is updated once per second. As a result, it is normal for the display to lag behind the actual change in the switch.

NG → Go to step 4

OK

### 2.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - NAVIGATION ECU)

a. Disconnect the F39 display connector.

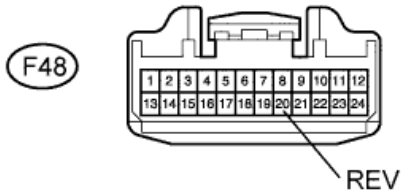
b. Disconnect the F48 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F39-15 (REV2) - F48-20 (REV) | Always | Below 1 Ω |
| F39-15 (REV2) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to Navigation ECU)




Front view of wire harness connector:
(to Multi-display)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

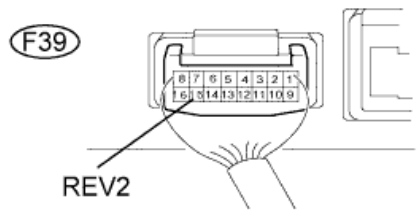
## 3.CHECK MULTI-DISPLAY

a. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F39-15 (REV2) - Body ground | Engine switch on (IG), shift lever moved to R | 11 to 14 V |
| F39-15 (REV2) - Body ground | Engine switch on (IG), shift lever moved to other than R | Below 1 V |

Component with harness connected:
(Multi-display)




NG → REPLACE MULTI-DISPLAY (Click here)

OK

REPLACE NAVIGATION ECU (Click here)

## 4.CHECK PARK/NEUTRAL POSITION SWITCH

a. Disconnect the F28 display connector.

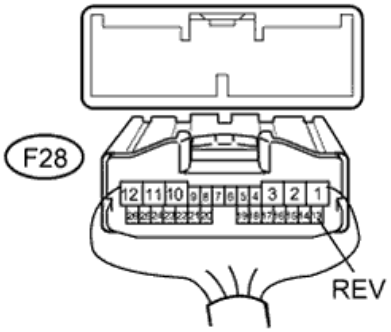
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F28-13 (REV) - Body ground | Engine switch on (IG), shift lever moved to R | 11 to 14 V |

| | | |
|---|---|---|
| F28-13 (REV) - Body ground | Engine switch on (IG), shift lever moved to other than R | Below 1 V |

Rear view of wire harness connector:
(to Multi-display)




NG → Go to step 5

OK

REPLACE MULTI-DISPLAY (Click here)

## 5.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - PARK/NEUTRAL POSITION SWITCH)

a. Disconnect the F28 display connector.

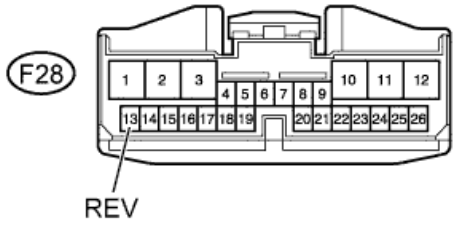
b. Disconnect the C19 position switch connector.

c. Measure the resistance according to the value(s) in the table below.

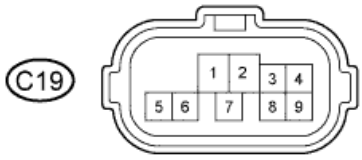
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F28-13 (REV) - C19-1 | Always | Below 1 Ω |
| F28-13 (REV) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to Multi-display)




Front view of wire harness connector:
(to Park/Neutral Position Switch)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

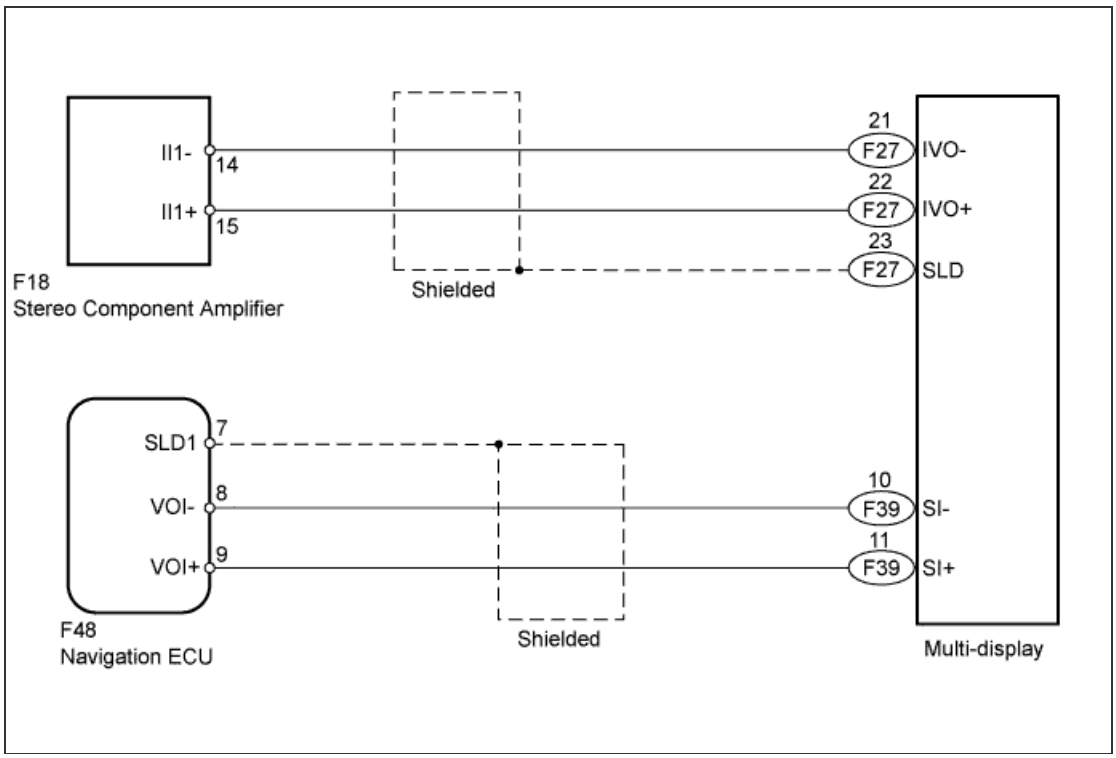
REPLACE PARK/NEUTRAL POSITION SWITCH (Click here)

**for Preparation** Click here

## DESCRIPTION

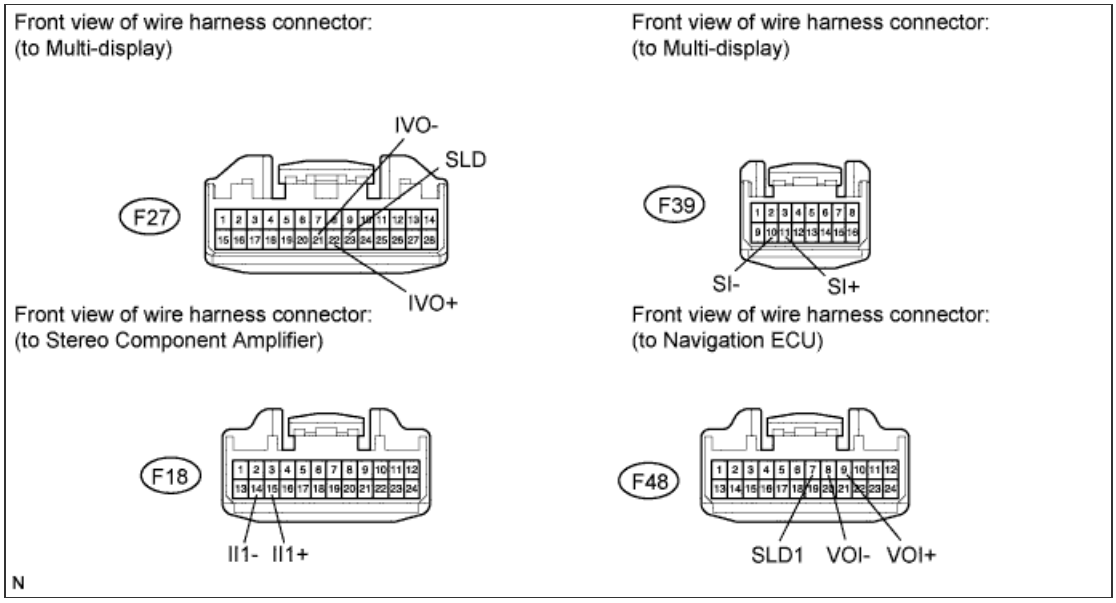
This circuit is used when the voice guidance in the navigation system is on.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - STEREO COMPONENT AMPLIFIER AND NAVIGATION ECU)




a. Disconnect the F27 and F39 display connectors.

b. Disconnect the F18 amplifier connector.

c. Disconnect the F48 ECU connector.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F27-21 (IVO-) - F18-14 (II1-) | Always | Below 1 Ω |
| F27-22 (IVO+) - F18-15 (II1+) | Always | Below 1 Ω |
| F39-10 (SI-) - F48-8 (VOI-) | Always | Below 1 Ω |
| F39-11 (SI+) - F48-9 (VOI+) | Always | Below 1 Ω |
| F27-21 (IVO-) - Body ground | Always | 10 kΩ or higher |
| F27-22 (IVO+) - Body ground | Always | 10 kΩ or higher |
| F39-10 (SI-) - Body ground | Always | 10 kΩ or higher |
| F39-11 (SI+) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

The multi-media module receiver assembly sends a visual mute signal to the multi-display assembly. As a result, a black screen is inserted when the screen changes so that noise and distorted images are not displayed.
When an open exists in the circuit, noise and distorted images will be displayed instead of a black screen.
When a short exists in the circuit, even though the multi-display assembly is operating normally, noise and distorted images will be displayed (black screen will not be displayed) during screen changes or the black screen will always be displayed.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY

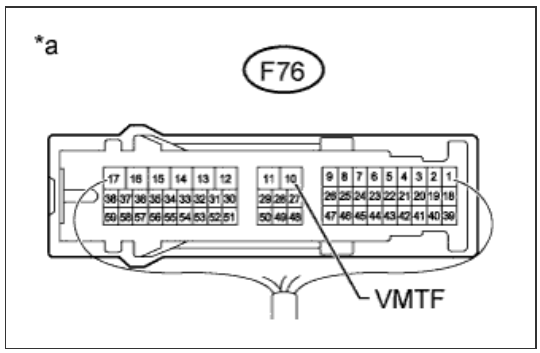
a. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-10 (VMTF) - Body ground | Engine switch on (ACC), screen display changes. | 3.5 V or higher → Below 1 V → 3.5 V or higher |

**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Multi-media Module Receiver Assembly) |




NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

### 2.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - MULTI-DISPLAY ASSEMBLY)

a. Disconnect the F78 multi-display assembly connector.

b. Disconnect the F76 multi-media module receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F78-11 (VMTI) - F76-10 (VMTF) | Always | Below 1 Ω |

| | | |
|---|---|---|
| F78-11 (VMTI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

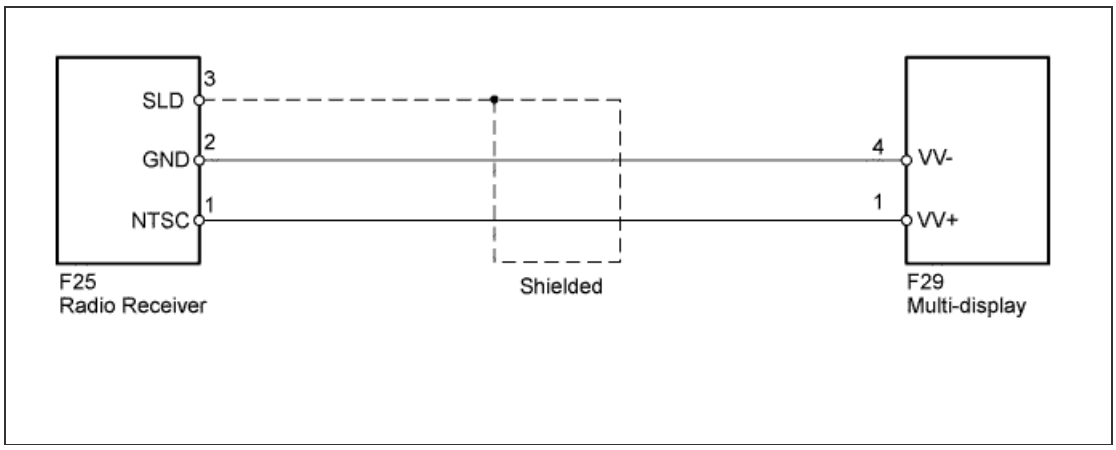
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit sends a DVD image signal from the radio receiver to the multi-display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - RADIO RECEIVER)

a. Disconnect the F29 display connector.

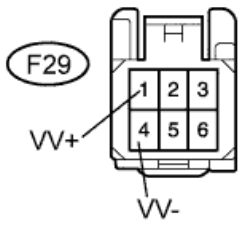
b. Disconnect the F25 receiver connector.

c. Measure the resistance according to the value(s) in the table below.

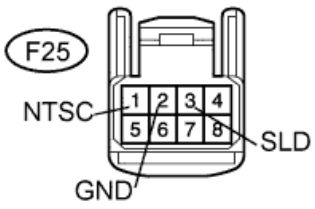
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F29-4 (VV-) - F25-2 (GND) | Always | Below 1 Ω |
| F29-1 (VV+) - F25-1 (NTSC) | Always | Below 1 Ω |
| F29-4 (VV-) - Body ground | Always | 10 kΩ or higher |
| F29-1 (VV+) - Body ground | Always | 10 kΩ or higher |
| F25-3 (SLD) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to Multi-display)




Front view of wire harness connector:
(to Radio Receiver)




N

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 2.CHECK RADIO RECEIVER ASSEMBLY (NTSC SIGNAL)

a. Reconnect the F25 receiver connector.

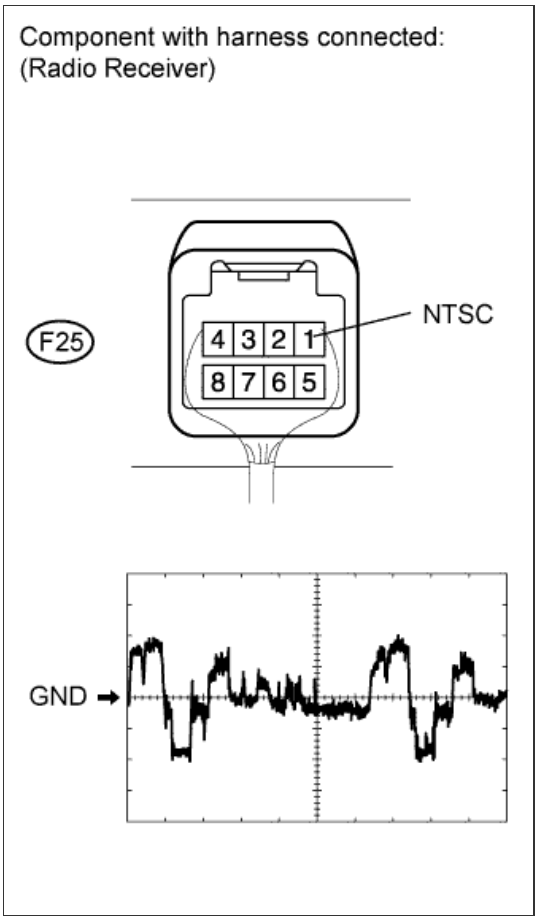
b. Check the waveform of the radio receiver using an oscilloscope.

**Waveform (Reference)**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F25-1 (NTSC) - Body ground |
| Tool setting | 0.2 V/DIV., 10 µsec./DIV. |
| Condition | DVD played on radio receiver |

**OK:**

**Waveform is as shown in the illustration.**




NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

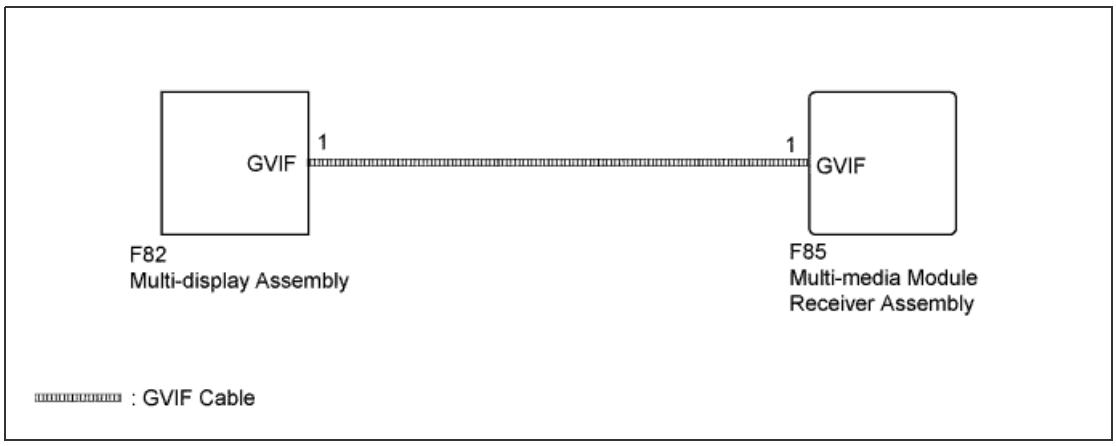
OK → PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

The display image signal from the multi-media module receiver assembly is sent to the multi-display assembly using a GVIF cable.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**1.CHECK GVIF CABLE CONNECTOR**

a. Check if the GVIF cable connector between the multi-media module receiver assembly and the multi-display assembly have any connection problems (Click here).

b. Check that the screen display is normal.

**OK:**
**Screen display is normal.**

**NG** → **Go to step 2**

**OK** →

**USE SIMULATION METHOD TO CHECK (Click here)**

**2.CHECK MULTI-DISPLAY ASSEMBLY**

a. Replace the multi-display assembly (Click here).

b. Check that the screen display is normal.

**OK:**
**Screen display is normal.**

**NG** → **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)**

**OK** →

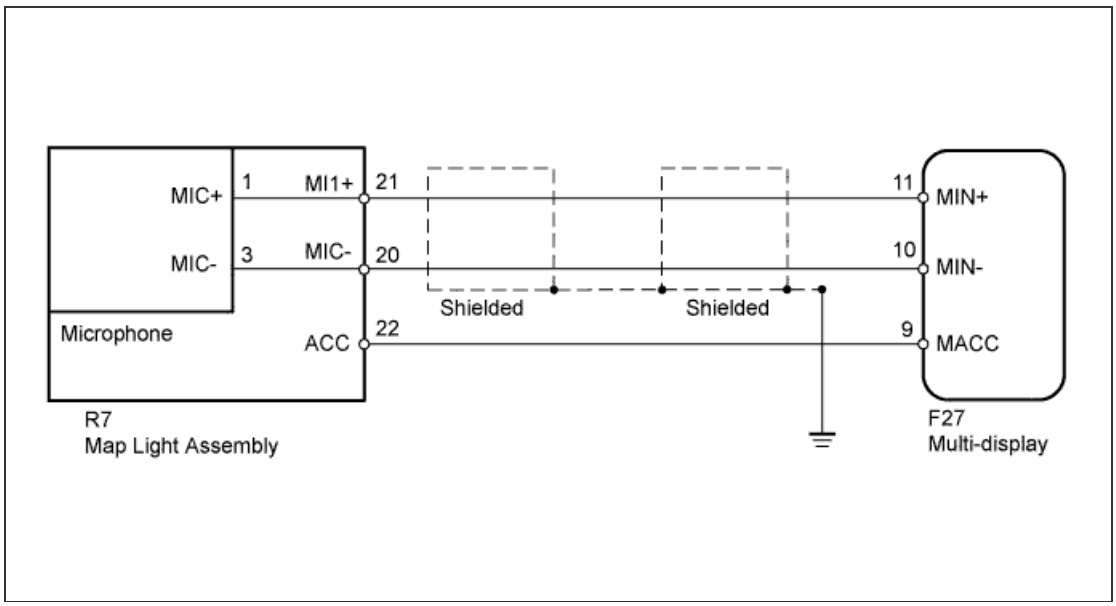
**END (MULTI-DISPLAY ASSEMBLY IS DEFECTIVE)**

**for Preparation** Click here

## DESCRIPTION

This circuit sends a microphone signal from the microphone in the map light to the multi-display.

## WIRING DIAGRAM



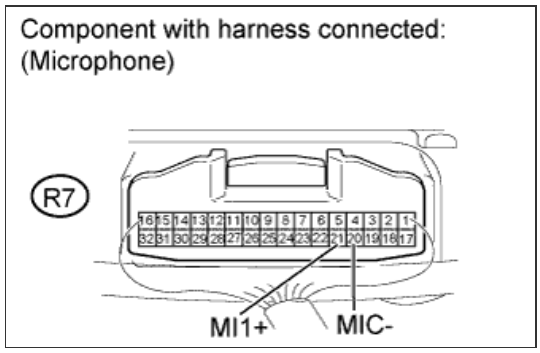

## INSPECTION PROCEDURE

### 1.CHECK MICROPHONE

a. Check the waveform of the microphone using an oscilloscope.

**Standard**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| R7-21 (MI1+) - R7-20 (MIC-) | Engine switch on (ACC), and "Voice" switch of steering pad switch pressed | Waveform that matches sound spoken into microphone is output. |




NG → Go to step 4

OK

### 2.CHECK HARNESS AND CONNECTOR (MAP LIGHT - MULTI-DISPLAY)

a. Disconnect the R7 map light connector.

b. Disconnect the F27 display connector.

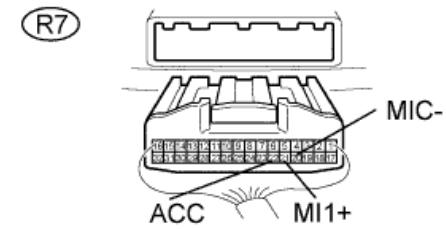
c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

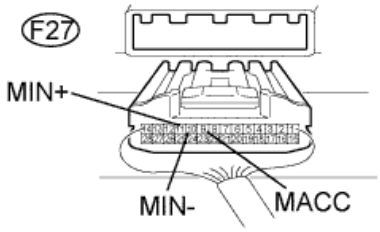
| Tester Connection | Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| F27-9 (MACC) - R7-22 (ACC) | Always | Below 1 Ω |
| F27-11 (MIN+) - R7-21 (MI1+) | Always | Below 1 Ω |
| F27-10 (MIN-) - R7-20 (MIC-) | Always | Below 1 Ω |
| F27-9 (MACC) - Body ground | Always | 10 kΩ or higher |
| F27-11 (MIN+) - Body ground | Always | 10 kΩ or higher |
| F27-10 (MIN-) - Body ground | Always | 10 kΩ or higher |

Rear View of wire harness connected:
(to Map Light Assembly)




Rear View of wire harness connected:
(to Multi-display)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**3.CHECK MULTI-DISPLAY (MACC VOLTAGE)**

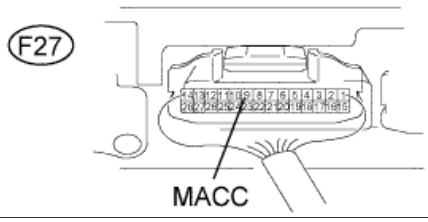
a. Reconnect the F27 display connector.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F27-9 (MACC) - Body ground | Engine switch on (ACC) | 4 to 6 V |

Component with harness connected:
(Multi-display)




NG → REPLACE MULTI-DISPLAY (Click here)

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**4.CHECK MICROPHONE ASSEMBLY**

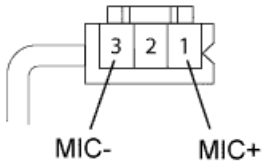
a. Remove the microphone from the map light.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 (MIC+) - 3 (MIC-) | Always | 1.9 to 2.2 kΩ |

Component without harness connected:
(Microphone)



NG → REPLACE MICROPHONE ASSEMBLY (Click here)

OK

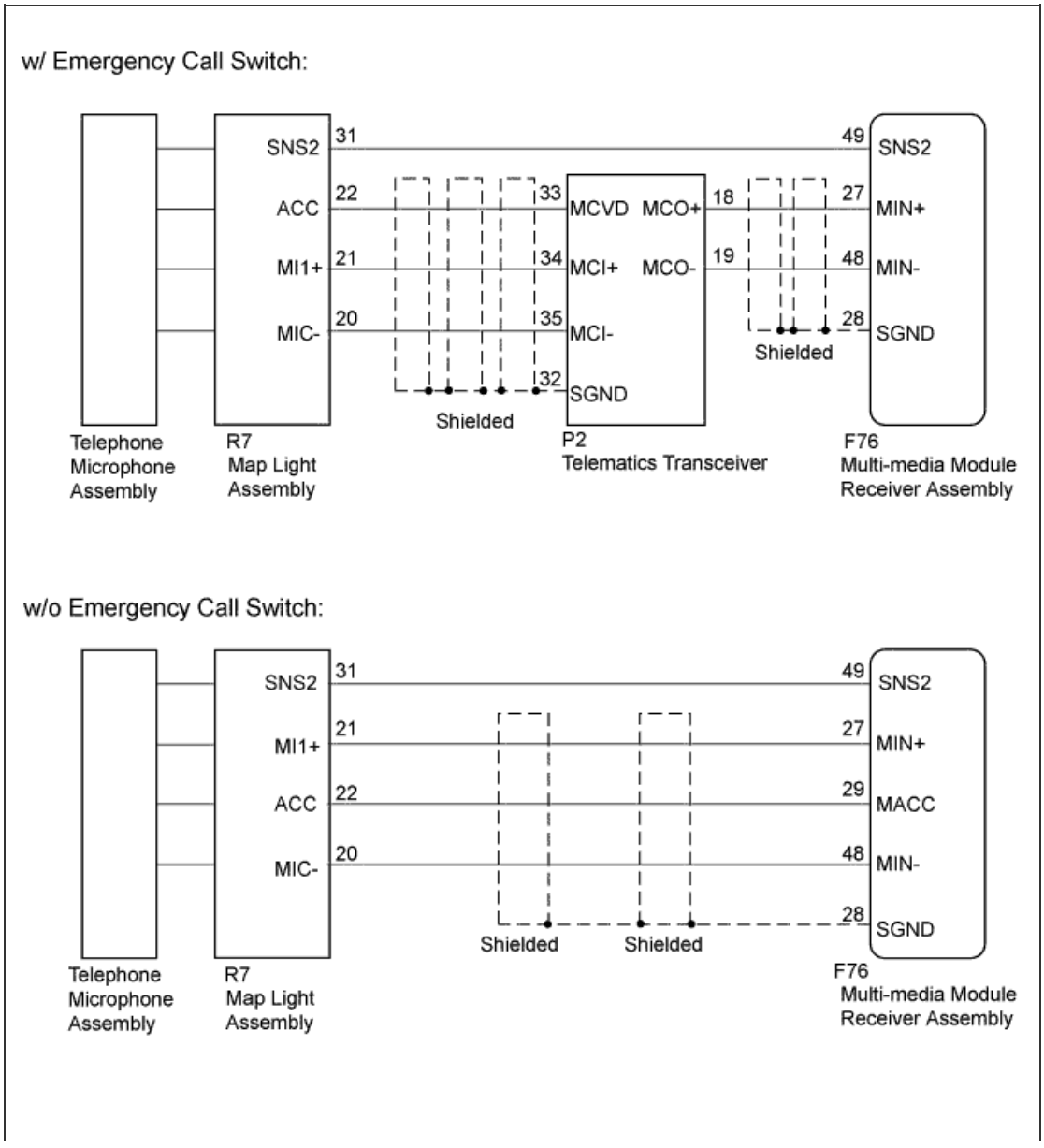
REPLACE MAP LIGHT ASSEMBLY (Click here)

**for Preparation** Click here

## DESCRIPTION

- The multi-media module receiver assembly and map light assembly (telephone microphone assembly) are connected to each other using the microphone connection detection signal lines.
- Using this circuit, the multi-media module receiver assembly sends power to the map light assembly (telephone microphone assembly), and the map light assembly (telephone microphone assembly) sends microphone signals to the multi-media module receiver assembly (w/o Emergency Call Switch).
- Using this circuit, the telematics transceiver sends power to the map light assembly (telephone microphone assembly), and the map light assembly (telephone microphone assembly) sends microphone signals to the multi-media module receiver assembly via the telematics transceiver (w/ Emergency Call Switch).

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**HINT:**

When replacing the multi-media module receiver assembly or the telematics transceiver, perform the vehicle contract setting ( Click here).

### 1.CONFIRM MODEL

a. Check the model to be inspected.

**Result**

| Model | Proceed to |
|---|---|
| w/o Emergency Call Switch | A |
| w/ Emergency Call Switch | B |

B → Go to step 7

A

**2.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - MAP LIGHT ASSEMBLY)**

a. Disconnect the F76 multi-media module receiver assembly connector.

b. Disconnect the R7 map light assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-27 (MIN+) - R7-21 (MI1+) | Always | Below 1 Ω |
| F76-48 (MIN-) - R7-20 (MIC-) | Always | Below 1 Ω |
| F76-29 (MACC) - R7-22 (ACC) | Always | Below 1 Ω |
| F76-49 (SNS2) - R7-31 (SNS2) | Always | Below 1 Ω |
| F76-27 (MIN+) - Body ground | Always | 10 kΩ or higher |
| F76-48 (MIN-) - Body ground | Always | 10 kΩ or higher |
| F76-28 (SGND) - Body ground | Always | 10 kΩ or higher |
| F76-49 (SNS2) - Body ground | Always | 10 kΩ or higher |
| F76-29 (MACC) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**3.CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY**

a. Measure the voltage according to the value(s) in the table below.

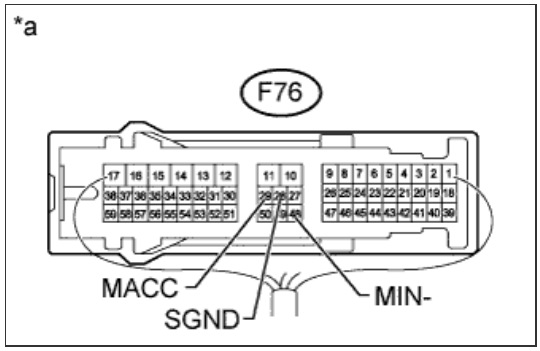
**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F76-29 (MACC) - Body ground | Engine switch on (ACC) | 4 to 6 V |

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-28 (SGND) - Body ground | Always | Below 1 Ω |
| F76-48 (MIN-) - | | |



| | | |
|---|---|---|
| Body ground | Always | Below 1 Ω |

**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected<br>(Multi-media Module Receiver Assembly) |

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

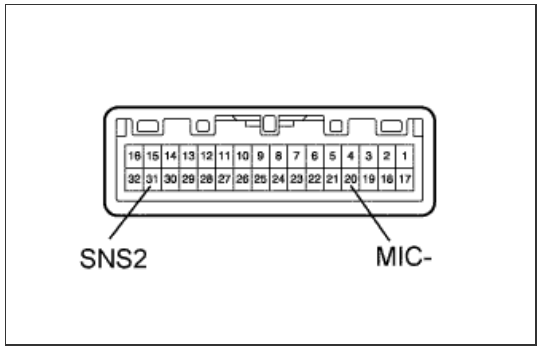
## 4.INSPECT MAP LIGHT ASSEMBLY

a. Remove the map light assembly (Click here).

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 20 (MIC-) - 31 (SNS2) | Always | Below 1 Ω |




NG → Go to step 6

OK

## 5.CHECK MAP LIGHT ASSEMBLY

a. Turn the engine switch on (ACC).

b. Connect an oscilloscope to terminals R7-21 (MI1+) and R7-20 (MIC-) of the map light assembly connector.

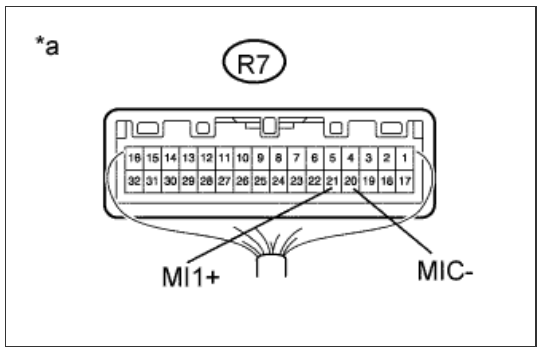
c. Check the waveform of the telephone microphone assembly using the oscilloscope.

**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected<br>(Map Light Assembly) |

**Result**

| Result | Proceed to |
|---|---|
| A waveform synchronized with the voice input to the map light assembly is output. | A |
| A waveform synchronized with the voice input to the map light assembly is not output. | B |




B → Go to step 6

A

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

## 6.CHECK TELEPHONE MICROPHONE ASSEMBLY

a. Replace the telephone microphone assembly with a new or normally functioning one ( Click here).

b. Check if the same malfunction recurs.

**Result**

| Result | Proceed to |
|---|---|
| Malfunction does not recur (returns to normal). | A |
| Malfunction recurs. | B |

B → REPLACE MAP LIGHT ASSEMBLY (Click here)

A

END (TELEPHONE MICROPHONE ASSEMBLY IS DEFECTIVE)

7.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - MAP LIGHT ASSEMBLY)

a. Disconnect the F76 multi-media module receiver assembly connector.

b. Disconnect the R7 map light assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-49 (SNS2) - R7-31 (SNS2) | Always | Below 1 Ω |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

8.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - TELEMATICS TRANSCEIVER)

a. Disconnect the F76 multi-media module receiver assembly connector.

b. Disconnect the P2 telematics transceiver connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-27 (MIN+) - P2-18 (MCO+) | Always | Below 1 Ω |
| F76-48 (MIN-) - P2-19 (MCO-) | Always | Below 1 Ω |
| F76-27 (MIN+) - Body ground | Always | 10 kΩ or higher |
| F76-48 (MIN-) - Body ground | Always | 10 kΩ or higher |
| F76-28 (SGND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

9.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - MAP LIGHT ASSEMBLY)

a. Disconnect the P2 telematics transceiver connector.

b. Disconnect the R7 map light assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P2-33 (MCVD) - R7-22 (ACC) | Always | Below 1 Ω |
| P2-34 (MCI+) - R7-21 (MI1+) | Always | Below 1 Ω |
| P2-35 (MCI-) - R7-20 (MIC-) | Always | Below 1 Ω |
| P2-33 (MCVD) - Body ground | Always | 10 kΩ or higher |
| P2-34 (MCI+) - Body ground | Always | 10 kΩ or higher |
| P2-35 (MCI-) - Body ground | Always | 10 kΩ or higher |
| P2-32 (SGND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

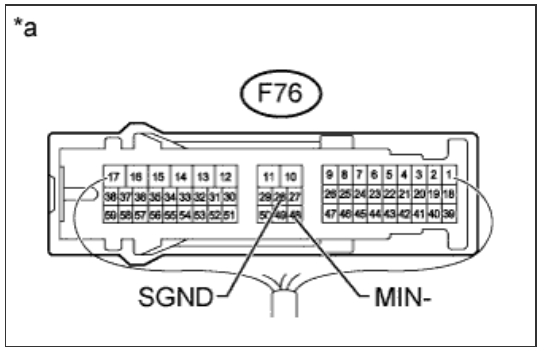
## 10.CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY

a. Disconnect the P2 telematics transceiver connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-28 (SGND) - Body ground | Always | Below 1 Ω |
| F76-48 (MIN-) - Body ground | Always | Below 1 Ω |




**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Multi-media Module Receiver Assembly) |

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

## 11.CHECK TELEMATICS TRANSCEIVER

a. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

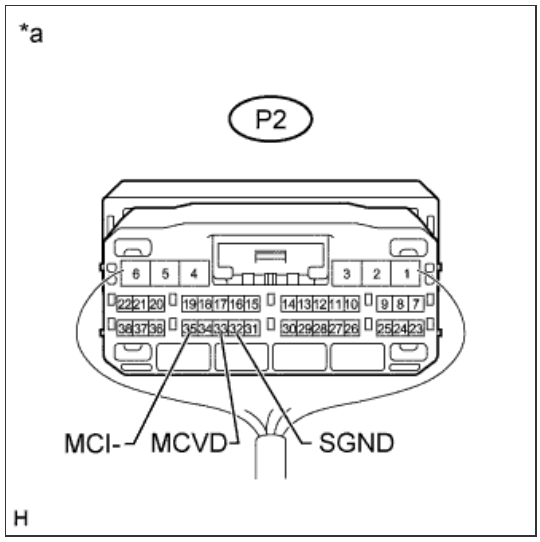
| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| P2-33 (MCVD) - Body ground | Engine switch on (ACC) | 4 to 6 V |

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| | | |

| | | |
|---|---|---|
| P2-32 (SGND) - Body ground | Always | Below 1 Ω |
| P2-35 (MCI-) - Body ground | Always | Below 1 Ω |




**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Telematics Transceiver) |

NG → REPLACE TELEMATICS TRANSCEIVER (Click here)

OK

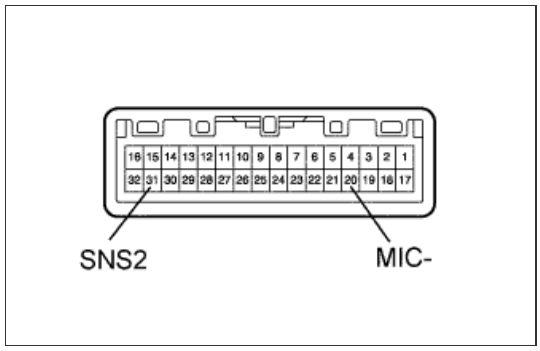
## 12.INSPECT MAP LIGHT ASSEMBLY

a. Remove the map light assembly (Click here).

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 20 (MIC-) - 31 (SNS2) | Always | Below 1 Ω |




NG → Go to step 14

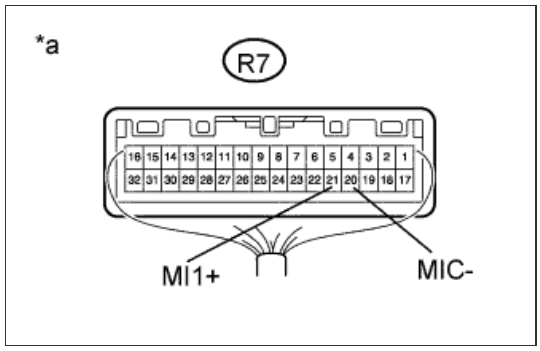
OK

## 13.CHECK MAP LIGHT ASSEMBLY

a. Turn the engine switch on (ACC).

b. Connect an oscilloscope to terminals R7-21 (MI1+) and R7-20 (MIC-) of the map light assembly connector.

c. Check the waveform of the telephone microphone assembly using the oscilloscope.




**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Map Light Assembly) |

**Result**

| Result | Proceed to |
|---|---|
| A waveform synchronized with the voice input to the map light assembly is output. | A |
| A waveform synchronized with the voice input to the map light assembly is not output. | B |

B → Go to step 14

A

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( **Click here**)

## 14.CHECK TELEPHONE MICROPHONE ASSEMBLY

a. Replace the telephone microphone assembly with a new or normally functioning one ( Click here).

b. Check if the same malfunction recurs.

**Result**

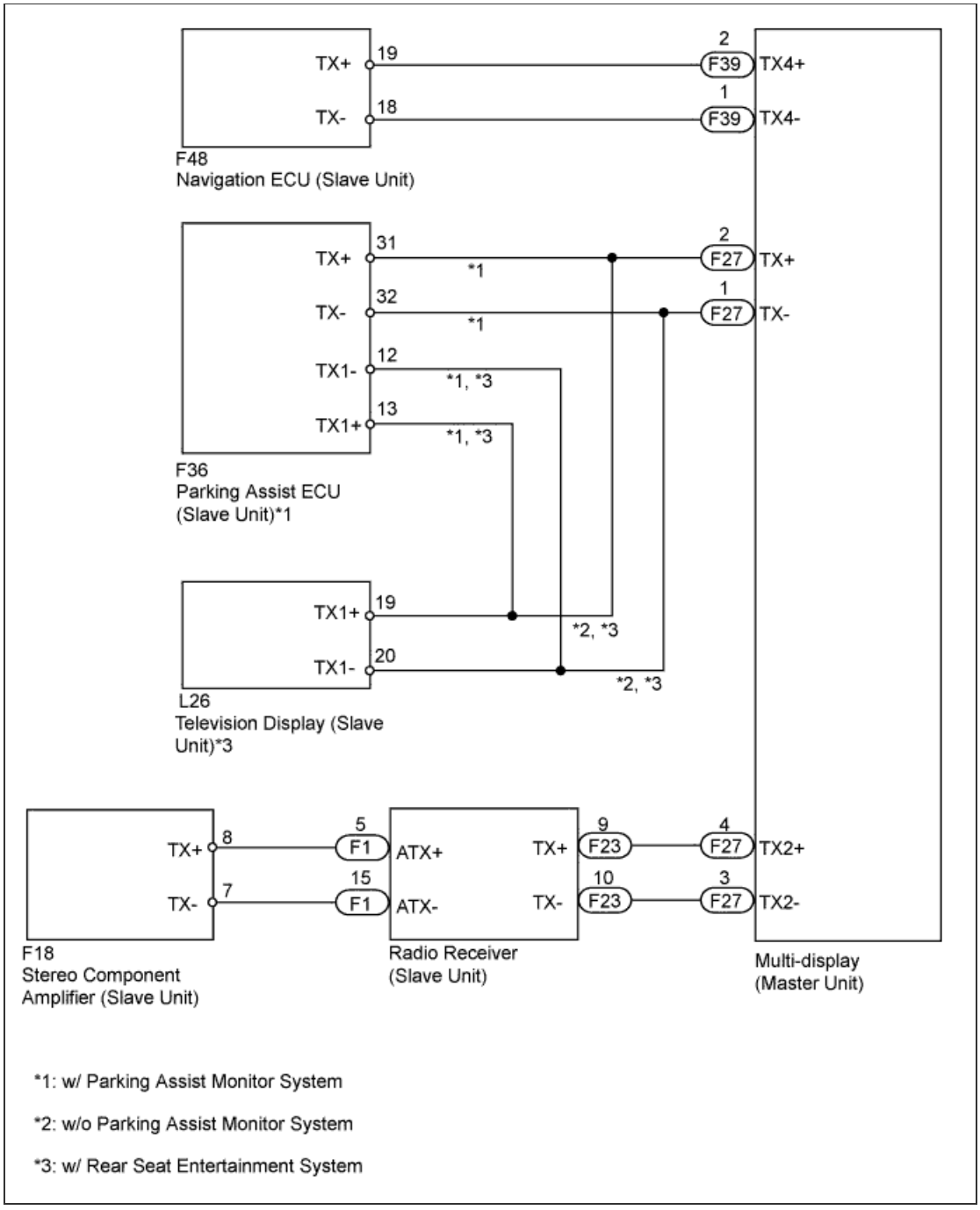
| Result | Proceed to |
|---|---|
| Malfunction does not recur (returns to normal). | A |
| Malfunction recurs. | B |

B → REPLACE MAP LIGHT ASSEMBLY (**Click here**)

A → END (TELEPHONE MICROPHONE ASSEMBLY IS DEFECTIVE)

**for Preparation** Click here

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.IDENTIFY COMPONENT SHOWN BY SUB-CODE

a. Enter the diagnostic mode.

b. Press the "LAN Mon" switch to change to "LAN Monitor" mode.

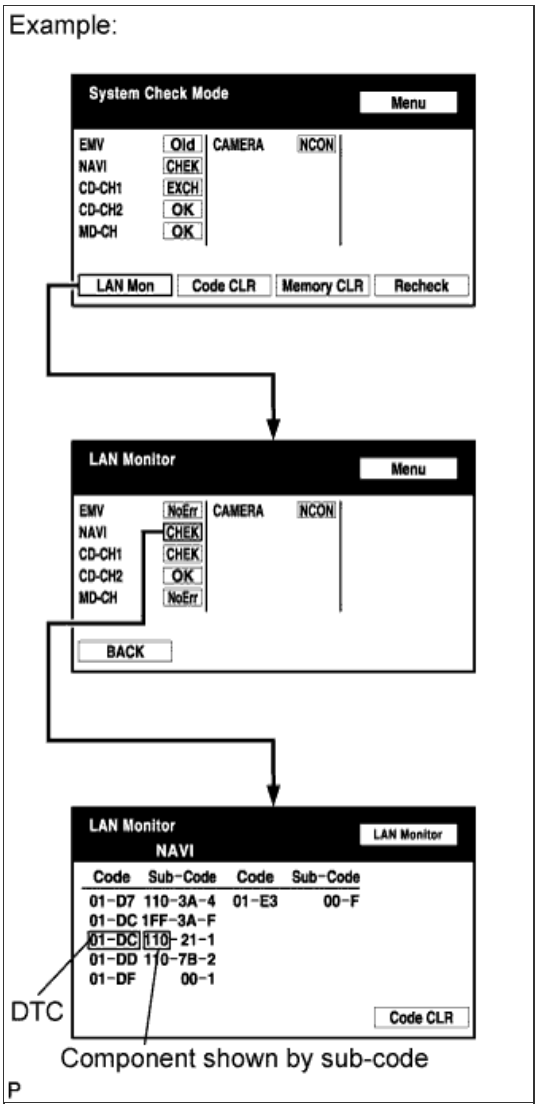
c. Identify the component shown by the sub-code.

**HINT:**

- **"110 (multi-display)" is the component shown by the sub-code**

in the example shown in the illustration.

- The sub-code will be indicated by its physical address.
- For the component list, refer to Diagnosis Display Detailed Description in the System Description (Click here).




NEXT

## 2.CHECK POWER SOURCE CIRCUIT OF COMPONENT SHOWN BY SUB-CODE

a. Inspect the power source circuit of the component shown by the sub-code.
If the power source circuit is operating normally, proceed to the next step.

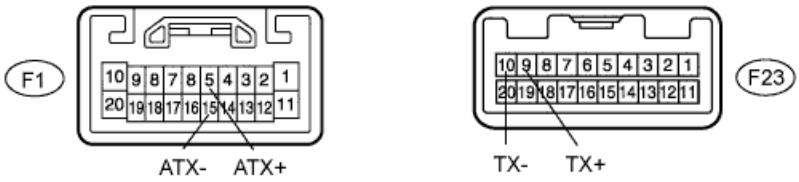
**Component Table**

| Component | Proceed to |
|---|---|
| Stereo component amplifier (440) | Stereo component amplifier power source circuit (Click here) |
| Multi-display (110) | Multi-display power source circuit (Click here) |
| Navigation ECU (178) | Navigation ECU power source circuit (Click here) |
| Parking assist ECU (1AC) | Parking assist ECU power source circuit (Click here) |
| Television display (1F6) | Television display power source circuit (Click here) |

NEXT

## 3.INSPECT RADIO RECEIVER ASSEMBLY

Component without harness connected:
(Radio Receiver)




a. Disconnect the F1 and F23 receiver connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-5 (ATX+) - F1-15 (ATX-) | Always | 60 to 80 Ω |
| F23-9 (TX+) - F23-10 (TX-) | Always | 60 to 80 Ω |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

## 4.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - COMPONENT SHOWN BY SUB-CODE)

**HINT:**

- **Start the check from the circuit that is near the component shown by the sub-code first.**
- **For details of the connectors, refer to Terminals of ECU (Click here).**

a. Referring to the AVC-LAN wiring diagram, check the AVC-LAN circuit between the radio receiver and the component shown by the sub-code.

i. Disconnect all connectors between the radio receiver and the component shown by sub-code.

ii. Check for an open or short in the AVC-LAN circuit between the radio receiver and the component shown by the sub-code.

**OK:**
**There is no open or short circuit.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.REPLACE COMPONENT SHOWN BY SUB-CODE

a. Replace the component shown by the sub-code with a normal one and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

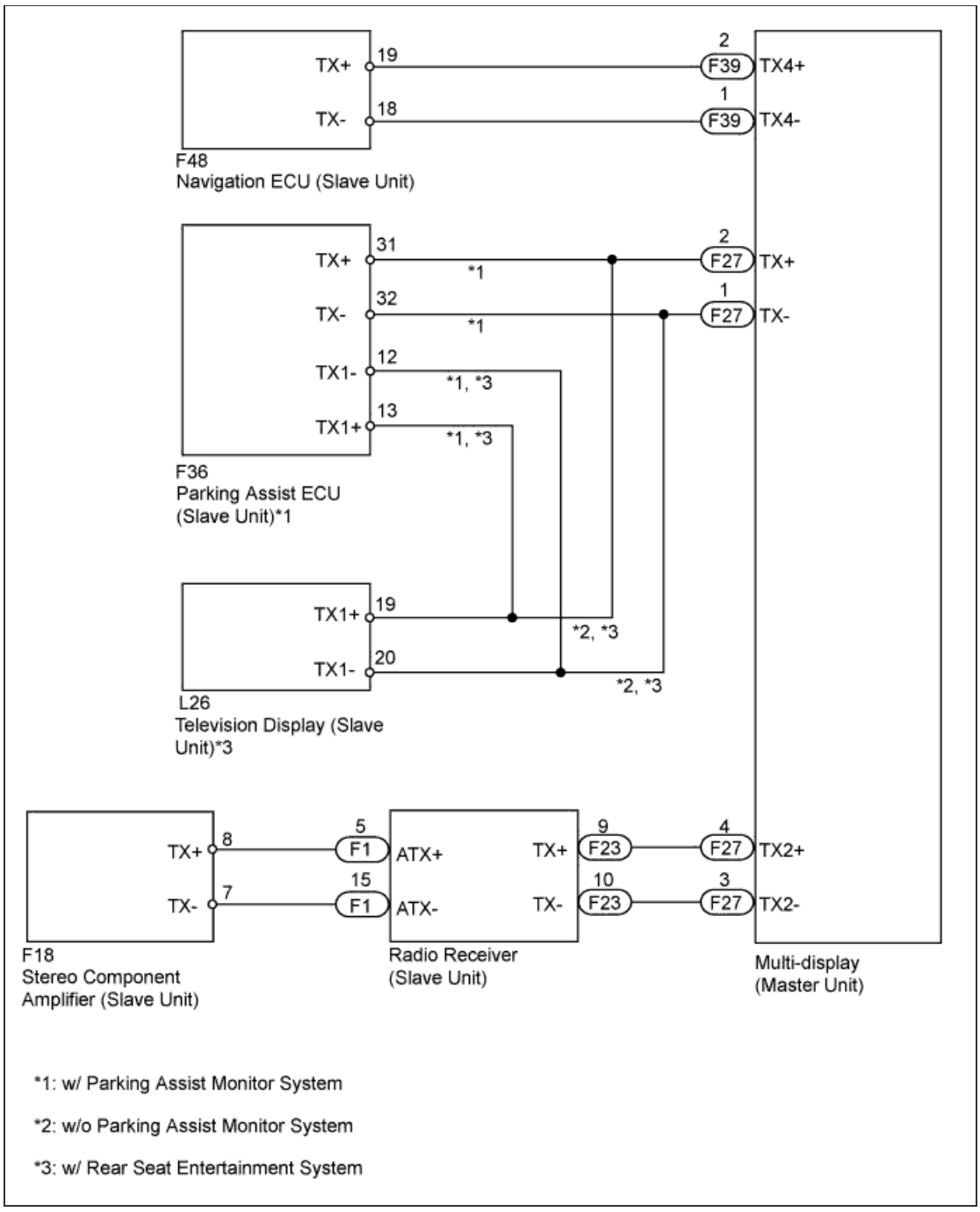
NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

END

**for Preparation** Click here

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.IDENTIFY COMPONENT SHOWN BY SUB-CODE

a. Enter the diagnostic mode.

b. Press the "LAN Mon" switch to change to "LAN Monitor" mode.

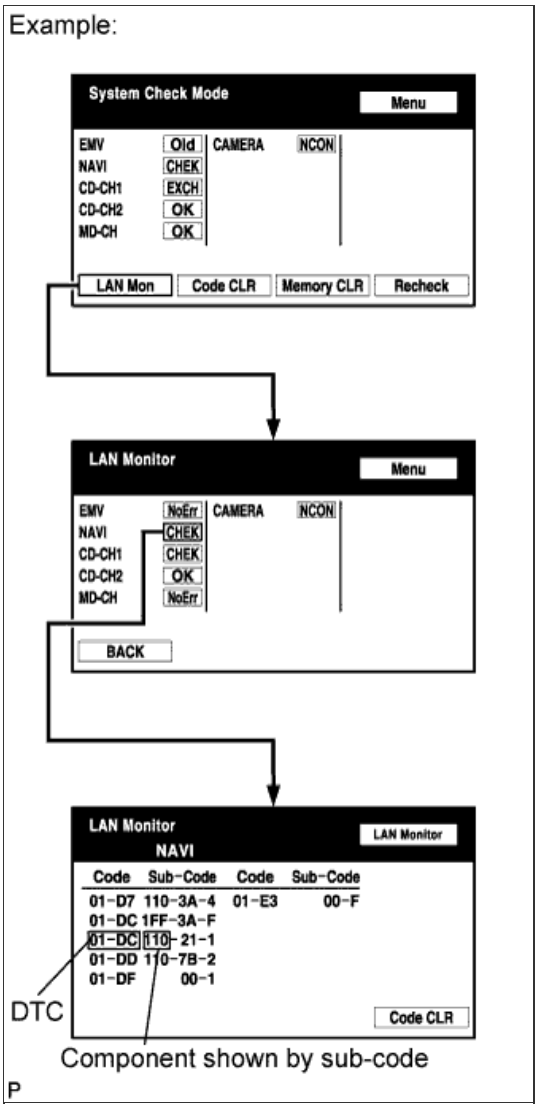
c. Identify the component shown by the sub-code.

**HINT:**

- **"110 (multi-display)" is the component shown by the sub-code**

in the example shown in the illustration.

- The sub-code will be indicated by its physical address.
- For the component list, refer to Diagnosis Display Detailed Description in the System Description (Click here).




NEXT

## 2.CHECK POWER SOURCE CIRCUIT OF COMPONENT SHOWN BY SUB-CODE

a. Inspect the power source circuit of the component shown by the sub-code.
If the power source circuit is operating normally, proceed to the next step.

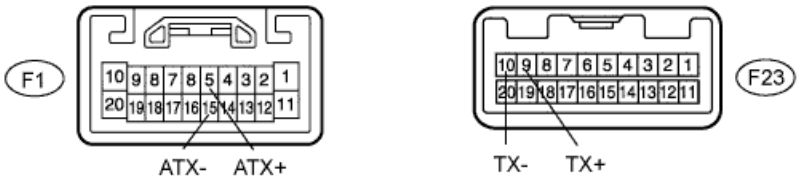
**Component Table**

| Component | Proceed to |
|---|---|
| Radio receiver (190) | Radio receiver power source circuit (Click here) |
| Multi-display (110) | Multi-display power source circuit (Click here) |
| Navigation ECU (178) | Navigation ECU power source circuit (Click here) |
| Parking assist ECU (1AC) | Parking assist ECU power source circuit (Click here) |
| Television display (1F6) | Television display power source circuit (Click here) |

NEXT

## 3.INSPECT RADIO RECEIVER ASSEMBLY

Component without harness connected:
(Radio Receiver)




a. Disconnect the F1 and F23 receiver connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-5 (ATX+) - F1-15 (ATX-) | Always | 60 to 80 Ω |
| F23-9 (TX+) - F23-10 (TX-) | Always | 60 to 80 Ω |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

**4.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - COMPONENT SHOWN BY SUB-CODE)**

**HINT:**

- **Start the check from the circuit that is near the component shown by the sub-code first.**
- **For details of the connectors, refer to Terminals of ECU (Click here).**

a. Referring to the AVC-LAN wiring diagram, check the AVC-LAN circuit between the stereo component amplifier and the component shown by the sub-code.

i. Disconnect all connectors between the stereo component amplifier and the component shown by sub-code.

ii. Check for an open or short in the AVC-LAN circuit between the stereo component amplifier and the component shown by the sub-code.

**OK:**
**There is no open or short circuit.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**5.REPLACE COMPONENT SHOWN BY SUB-CODE**

a. Replace the component shown by the sub-code with a normal one and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

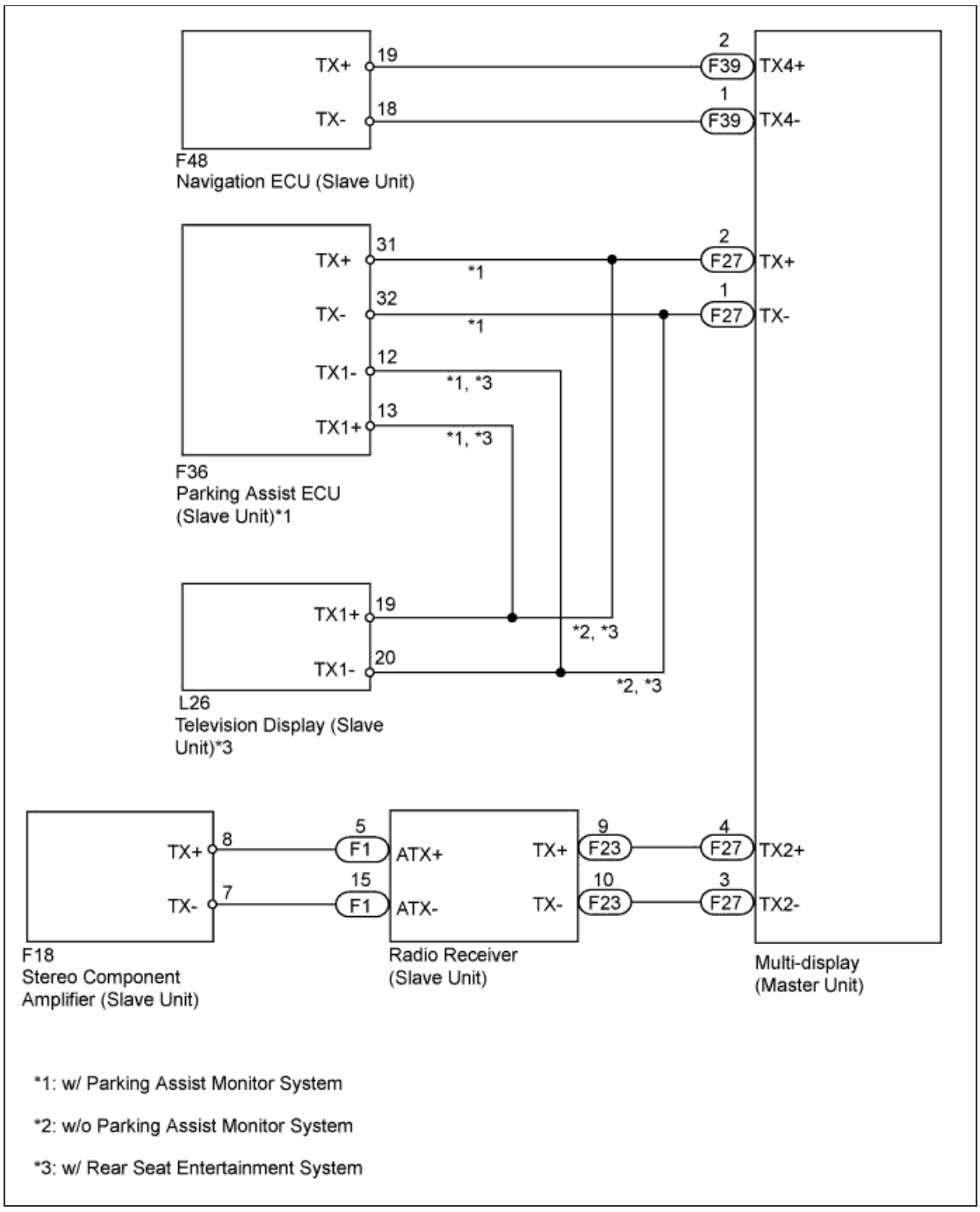
NG → REPLACE STEREO COMPONENT AMPLIFIER (Click here)

OK

**END**

**for Preparation** Click here

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.IDENTIFY COMPONENT SHOWN BY SUB-CODE

a. Enter the diagnostic mode.

b. Press the "LAN Mon" switch to change to "LAN Monitor" mode.

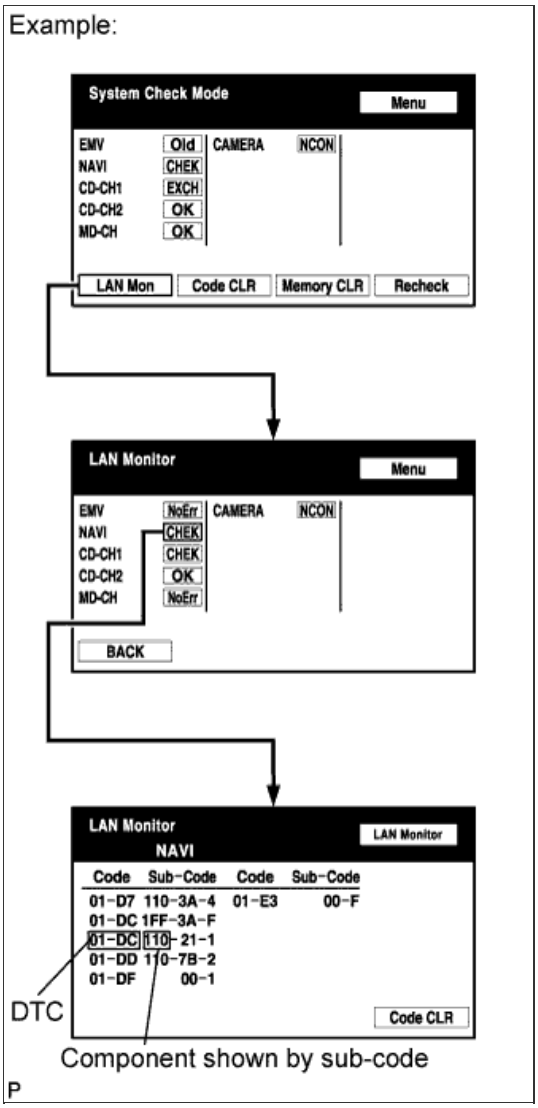
c. Identify the component shown by the sub-code.

**HINT:**

- **"110 (multi-display)" is the component shown by the sub-code**

in the example shown in the illustration.

- The sub-code will be indicated by its physical address.
- For the component list, refer to Diagnosis Display Detailed Description in the System Description (Click here).




NEXT

## 2.CHECK POWER SOURCE CIRCUIT OF COMPONENT SHOWN BY SUB-CODE

a. Inspect the power source circuit of the component shown by the sub-code.
If the power source circuit is operating normally, proceed to the next step.

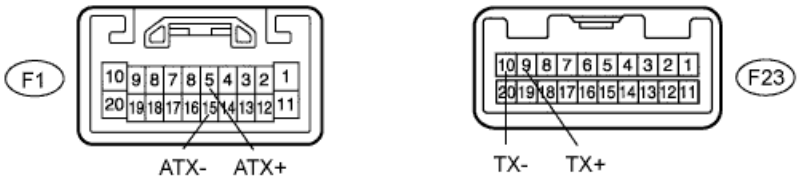
**Component Table**

| Component | Proceed to |
|---|---|
| Radio receiver (190) | Radio receiver power source circuit (Click here) |
| Stereo component amplifier (440) | Stereo component amplifier power source circuit (Click here) |
| Navigation ECU (178) | Navigation ECU power source circuit (Click here) |
| Parking assist ECU (1AC) | Parking assist ECU power source circuit (Click here) |
| Television display (1F6) | Television display power source circuit (Click here) |

NEXT

## 3.CHECK RADIO RECEIVER ASSEMBLY

Component without harness connected:
(Radio Receiver)




a. Disconnect the F1 and F23 receiver connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-5 (ATX+) - F1-15 (ATX-) | Always | 60 to 80 Ω |
| F23-9 (TX+) - F23-10 (TX-) | Always | 60 to 80 Ω |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

## 4.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - COMPONENT SHOWN BY SUB-CODE)

**HINT:**

- **Start the check from the circuit that is near the component shown by the sub-code first.**
- **For details of the connectors, refer to Terminals of ECU (Click here).**

a. Referring to the AVC-LAN wiring diagram, check the AVC-LAN circuit between the multi-display and the component shown by the sub-code.

i. Disconnect all connectors between the multi-display and the component shown by sub-code.

ii. Check for an open or short in the AVC-LAN circuit between the multi-display and the component shown by the sub-code.

**OK:**
**There is no open or short circuit.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.REPLACE COMPONENT SHOWN BY SUB-CODE

a. Replace the component shown by the sub-code with a normal one and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

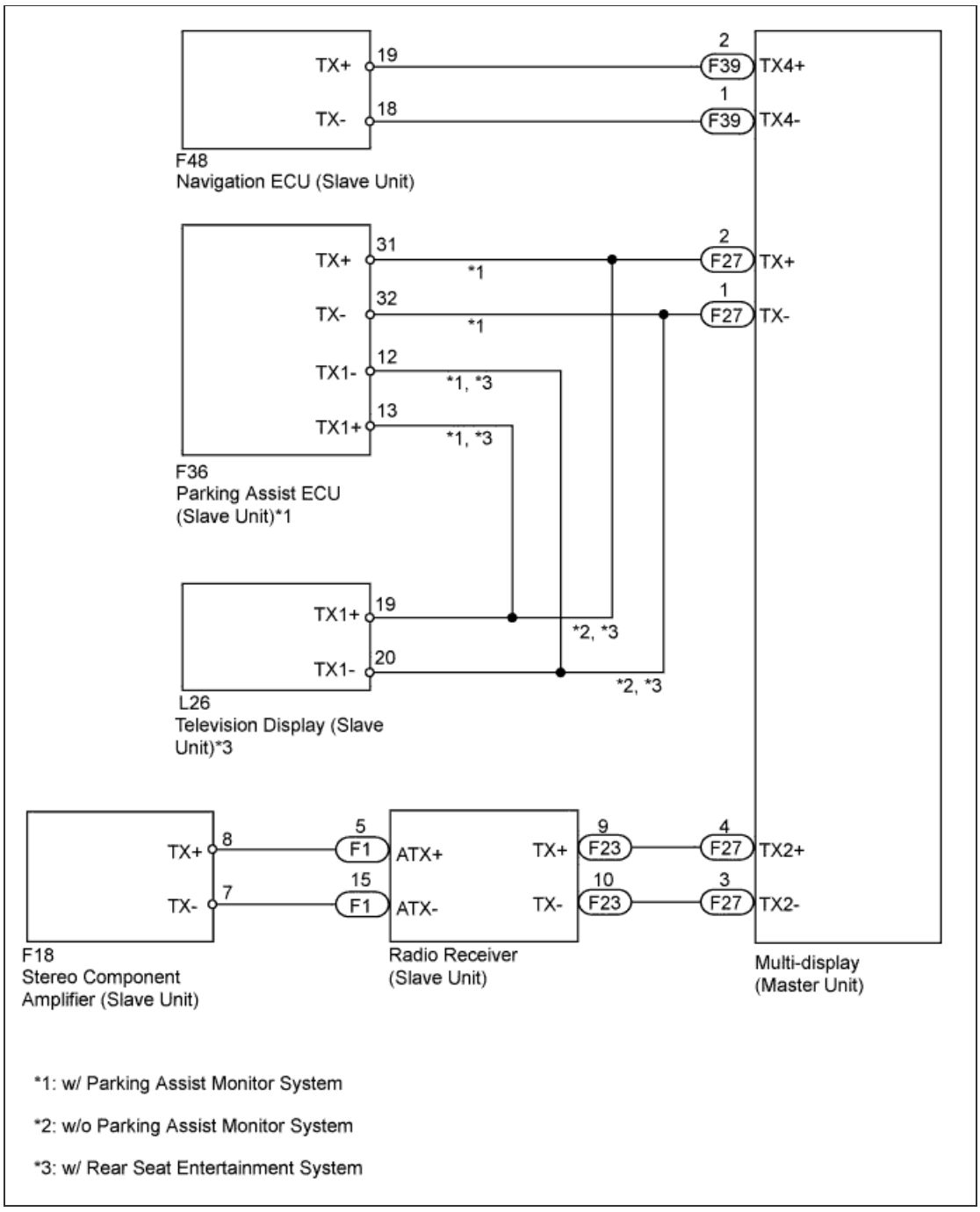
NG → REPLACE MULTI-DISPLAY (Click here)

OK

END

**for Preparation** Click here

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.IDENTIFY COMPONENT SHOWN BY SUB-CODE

a. Enter the diagnostic mode.

b. Press the "LAN Mon" switch to change to "LAN Monitor" mode.

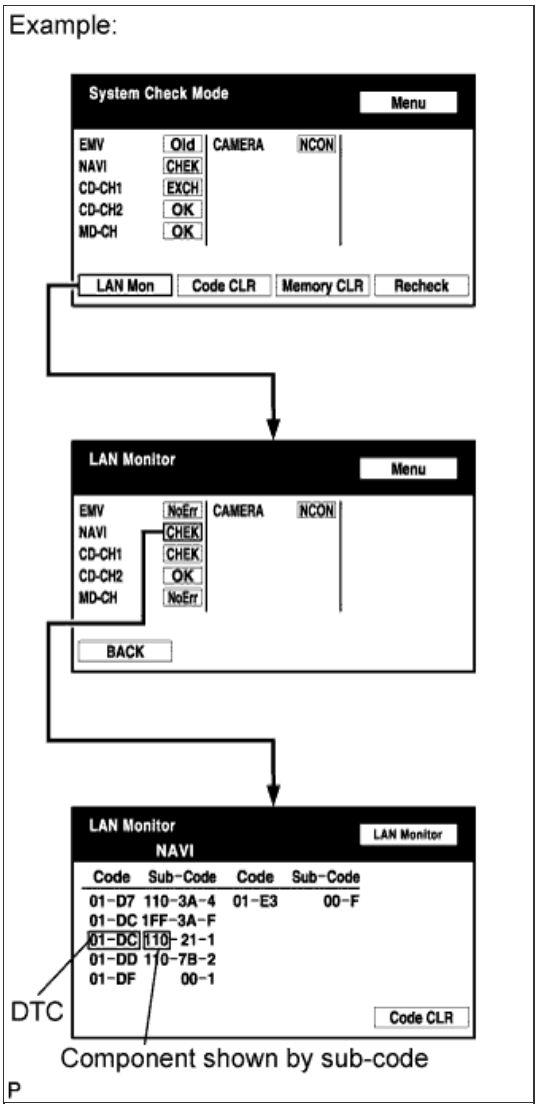
c. Identify the component shown by the sub-code.

**HINT:**

- **"110 (multi-display)" is the component shown by the sub-code**

in the example shown in the illustration.

- The sub-code will be indicated by its physical address.
- For the component list, refer to Diagnosis Display Detailed Description in the System Description (Click here).




NEXT

## 2.CHECK POWER SOURCE CIRCUIT OF COMPONENT SHOWN BY SUB-CODE

a. Inspect the power source circuit of the component shown by the sub-code.

**Component Table**

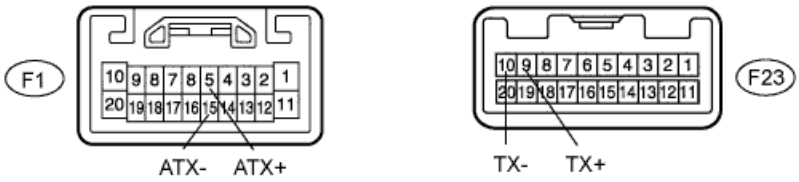
| Component | Proceed to |
|---|---|
| Radio receiver (190) | Radio receiver power source circuit (Click here) |
| Stereo component amplifier (440) | Stereo component amplifier power source circuit (Click here) |
| Multi-display (110) | Multi-display power source circuit (Click here) |
| Parking assist ECU (1AC) | Parking assist ECU power source circuit (Click here) |
| Navigation ECU (178) | Navigation ECU power source circuit (Click here) |

If the power source circuit is operating normally, proceed to the next step.

NEXT

## 3.INSPECT RADIO RECEIVER ASSEMBLY

Component without harness connected:
(Radio Receiver)




a. Disconnect the F1 and F23 receiver connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-5 (ATX+) - F1-15 (ATX-) | Always | 60 to 80 Ω |
| F23-9 (TX+) - F23-10 (TX-) | Always | 60 to 80 Ω |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

**4.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - COMPONENT SHOWN BY SUB-CODE)**

**HINT:**

- **Start the check from the circuit that is near the component shown by the sub-code first.**
- **For details of the connectors, refer to Terminals of ECU (Click here).**

a. Referring to the AVC-LAN wiring diagram, check the AVC-LAN circuit between the television display and the component shown by the sub-code.

i. Disconnect all connectors between the television display and the component shown by sub-code.

ii. Check for an open or short in the AVC-LAN circuit between the television display and the component shown by the sub-code.

**OK:**
**There is no open or short circuit.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**5.REPLACE COMPONENT SHOWN BY SUB-CODE**

a. Replace the component shown by the sub-code with a normal one and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

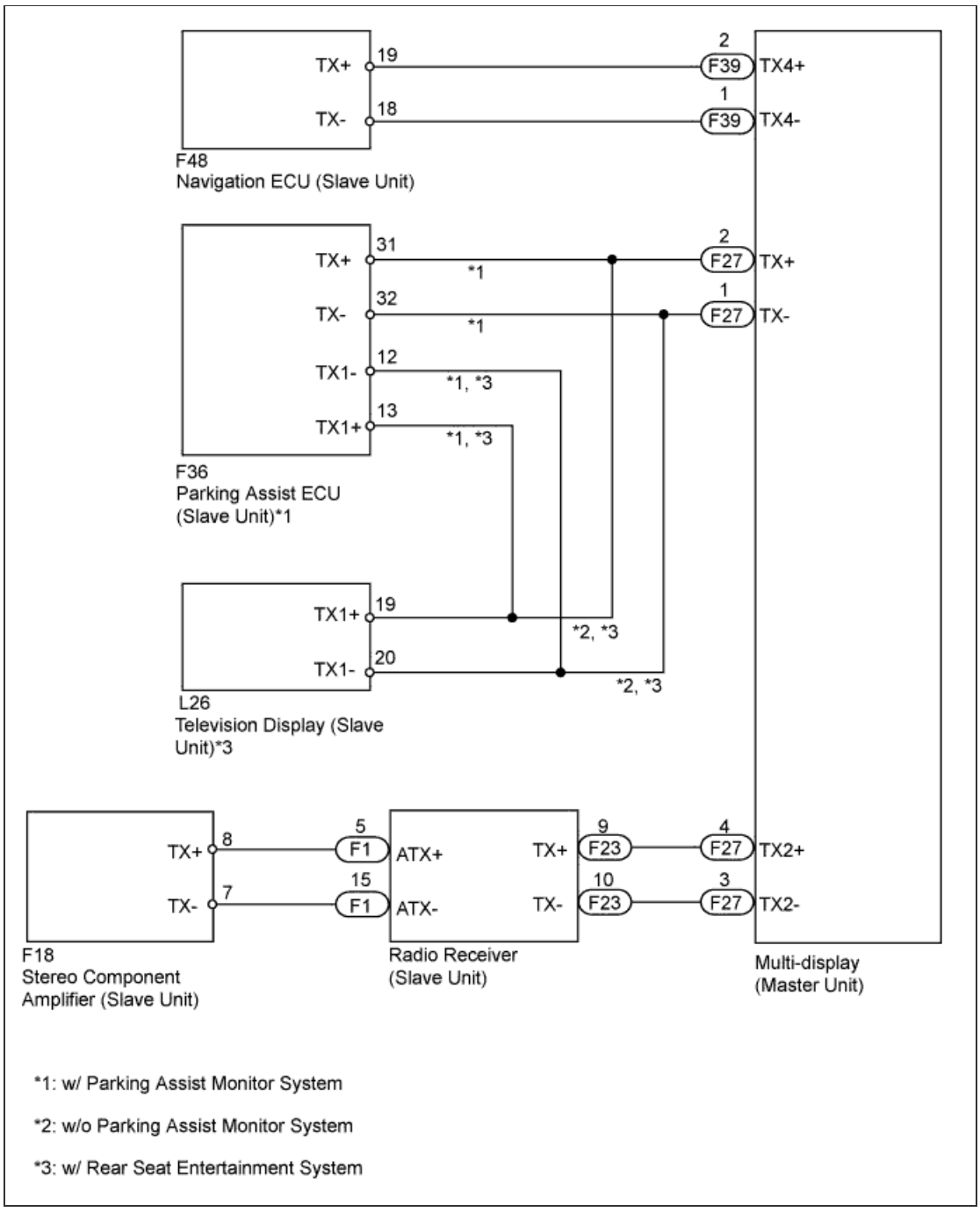
NG → REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

OK

**END**

**for Preparation** Click here

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.IDENTIFY COMPONENT SHOWN BY SUB-CODE

a. Enter the diagnostic mode.

b. Press the "LAN Mon" switch to change to "LAN Monitor" mode.

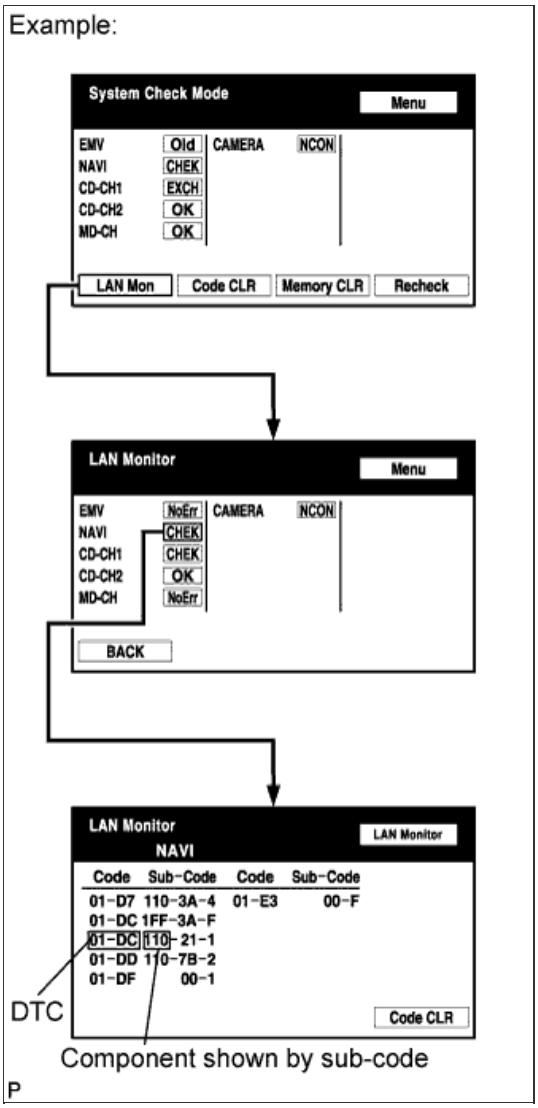
c. Identify the component shown by the sub-code.

**HINT:**

- **"110 (multi-display)" is the component shown by the sub-code**

in the example shown in the illustration.

- The sub-code will be indicated by its physical address.
- For the component list, refer to Diagnosis Display Detailed Description in the System Description (Click here).




NEXT

## 2.CHECK POWER SOURCE CIRCUIT OF COMPONENT SHOWN BY SUB-CODE

a. Inspect the power source circuit of the component shown by the sub-code.
If the power source circuit is operating normally, proceed to the next step.

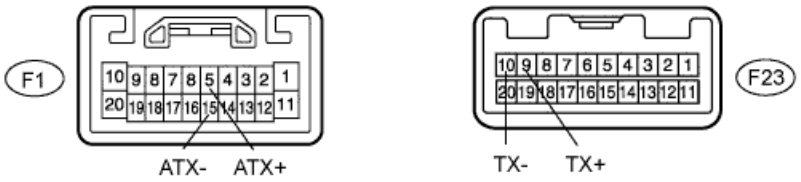
**Component Table**

| Component | Proceed to |
|---|---|
| Radio receiver (190) | Radio receiver power source circuit (Click here) |
| Stereo component amplifier (440) | Stereo component amplifier power source circuit (Click here) |
| Multi-display (110) | Multi-display power source circuit (Click here) |
| Parking assist ECU (1AC) | Parking assist ECU power source circuit (Click here) |
| Television display (1F6) | Television display power source circuit (Click here) |

NEXT

## 3.INSPECT RADIO RECEIVER ASSEMBLY

Component without harness connected:
(Radio Receiver)




a. Disconnect the F1 and F23 receiver connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F1-5 (ATX+) - F1-15 (ATX-) | Always | 60 to 80 Ω |
| F23-9 (TX+) - F23-10 (TX-) | Always | 60 to 80 Ω |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

## 4.CHECK HARNESS AND CONNECTOR (NAVIGATION ECU - COMPONENT SHOWN BY SUB-CODE)

**HINT:**

- **Start the check from the circuit that is near the component shown by the sub-code first.**
- **For details of the connectors, refer to Terminals of ECU (Click here).**

a. Referring to the AVC-LAN wiring diagram, check the AVC-LAN circuit between the navigation ECU and the component shown by the sub-code.

i. Disconnect all connectors between the navigation ECU and the component shown by sub-code.

ii. Check for an open or short in the AVC-LAN circuit between the navigation ECU and the component shown by the sub-code.

**OK:**
**There is no open or short circuit.**

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.REPLACE COMPONENT SHOWN BY SUB-CODE

a. Replace the component shown by the sub-code with a normal one and check if the same problem occurs again.

**OK:**
**Same problem does not occur.**

NG → REPLACE NAVIGATION ECU (Click here)

OK

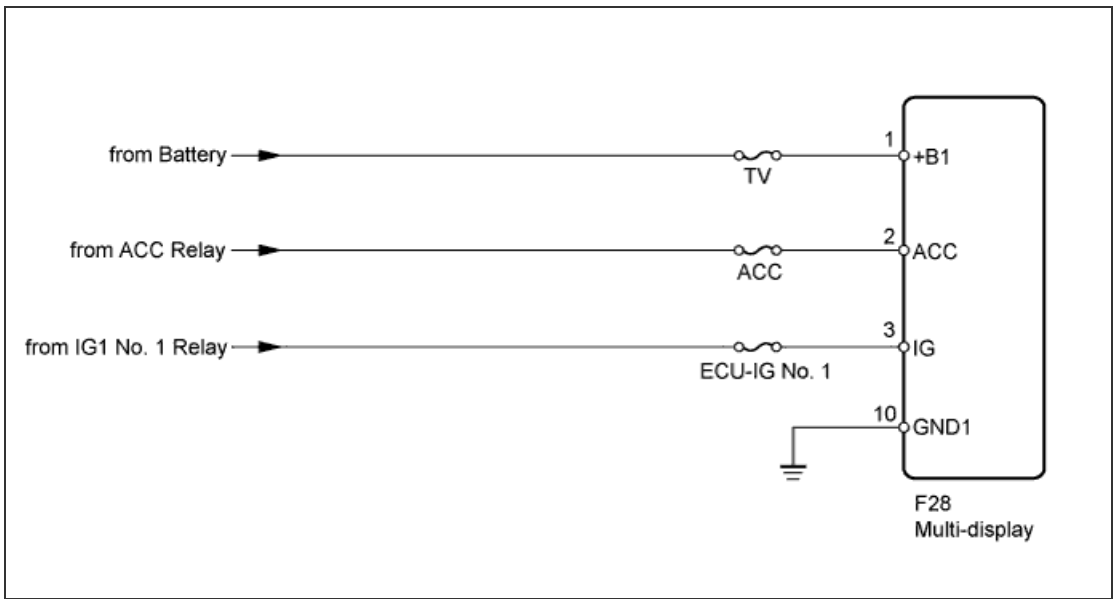
END

**for Preparation** Click here

## DESCRIPTION

The circuit provides power to the multi-display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.INSPECT FUSE (ACC, ECU-IG No. 1, TV)

a. Disconnect the ACC and ECU-IG No. 1 fuses from the cowl side junction block LH.

b. Disconnect the TV fuse from the cowl side junction block RH.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| TV fuse | Always | Below 1 Ω |
| ACC fuse | Always | Below 1 Ω |
| ECU-IG No. 1 fuse | Always | Below 1 Ω |

NG → REPLACE FUSE

OK

### 2.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - BATTERY AND BODY GROUND)

a. Disconnect the F28 display connector.

b. Measure the resistance according to the value(s) in the table below.

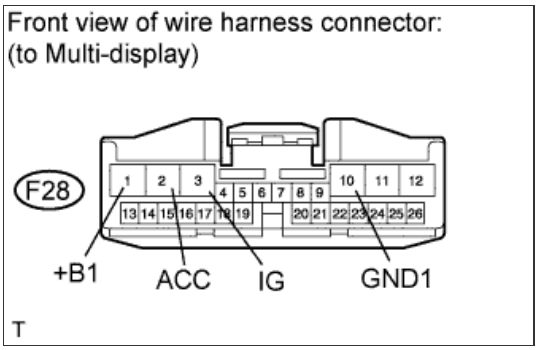
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F28-10 (GND1) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F28-1 (+B1) - Body ground | Always | 11 to 14 V |
| F28-2 (ACC) - Body ground | Engine switch on (ACC) | 11 to 14 V |
| F28-3 (IG) - Body ground | Engine switch on (IG) | 11 to 14 V |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

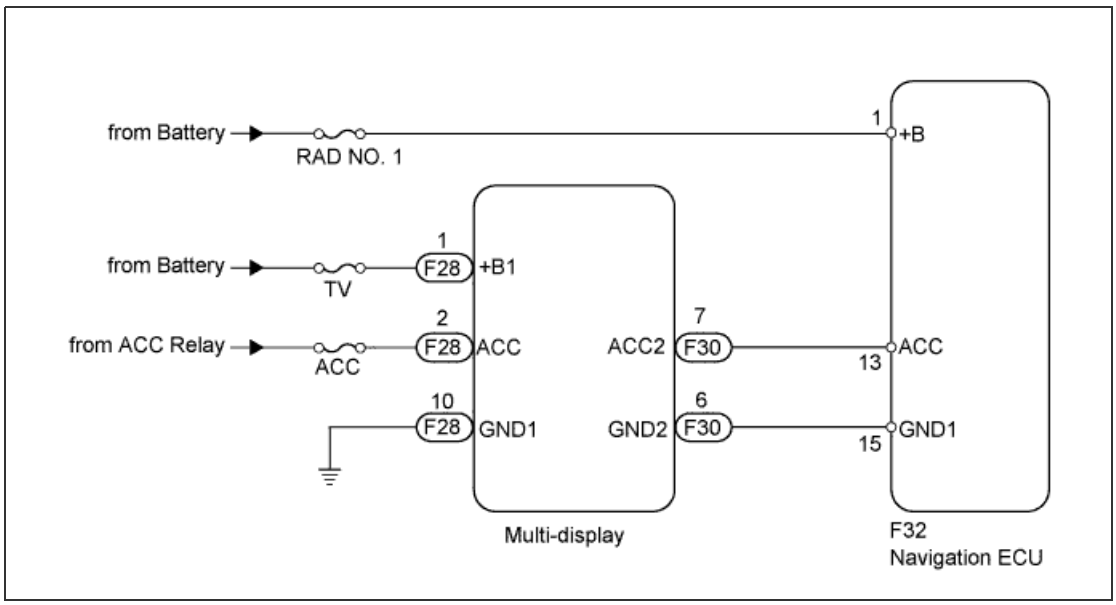
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This is the power source circuit to operate the navigation ECU.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK MULTI-DISPLAY POWER SOURCE CIRCUIT

a. Refer to the Multi-display Power Source Circuit ( Click here). If the power source circuit is operating normally, proceed to the next step.

**NEXT**

### 2.INSPECT FUSE (RAD NO. 1)

a. Disconnect the RAD NO. 1 fuse from the engine room junction block.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| RAD NO. 1 fuse | Always | Below 1 Ω |

**NG** → **REPLACE FUSE**

**OK**

### 3.CHECK HARNESS AND CONNECTOR (NAVIGATION ECU - MULTI-DISPLAY AND BATTERY)

a. Disconnect the F32 ECU connector.

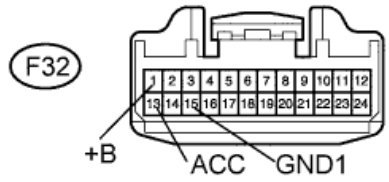
b. Disconnect the F39 display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F32-13 (ACC) - F39-7 (ACC2) | Always | Below 1 Ω |
| F32-15 (GND1) - F39-6 (GND2) | Always | Below 1 Ω |
| F32-13 (ACC) - Body ground | Always | 10 kΩ or higher |
| F32-15 (GND1) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to Navigation ECU)

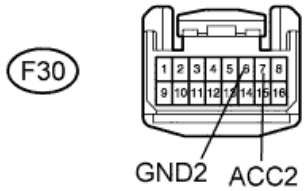



d. Measure the voltage according to the valve(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F32-1 (+B) - Body ground | Always | 11 to 14 V |

Front view of wire harness connector:
(to Multi-display)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 4.INSPECT MULTI-DISPLAY

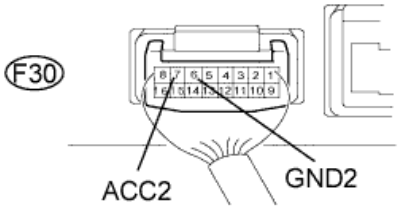
a. Reconnect the F39 display connector.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F39-6 (GND2) - Body ground | Always | Below 1 V |
| F39-7 (ACC2) - Body ground | Engine switch on (ACC) | 11 to 14 V |

Component with harness connected:
(Multi-display)

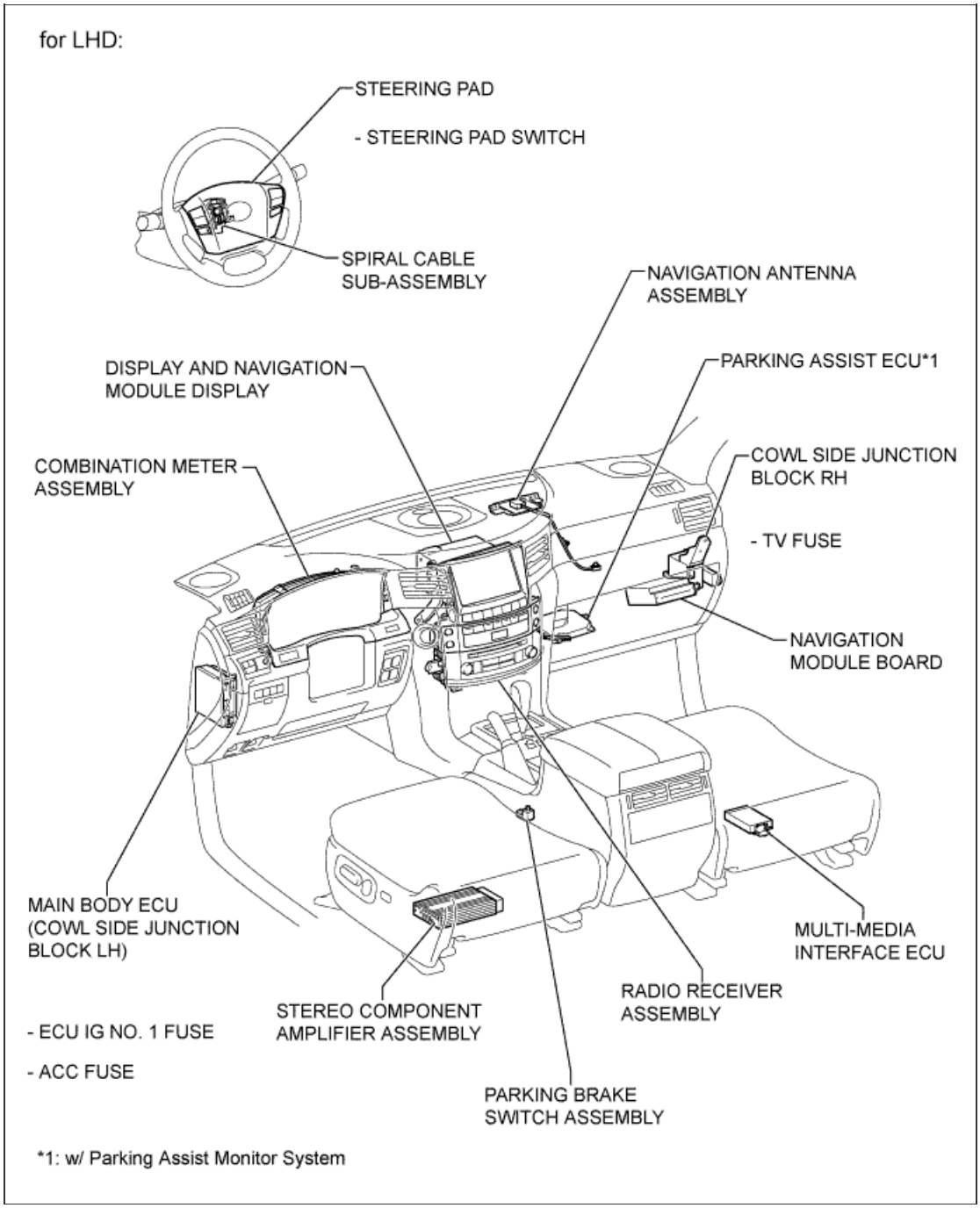



NG → REPLACE MULTI-DISPLAY (Click here)

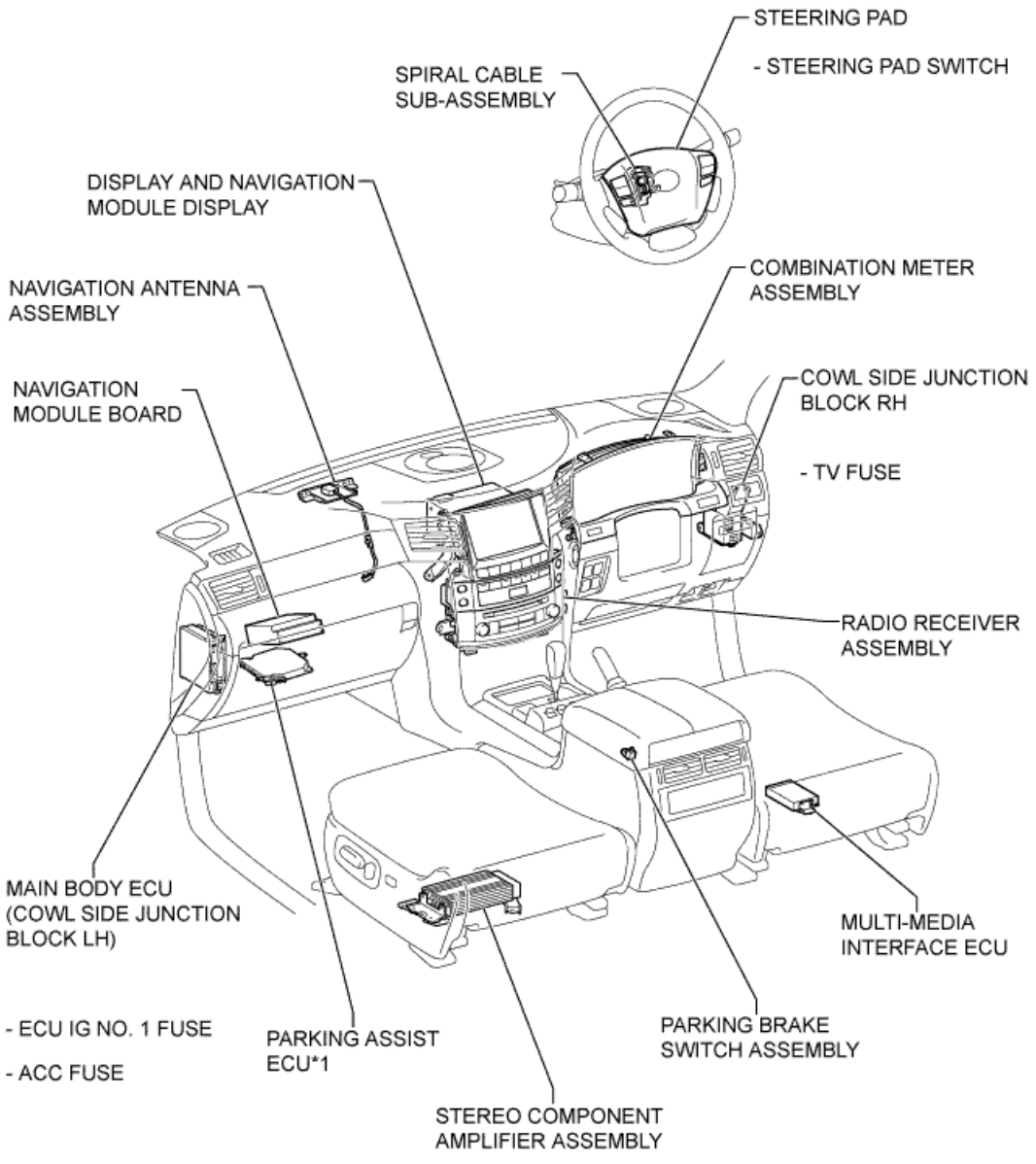
OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

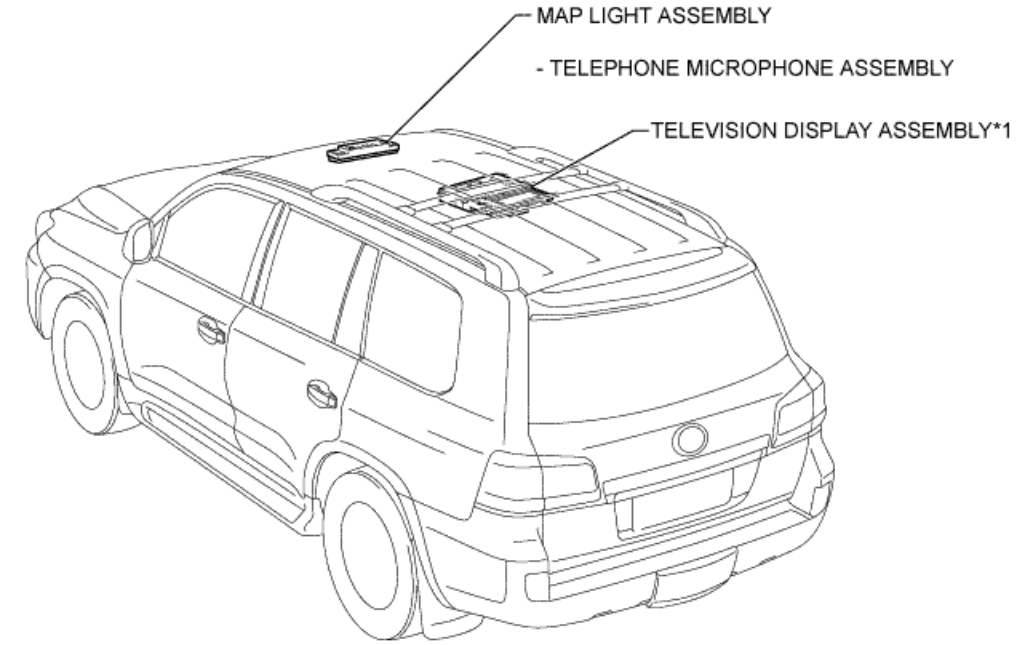
**for Preparation** Click here

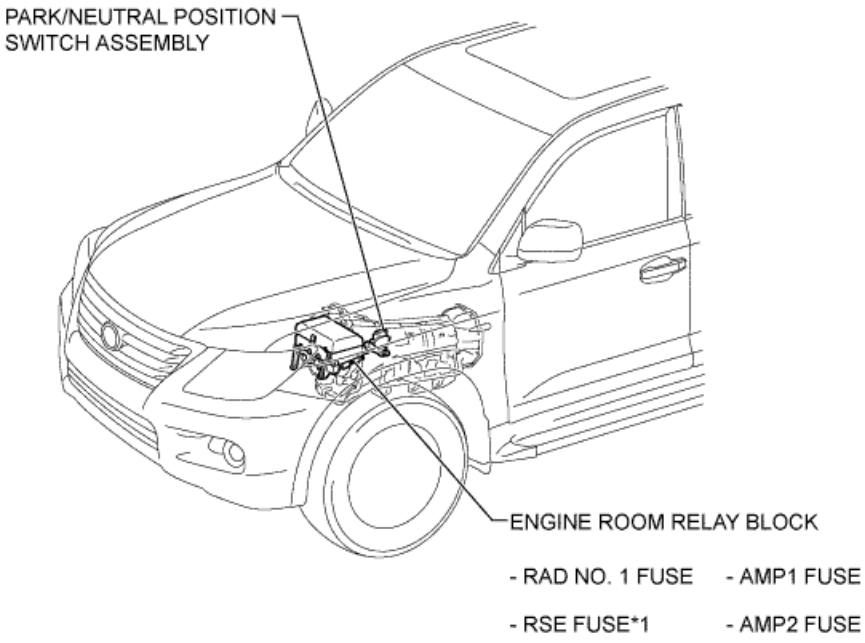


for RHD:




*1: w/ Parking Assist Monitor System

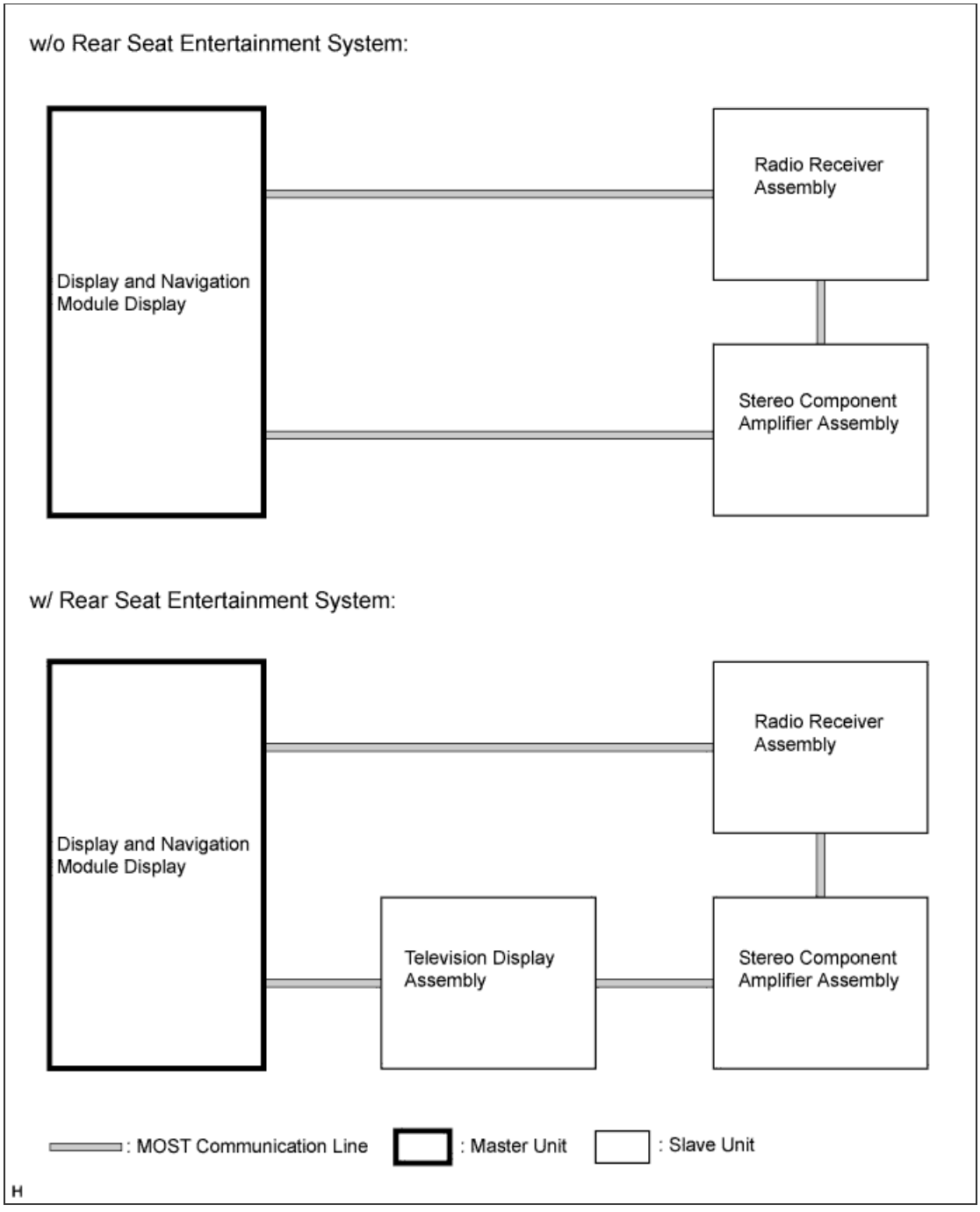


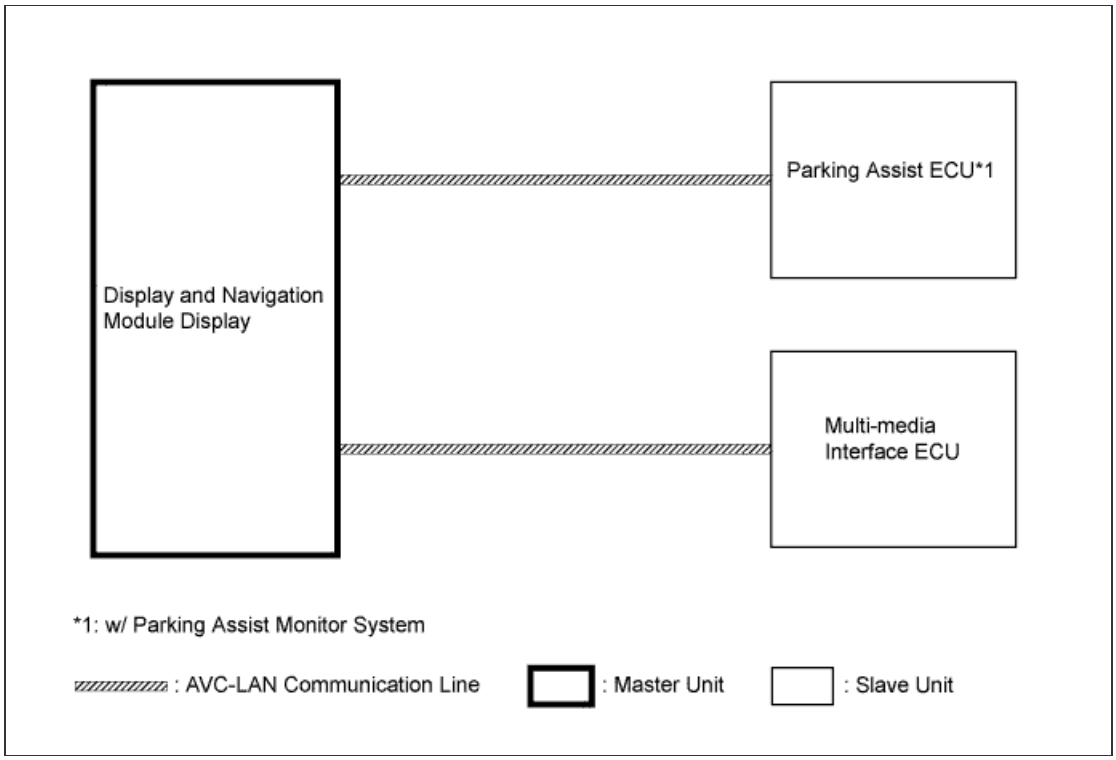

*1: w/ Rear Seat Entertainment System

**for Preparation** Click here

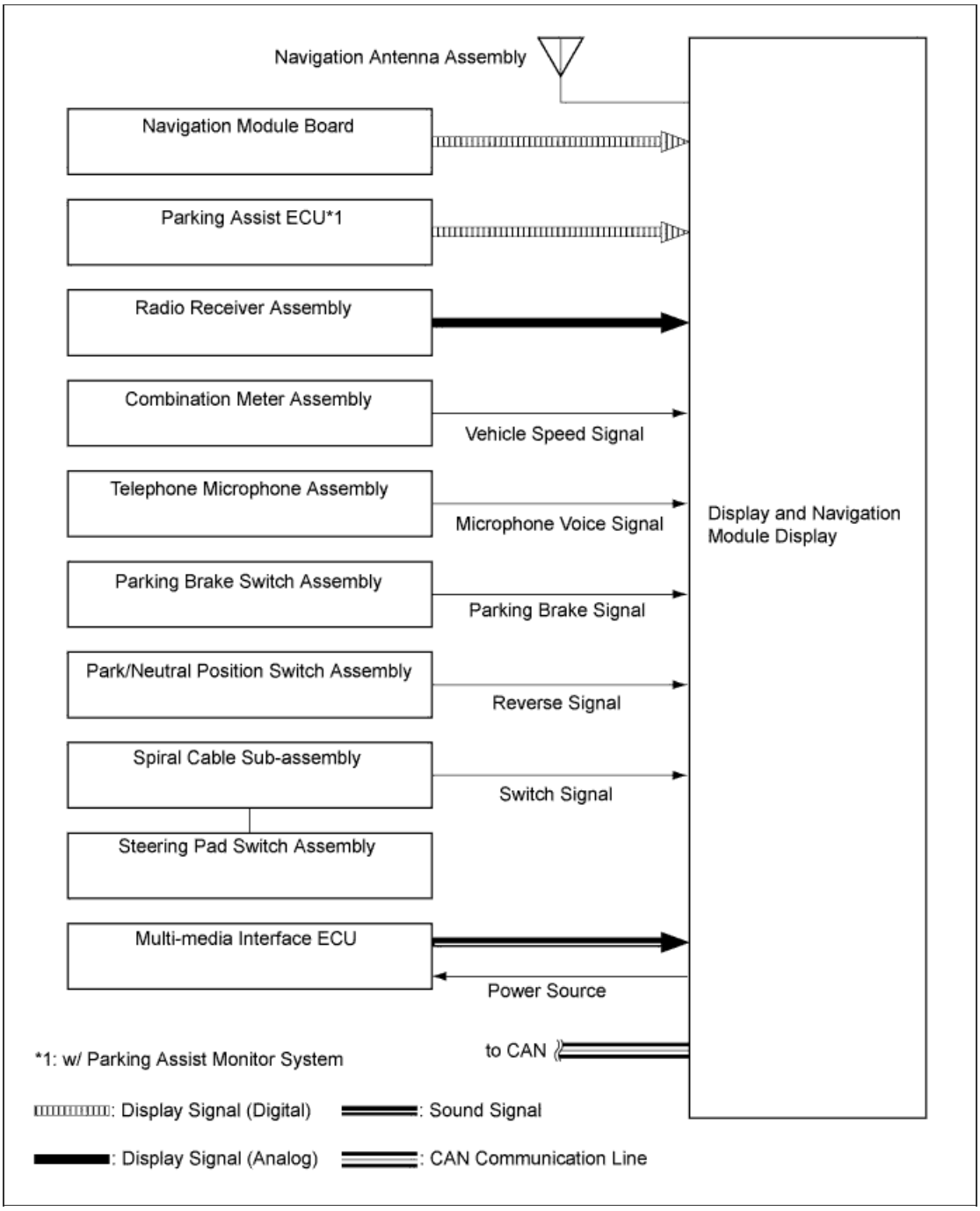
## MOST Communication Line




## AVC-LAN Communication Line


Display and Navigation Module Display
Parking Assist ECU*1
Multi-media Interface ECU
*1: w/ Parking Assist Monitor System
: AVC-LAN Communication Line
: Master Unit
: Slave Unit

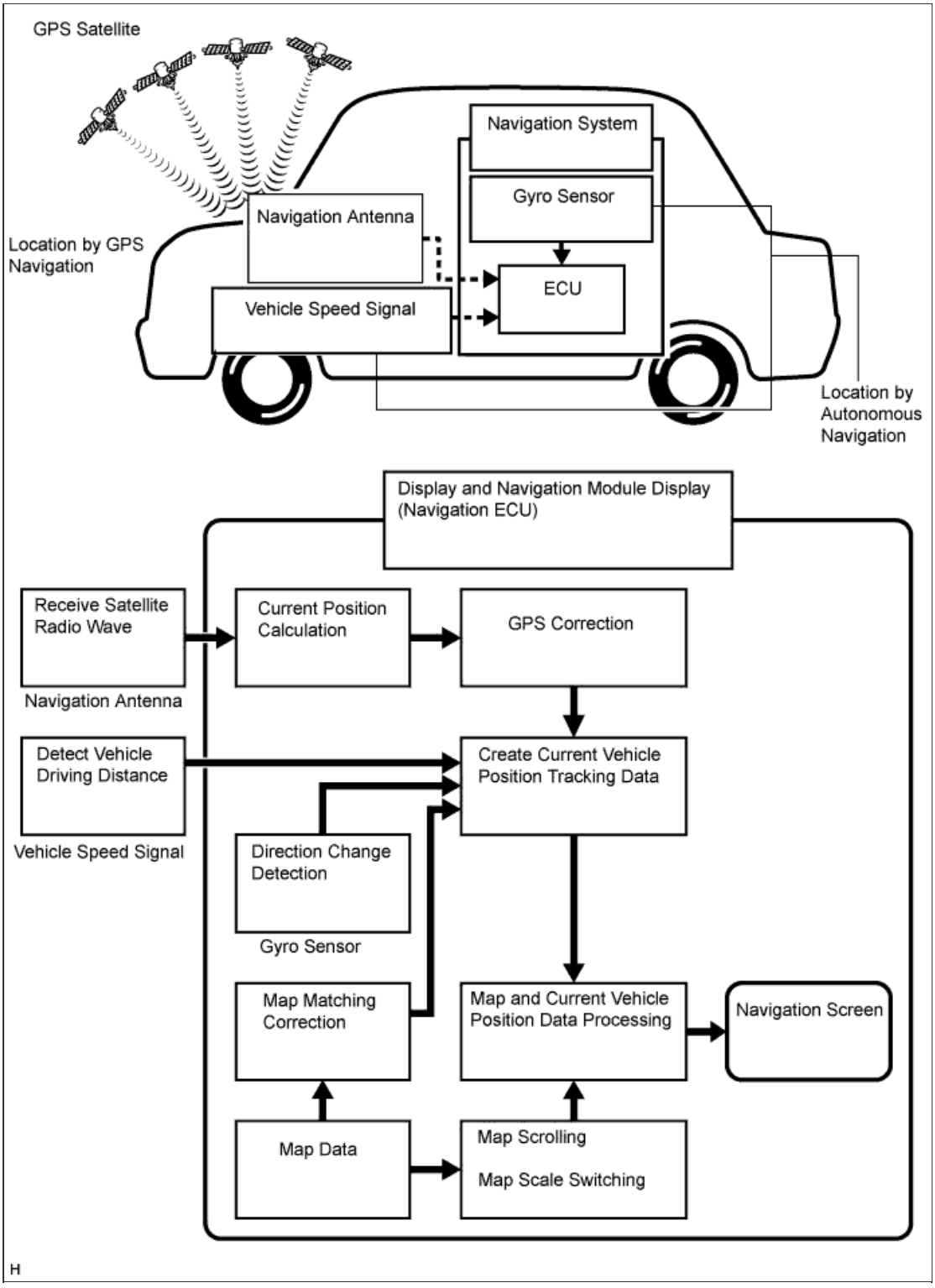
## Others


Navigation Antenna Assembly
Navigation Module Board
Parking Assist ECU*1
Radio Receiver Assembly
Combination Meter Assembly
Vehicle Speed Signal
Telephone Microphone Assembly
Microphone Voice Signal
Parking Brake Switch Assembly
Parking Brake Signal
Park/Neutral Position Switch Assembly
Reverse Signal
Spiral Cable Sub-assembly
Switch Signal
Steering Pad Switch Assembly
Multi-media Interface ECU
Power Source
to CAN
Display and Navigation Module Display
*1: w/ Parking Assist Monitor System
: Display Signal (Digital)
: Sound Signal
: Display Signal (Analog)
: CAN Communication Line

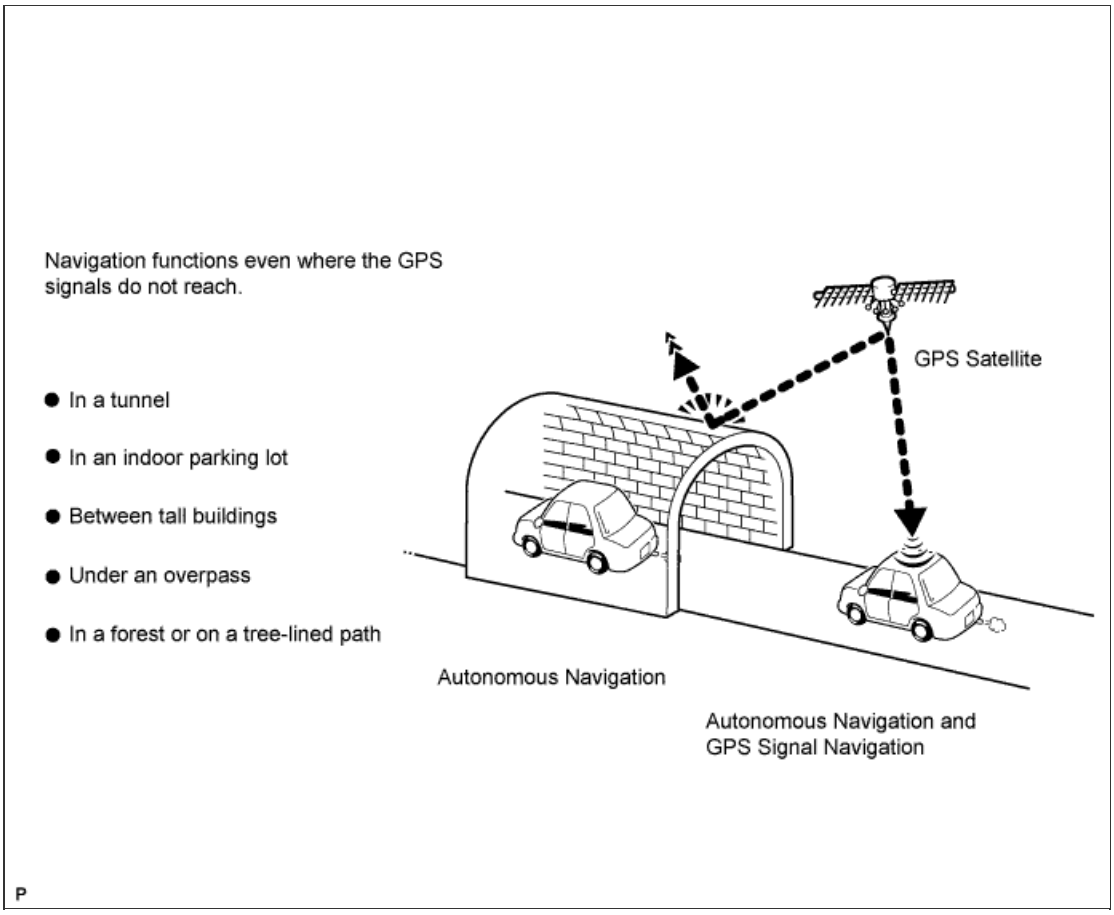
**for Preparation** Click here

## NAVIGATION SYSTEM OUTLINE

a. Vehicle position tracking methods
It is essential that the navigation system correctly tracks the current vehicle position and displays it on the map. There are 2 methods to track the current vehicle position; autonomous (dead reckoning) and GPS* (satellite) navigation. Both navigation methods are used in conjunction with each other.
*GPS (Global Positioning System)



| Operation | Description |
|---|---|
| Vehicle Position Calculation | The display and navigation module display calculates the current vehicle position (direction and current position) using the direction deviation signal from the gyro sensor and the running distance signal from the vehicle speed sensor and creates the driving route. |
| Map Display Processing | The display and navigation module display displays the vehicle track on the map by processing the vehicle position data, vehicle running track and map data from the map disc. |
| Map Matching | The map data from the map disc is compared to the vehicle position and running track data. Then, the vehicle position is matched with the nearest road. |
| GPS Correction | The vehicle position is matched to the position measured by GPS. Then, the GPS measurement position data is compared with the vehicle position and running track data. If the position is widely different, the GPS measurement position is used. |
| Distance Correction | The vehicle speed signal includes the error caused by tire wear and slippage between the tires and road surface. Distance correction is performed to account for this. The display and navigation module display automatically offsets the signal to make up for the difference between it and the distance data of the map. The offset is automatically updated. |




**HINT:**

The combination of autonomous and GPS navigation makes it possible to display the vehicle position even when the vehicle is in places where the GPS cannot receive a signal. When only autonomous navigation is used, however, the mapping accuracy may slightly decrease.

b. Autonomous navigation

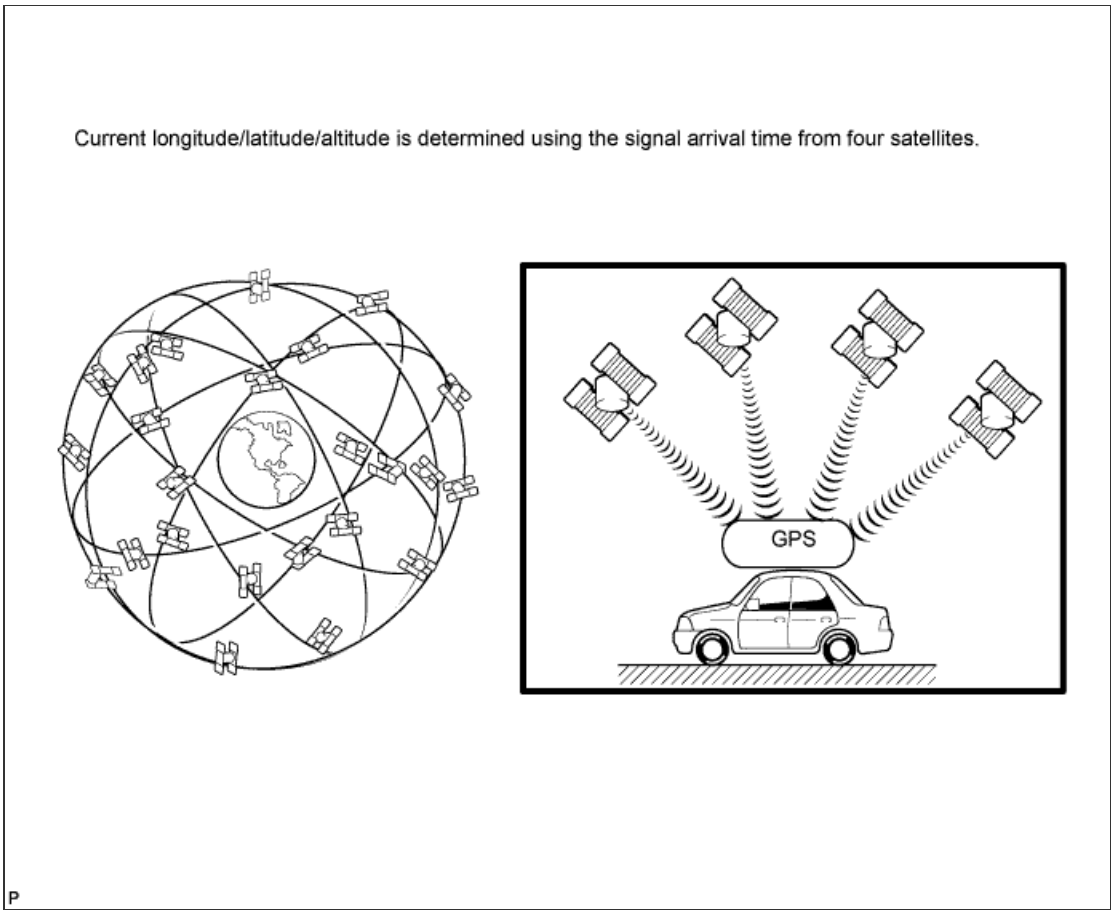
This method determines the relative vehicle position based on the running track determined by the gyro located in the display and navigation module display and the vehicle speed sensor's signal.

i. Gyro sensor
Used to calculate the direction by detecting angular velocity. It is located in the display and navigation module display.

ii. Vehicle speed sensor signal
Used to calculate the vehicle running distance.

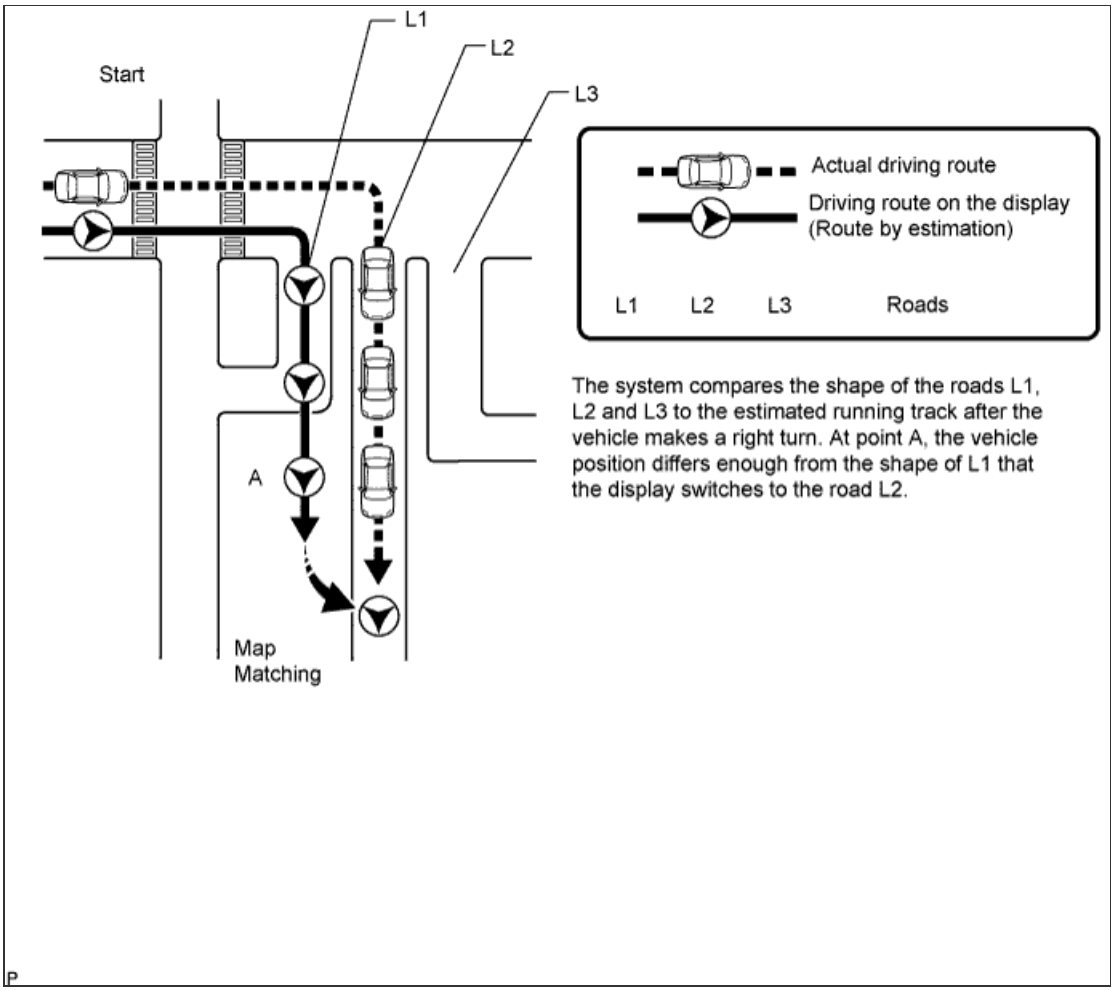
c. GPS* navigation (Satellite navigation)

This method detects the absolute vehicle position using radio waves from GPS satellites.
*GPS satellites were launched by the U.S. Department of Defense for military purposes.

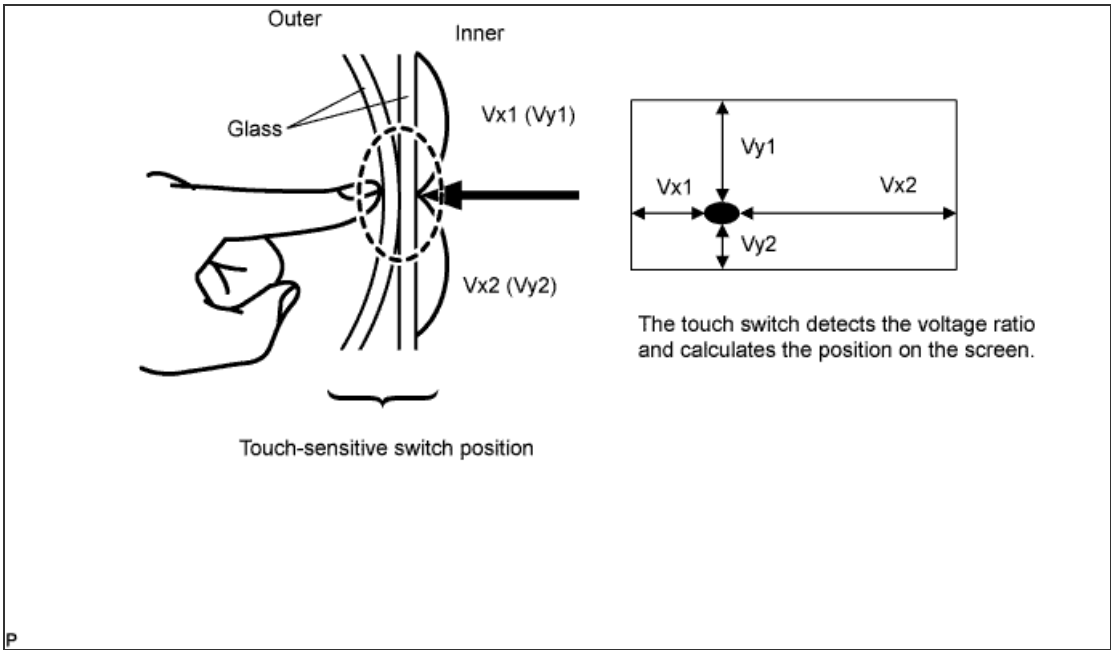



| Number of Satellites | Measurement | Description |
|---|---|---|
| 2 or less | Measurement impossible | Vehicle position cannot be obtained because the number of satellites is not enough. |
| 3 | 2-dimensional measurement is possible | Vehicle position is obtained based on the current longitude and latitude. (This is less precise than 3-dimensional measurement.) |
| 4 | 3-dimensional measurement is possible | Vehicle position is obtained based on the current longitude, latitude and altitude. |

**d.** Map matching
The current driving route is calculated by autonomous navigation (according to the gyro sensor and vehicle speed sensor) and GPS navigation. This information is then compared with possible road shapes from the map data in the map disc and the vehicle position is set onto the most appropriate road.




e. Touch switch
Touch switches are touch-sensitive (interactive) switches operated by touching the screen. When a switch is pressed, the outer glass bends to contact the inner glass at the pressed position. By doing this, the voltage ratio is measured and the pressed position is detected.




## DVD (Digital Versatile Disc) PLAYER OUTLINE (Navigation Map)

a. The navigation module board uses a laser pickup to read the digital signals recorded on a DVD.

**CAUTION:**

Because the navigation system uses an invisible laser beam, do not look directly at the laser pickup. Be sure to only operate the navigation system as instructed.

**NOTICE:**

- **Do not disassemble any part of the navigation module board.**
- **Do not apply oil to the navigation module board.**
- **Do not insert anything but a DVD into the navigation module board.**

## DVD (Digital Versatile Disc) PLAYER OUTLINE (DVD Changer)

a. The DVD player can only play DVD videos, DVD audio and video CDs that have any of the following marks:




i. Precaution for use of discs

**NOTICE:**

- **PAL or SECAM color television standard discs cannot be played (only NTSC discs can be played).**
- **Keep the discs away from dirt. Be careful not to damage the discs or leave fingerprints on them.**
- **Hold discs by the outer edge and center hole with the label side up.**
- **Leaving the disc exposed halfway out of the slot for a long time after pressing the disc eject button may cause deformation of the disc, making the disc unusable.**
- **Do not use odd-shaped CDs because these may cause player malfunctions.**
- **Do not use discs whose recording portion is transparent or translucent because they may not be inserted, ejected or played normally.**
- **DualDiscs that combine DVD recorded material on one side with CD digital audio material on the other cannot be played.**

b. Cleaning

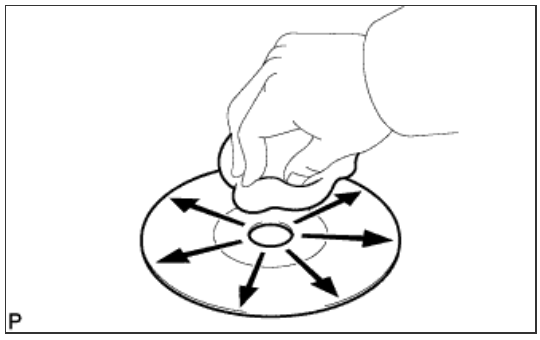
**NOTICE:**

Do not use a lens cleaner because it may cause a malfunction in the pickup portion of the player.

i. If dirt is on the disc surface, wipe it clean with a soft dry cloth such as an eyeglass cleaner for plastic lenses from the inside to the outside in a radial direction.

**NOTICE:**

- **Pressing on the disc by hand or rubbing the disc with a hard cloth may scratch the disc surface.**
- **Use of solvent such as a record spray, antistatic agent, alcohol, benzine and thinner or a chemical cloth may cause damage to the disc, making the disc unusable.**




## CD (Compact Disc) PLAYER OUTLINE

a. A compact disc player uses a laser pickup to read digital signals recorded on a compact disc (CD). By converting the digital signals to analog, it can play music and audio.

**CAUTION:**

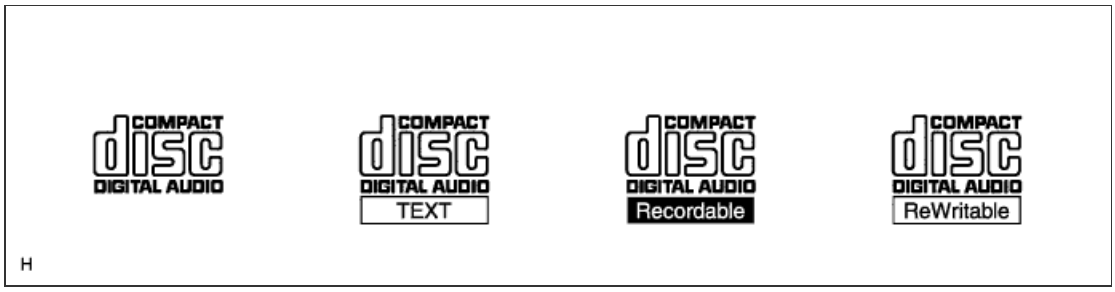
Do not look directly at the laser pickup because the CD player uses an invisible laser beam. Be sure to operate the player only as instructed.

**NOTICE:**

- **Do not disassemble any part of the CD player.**
- **Do not apply oil to the CD player.**
- **Do not insert anything but a CD into the CD player.**

b. Usable discs

i. This player can play only audio CDs, CD-Rs (CD-Recordable) and CD-RWs (CD-ReWritable) that have any of the following marks:



H

c. Precautions for use of discs

**NOTICE:**

- **Copy-protected CDs cannot be played.**
- **CD-Rs and CD-RWs may not be played depending on the recording conditions or characteristics of the discs, or due to damage, dirt or deterioration caused by leaving the discs in the cabin for a long time.**
- **Unfinalized CD-Rs and CD-RWs cannot be played.**
- **DualDiscs that combine DVD recorded material on one side with CD digital audio material on the other cannot be played.**
- **Keep the discs away from dirt. Be careful not to damage the discs or leave your fingerprints on them.**
- **Hold discs by the outer edge and center hole with the label side up.**
- **Leaving the disc exposed halfway out of the slot for a long time after pressing the disc eject button may cause deformation of the disc, making the disc unusable.**
- **If discs have adhesive tape, stickers, CD labels or any traces of such attached, the discs may not be ejected or player malfunctions may result.**
- **Keep the discs away from direct sunlight. (Exposure to direct sunlight may cause deformation of the disc, making the disc unusable.)**
- **Do not use odd-shaped CDs because these may cause player malfunctions.**
- **Do not use discs whose recording portion is transparent or translucent because they may not be inserted, ejected or played normally.**

**HINT:**

- **When it is cold or it is raining, if the windows mist up, mist and condensation may form in the player. In such cases, the CD sound may skip or stop in the middle of play. Ventilate or dehumidify the cabin for a while before using the player.**
- **The CD sound may skip if the player experiences strong vibrations when the vehicle is driven on rough roads or similar uneven surface(s).**

d. Cleaning

**NOTICE:**

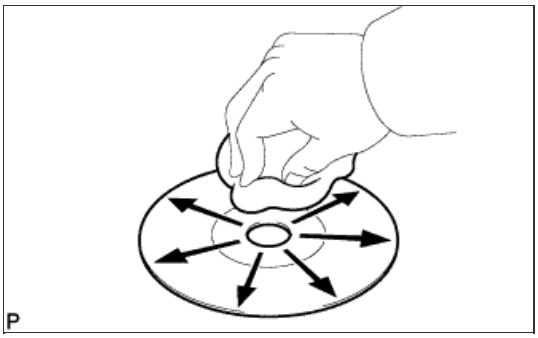
Do not use a lens cleaner because it may cause a malfunction in the pickup portion of the player.

i. If dirt is on the disc surface, wipe it clean with a soft dry cloth such as an eyeglass cleaner for plastic lenses from the inside to the outside in

a radial direction.

**NOTICE:**

- **Pressing on the disc by hand or rubbing the disc with a hard cloth may scratch the disc surface.**
- **Use of solvent such as a record spray, antistatic agent, alcohol, benzine and thinner or a chemical cloth may cause damage to the disc, making the disc unusable.**




## MP3/WMA OUTLINE

a. Playable MP3 file standards

| | |
|---|---|
| Compatible standard | MP3 (MPEG1 LAYER 3, MPEG2 LSF LAYER 3) |
| Compatible sampling frequency | • MPEG1 LAYER 3: 32, 44.1, 48 (kHz)<br>• MPEG2 LSF LAYER 3: 16, 22.05, 24 (kHz) |
| Compatible bit rate | • MPEG1 LAYER 3: 64, 80, 96, 112, 128, 160, 192, 224, 256, 320 (kbps)<br>• MPEG2 LSF LAYER 3: 64, 80, 96, 112, 128, 144, 160 (kbps)<br>• Compatible with VBR |
| Compatible channel mode | Stereo, joint stereo, dual channel, monaural |

b. Playable WMA file standards

| | |
|---|---|
| Compatible standard | WMA Ver. 7, 8, and 9 |
| Compatible sampling frequency | 32, 44.1, 48 (kHz) |
| Compatible bit rate (Only compatible with 2-channel playback) | • Ver. 7, 8: CBR48, 64, 80, 96, 128, 160, 192 (kbps)<br>• Ver. 9: CBR48, 64, 80, 96, 128, 160, 192, 256, 320 (kbps) |

c. ID3 tag and WMA tag

i. Additional textual information called ID3 tag can be input to MP3 files. Information such as song titles and artist names can be stored.

**HINT:**

This player is compatible with the ID3 tags of ID3 Ver. 1.0 and 1.1, and ID3 Ver. 2.2 and 2.3. (Number of characters complies with ID3 Ver. 1.0 and 1.1.)

ii. Additional textual information called WMA tag can be input to WMA files. Information such as song titles and artist names can be stored.

d. Usable media

i. Only CD-ROMs, CD-Rs (CD-Recordable) and CD-RWs (CD-ReWritable) can be used to play MP3/WMA files.

**NOTICE:**

- **CD-Rs and CD-RWs are more easily affected by a hot and humid environment than discs used for normal audio CDs. For this reason, some CD-Rs and CD-RWs will not play.**
- **If there are fingerprints or scratches on a disc, the disc may not play or the CD sound may skip.**
- **Some CD-Rs and CD-RWs may deteriorate if they are left in the cabin for a long time.**
- **Keep CD-Rs and CD-RWs in an opaque case.**

e. Usable media format

i. Usable media format

| | |
|---|---|
| Disc format | CD-ROM Mode 1, CD-ROM XA Mode 2 Form 1 |
| File format | ISO9660 Level 1 and Level 2 (Joliet, Romeo) |

**HINT:**

- **As for MP3/WMA files written in any unlisted format, the contents of the files may not be played normally or the file names or folder names may not be displayed correctly.**
- **This player is compatible with multi-session discs and can play CD-Rs and CD-RWs on which MP3/WMA files**

**are added. However, only the first session can be played.**

- **Discs whose first session includes both music data and MP3 or WMA format data cannot be played.**

ii. Standard and restrictions

| | |
|---|---|
| Maximum directory levels | 8 levels |
| Maximum number of characters for a folder name/file name | 32 characters |
| Maximum number of folders | 192 (Including empty folders, root folders, and folders that do not contain MP3/WMA files) |
| Maximum number of files in a disc | 255 (Including non-MP3/WMA files) |

f. File names

i. Only files with an extension of ".mp3" or ".wma" can be recognized and played as MP3 or WMA files.

ii. Save MP3 or WMA files with an extension of ".mp3" or ".wma".

**NOTICE:**

If non-MP3 or non-WMA files are saved with an extension of ".mp3" or ".wma", those files may be wrongly recognized as MP3 or WMA files and played. A loud noise may occur and damage to the speakers may result.

## "Bluetooth" OUTLINE

a. "Bluetooth" is a trademark owned by Bluetooth SIG. Inc.

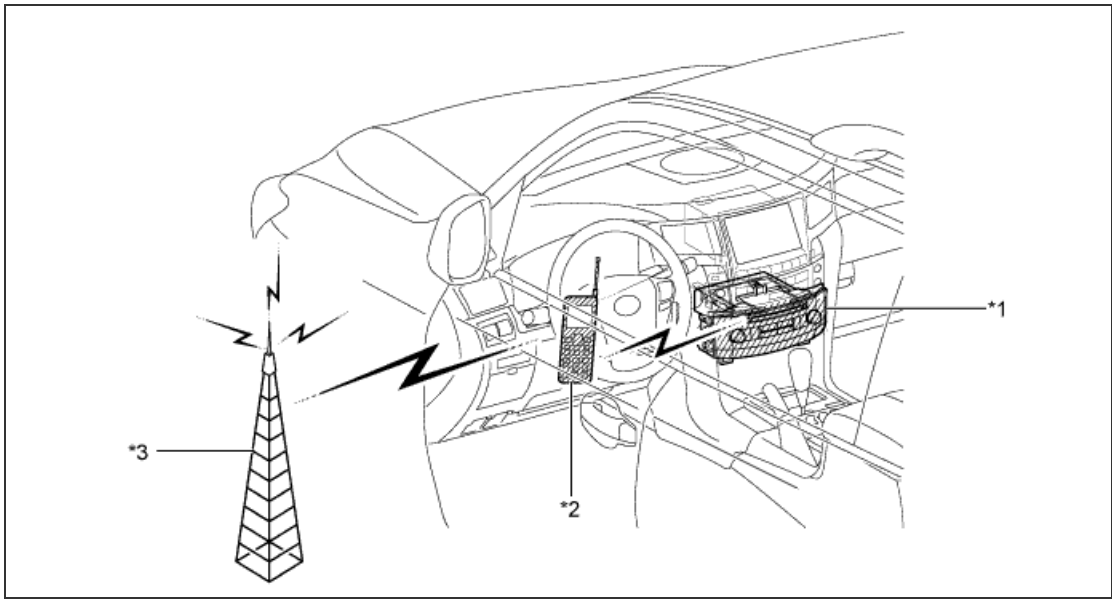
b. "Bluetooth" is a new wireless connection technology that uses the 2.4 GHz frequency band.

**HINT:**

The communication performance of "Bluetooth" may vary depending on obstructions or radio wave conditions between communication devices, electromagnetic radiation, communication device sensitivity or antenna capacity.

c. Hands-free function

i. The "Bluetooth" built-in radio receiver and a "Bluetooth" compatible cellular phone*1 can be connected using a "Bluetooth" wireless connection. This enables use of the hands-free function on the cellular phone even though the phone may be in a pocket or bag. For this reason, it is not necessary to use a connector or cable to connect the cellular phone.
*1: Some versions of "Bluetooth" compatible cellular phones may not function.




**Text in Illustration**

| | | | |
|---|---|---|---|
| *1 | Radio Receiver Assembly | *2 | Cellular Phone |

| | | | |
|---|---|---|---|
| | (Built-in "Bluetooth" Receiver Antenna) | | ("Bluetooth" Type) |
| *3 | Cellular Tower | - | - |

## VEHICLE CUSTOMIZATION OUTLINE

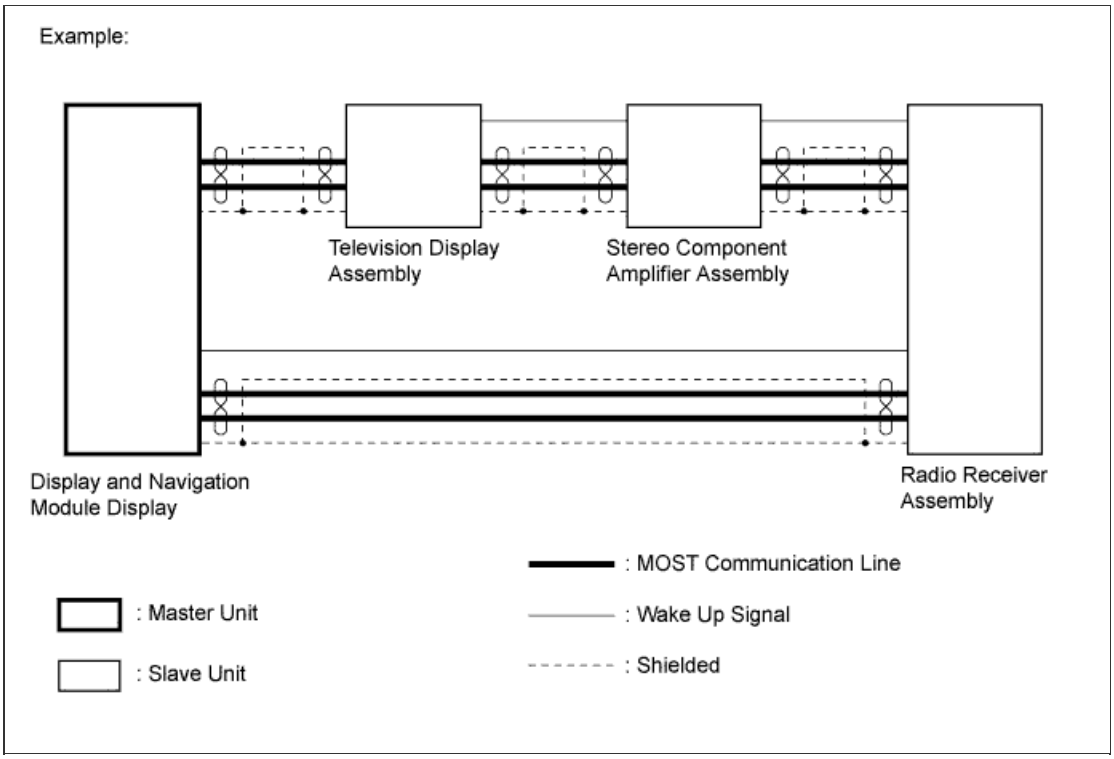
a. Customization of functions can be performed on the multi display screen. Refer to the owner's manual for further information on customizable items for the navigation system.

**HINT:**

- **Items available for customization via the navigation system can be performed by using the intelligent tester.**
- **Some customize parameters displayed on the intelligent tester will be displayed on the "Vehicle Customization" screen for the navigation system. Users can customize these items.**

## COMMUNICATION SYSTEM

a. MOST Network Outline




i. Navigation system components communicate with each other via the MOST network.

ii. The MOST network uses a shielded twisted pair of wires for its communication lines.

iii. The master unit of the MOST network is the display and navigation module display (navigation ECU).

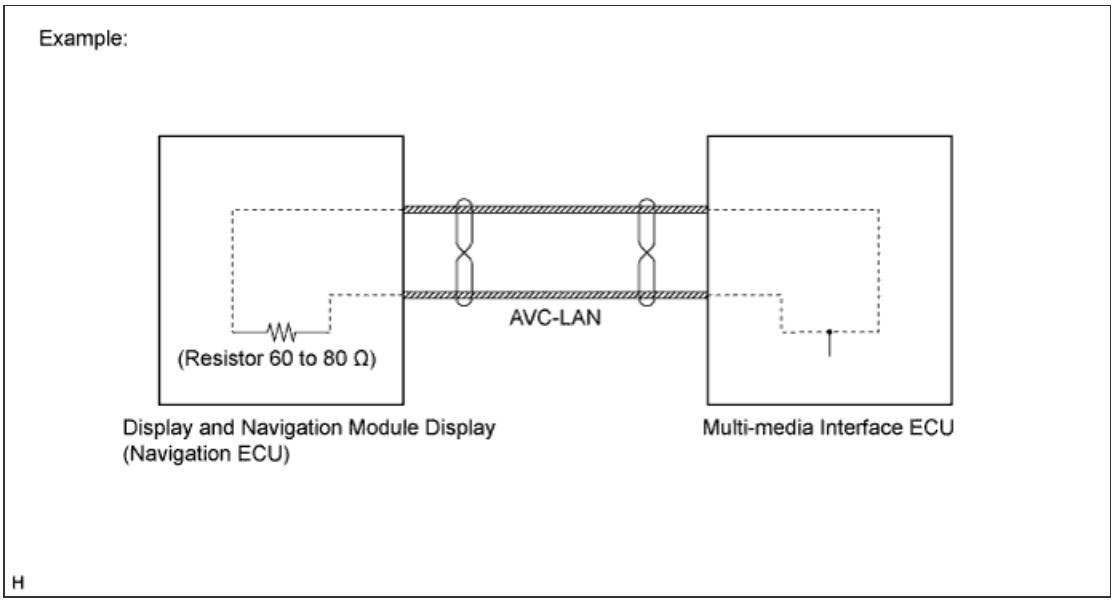
iv. MOST communication lines connect each slave unit centering around the master unit to form a MOST network ring.

v. The master unit sends a wake-up signal to activate each slave unit connected to the MOST network.

**HINT:**

If a short or open circuit occurs in the MOST circuit, communication will be interrupted and the system will not operate normally.

b. AVC-LAN Outline




i. Components of the navigation system communicate with each other via the AVC-LAN.

ii. The AVC-LAN uses a twisted pair of wires for its communication lines.

iii. The master unit of the AVC-LAN is the display and navigation module display (navigation ECU).

**HINT:**

- **The display and navigation module display (navigation ECU) has enough resistance (60 to 80 Ω) necessary for communication.**
- **If a short or open circuit occurs in the AVC-LAN circuit, communication is interrupted and the system will not operate normally.**

## DIAGNOSTIC FUNCTION OUTLINE

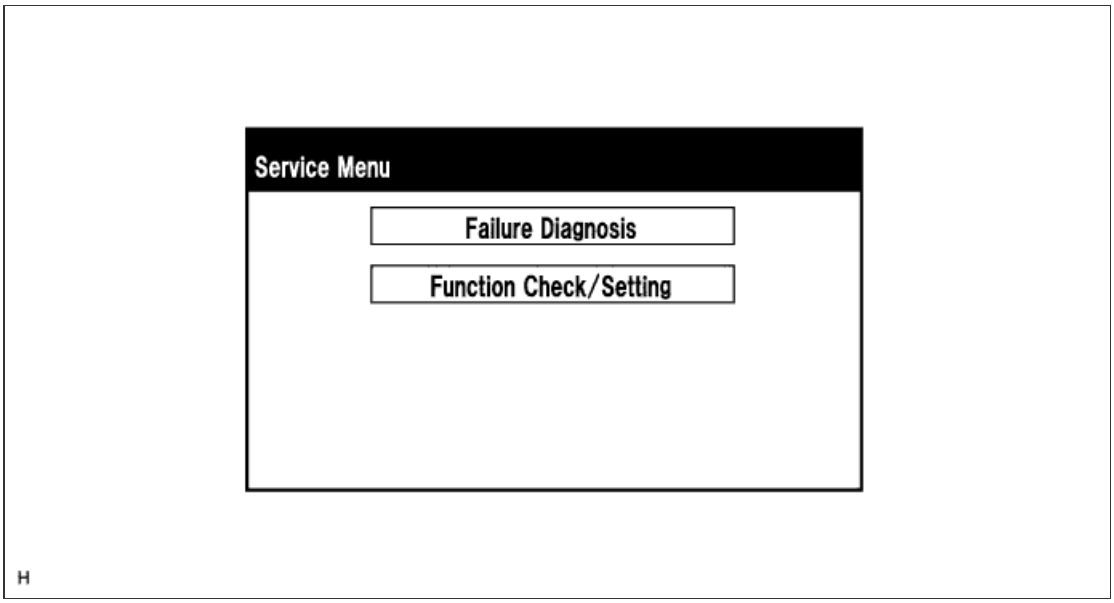
a. The navigation system has a diagnostic function (the result will be displayed on the master unit or the intelligent tester).

## DIAGNOSIS DISPLAY DETAILED DESCRIPTION

**HINT:**

- **This section contains a detailed description of displays in diagnostic mode.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

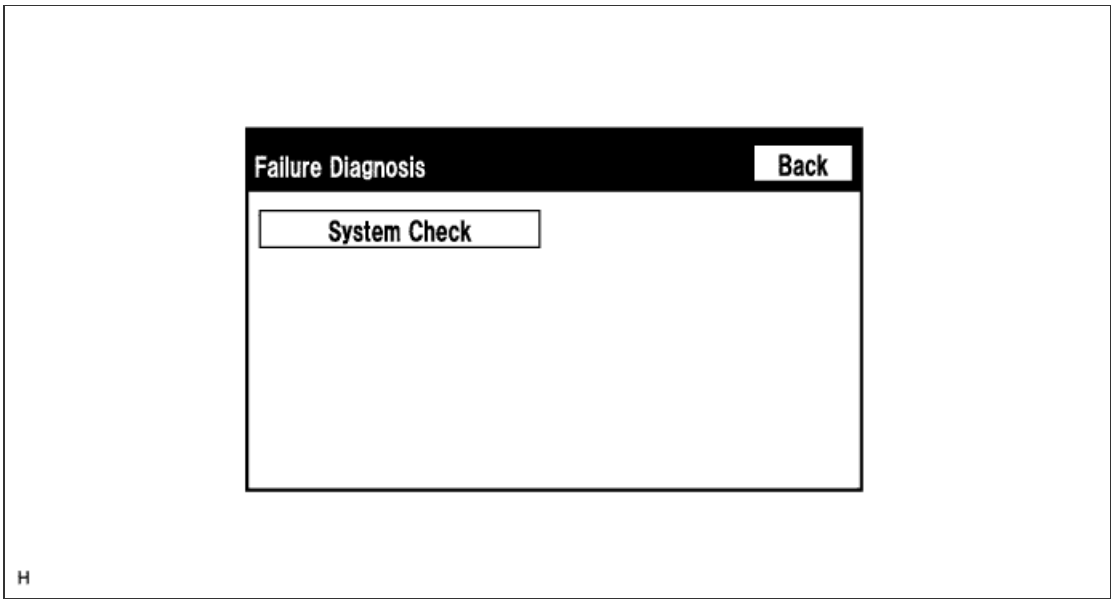
a. Service Menu Screen




**HINT:**

Each item is grayed out or not displayed based on the device settings.

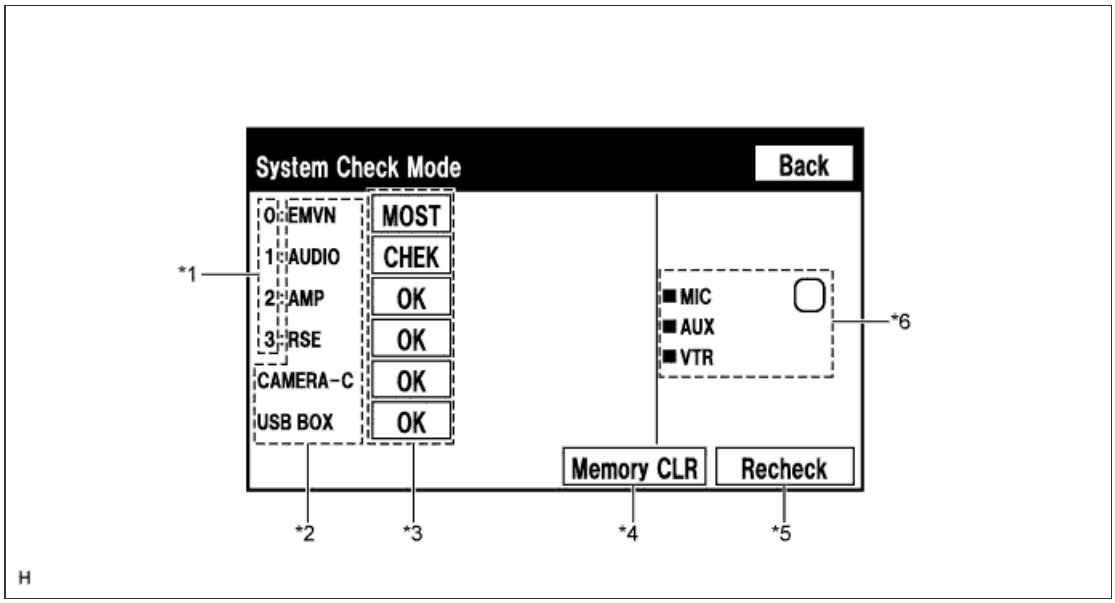
b. Failure Diagnosis Screen




**HINT:**

Each item is grayed out or not displayed based on the device settings.

i. System Check Mode Screen




*1: Node position number for devices connected to the MOST network.

**HINT:**

MOST node position numbers are provided for devices connected to the MOST network.

*2: Device Name List No. 1

**HINT:**

- **Device Name List No. 1 displays some of the devices that make up the navigation system.**
- **The names of the components from Device Name List No. 1 are shown in the following table.**

| Name | Component | Connection Method |
|---|---|---|
| EMVN | Display and navigation module display | - |
| AUDIO | Radio receiver assembly | Communication line for MOST network |
| AMP | Stereo component amplifier assembly | Communication line for MOST network |
| RSE | Television display assembly | Communication line for MOST network |
| CAMERA-C | Parking assist ECU | Communication line for AVC-LAN |
| USB BOX | Multi-media interface ECU | Communication line for AVC-LAN |

*3: Check Result

**HINT:**

- **Result codes for all devices are displayed.**
- **When "MOST" is displayed for the result, press "MODE" on the steering pad switch assembly to display the "MOST Line Check" screen.**

| Result | Meaning | Action |
|---|---|---|
| OK | The device does not respond with a DTC. | - |
| MOST | MOST communication error | Perform "MOST Line Check" to check the connection of each device on the MOST network. |
| EXCH | The device responds with a "replace"-type DTC. | Look up the DTC in "Unit Check Mode" and replace the device. |
| CHEK | The device responds with a "check"-type DTC. | Look up the DTC in "Unit Check Mode". |
| NCON | The device was previously present, but does not respond in diagnostic mode. | - Check power supply wire harness of the device.<br>- Check the AVC-LAN or MOST network for the |

| | | |
|---|---|---|
| | | device. |
| NRES | The device responds in diagnostic mode, but gives no DTC information. | - Check power supply wire harness of the device.<br>- Check the AVC-LAN or MOST network for the device. |

*4: Memory Clear

**HINT:**

- **Present and history DTCs and registered connected device names are cleared.**
- **Press the "Memory CLR" switch for 3 seconds.**

*5: Recheck

**HINT:**

- **A system check will be performed again after the memory is cleared.**
- **The "Recheck" switch will dim during a system check.**

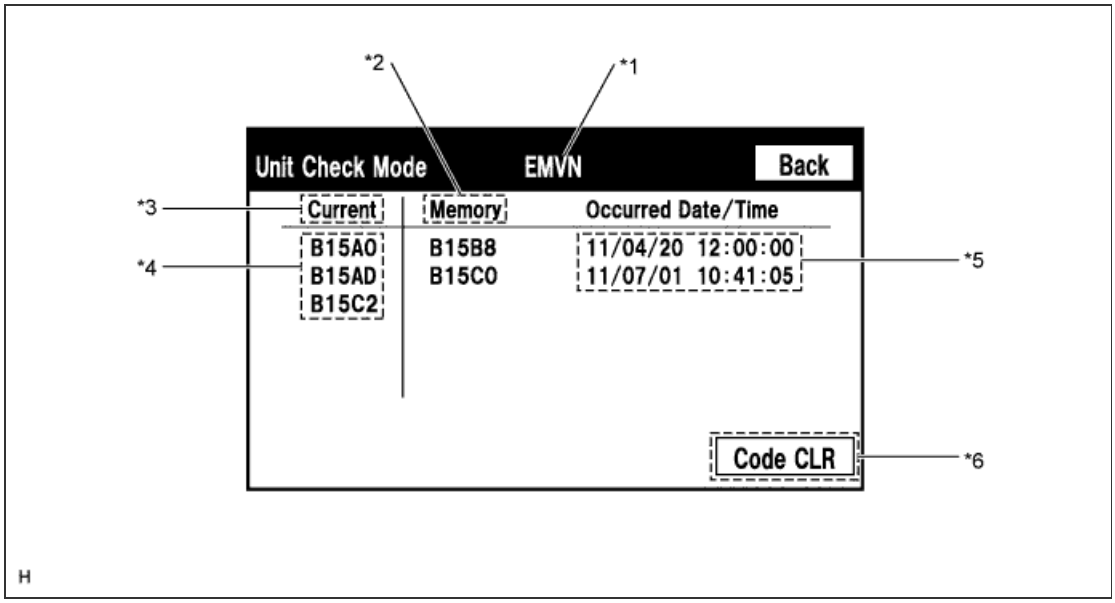
*6: Device Name List No. 2

**HINT:**

- **Device Name List No. 2 displays some of the devices that make up the navigation system.**
- **The names of the components from Device Name List No. 2 are shown in the following table.**

| Name | Component | Connection Method |
|---|---|---|
| MIC | Telephone microphone assembly | Vehicle wire harness |
| AUX | Stereo jack adapter assembly | Vehicle wire harness |
| VTR | Video (video adapter) terminal | Vehicle wire harness |

ii. Unit Check Mode Screen




**Screen Description**

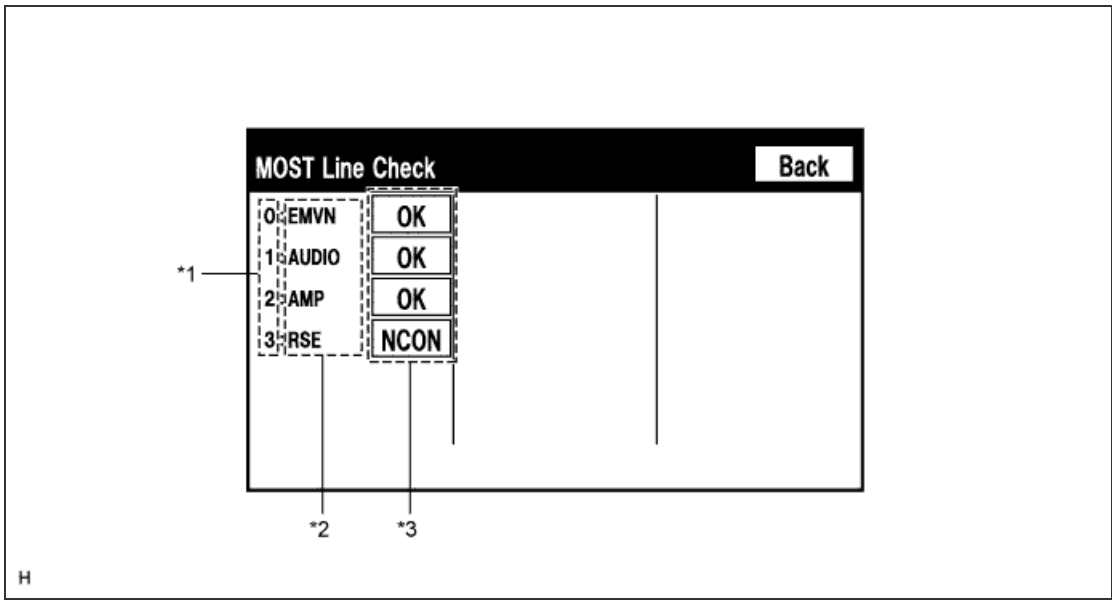
| Display | Content |
|---|---|
| *1: Device name | Target device |
| *2: History DTC | Diagnostic memory results and stored DTCs are displayed. |
| *3: Present DTC | DTCs output in the service check are displayed. |
| *4: DTC | DTC (Diagnostic Trouble Code) |
| *5: Timestamp | The time and date of history DTCs are displayed. (The year is displayed in 2-digit format.) |
| *6: Diagnosis | Pushing this switch for 3 seconds clears the diagnostic memory data of the target device. (Both |

| | |
|---|---|
| clear switch | response to diagnostic system check result and the displayed data are cleared.) |

iii. MOST Line Check Screen

**HINT:**

- **The inspection will be performed at the time the screen changes from "System Check Mode" to "MOST Line Check".**
- **The master unit checks the connection of each device on the MOST network.**




*1: Node position number for devices connected to the MOST network.
*2: Device Name List

**HINT:**

- **Device Name List displays some of the devices that make up the navigation system.**
- **The names of the components from Device Name List are shown in the following table.**

| Name | Component |
|---|---|
| EMVN | Display and navigation module display |
| AUDIO | Radio receiver assembly |
| AMP | Stereo component amplifier assembly |
| RSE | Television display assembly |

*3: Check Result

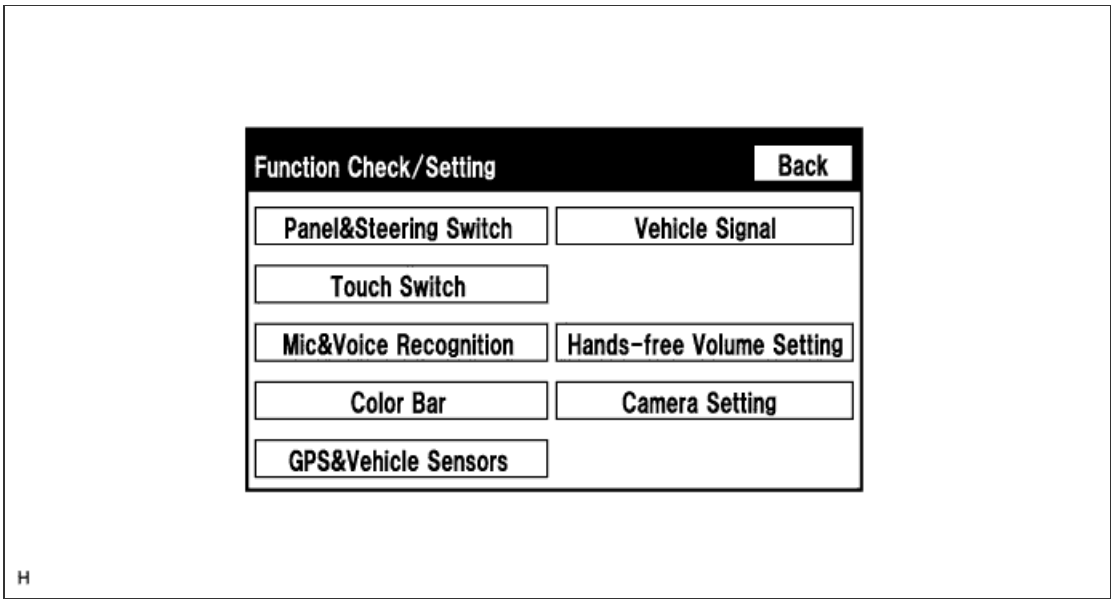
**HINT:**

- **The master unit displays the check result on the screen based on the response information from each slave unit.**
- **Result codes for all devices are displayed.**

| Result | Meaning |
|---|---|
| OK | There was a response for the connection check during the MOST line check. |
| NCON | There was no response for the connection check during the MOST line check. |

- **The device name and result will not be displayed if there is no system registration record and no response for the connection check during the MOST line check even if the device is connected to the MOST network.**

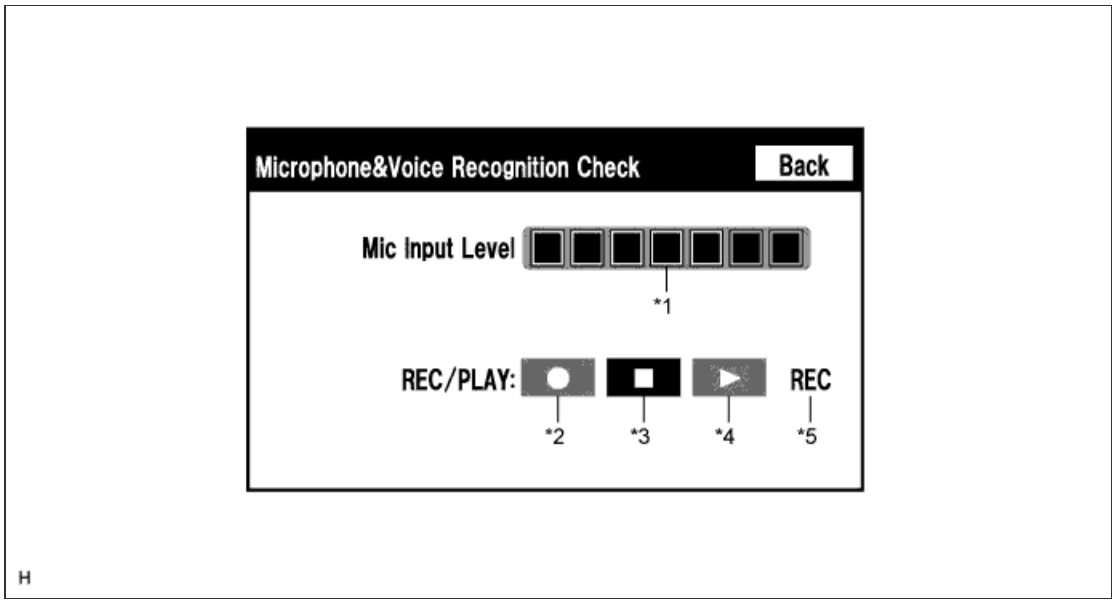
c. Function Check/Setting Screen




**HINT:**

Each item is grayed out or not displayed based on the device settings.

i. Microphone & Voice Recognition Check Screen



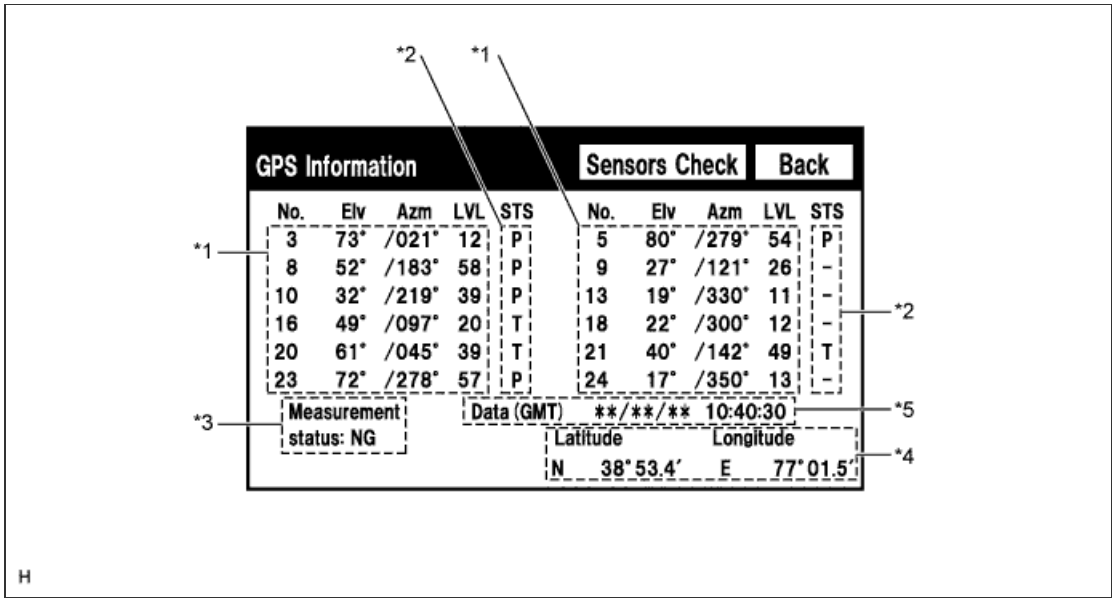

**Screen Description**

| Display | Content |
|---|---|
| *1: Microphone input level meter | Monitors the microphone input level every 0.1 sec. and displays the results in 8 different levels. |
| *2: Recording switch | Starts recording. |
| *3: Stop switch | Stops recording and playing. |
| *4: Play switch | Plays the recorded voice. |
| *5: Recording indicator | Comes on while recording. |

**HINT:**

- **The microphone is active at all times when this screen is displayed.**
- **While recording or playing, the switches other than the stop switch cannot be pushed.**
- **When no recording is present, the play switch cannot be pushed.**
- **Recording will stop after 5 seconds or when the stop switch is pushed.**

ii. GPS Information Screen




*1: Satellite information

**HINT:**

Information from a maximum of 12 satellites is displayed on the screen. This information includes the target GPS satellite number, elevation angle, direction and signal level.

*2: Receiving condition

**Screen Description**

| Display | Content |
|---|---|
| T | The system is receiving a GPS signal, but is not using it for location. |
| P | The system is using the GPS signal for location. |
| - | The system cannot receive a GPS signal. |

*3: Measurement information

**Screen Description**

| Display | Content |
|---|---|
| 2D | 2-dimensional location method is being used. |
| 3D | 3-dimensional location method is being used. |
| NG | Location data cannot be used. |
| Error | Reception error has occurred. |
| - | Any other state. |

*4: Position information

**Screen Description**

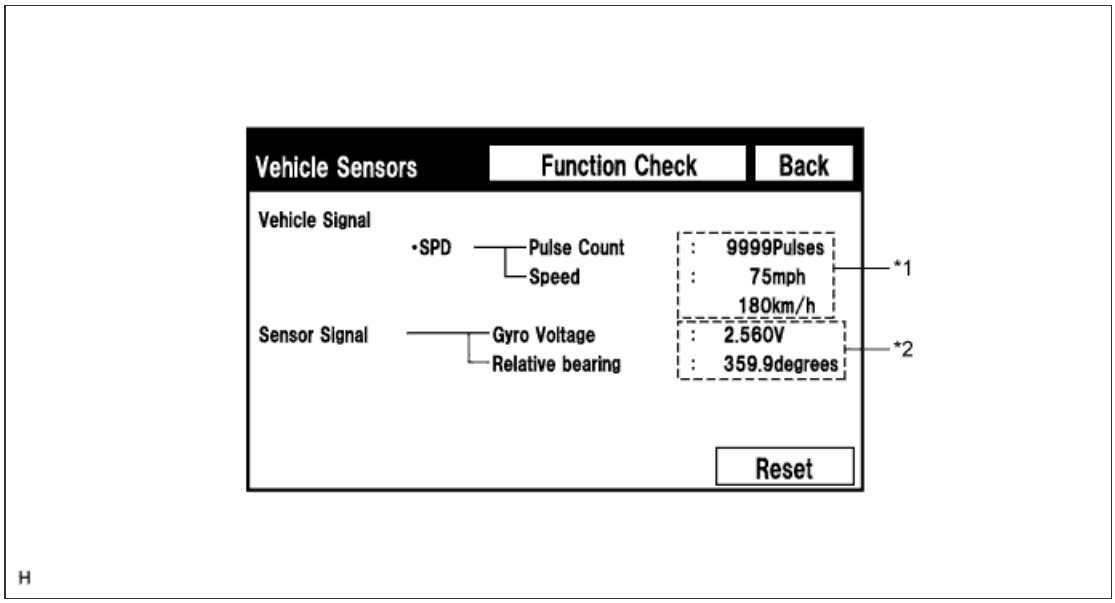
| Display | Content |
|---|---|
| Position | Latitude and longitude information on the current position is displayed. |

*5: Date information

**Screen Description**

| Display | Content |
|---|---|
| Date | The date/time information obtained from GPS signal is displayed in Greenwich Mean Time (GMT). The last 4 digits are displayed. |

iii. Vehicle Sensors Screen




**Vehicle Signal**

| Display | Content |
|---|---|
| *1: SPD | SPD signal condition is displayed. |

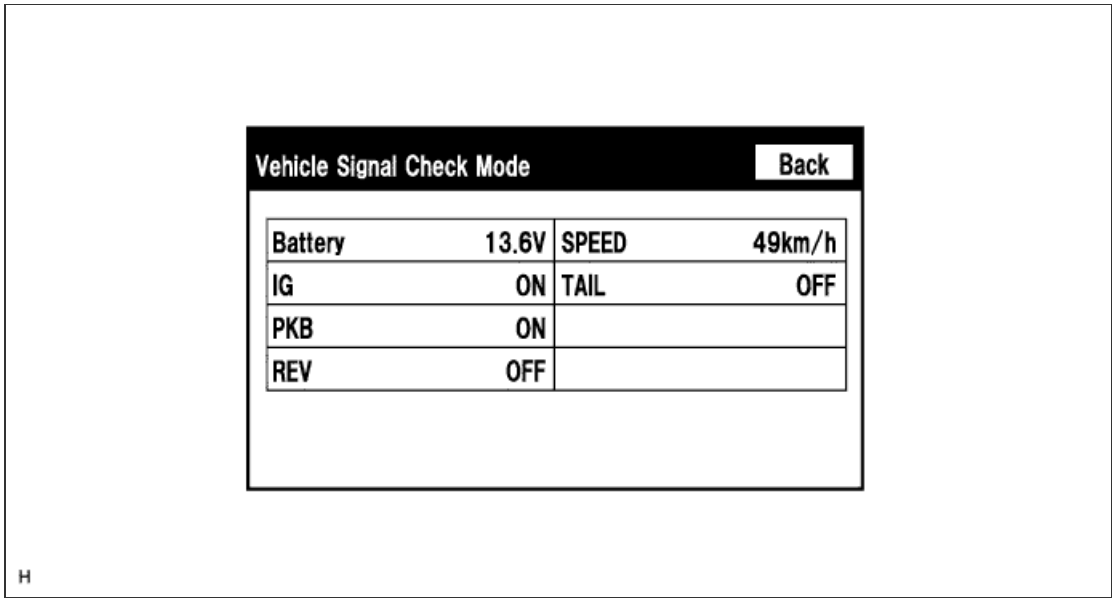
**Sensor Signal**

| Display | Content |
|---|---|
| *2: Gyro sensor | Gyro sensor output condition is displayed.<br>2.1 to 2.9 V |

**HINT:**

Signals are updated once per second only when vehicle sensor signals are changed.

iv. Vehicle Signal Check Mode Screen




**Screen Description**

| Display | Content |
|---|---|
| Battery | Battery voltage is displayed. |
| IG | Engine switch ON/OFF state is displayed. |
| PKB | Parking brake ON/OFF state is displayed. |
| REV | Reverse signal ON/OFF state is displayed. |
| SPEED | Vehicle speed is displayed in km/h. |

| | |
|---|---|
| TAIL | TAIL signal (Light control switch) ON/OFF state is displayed. |

**HINT:**

- **Only items sending vehicle signals will be displayed.**
- **This screen is updated once per second when input signals to the vehicle are changed.**

**for Preparation** Click here

**HINT:**

- **Use the following procedure to troubleshoot the navigation system (for DVD).**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

**NEXT**

## 2.INSPECT BATTERY VOLTAGE

a. Inspect the battery voltage.

**Standard Voltage:**
**11 to 14 V**

If the voltage is below 11 V, recharge or replace the battery before proceeding to the next step.

**NEXT**

## 3.DIAGNOSTIC QUESTIONING AND SYMPTOM CONFIRMATION

a. Ask the customer about symptoms and confirm malfunctions.

**Result**

| Result | Proceed to |
|---|---|
| Other symptoms. | A |
| The screen displays nothing. | B |

**B.** → **Go to step 10, AND PROCEED TO "BLACK SCREEN"**

**A**

## 4.OPERATION CHECK

a. Refer to Check System Normal Condition ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| Symptom is not normal operation. | A |
| Symptom is normal operation. | B |

**B.** → **SYMPTOM IS NORMAL OPERATION**

**A**

## 5.CHECK CAN COMMUNICATION SYSTEM*

a. Check for DTC output.

**HINT:**

- **for LHD (Click here)**
- **for RHD (Click here)**

Result

| Result | Proceed to |
|---|---|
| DTC is not output. | A |
| DTC is output. (for LHD) | B |
| DTC is output. (for RHD) | C |

B. GO TO CAN COMMUNICATION SYSTEM (Click here)

C. GO TO CAN COMMUNICATION SYSTEM (Click here)

A

## 6.CHECK FOR DTC*

a. Refer to DTC Check/Clear (Click here).

Result

| Result | Proceed to |
|---|---|
| DTC is output. | A |
| DTC is not output. | B |

**HINT:**

If more information is needed, perform a recheck using the "System Check Mode" screen after rechecking for DTCs using the intelligent tester (Click here).

B. Go to step 10

A

## 7.DTC CLEAR*

a. Refer to the DTC Check/Clear (Click here).

**HINT:**

The current DTCs may not indicate actual malfunctions depending on the vehicle operating conditions.

NEXT

## 8.RECHECK FOR DTC*

Result

| Result | Proceed to |
|---|---|
| DTC is output. | A |
| DTC is not output. | B |

**HINT:**

- **Even if the malfunction symptom is not confirmed, check for DTCs. This is because the system stores history DTCs.**
- **If more information is needed, perform a recheck using the "System Check Mode" screen after rechecking for DTCs using the intelligent tester (Click here).**
- **Check the DTC and inspect the area code indicates.**

B. Go to step 10

A

## 9.DIAGNOSTIC TROUBLE CODE CHART

a. Find the output code in Diagnostic Trouble Code Chart (Click here).

**NOTICE:**

- **The navigation system outputs DTCs for the following system.**
- **When DTCs other than those in Diagnostic Trouble Code Chart for the navigation system are output, refer to Diagnostic Trouble Code Chart for the system.**
- **Audio and visual system (w/ navigation system) ( Click here)**
- **Rear seat entertainment system (w/ rear seat entertainment system) ( Click here)**
- **Parking assist monitor system (w/ parking assist monitor system) ( Click here).**
- **Wide view front monitor system (w/ wide view front monitor system) ( Click here)**
- **Side monitor system (w/ side monitor system) ( Click here)**

**Result**

| Result | Proceed to |
|---|---|
| DTCs for the navigation system are output. | A |
| DTCs for the audio and visual system (w/ navigation system) are output. | B |
| DTCs for the rear seat entertainment system (w/ rear seat entertainment system) are output. | C |
| DTCs for the parking assist monitor system (w/ parking assist monitor system) are output. | D |
| DTCs for the wide view front monitor system (w/ wide view front monitor system) are output. | E |
| DTCs for the side monitor system (w/ side monitor system) are output. | F |

| | |
|---|---|
| **A.** | **Go to step 12** |
| **B.** | **GO TO AUDIO AND VISUAL SYSTEM (w/ Navigation System) ( Click here)** |
| **C.** | **GO TO REAR SEAT ENTERTAINMENT SYSTEM ( Click here)** |
| **D.** | **GO TO PARKING ASSIST MONITOR SYSTEM ( Click here)** |
| **E.** | **GO TO WIDE VIEW FRONT MONITOR SYSTEM (w/ Parking Assist Monitor System) ( Click here)** |
| **F.** | **GO TO SIDE MONITOR SYSTEM (w/ Parking Assist Monitor System) ( Click here)** |

## 10.PROBLEM SYMPTOMS TABLE

a. Refer to Problem Symptoms Table ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in Problem Symptoms Table. | A |
| Fault is listed in Problem Symptoms Table. | B |

**HINT:**

If the symptom does not recur and no DTC is output, perform the symptom reproduction method ( Click here).

| | |
|---|---|
| **B.** | **Go to step 12** |

**A**

## 11.CHECK ECU TERMINAL ARRANGEMENT BASED ON MALFUNCTION SYMPTOM

a. Refer to Terminals of ECU ( Click here).

**NEXT**

## 12.CHECK CIRCUIT

a. Adjust, repair or replace as necessary.

NEXT

13.RECHECK FOR DIAGNOSTIC TROUBLE CODE

**HINT:**

After clearing the DTCs, recheck for DTCs.

NEXT

14.PERFORM CONFIRMATION TEST

NEXT

END

**for Preparation** Click here

**HINT:**

- **Use the following procedure to troubleshoot the navigation system (for DVD).**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

**NEXT**

## 2.INSPECT BATTERY VOLTAGE

a. Inspect the battery voltage.

**Standard Voltage:**
**11 to 14 V**

If the voltage is below 11 V, recharge or replace the battery before proceeding to the next step.

**NEXT**

## 3.DIAGNOSTIC QUESTIONING AND SYMPTOM CONFIRMATION

a. Ask the customer about symptoms and confirm malfunctions.

**Result**

| Result | Proceed to |
|---|---|
| Other symptoms. | A |
| The screen displays nothing. | B |

**B.** → **Go to step 10, AND PROCEED TO "BLACK SCREEN"**

**A**

## 4.OPERATION CHECK

a. Refer to Check System Normal Condition ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| Symptom is not normal operation. | A |
| Symptom is normal operation. | B |

**B.** → **SYMPTOM IS NORMAL OPERATION**

**A**

## 5.CHECK CAN COMMUNICATION SYSTEM*

a. Check for DTC output.

**HINT:**

- **for LHD (Click here)**
- **for RHD (Click here)**

Result

| Result | Proceed to |
|---|---|
| DTC is not output. | A |
| DTC is output. (for LHD) | B |
| DTC is output. (for RHD) | C |

B. GO TO CAN COMMUNICATION SYSTEM (Click here)

C. GO TO CAN COMMUNICATION SYSTEM (Click here)

A

## 6.CHECK FOR DTC*

a. Refer to DTC Check/Clear (Click here).

Result

| Result | Proceed to |
|---|---|
| DTC is output. | A |
| DTC is not output. | B |

**HINT:**

If more information is needed, perform a recheck using the "System Check Mode" screen after rechecking for DTCs using the intelligent tester (Click here).

B. Go to step 10

A

## 7.DTC CLEAR*

a. Refer to the DTC Check/Clear (Click here).

**HINT:**

The current DTCs may not indicate actual malfunctions depending on the vehicle operating conditions.

NEXT

## 8.RECHECK FOR DTC*

Result

| Result | Proceed to |
|---|---|
| DTC is output. | A |
| DTC is not output. | B |

**HINT:**

- **Even if the malfunction symptom is not confirmed, check for DTCs. This is because the system stores history DTCs.**
- **If more information is needed, perform a recheck using the "System Check Mode" screen after rechecking for DTCs using the intelligent tester (Click here).**
- **Check the DTC and inspect the area code indicates.**

B. Go to step 10

A

## 9.DIAGNOSTIC TROUBLE CODE CHART

a. Find the output code in Diagnostic Trouble Code Chart (Click here).

**NOTICE:**

- **The navigation system outputs DTCs for the following system.**
- **When DTCs other than those in Diagnostic Trouble Code Chart for the navigation system are output, refer to Diagnostic Trouble Code Chart for the system.**
- **Audio and visual system (w/ navigation system) ( Click here)**
- **Rear seat entertainment system (w/ rear seat entertainment system) ( Click here)**
- **Parking assist monitor system (w/ parking assist monitor system) ( Click here).**
- **Wide view front monitor system (w/ wide view front monitor system) ( Click here)**
- **Side monitor system (w/ side monitor system) ( Click here)**

**Result**

| Result | Proceed to |
|---|---|
| DTCs for the navigation system are output. | A |
| DTCs for the audio and visual system (w/ navigation system) are output. | B |
| DTCs for the rear seat entertainment system (w/ rear seat entertainment system) are output. | C |
| DTCs for the parking assist monitor system (w/ parking assist monitor system) are output. | D |
| DTCs for the wide view front monitor system (w/ wide view front monitor system) are output. | E |
| DTCs for the side monitor system (w/ side monitor system) are output. | F |

| | |
|---|---|
| **A.** | **Go to step 12** |
| **B.** | **GO TO AUDIO AND VISUAL SYSTEM (w/ Navigation System) ( Click here)** |
| **C.** | **GO TO REAR SEAT ENTERTAINMENT SYSTEM ( Click here)** |
| **D.** | **GO TO PARKING ASSIST MONITOR SYSTEM ( Click here)** |
| **E.** | **GO TO WIDE VIEW FRONT MONITOR SYSTEM (w/ Parking Assist Monitor System) ( Click here)** |
| **F.** | **GO TO SIDE MONITOR SYSTEM (w/ Parking Assist Monitor System) ( Click here)** |

## 10.PROBLEM SYMPTOMS TABLE

a. Refer to Problem Symptoms Table ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in Problem Symptoms Table. | A |
| Fault is listed in Problem Symptoms Table. | B |

**HINT:**

If the symptom does not recur and no DTC is output, perform the symptom reproduction method ( Click here).

| | |
|---|---|
| **B.** | **Go to step 12** |

**A**

## 11.CHECK ECU TERMINAL ARRANGEMENT BASED ON MALFUNCTION SYMPTOM

a. Refer to Terminals of ECU ( Click here).

**NEXT**

## 12.CHECK CIRCUIT

a. Adjust, repair or replace as necessary.

NEXT

13.RECHECK FOR DIAGNOSTIC TROUBLE CODE

**HINT:**

After clearing the DTCs, recheck for DTCs.

NEXT

14.PERFORM CONFIRMATION TEST

NEXT

END

**for Preparation** Click here

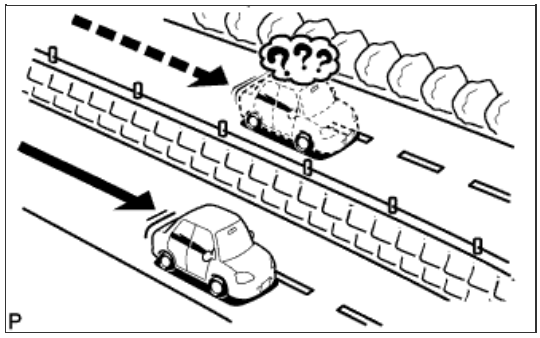
## CHECK SYSTEM NORMAL CONDITION

a. If the symptom is applicable to any of the following, it is intended behavior, and not a malfunction.

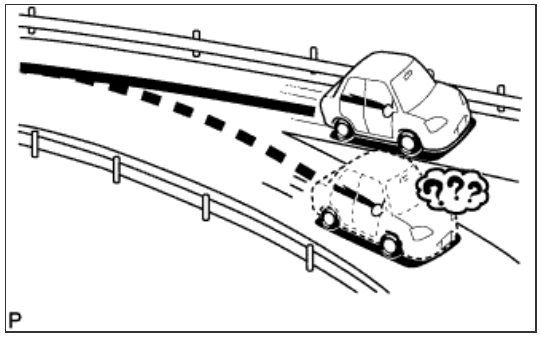
| Symptom | Answer |
|---|---|
| A longer route than expected is chosen. | Depending on the road conditions, the display and navigation module display may determine that a longer route is quicker. |
| Even when distance priority is high, the shortest route is not shown. | Some routes may not be advised due to safety concerns. |
| When the vehicle is put into motion immediately after the engine starts, the navigation system deviates from the actual position. | If the vehicle starts before the navigation system activates, the system may not react. |
| When running on certain types of roads, especially new roads, the vehicle position deviates from the actual position. | When the vehicle is driving on new roads not available on the map disc, the system attempts to match it to another nearby road, causing the position mark to deviate. |

b. The following symptoms are not malfunctions, but are caused by errors inherent in the GPS, gyro sensor, speed sensor or display and navigation module display.

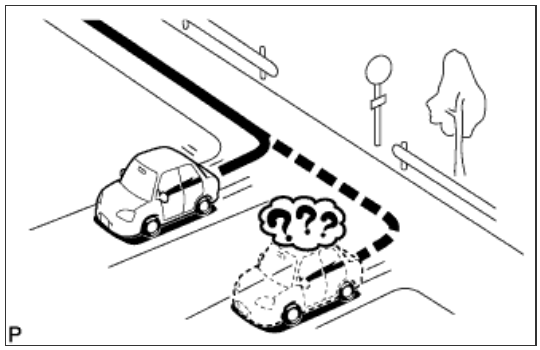
i. The current position mark may be displayed on a nearby parallel road.



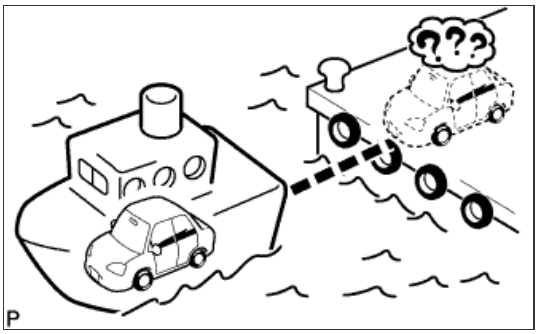

ii. Immediately after a fork in the road, the current vehicle position mark may be displayed on the wrong road.



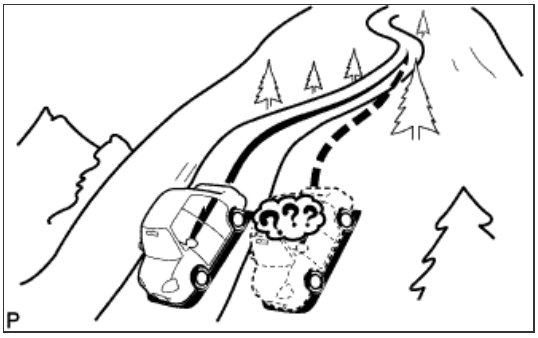

iii. When the vehicle turns right or left at an intersection, the current vehicle position mark may be displayed on a nearby parallel road.



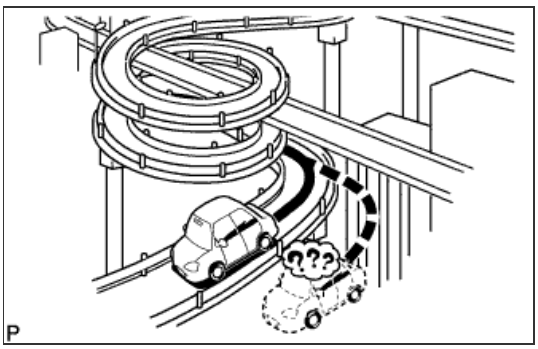

iv. When the vehicle is carried, such as on a ferry, and the vehicle itself is not running, the current vehicle position mark may be displayed in the position where the vehicle was until a measurement can be performed by GPS.



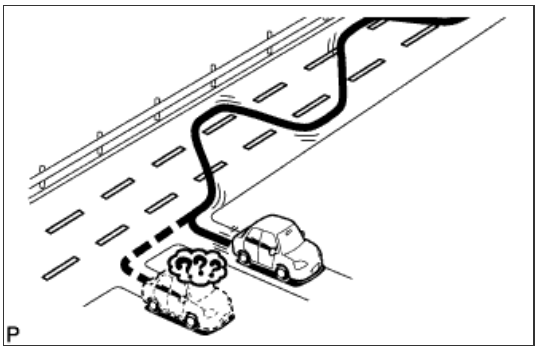

v. When the vehicle travels on a steep hill, the current vehicle position mark may deviate from the correct position.



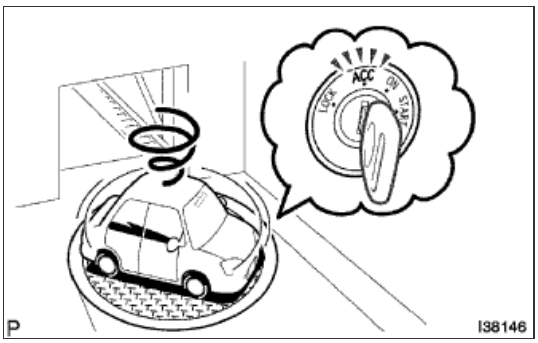

vi. When the vehicle makes a continuous turn (e.g. 360, 720, 1080 degrees) the current vehicle position mark may deviate from the correct position.




vii. When the vehicle moves erratically, such as constant lane changes, the current vehicle position mark may deviate from the correct position.




viii. When the engine switch is turned on (ACC or IG) on a turntable before parking, the current vehicle position mark may not indicate the correct direction. The same will occur when the vehicle comes out of the parking garage.



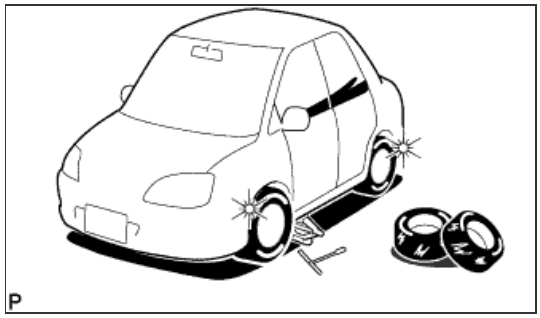

ix. When the vehicle travels on a snowy road or a mountain path with the chains installed or using a spare tire, the current vehicle position mark may deviate from the correct position.




x. When the tires are changed, the current vehicle position mark may deviate from the correct position.

**HINT:**

- **A change in tire diameter may cause a speed sensor error.**
- **Performing "tire change" in calibration mode will allow the system to correct the current vehicle position faster.**



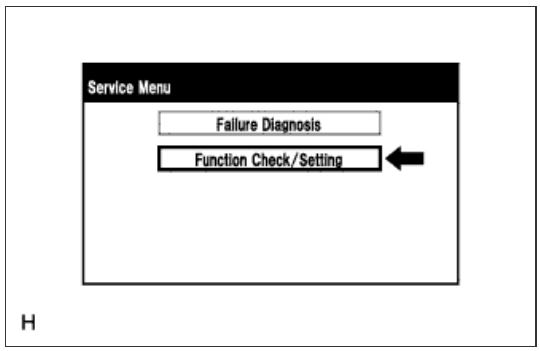

## CHECK PANEL & STEERING SWITCH

**HINT:**

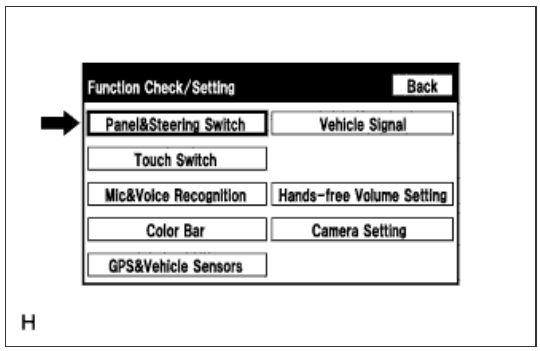
- **The display and navigation module display panel switches, radio receiver assembly panel switches and steering switches are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.

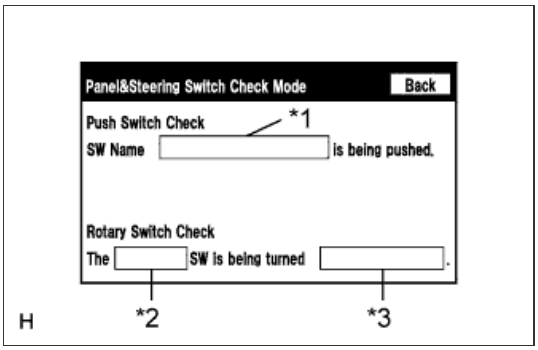



c. Select "Panel & Steering Switch" from the "Function Check/Setting" screen.




d. Panel & Steering Switch Check Mode

i. Operate each switch and check that the switch names and condition are correctly displayed.




**Screen Description**

| Display | Content |
|---|---|
| *1: Push switch name | • Name of the pressed switch is displayed.<br>• If more than one switch is pressed, "MULTIPLE" will be displayed. |
| *2: Rotary switch name | Name of the rotary switch is displayed. |
| *3: Rotary switch direction | Direction of the rotary switch is displayed. |

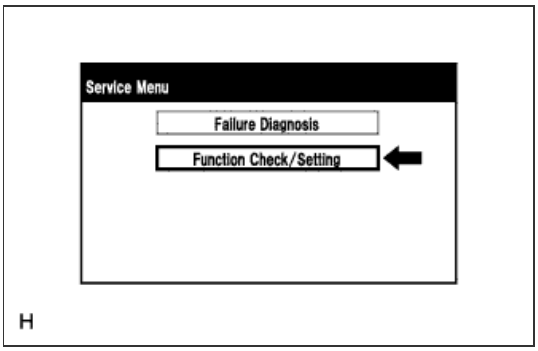
## CHECK TOUCH SWITCH

**HINT:**

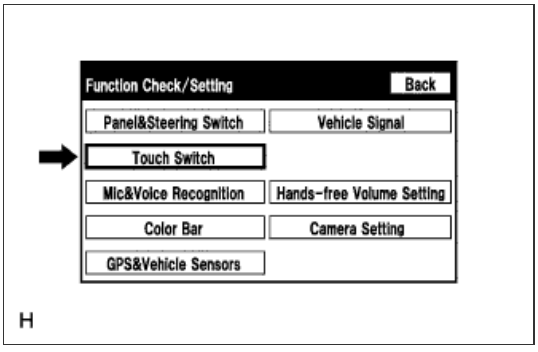
- **The touch switches on the screen are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "Touch Switch" from the "Function Check/Setting" screen.



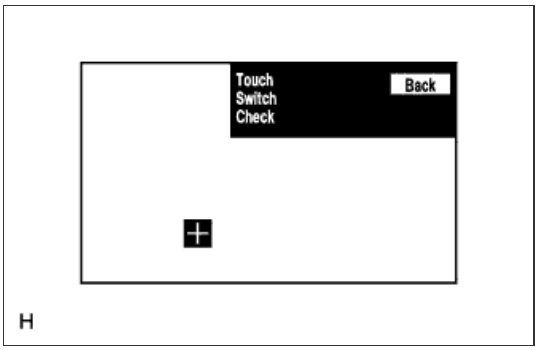

d. Touch Switch Check

i. Touch the display anywhere in the open area to perform the check when the "Touch Switch Check" screen is displayed.

**HINT:**

- **A "+" mark is displayed where the display is touched.**
- **The "+" mark remains on the display even after the**

finger is removed.



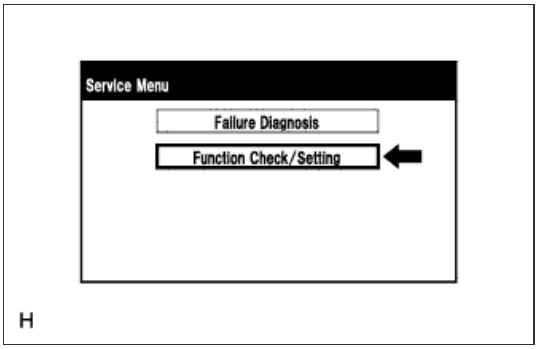

## CHECK MIC & VOICE RECOGNITION

**HINT:**

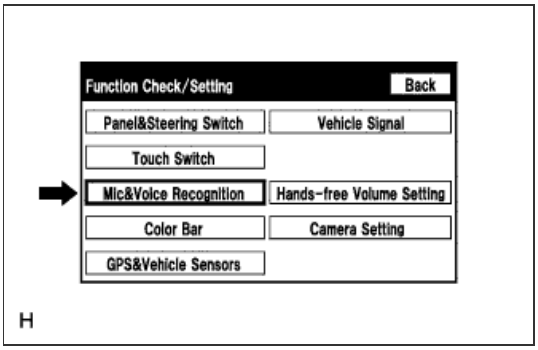
- **The microphone and microphone input level are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "Mic & Voice Recognition" from the "Function Check/Setting" screen.




d. Microphone & Voice Recognition Check

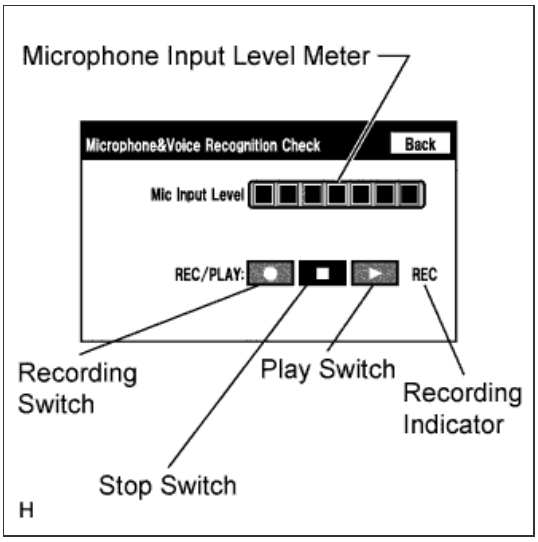
i. When speaking into the microphone, check that the microphone input level meter changes according to the input level.

ii. Push the recording switch and perform voice recording.

iii. Check that the recording indicator remains on while recording and that the recording can be played normally.

**HINT:**

- **For details of this function, refer to Diagnosis Display Detailed Description (Click here).**
- **This function is controlled by the display and navigation module display (built-in navigation ECU).**



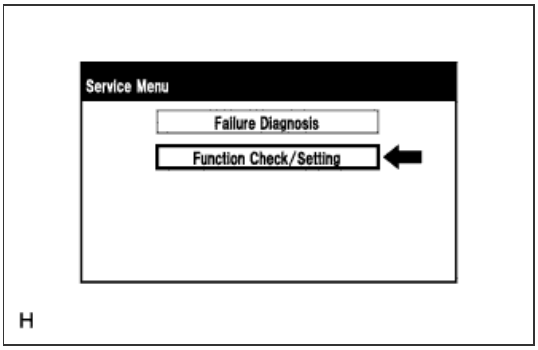

## CHECK COLOR BAR

**HINT:**

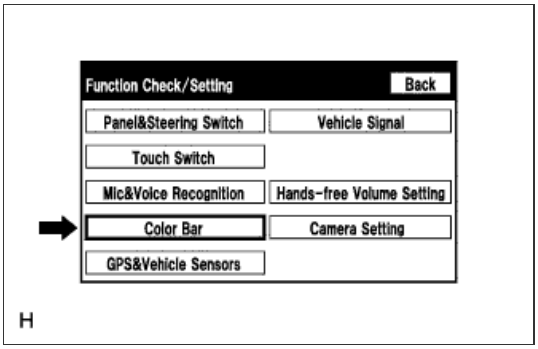
- **The display color on the screen is checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "Color Bar" from the "Function Check/Setting" screen.




d. Color Bar Check Mode

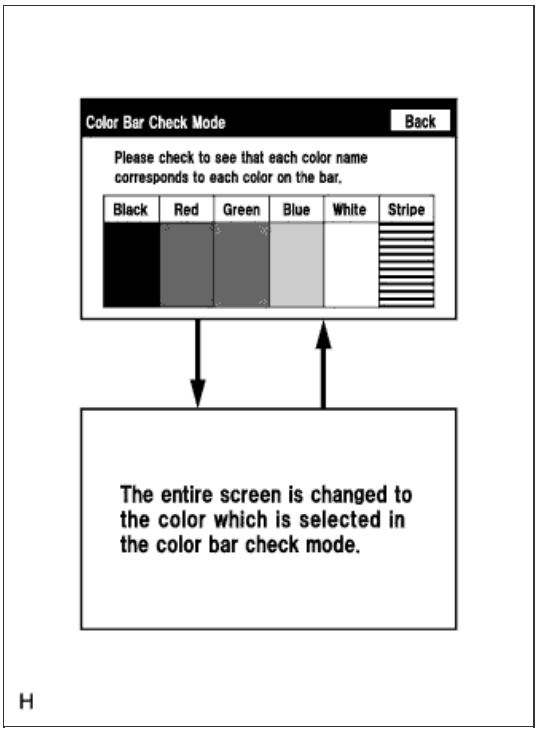
i. Select a color bar from the "Color Bar Check Mode" screen.

ii. Check the display color.

**HINT:**

- **The entire screen turns to the color or stripe selected.**

- **Touching the display will return to the "Color Bar Check" screen.**



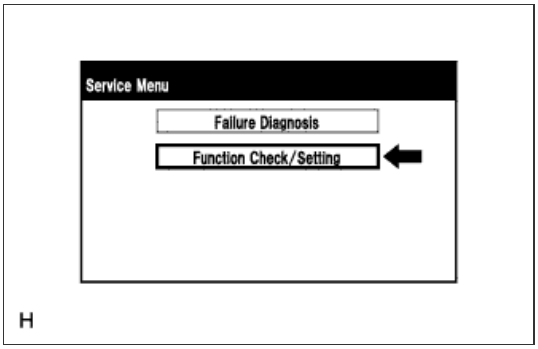

## CHECK GPS & VEHICLE SENSORS

**HINT:**

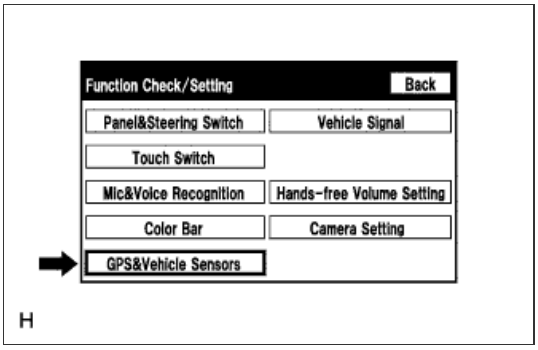
- **GPS information, vehicle signals and sensor signals are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "GPS & Vehicle Sensors" from the "Function Check/Setting" screen.

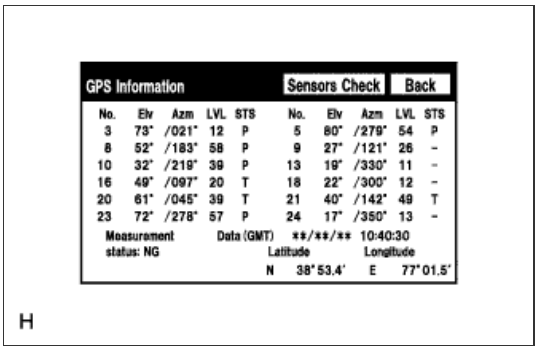



d. GPS information

i. When GPS information is displayed, check the GPS conditions.

**HINT:**

- **This screen is updated once per second when input signals to the vehicle are changed.**
- **For details of this function, refer to Diagnosis Display Detailed Description in System Description (Click here).**




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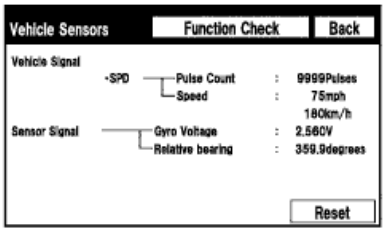
e. Select "Sensors Check" from the "GPS Information" screen.

f. Vehicle Sensors

i. Check all the signals and sensors when vehicle signal information is displayed.

**HINT:**

- **This screen is updated once per second when input signals to the vehicle are changed.**
- **This screen displays vehicle signals input to the display and navigation module display (built-in navigation ECU).**
- **For details of this function, refer to Diagnosis Display Detailed Description in System Description (Click here).**




H

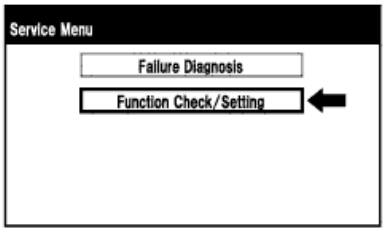
## CHECK VEHICLE SIGNAL

**HINT:**

- **Vehicle signals received by the display and navigation module display are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

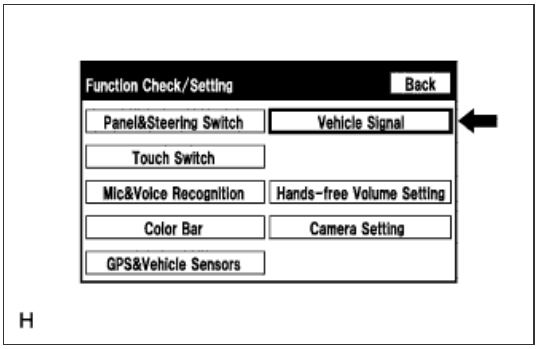
a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




H

c. Select "Vehicle Signal" from the "Function Check/Setting" screen.

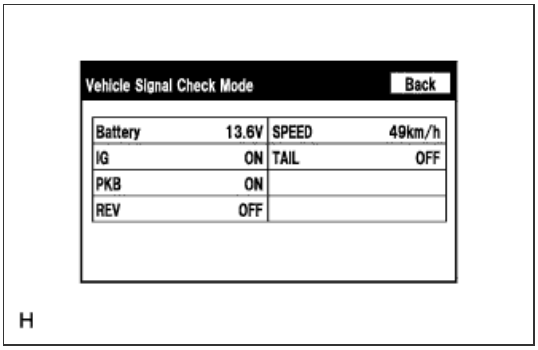



d. Vehicle Signal Check Mode

i. When the "Vehicle Signal Check Mode" screen is displayed, check all the vehicle signal conditions.

**HINT:**

- **Only conditions having inputs are displayed.**
- **This screen displays vehicle signals input to the display and navigation module display.**
- **For details of this function, refer to Diagnosis Display Detailed Description in System Description (Click here).**



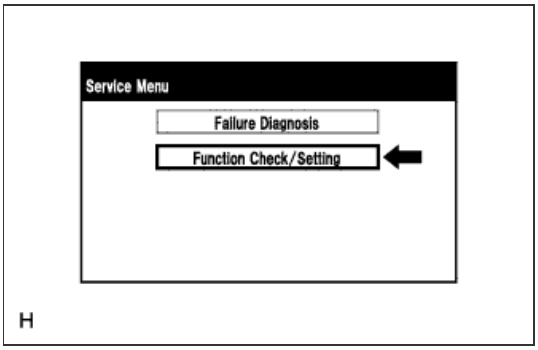

## CHECK HANDS-FREE VOLUME SETTING

**HINT:**

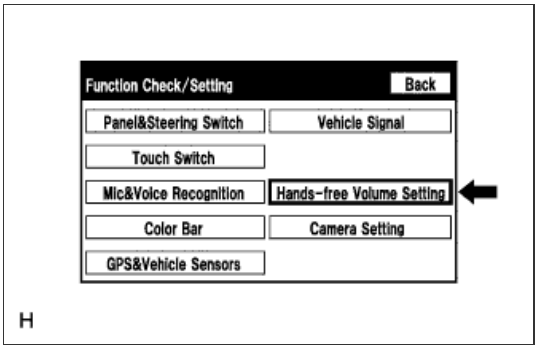
- **The hands-free volume of a "Bluetooth" compatible phone can be adjusted using the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.

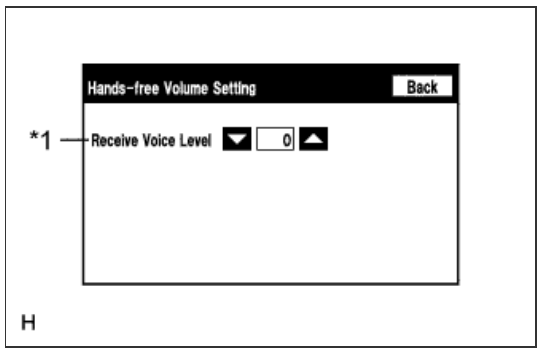



c. Select "Hands-free Volume Setting" from the "Function Check/Setting" screen.



d. Hands-free Volume Setting

i. Check the hands-free volume level.




**Screen Description**

| Display | Content |
|---|---|
| *1: Receive voice level adjustment | Setting possible for the voice level received from "Bluetooth" compatible phones. |

**NOTICE:**

Sound quality may deteriorate when the receive voice level is changed more than necessary. For this reason, check that the receive voice quality is still acceptable after changing this setting.

## CHECK CAMERA SETTING (w/ Parking Assist Monitor System)

a. Refer to the parking assist monitor system for further information ( Click here).

## CHECK CAMERA SETTING (w/ Side Monitor System)

a. Refer to the side monitor system for further information ( Click here).

**for Preparation** Click here

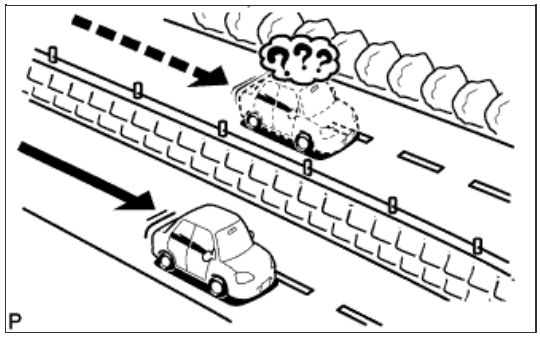
## CHECK SYSTEM NORMAL CONDITION

a. If the symptom is applicable to any of the following, it is intended behavior, and not a malfunction.

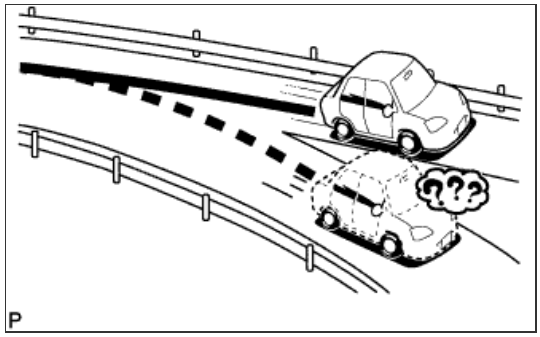
| Symptom | Answer |
|---|---|
| A longer route than expected is chosen. | Depending on the road conditions, the display and navigation module display may determine that a longer route is quicker. |
| Even when distance priority is high, the shortest route is not shown. | Some routes may not be advised due to safety concerns. |
| When the vehicle is put into motion immediately after the engine starts, the navigation system deviates from the actual position. | If the vehicle starts before the navigation system activates, the system may not react. |
| When running on certain types of roads, especially new roads, the vehicle position deviates from the actual position. | When the vehicle is driving on new roads not available on the map disc, the system attempts to match it to another nearby road, causing the position mark to deviate. |

b. The following symptoms are not malfunctions, but are caused by errors inherent in the GPS, gyro sensor, speed sensor or display and navigation module display.

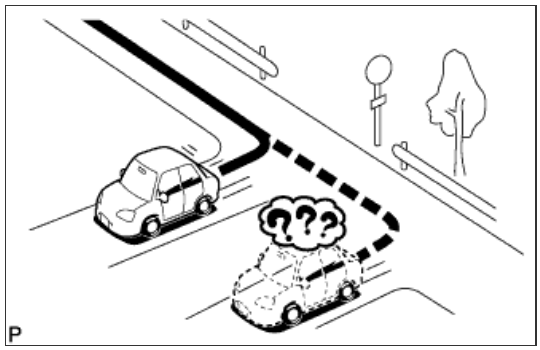
i. The current position mark may be displayed on a nearby parallel road.



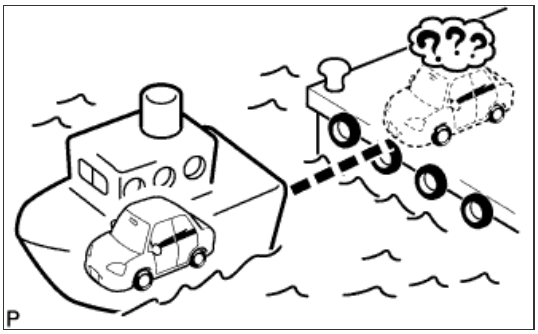

ii. Immediately after a fork in the road, the current vehicle position mark may be displayed on the wrong road.



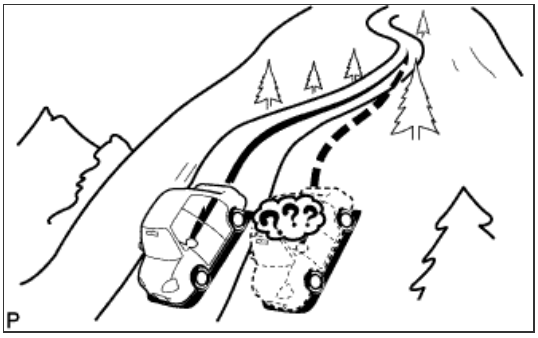

iii. When the vehicle turns right or left at an intersection, the current vehicle position mark may be displayed on a nearby parallel road.



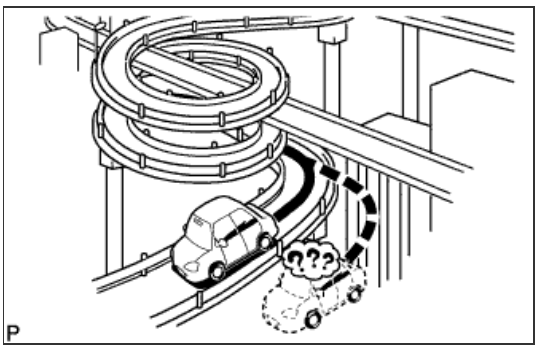

iv. When the vehicle is carried, such as on a ferry, and the vehicle itself is not running, the current vehicle position mark may be displayed in the position where the vehicle was until a measurement can be performed by GPS.



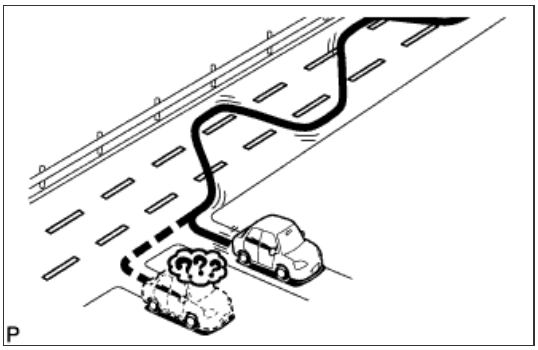

v. When the vehicle travels on a steep hill, the current vehicle position mark may deviate from the correct position.



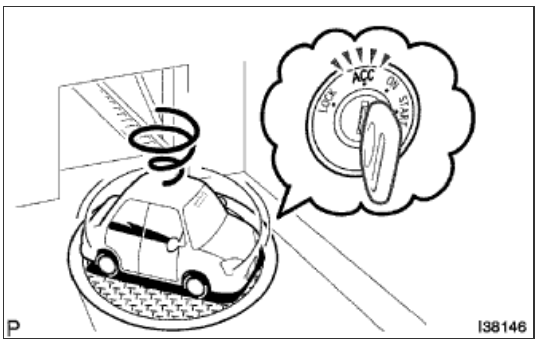

vi. When the vehicle makes a continuous turn (e.g. 360, 720, 1080 degrees) the current vehicle position mark may deviate from the correct position.




vii. When the vehicle moves erratically, such as constant lane changes, the current vehicle position mark may deviate from the correct position.




viii. When the engine switch is turned on (ACC or IG) on a turntable before parking, the current vehicle position mark may not indicate the correct direction. The same will occur when the vehicle comes out of the parking garage.



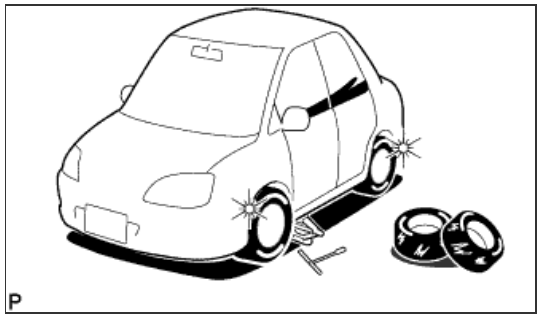

ix. When the vehicle travels on a snowy road or a mountain path with the chains installed or using a spare tire, the current vehicle position mark may deviate from the correct position.




x. When the tires are changed, the current vehicle position mark may deviate from the correct position.

**HINT:**

- **A change in tire diameter may cause a speed sensor error.**
- **Performing "tire change" in calibration mode will allow the system to correct the current vehicle position faster.**



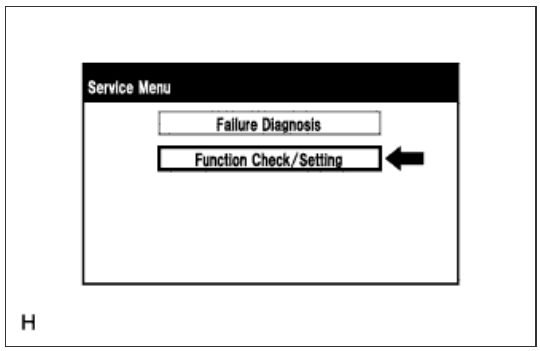

## CHECK PANEL & STEERING SWITCH

**HINT:**

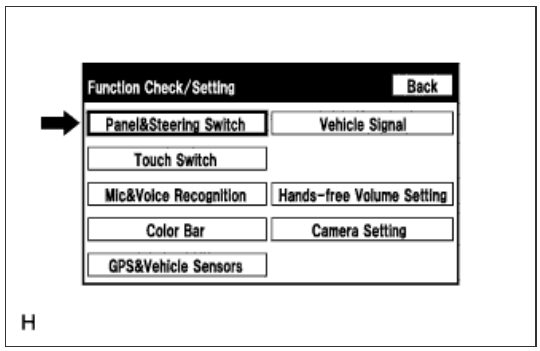
- **The display and navigation module display panel switches, radio receiver assembly panel switches and steering switches are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.

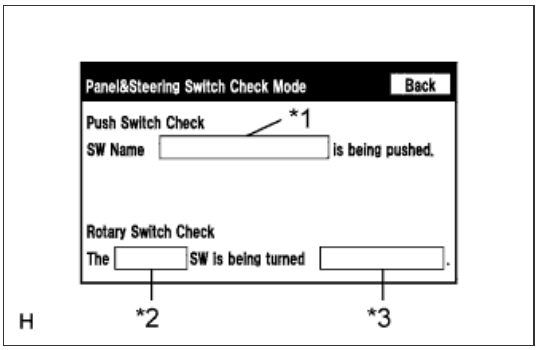



c. Select "Panel & Steering Switch" from the "Function Check/Setting" screen.




d. Panel & Steering Switch Check Mode

i. Operate each switch and check that the switch names and condition are correctly displayed.




**Screen Description**

| Display | Content |
|---|---|
| *1: Push switch name | • Name of the pressed switch is displayed.<br>• If more than one switch is pressed, "MULTIPLE" will be displayed. |
| *2: Rotary switch name | Name of the rotary switch is displayed. |
| *3: Rotary switch direction | Direction of the rotary switch is displayed. |

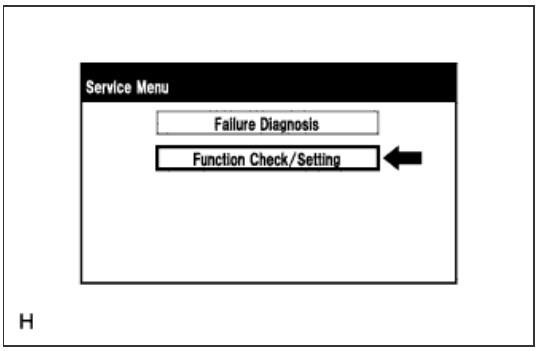
## CHECK TOUCH SWITCH

**HINT:**

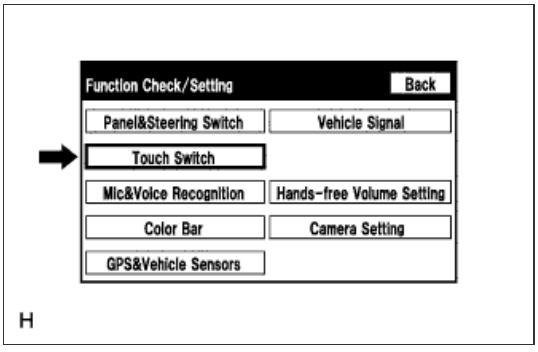
- **The touch switches on the screen are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "Touch Switch" from the "Function Check/Setting" screen.



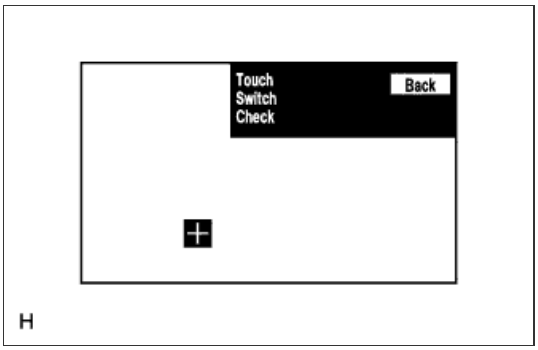

d. Touch Switch Check

i. Touch the display anywhere in the open area to perform the check when the "Touch Switch Check" screen is displayed.

**HINT:**

- **A "+" mark is displayed where the display is touched.**
- **The "+" mark remains on the display even after the**

finger is removed.



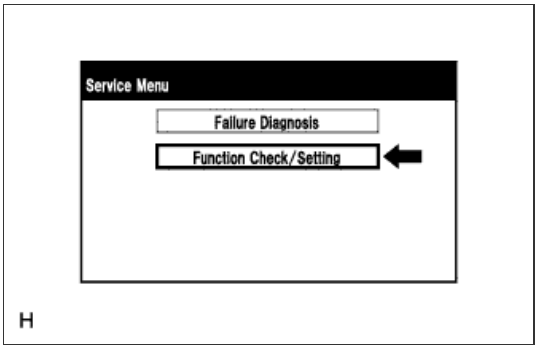

## CHECK MIC & VOICE RECOGNITION

**HINT:**

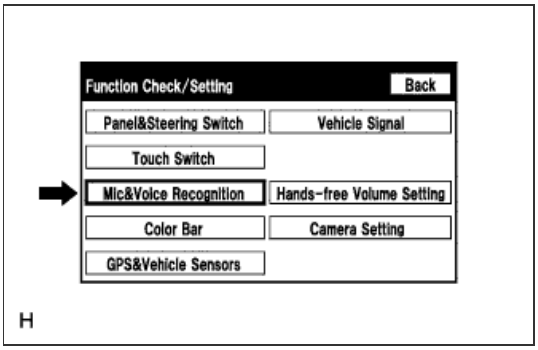
- **The microphone and microphone input level are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "Mic & Voice Recognition" from the "Function Check/Setting" screen.




d. Microphone & Voice Recognition Check

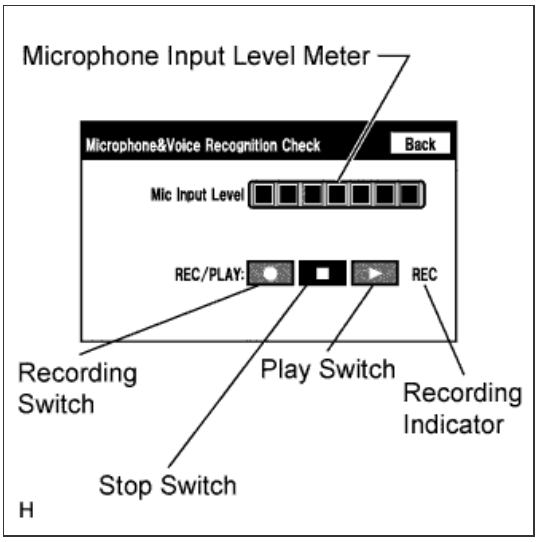
i. When speaking into the microphone, check that the microphone input level meter changes according to the input level.

ii. Push the recording switch and perform voice recording.

iii. Check that the recording indicator remains on while recording and that the recording can be played normally.

**HINT:**

- **For details of this function, refer to Diagnosis Display Detailed Description (Click here).**
- **This function is controlled by the display and navigation module display (built-in navigation ECU).**



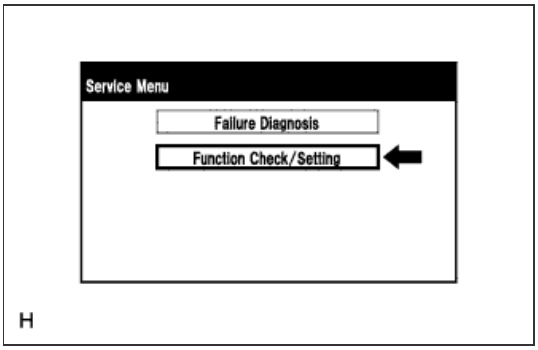

## CHECK COLOR BAR

**HINT:**

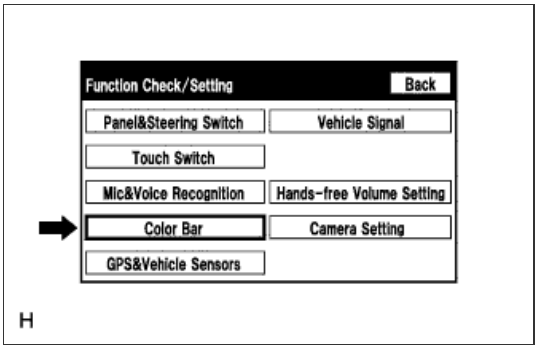
- **The display color on the screen is checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "Color Bar" from the "Function Check/Setting" screen.




d. Color Bar Check Mode

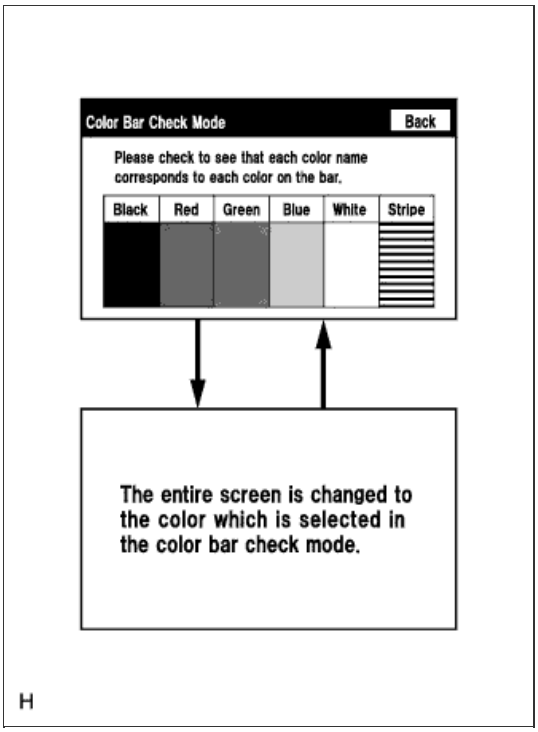
i. Select a color bar from the "Color Bar Check Mode" screen.

ii. Check the display color.

**HINT:**

- **The entire screen turns to the color or stripe selected.**

- **Touching the display will return to the "Color Bar Check" screen.**



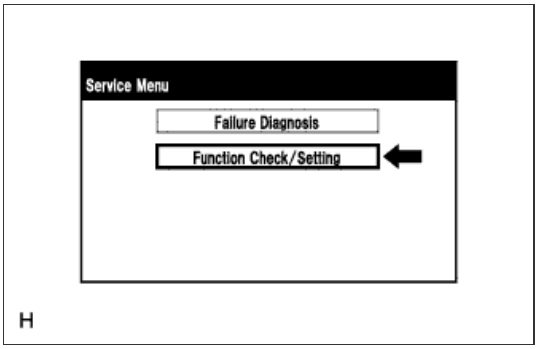

## CHECK GPS & VEHICLE SENSORS

**HINT:**

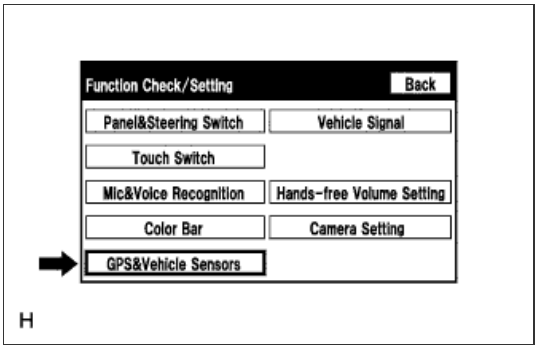
- **GPS information, vehicle signals and sensor signals are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "GPS & Vehicle Sensors" from the "Function Check/Setting" screen.

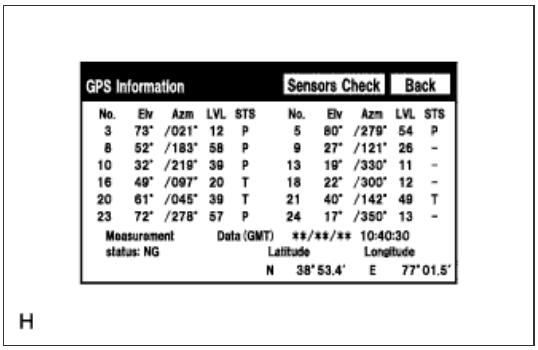



d. GPS information

i. When GPS information is displayed, check the GPS conditions.

**HINT:**

- **This screen is updated once per second when input signals to the vehicle are changed.**
- **For details of this function, refer to Diagnosis Display Detailed Description in System Description (Click here).**




H

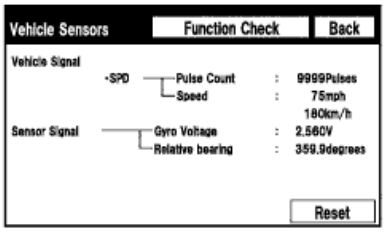
e. Select "Sensors Check" from the "GPS Information" screen.

f. Vehicle Sensors

i. Check all the signals and sensors when vehicle signal information is displayed.

**HINT:**

- **This screen is updated once per second when input signals to the vehicle are changed.**
- **This screen displays vehicle signals input to the display and navigation module display (built-in navigation ECU).**
- **For details of this function, refer to Diagnosis Display Detailed Description in System Description (Click here).**




H

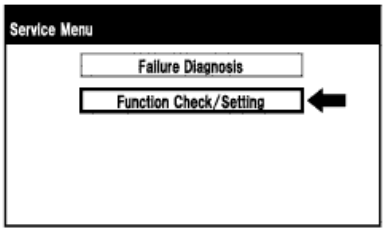
## CHECK VEHICLE SIGNAL

**HINT:**

- **Vehicle signals received by the display and navigation module display are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

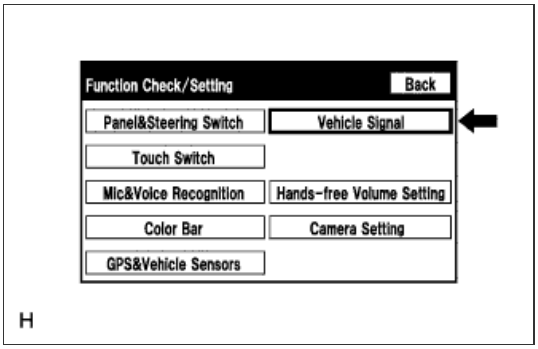
a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




H

c. Select "Vehicle Signal" from the "Function Check/Setting" screen.

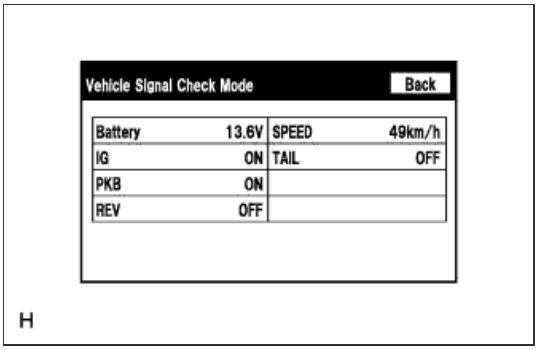



d. Vehicle Signal Check Mode

i. When the "Vehicle Signal Check Mode" screen is displayed, check all the vehicle signal conditions.

**HINT:**

- **Only conditions having inputs are displayed.**
- **This screen displays vehicle signals input to the display and navigation module display.**
- **For details of this function, refer to Diagnosis Display Detailed Description in System Description (Click here).**



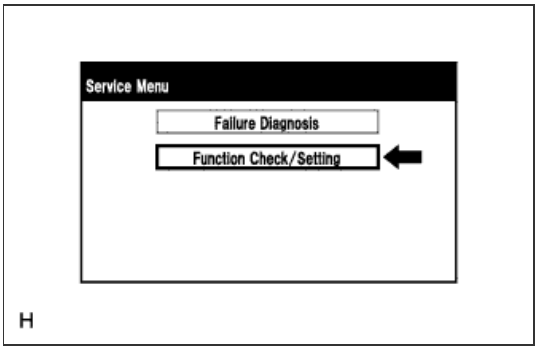

## CHECK HANDS-FREE VOLUME SETTING

**HINT:**

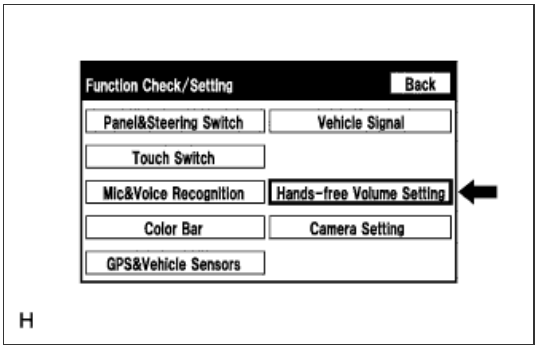
- **The hands-free volume of a "Bluetooth" compatible phone can be adjusted using the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.

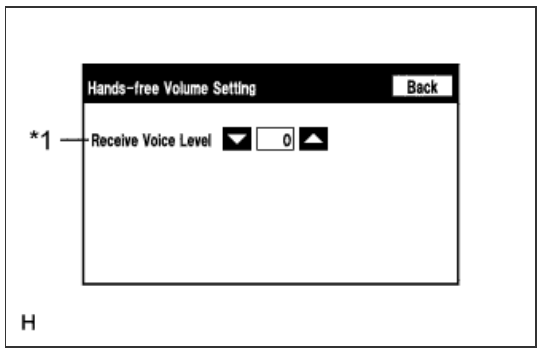



c. Select "Hands-free Volume Setting" from the "Function Check/Setting" screen.



d. Hands-free Volume Setting

i. Check the hands-free volume level.




**Screen Description**

| Display | Content |
|---|---|
| *1: Receive voice level adjustment | Setting possible for the voice level received from "Bluetooth" compatible phones. |

**NOTICE:**

Sound quality may deteriorate when the receive voice level is changed more than necessary. For this reason, check that the receive voice quality is still acceptable after changing this setting.

## CHECK CAMERA SETTING (w/ Parking Assist Monitor System)

a. Refer to the parking assist monitor system for further information ( Click here).

## CHECK CAMERA SETTING (w/ Side Monitor System)

a. Refer to the side monitor system for further information ( Click here).

**for Preparation** Click here

**HINT:**

- **Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**
- **Inspect the fuses and relays related to this system before inspecting the suspected areas below.**

### Display Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Black screen (No image appears on navigation/audio screen). | Proceed to "Black Screen" | Click here |
| | Display and navigation module display | Click here |
| Illumination for panel switch does not come on with tail switch on. | Proceed to "Illumination for Panel Switch does not Come on with Tail Switch ON" | Click here |
| | Proceed to "Illumination Circuit" | Click here |
| | Display and navigation module display | Click here |
| Display does not dim with tail switch on. | Proceed to "Display does not Dim when Light Control Switch is Turned ON" | Click here |
| | Display and navigation module display | Click here |
| Panel switches do not function. | Proceed to "Panel Switches do not Function" | Click here |
| | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Display and navigation module display | Click here |
| Touch panel switch does not function. | Proceed to "Touch Panel Switch does not Function" | Click here |
| | Display and navigation module display | Click here |
| Screen is distorted. | Proceed to "Navigation ECU Power Source Circuit" | Click here |
| | Display and navigation module display | Click here |
| Screen flicker or color distortion. | Proceed to "Screen Flicker or Color Distortion" | Click here |
| | Display and navigation module display | Click here |
| DVD image cannot be displayed on front screen (Parking brake is on). | Proceed to "DVD Image Signal Circuit between Radio receiver and Navigation ECU" | Click here |
| | Proceed to "Parking Brake Switch Circuit" | Click here |
| | Radio receiver assembly | Click here |
| | Display and navigation module display | Click here |
| Navigation function switches can be operated while vehicle is running. | Display and navigation module display | Click here |

### Navigation Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Map disc cannot be inserted. | Proceed to "Map Disc cannot be Inserted" | Click here |
| | Navigation module board | - |

| | | |
|---|---|---|
| Map disc cannot be ejected. | Navigation module board | - |
| Map display incomplete. | Proceed to "Map Display Incomplete" | Click here |
| | Navigation module board | - |
| Vehicle position mark deviates. | Proceed to "Vehicle Position Mark Deviates Greatly" | Click here |
| | Navigation antenna assembly | Click here |
| | Display and navigation module display | Click here |
| Cursor or map rotates when vehicle is stopped. | Proceed to "Cursor or Map Rotates When Vehicle Stopped" | Click here |
| | Display and navigation module display | Click here |
| Vehicle position mark is not updated. | Proceed to "Vehicle Position Mark is not Updated" | Click here |
| | Map disc | - |
| | Navigation module board | - |
| | Display and navigation module display | Click here |
| Current position display does not appear. | Proceed to "Current Position Display does not Appear" | Click here |
| | Map disc | - |
| | Navigation antenna assembly | Click here |
| | Navigation module board | - |
| | Display and navigation module display | Click here |
| GPS mark is not displayed. | Proceed to "GPS Mark is not Displayed" | Click here |
| | Navigation antenna assembly | Click here |
| | Display and navigation module display | Click here |
| Voice guidance does not function. | Proceed to "Voice Guidance does not Function" | Click here |
| | Proceed to "Speaker Circuit" | Click here |
| | Map disc | - |
| | Navigation module board | - |
| | Display and navigation module display | Click here |
| | Stereo component amplifier assembly | Click here |
| | Radio receiver assembly | Click here |
| Route cannot be calculated. | Proceed to "Route cannot be Calculated" | Click here |
| | Map disc | - |
| | Navigation module board | - |
| | Display and navigation module display | Click here |
| Voice recognition is difficult. | Proceed to "Voice Recognition Difficulty" | Click here |
| | Proceed to "Microphone Circuit between Microphone and Navigation ECU" | Click here |
| | Display and navigation module display | Click here |
| Voice is not recognized. | Proceed to "Voice is not Recognized" | Click here |
| | Proceed to "Microphone Circuit between Microphone and Navigation ECU" | Click here |
| | | Click |

| | | |
|---|---|---|
| | Proceed to "Steering Pad Switch Circuit" | here |
| | Display and navigation module display | Click here |
| Customizable parameters cannot be changed. (Customizable parameters can be changed by using the intelligent tester) | Display and navigation module display | Click here |
| Reverse signal does not change in the vehicle signal check mode screen. | Proceed to "Reverse Signal Circuit" | Click here |
| | Display and navigation module display. | Click here |
| "MIC" is not displayed on system check mode screen. | Proceed to "Microphone Circuit between Microphone and Navigation ECU" | Click here |
| | Display and navigation module display | Click here |
| "AUX" is not displayed on system check mode screen. | Proceed to "Sound Signal Circuit between Radio Receiver Assembly and Stereo Jack Adapter" | Click here |
| | Radio receiver assembly | Click here |
| | Display and navigation module display | Click here |

### Steering Pad Switch Function

| Symptom | Suspected Area | See page |
|---|---|---|
| System cannot be operated by steering pad switch. | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Display and navigation module display | Click here |
| Illumination for steering pad switch does not come on with tail switch on. | Proceed to "Illumination Circuit" | Click here |
| | Display and navigation module display | Click here |

### "Bluetooth" Hands-free Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Cellular phone registration failure, phone directory transfer failure. | Proceed to "Cellular Phone Registration Failure, Phone Directory Transfer Failure" | Click here |
| Cellular phone cannot send/receive. | Proceed to "Cellular Phone cannot Send / Receive" | Click here |
| | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Radio receiver assembly | Click here |
| Cellular phone cannot make calls in a certain place. | Proceed to "Cannot Call in a Certain Place" | Click here |
| Other caller's voice cannot be heard, is too quiet, or distorted. | Proceed to "The Other Caller's Voice cannot be Heard, is too Quiet, or Distorted" | Click here |
| | Radio receiver assembly | Click here |
| | Stereo component amplifier assembly | Click here |
| | Display and navigation module display | Click here |
| Other caller cannot hear your voice, or your voice is too quiet or distorted. | Proceed to "The Other Caller cannot Hear Your Voice, or Your Voice is too Quiet or Distorted" | Click here |
| | Proceed to "Microphone Circuit between Microphone and Navigation ECU" | Click here |
| | Radio receiver assembly | Click here |

**for Preparation** Click here

**HINT:**

- **Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**
- **Inspect the fuses and relays related to this system before inspecting the suspected areas below.**

### Display Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Black screen (No image appears on navigation/audio screen). | Proceed to "Black Screen" | Click here |
| | Display and navigation module display | Click here |
| Illumination for panel switch does not come on with tail switch on. | Proceed to "Illumination for Panel Switch does not Come on with Tail Switch ON" | Click here |
| | Proceed to "Illumination Circuit" | Click here |
| | Display and navigation module display | Click here |
| Display does not dim with tail switch on. | Proceed to "Display does not Dim when Light Control Switch is Turned ON" | Click here |
| | Display and navigation module display | Click here |
| Panel switches do not function. | Proceed to "Panel Switches do not Function" | Click here |
| | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Display and navigation module display | Click here |
| Touch panel switch does not function. | Proceed to "Touch Panel Switch does not Function" | Click here |
| | Display and navigation module display | Click here |
| Screen is distorted. | Proceed to "Navigation ECU Power Source Circuit" | Click here |
| | Display and navigation module display | Click here |
| Screen flicker or color distortion. | Proceed to "Screen Flicker or Color Distortion" | Click here |
| | Display and navigation module display | Click here |
| DVD image cannot be displayed on front screen (Parking brake is on). | Proceed to "DVD Image Signal Circuit between Radio receiver and Navigation ECU" | Click here |
| | Proceed to "Parking Brake Switch Circuit" | Click here |
| | Radio receiver assembly | Click here |
| | Display and navigation module display | Click here |
| Navigation function switches can be operated while vehicle is running. | Display and navigation module display | Click here |

### Navigation Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Map disc cannot be inserted. | Proceed to "Map Disc cannot be Inserted" | Click here |
| | Navigation module board | - |

| | | |
|---|---|---|
| Map disc cannot be ejected. | Navigation module board | - |
| Map display incomplete. | Proceed to "Map Display Incomplete" | Click here |
| | Navigation module board | - |
| Vehicle position mark deviates. | Proceed to "Vehicle Position Mark Deviates Greatly" | Click here |
| | Navigation antenna assembly | Click here |
| | Display and navigation module display | Click here |
| Cursor or map rotates when vehicle is stopped. | Proceed to "Cursor or Map Rotates When Vehicle Stopped" | Click here |
| | Display and navigation module display | Click here |
| Vehicle position mark is not updated. | Proceed to "Vehicle Position Mark is not Updated" | Click here |
| | Map disc | - |
| | Navigation module board | - |
| | Display and navigation module display | Click here |
| Current position display does not appear. | Proceed to "Current Position Display does not Appear" | Click here |
| | Map disc | - |
| | Navigation antenna assembly | Click here |
| | Navigation module board | - |
| | Display and navigation module display | Click here |
| GPS mark is not displayed. | Proceed to "GPS Mark is not Displayed" | Click here |
| | Navigation antenna assembly | Click here |
| | Display and navigation module display | Click here |
| Voice guidance does not function. | Proceed to "Voice Guidance does not Function" | Click here |
| | Proceed to "Speaker Circuit" | Click here |
| | Map disc | - |
| | Navigation module board | - |
| | Display and navigation module display | Click here |
| | Stereo component amplifier assembly | Click here |
| | Radio receiver assembly | Click here |
| Route cannot be calculated. | Proceed to "Route cannot be Calculated" | Click here |
| | Map disc | - |
| | Navigation module board | - |
| | Display and navigation module display | Click here |
| Voice recognition is difficult. | Proceed to "Voice Recognition Difficulty" | Click here |
| | Proceed to "Microphone Circuit between Microphone and Navigation ECU" | Click here |
| | Display and navigation module display | Click here |
| Voice is not recognized. | Proceed to "Voice is not Recognized" | Click here |
| | Proceed to "Microphone Circuit between Microphone and Navigation ECU" | Click here |
| | | Click |

| | | |
|---|---|---|
| | Proceed to "Steering Pad Switch Circuit" | here |
| | Display and navigation module display | Click here |
| Customizable parameters cannot be changed. (Customizable parameters can be changed by using the intelligent tester) | Display and navigation module display | Click here |
| Reverse signal does not change in the vehicle signal check mode screen. | Proceed to "Reverse Signal Circuit" | Click here |
| | Display and navigation module display. | Click here |
| "MIC" is not displayed on system check mode screen. | Proceed to "Microphone Circuit between Microphone and Navigation ECU" | Click here |
| | Display and navigation module display | Click here |
| "AUX" is not displayed on system check mode screen. | Proceed to "Sound Signal Circuit between Radio Receiver Assembly and Stereo Jack Adapter" | Click here |
| | Radio receiver assembly | Click here |
| | Display and navigation module display | Click here |

### Steering Pad Switch Function

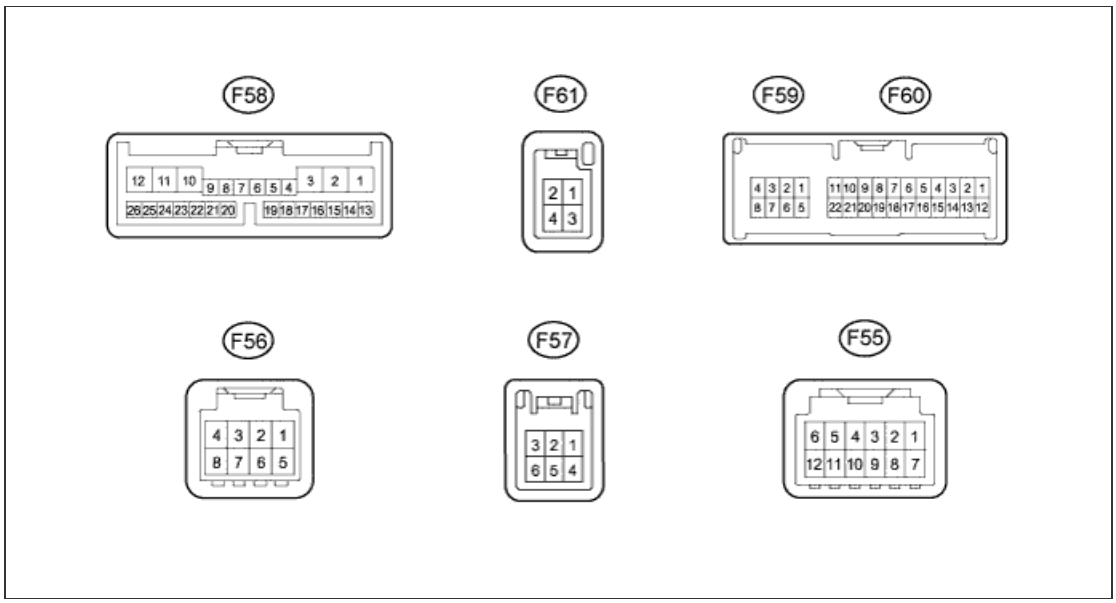
| Symptom | Suspected Area | See page |
|---|---|---|
| System cannot be operated by steering pad switch. | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Display and navigation module display | Click here |
| Illumination for steering pad switch does not come on with tail switch on. | Proceed to "Illumination Circuit" | Click here |
| | Display and navigation module display | Click here |

### "Bluetooth" Hands-free Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Cellular phone registration failure, phone directory transfer failure. | Proceed to "Cellular Phone Registration Failure, Phone Directory Transfer Failure" | Click here |
| Cellular phone cannot send/receive. | Proceed to "Cellular Phone cannot Send / Receive" | Click here |
| | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Radio receiver assembly | Click here |
| Cellular phone cannot make calls in a certain place. | Proceed to "Cannot Call in a Certain Place" | Click here |
| Other caller's voice cannot be heard, is too quiet, or distorted. | Proceed to "The Other Caller's Voice cannot be Heard, is too Quiet, or Distorted" | Click here |
| | Radio receiver assembly | Click here |
| | Stereo component amplifier assembly | Click here |
| | Display and navigation module display | Click here |
| Other caller cannot hear your voice, or your voice is too quiet or distorted. | Proceed to "The Other Caller cannot Hear Your Voice, or Your Voice is too Quiet or Distorted" | Click here |
| | Proceed to "Microphone Circuit between Microphone and Navigation ECU" | Click here |
| | Radio receiver assembly | Click here |

**for Preparation** Click here

## DISPLAY AND NAVIGATION MODULE DISPLAY




| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F58-1 (+B1) - F58-10 (GND1) | R - W-B | Power source (Back-up) | Always | 11 to 14 V |
| F58-2 (ACC) - F58-10 (GND1) | GR - W-B | Power source (ACC) | Engine switch off | Below 1 V |
| | | | Engine switch on (ACC) | 11 to 14 V |
| F58-3 (IG) - F58-10 (GND1) | G - W-B | Power source (IG) | Engine switch off | Below 1 V |
| | | | Engine switch on (IG) | 11 to 14 V |
| F58-4 (MACC) - F58-10 (GND1) | W - W-B | Microphone AMP power supply | Engine switch off | Below 1 V |
| | | | Engine switch on (IG) | 4.5 to 5.5 V |
| F58-5 (MIN+) - F58-10 (GND1) | B - W-B | Microphone voice signal | See "Microphone & Voice Recognition Check" in Operation Check (Click here) | - |
| F58-6 (MIN-) - Body ground | R - Body ground | Microphone voice signal | See "Microphone & Voice Recognition Check" in Operation Check (Click here) | - |
| F58-7 (SGND) - Body ground | Shield - Body ground | Shield ground | Always | Below 1 V |
| F58-12 (ILL+) - F58-10 (GND1) | G - W-B | Illumination signal | Light control switch off | Below 1 V |
| | | | Light control switch tail or on | 11 to 14 V |
| F58-16 (REV) - F58-10 (GND1) | L - W-B | Reverse signal | See "Vehicle Signal Check Mode" in Operation Check (Click here) | - |
| F58-17 (PKB) - F58-10 (GND1) | Y - W-B | Parking brake signal | See "Vehicle Signal Check Mode" in Operation Check (Click here) | - |
| F58-18 (SPD) - F58-10 (GND1) | V - W-B | Vehicle speed signal | See "Vehicle Signal Check Mode" in Operation Check (Click here) | - |
| F58-20 (SNS2) - F58-10 (GND1) | GR - W-B | Voice recognition and microphone connection detection signal | Always | Below 1 V |
| F58-21 (CANH) | P | CAN communication signal | - | - |
| F58-22 (CANL) | B | CAN communication signal | - | - |

| | | | | |
|---|---|---|---|---|
| F58-23 (SWG) - Body ground | W - Body ground | Steering pad switch signal | Always | Below 1 V |
| F58-24 (SW2) - F58-23 (SWG) | P - W | Steering pad switch signal | No switch pushed<br>→ MODE switch pushed<br>→ On Hook switch pushed<br>→ Off Hook switch pushed<br>→ Voice switch pushed | 4.44 to 5.43 V<br>→ 0.45 to 0.65 V<br>→ 1.19 to 1.49 V<br>→ 2.09 to 2.54 V<br>→ 3.2 to 3.88 V |
| F58-25 (SW1) - F58-23 (SWG) | L - W | Steering pad switch signal | No switch pushed<br>→ Seek+ switch pushed<br>→ Seek- switch pushed<br>→ Volume+ switch pushed<br>→ Volume- switch pushed | 4.44 to 5.43 V<br>→ 0.45 to 0.65 V<br>→ 1.19 to 1.49 V<br>→ 2.09 to 2.54 V<br>→ 3.2 to 3.88 V |
| F55-7 (GND) - F58-10 (GND1) | B - W-B | Ground | Always | Below 1 V |
| F55-9 (TX2+) | W | AVC-LAN communication signal | - | - |
| F55-10 (TX2-) | L | AVC-LAN communication signal | - | - |
| F55-11 (ACC) - F58-10 (GND1) | GR - W-B | Accessory (ON) | Engine switch on (ACC) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F55-12 (+B) - F58-10 (GND1) | R - W-B | Battery | Always | 11 to 14 V |
| F56-1 (AGND) - Body ground | Shield - Body ground | Shield ground | Always | Below 1 V |
| F56-3 (VAR+) - F56-7 (VA-) | W - R | Sound signal (Right) | USB audio device playing (When stereo jack adapter used) | A waveform synchronized with sounds is output. |
| F56-4 (VAL+) - F56-7 (VA-) | B - R | Sound signal (Left) | USB audio device playing (When stereo jack adapter used) | A waveform synchronized with sounds is output. |
| F56-7 (VA-) - F58-10 (GND1) | R - W-B | Sound signal ground | Always | Below 1 V |
| F57-1 (HILL) - F58-10 (GND1) | W - W-B | Illumination signal | Light control switch off | Below 1 V |
| | | | Light control switch tail or head (Light intensity is not max. or min.) | Pulse generation |
| F59-1 (MI+) | W | MOST communication signal | - | - |
| F59-2 (SLDI) - F58-10 (GND1) | BR - W-B | Shield ground | Always | Below 1 V |
| F59-3 (MO+) | B | MOST communication signal | - | - |
| F59-4 (VMTR)*1 - F58-10 (GND1) | G - W-B | Visual mute signal | When image on display switches | 4 V or higher → Below 0.7 V → 4 V or higher |
| F59-5 (MI-) | B | MOST communication signal | - | - |
| F59-6 (SLDO) - F58-10 (GND1) | BR - W-B | Shield ground | Always | Below 1 V |
| F59-7 (MO-) | W | MOST communication signal | - | - |
| F59-8 (WUO) - F58-10 (GND1) | R - W-B | MOST communication wake-up signal | Engine switch on (ACC) | 4.5 V or higher |
| | | | Engine switch off | Below 1 V |
| F60-1 (TX1+)*2 | W | AVC-LAN communication signal | - | - |
| F60-2 (TX1-)*2 | L | AVC-LAN communication signal | - | - |
| F60-4 (NTSO)*1 - F58-10 (GND1) | B - W-B | Display signal | DVD played on the display and navigation module display | A waveform synchronized with display signals is output.<br>(Refer to waveform 1) |
| F60-5 (V+)*3 - F58-10 (GND1) | R - W-B | Television camera image signal | Engine switch on (IG)<br>Shift lever in R<br>Under normal conditions | Pulse generation<br>(Refer to waveform 2) |
| | | | Engine switch on (IG)<br>Shift lever in R<br>Camera lens covered, blacking out screen | Pulse generation<br>(Refer to waveform 3) |

| | | | | |
|---|---|---|---|---|
| F60-6 (CA+)*3 - F58-10 (GND1) | B - W-B | Television camera power supply | Engine switch on (IG)<br>Shift lever in R | 5.5 to 7 V |
| F60-9 (VV+) - F58-10 (GND1) | W - W-B | Display signal | DVD is playing | A waveform synchronized with display signals is output.<br>(Refer to waveform 4) |
| F60-14 (SGND)*1 - F58-10 (GND1) | W - W-B | Ground | Always | Below 1 V |
| F60-15 (SLD2)*1 - F58-10 (GND1) | Shield - W-B | Shield ground | Always | Below 1 V |
| F60-16 (V-)*3 - F58-10 (GND1) | W - W-B | Ground | Always | Below 1 V |
| F60-17 (CGND)*3 - Body ground | Shield - Body ground | Shield ground | Always | Below 1 V |
| F60-20 (VV-) - F58-10 (GND1) | B - W-B | Ground | Always | Below 1 V |
| F61-1 (+B2) - F58-10 (GND1) | V - W-B | Battery | Always | 11 to 14 V |
| F61-2 (ACC2) - F58-10 (GND1) | GR - W-B | Accessory (ON) | Engine switch on (ACC) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F61-4 (G) - F58-10 (GND1) | B - W-B | Ground | Always | Below 1 V |

*1: w/ Rear Seat Entertainment System
*2: w/ Parking Assist Monitor System
*3: w/ Rear View Monitor System

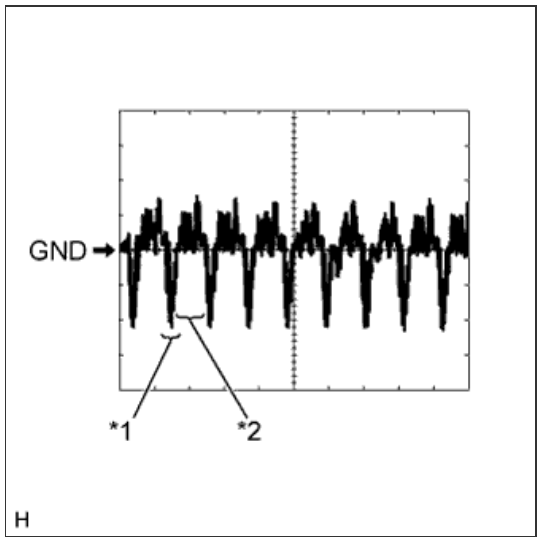
a. Reference (Oscilloscope waveform):

i. Waveform 1

| Item | Content |
|---|---|
| Measurement terminal | F60-4 (NTSO) - F58-10 (GND1) |
| Measurement setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | DVD is played on the display and navigation module display |

**Text in Illustration**

| | |
|---|---|
| *1 | Synchronization Signal |
| *2 | Video Waveform |




**HINT:**

The video waveform changes according to the image output from the display and navigation module display to the television display assembly, but the synchronization signal does not change.

b. Reference (Oscilloscope waveform):

i. Waveform 2 (under normal conditions)

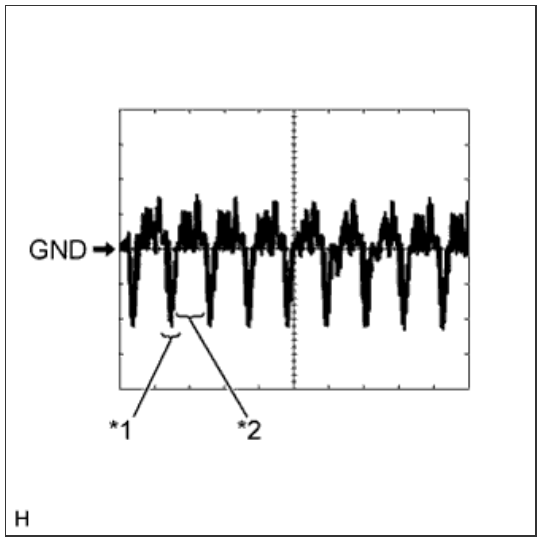
| Item | Content |
|---|---|
| Measurement terminal | F60-5 (V+) - F58-10 (GND1) |
| Measurement setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), shift lever in R |

**Text in Illustration**

| | |
|---|---|
| *1 | Synchronization Signal |
| *2 | Video Waveform |

**HINT:**

The video waveform changes according to the image from the television camera assembly.



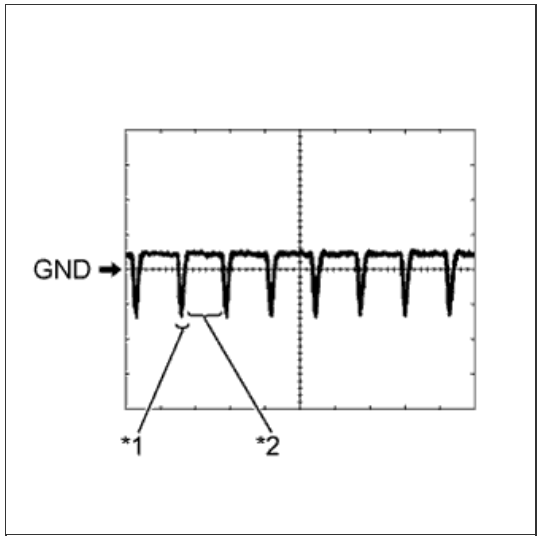

c. Reference (Oscilloscope waveform):

i. Waveform 3 (camera lens is covered, blacking out the screen)

| Item | Content |
|---|---|
| Measurement terminal | F60-5 (V+) - F58-10 (GND1) |
| Measurement setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), shift lever in R |

**Text in Illustration**

| | |
|---|---|
| *1 | Synchronization Signal |
| *2 | Video Waveform |




**HINT:**

The video waveform changes according to the image that the television camera assembly projects.

d. Reference (Oscilloscope waveform):

i. Waveform 4

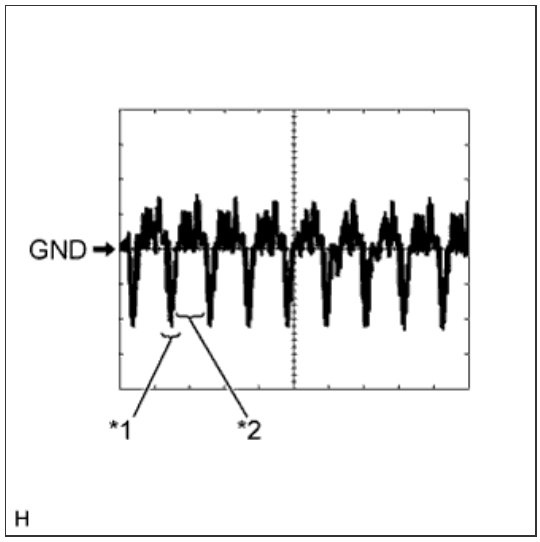
| Item | Content |
|---|---|
| Measurement Terminal | F60-9 (VV+) - F58-10 (GND1) |
| Measurement Setting | 200 mV/DIV., 10 µs/DIV. |
| Condition | DVD is playing |

**Text in Illustration**

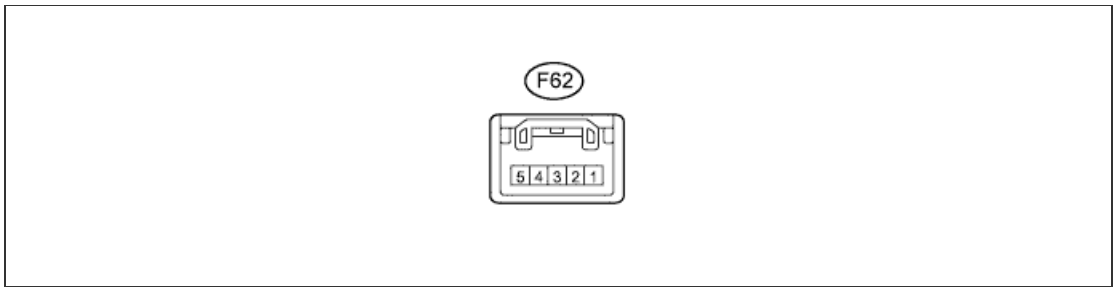
| | |
|---|---|
| *1 | Synchronization Signal |
| *2 | Video Waveform |

**HINT:**

The video waveform changes according to the image input from the radio receiver assembly to the display and navigation module display, but the synchronization signal does not change.




## NAVIGATION MODULE BOARD




| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F62-1 (+B) - F62-5 (G) | V - B | Battery | Always | 11 to 14 V |
| F62-3 (ACC) - F62-5 (G) | GR - B | Power source (ACC) | Engine switch off | Below 1 V |
| | | | Engine switch on (ACC) | 11 to 14 V |
| F62-5 (G) - Body ground | B - Body ground | Ground | Always | Below 1 V |

**RADIO RECEIVER ASSEMBLY (Click here)**

**STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)**

**MULTI-MEDIA INTERFACE ECU (Click here)**

**TELEVISION DISPLAY ASSEMBLY (w/ Rear Seat Entertainment System) ( Click here)**

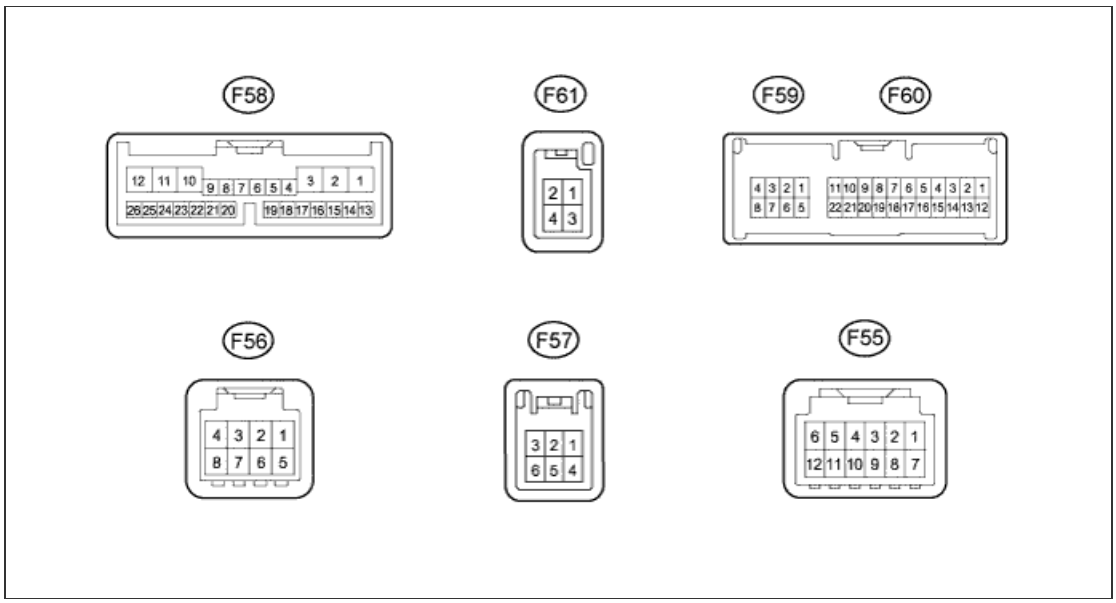
**PARKING ASSIST ECU (w/ Parking Assist Monitor System) ( Click here)**

**PARKING ASSIST ECU (w/ Wide View Front Monitor System) ( Click here)**

**PARKING ASSIST ECU (w/ Side Monitor System) ( Click here)**

**for Preparation** Click here

## DISPLAY AND NAVIGATION MODULE DISPLAY




| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F58-1 (+B1) - F58-10 (GND1) | R - W-B | Power source (Back-up) | Always | 11 to 14 V |
| F58-2 (ACC) - F58-10 (GND1) | GR - W-B | Power source (ACC) | Engine switch off | Below 1 V |
| | | | Engine switch on (ACC) | 11 to 14 V |
| F58-3 (IG) - F58-10 (GND1) | G - W-B | Power source (IG) | Engine switch off | Below 1 V |
| | | | Engine switch on (IG) | 11 to 14 V |
| F58-4 (MACC) - F58-10 (GND1) | W - W-B | Microphone AMP power supply | Engine switch off | Below 1 V |
| | | | Engine switch on (IG) | 4.5 to 5.5 V |
| F58-5 (MIN+) - F58-10 (GND1) | B - W-B | Microphone voice signal | See "Microphone & Voice Recognition Check" in Operation Check (Click here) | - |
| F58-6 (MIN-) - Body ground | R - Body ground | Microphone voice signal | See "Microphone & Voice Recognition Check" in Operation Check (Click here) | - |
| F58-7 (SGND) - Body ground | Shield - Body ground | Shield ground | Always | Below 1 V |
| F58-12 (ILL+) - F58-10 (GND1) | G - W-B | Illumination signal | Light control switch off | Below 1 V |
| | | | Light control switch tail or on | 11 to 14 V |
| F58-16 (REV) - F58-10 (GND1) | L - W-B | Reverse signal | See "Vehicle Signal Check Mode" in Operation Check (Click here) | - |
| F58-17 (PKB) - F58-10 (GND1) | Y - W-B | Parking brake signal | See "Vehicle Signal Check Mode" in Operation Check (Click here) | - |
| F58-18 (SPD) - F58-10 (GND1) | V - W-B | Vehicle speed signal | See "Vehicle Signal Check Mode" in Operation Check (Click here) | - |
| F58-20 (SNS2) - F58-10 (GND1) | GR - W-B | Voice recognition and microphone connection detection signal | Always | Below 1 V |
| F58-21 (CANH) | P | CAN communication signal | - | - |
| F58-22 (CANL) | B | CAN communication signal | - | - |

| | | | | |
|---|---|---|---|---|
| F58-23 (SWG) - Body ground | W - Body ground | Steering pad switch signal | Always | Below 1 V |
| F58-24 (SW2) - F58-23 (SWG) | P - W | Steering pad switch signal | No switch pushed<br>→ MODE switch pushed<br>→ On Hook switch pushed<br>→ Off Hook switch pushed<br>→ Voice switch pushed | 4.44 to 5.43 V<br>→ 0.45 to 0.65 V<br>→ 1.19 to 1.49 V<br>→ 2.09 to 2.54 V<br>→ 3.2 to 3.88 V |
| F58-25 (SW1) - F58-23 (SWG) | L - W | Steering pad switch signal | No switch pushed<br>→ Seek+ switch pushed<br>→ Seek- switch pushed<br>→ Volume+ switch pushed<br>→ Volume- switch pushed | 4.44 to 5.43 V<br>→ 0.45 to 0.65 V<br>→ 1.19 to 1.49 V<br>→ 2.09 to 2.54 V<br>→ 3.2 to 3.88 V |
| F55-7 (GND) - F58-10 (GND1) | B - W-B | Ground | Always | Below 1 V |
| F55-9 (TX2+) | W | AVC-LAN communication signal | - | - |
| F55-10 (TX2-) | L | AVC-LAN communication signal | - | - |
| F55-11 (ACC) - F58-10 (GND1) | GR - W-B | Accessory (ON) | Engine switch on (ACC) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F55-12 (+B) - F58-10 (GND1) | R - W-B | Battery | Always | 11 to 14 V |
| F56-1 (AGND) - Body ground | Shield - Body ground | Shield ground | Always | Below 1 V |
| F56-3 (VAR+) - F56-7 (VA-) | W - R | Sound signal (Right) | USB audio device playing (When stereo jack adapter used) | A waveform synchronized with sounds is output. |
| F56-4 (VAL+) - F56-7 (VA-) | B - R | Sound signal (Left) | USB audio device playing (When stereo jack adapter used) | A waveform synchronized with sounds is output. |
| F56-7 (VA-) - F58-10 (GND1) | R - W-B | Sound signal ground | Always | Below 1 V |
| F57-1 (HILL) - F58-10 (GND1) | W - W-B | Illumination signal | Light control switch off | Below 1 V |
| | | | Light control switch tail or head (Light intensity is not max. or min.) | Pulse generation |
| F59-1 (MI+) | W | MOST communication signal | - | - |
| F59-2 (SLDI) - F58-10 (GND1) | BR - W-B | Shield ground | Always | Below 1 V |
| F59-3 (MO+) | B | MOST communication signal | - | - |
| F59-4 (VMTR)*1 - F58-10 (GND1) | G - W-B | Visual mute signal | When image on display switches | 4 V or higher → Below 0.7 V → 4 V or higher |
| F59-5 (MI-) | B | MOST communication signal | - | - |
| F59-6 (SLDO) - F58-10 (GND1) | BR - W-B | Shield ground | Always | Below 1 V |
| F59-7 (MO-) | W | MOST communication signal | - | - |
| F59-8 (WUO) - F58-10 (GND1) | R - W-B | MOST communication wake-up signal | Engine switch on (ACC) | 4.5 V or higher |
| | | | Engine switch off | Below 1 V |
| F60-1 (TX1+)*2 | W | AVC-LAN communication signal | - | - |
| F60-2 (TX1-)*2 | L | AVC-LAN communication signal | - | - |
| F60-4 (NTSO)*1 - F58-10 (GND1) | B - W-B | Display signal | DVD played on the display and navigation module display | A waveform synchronized with display signals is output.<br>(Refer to waveform 1) |
| F60-5 (V+)*3 - F58-10 (GND1) | R - W-B | Television camera image signal | Engine switch on (IG)<br>Shift lever in R<br>Under normal conditions | Pulse generation<br>(Refer to waveform 2) |
| | | | Engine switch on (IG)<br>Shift lever in R<br>Camera lens covered, blacking out screen | Pulse generation<br>(Refer to waveform 3) |

| | | | | |
|---|---|---|---|---|
| F60-6 (CA+)*3 - F58-10 (GND1) | B - W-B | Television camera power supply | Engine switch on (IG)<br>Shift lever in R | 5.5 to 7 V |
| F60-9 (VV+) - F58-10 (GND1) | W - W-B | Display signal | DVD is playing | A waveform synchronized with display signals is output.<br>(Refer to waveform 4) |
| F60-14 (SGND)*1 - F58-10 (GND1) | W - W-B | Ground | Always | Below 1 V |
| F60-15 (SLD2)*1 - F58-10 (GND1) | Shield - W-B | Shield ground | Always | Below 1 V |
| F60-16 (V-)*3 - F58-10 (GND1) | W - W-B | Ground | Always | Below 1 V |
| F60-17 (CGND)*3 - Body ground | Shield - Body ground | Shield ground | Always | Below 1 V |
| F60-20 (VV-) - F58-10 (GND1) | B - W-B | Ground | Always | Below 1 V |
| F61-1 (+B2) - F58-10 (GND1) | V - W-B | Battery | Always | 11 to 14 V |
| F61-2 (ACC2) - F58-10 (GND1) | GR - W-B | Accessory (ON) | Engine switch on (ACC) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F61-4 (G) - F58-10 (GND1) | B - W-B | Ground | Always | Below 1 V |

*1: w/ Rear Seat Entertainment System
*2: w/ Parking Assist Monitor System
*3: w/ Rear View Monitor System

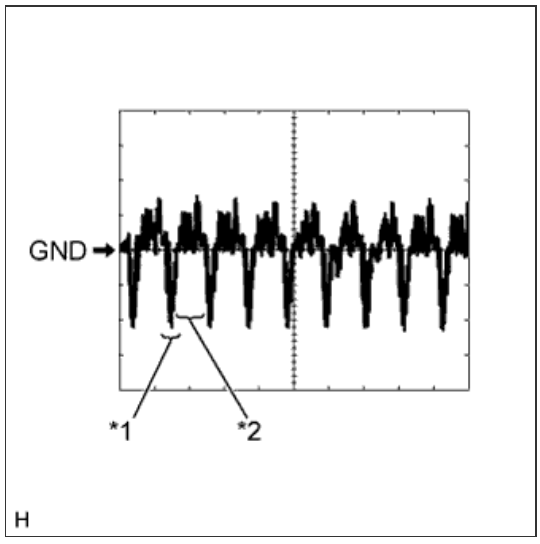
a. Reference (Oscilloscope waveform):

i. Waveform 1

| Item | Content |
|---|---|
| Measurement terminal | F60-4 (NTSO) - F58-10 (GND1) |
| Measurement setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | DVD is played on the display and navigation module display |

**Text in Illustration**

| | |
|---|---|
| *1 | Synchronization Signal |
| *2 | Video Waveform |




**HINT:**

The video waveform changes according to the image output from the display and navigation module display to the television display assembly, but the synchronization signal does not change.

b. Reference (Oscilloscope waveform):

i. Waveform 2 (under normal conditions)

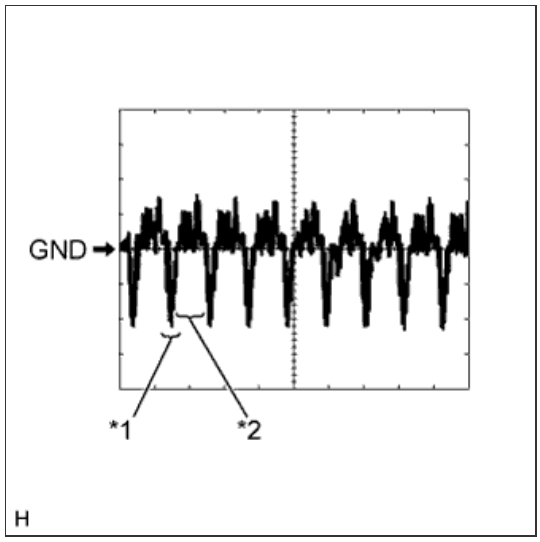
| Item | Content |
|---|---|
| Measurement terminal | F60-5 (V+) - F58-10 (GND1) |
| Measurement setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), shift lever in R |

**Text in Illustration**

| | |
|---|---|
| *1 | Synchronization Signal |
| *2 | Video Waveform |

**HINT:**

The video waveform changes according to the image from the television camera assembly.



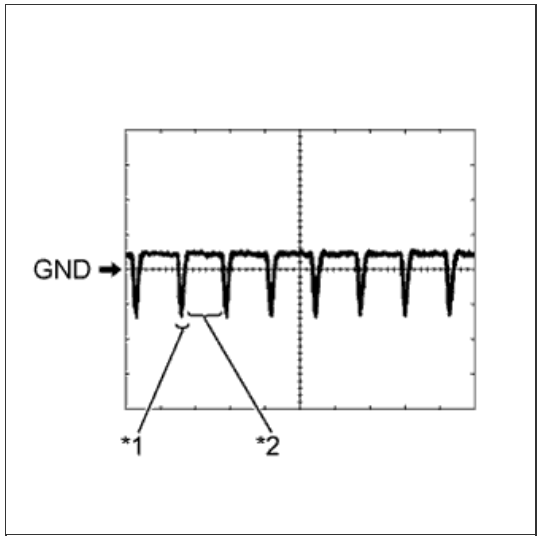

c. Reference (Oscilloscope waveform):

i. Waveform 3 (camera lens is covered, blacking out the screen)

| Item | Content |
|---|---|
| Measurement terminal | F60-5 (V+) - F58-10 (GND1) |
| Measurement setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), shift lever in R |

**Text in Illustration**

| | |
|---|---|
| *1 | Synchronization Signal |
| *2 | Video Waveform |




**HINT:**

The video waveform changes according to the image that the television camera assembly projects.

d. Reference (Oscilloscope waveform):

i. Waveform 4

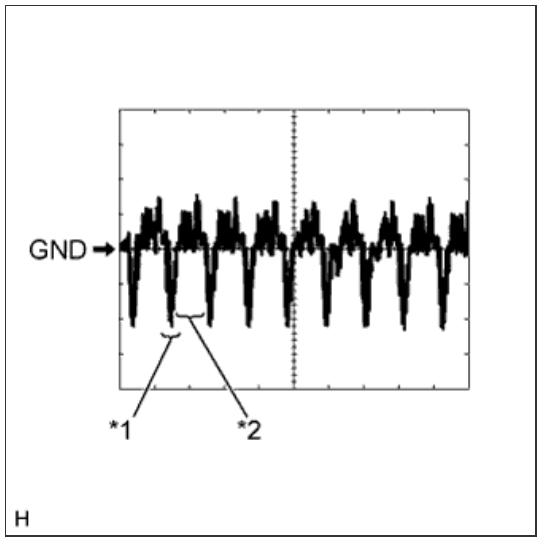
| Item | Content |
|---|---|
| Measurement Terminal | F60-9 (VV+) - F58-10 (GND1) |
| Measurement Setting | 200 mV/DIV., 10 µs/DIV. |
| Condition | DVD is playing |

**Text in Illustration**

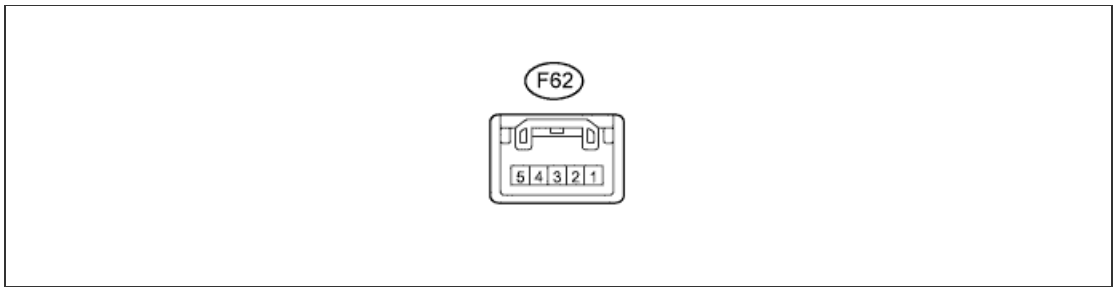
| | |
|---|---|
| *1 | Synchronization Signal |
| *2 | Video Waveform |

**HINT:**

The video waveform changes according to the image input from the radio receiver assembly to the display and navigation module display, but the synchronization signal does not change.




## NAVIGATION MODULE BOARD




| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F62-1 (+B) - F62-5 (G) | V - B | Battery | Always | 11 to 14 V |
| F62-3 (ACC) - F62-5 (G) | GR - B | Power source (ACC) | Engine switch off | Below 1 V |
| | | | Engine switch on (ACC) | 11 to 14 V |
| F62-5 (G) - Body ground | B - Body ground | Ground | Always | Below 1 V |

**RADIO RECEIVER ASSEMBLY (Click here)**

**STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)**

**MULTI-MEDIA INTERFACE ECU (Click here)**

**TELEVISION DISPLAY ASSEMBLY (w/ Rear Seat Entertainment System) ( Click here)**

**PARKING ASSIST ECU (w/ Parking Assist Monitor System) ( Click here)**

**PARKING ASSIST ECU (w/ Wide View Front Monitor System) ( Click here)**

**PARKING ASSIST ECU (w/ Side Monitor System) ( Click here)**

**for Preparation** Click here

## CHECK DTC (CHECK USING INTELLIGENT TESTER)

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Body Electrical / Navigation System / Trouble Codes.

e. Check for DTC(s) and freeze frame data, and then write them down.

f. Check the details of the DTC(s) ( Click here).

**NOTICE:**

The navigation system outputs DTCs for the following system. When DTCs other than those in Diagnostic Trouble Code Chart for the navigation system are output, refer to Diagnostic Trouble Code Chart for the system.

| System | Proceed to |
|---|---|
| Audio and visual system (w/ Navigation System) | Click here |
| Rear seat entertainment system (w/ Rear Seat Entertainment) | Click here |
| Parking assist monitor system (w/ Parking Assist Monitor System) | Click here |
| Wide view front monitor system (w/ Wide View Front Monitor System) | Click here |
| Side monitor system (w/ Side Monitor System) | Click here |

## CLEAR DTC (CLEAR USING INTELLIGENT TESTER)

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Body Electrical / Navigation System / Trouble Codes.

e. Clear DTCs.

## START DIAGNOSTIC MODE

**HINT:**

- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**
- **To help find the malfunction when the system cannot change to diagnostic mode, check for DTCs using the intelligent tester.**
- **After the engine switch is turned on (IG), check that the map is displayed before starting diagnostic mode. Otherwise, some items cannot be checked.**

a. There are 2 methods to start diagnostic mode. Start the mode by using one of them.

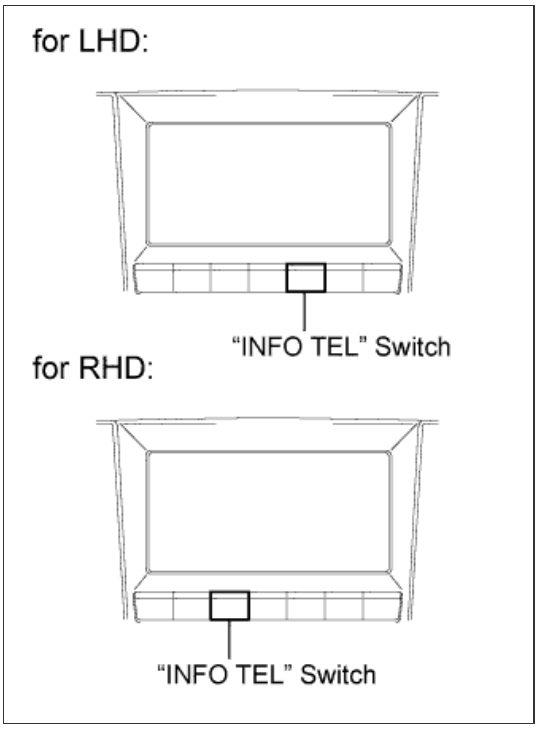
b. Method 1

i. Start the engine.

ii. While pressing and holding the "INFO TEL" switch, operate the light control switch: off → Turn on → Turn off → Turn on → Turn off → Turn on → Turn off.

iii. The diagnostic mode starts and the "System Check Mode" screen will

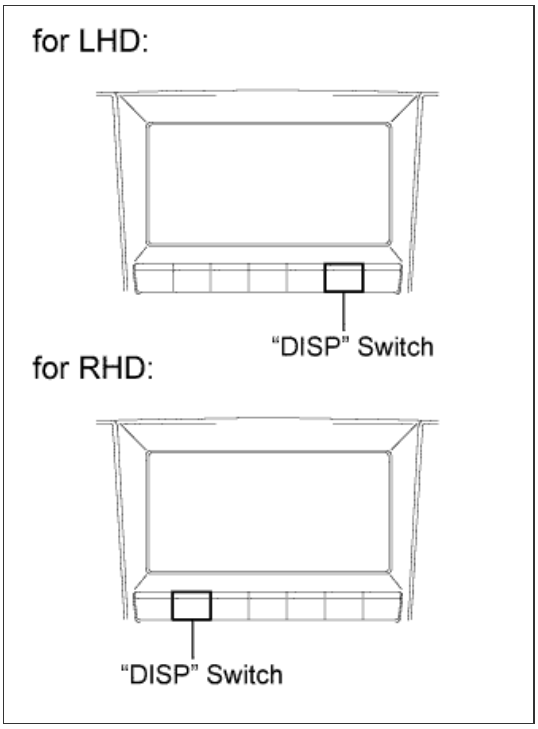
be displayed.




c. Method 2

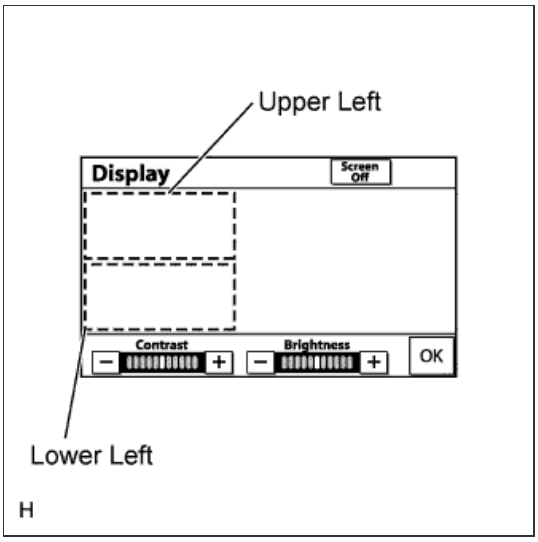
i. Start the engine.

ii. Press the "DISP" switch.




iii. From the display quality adjustment screen, touch the upper and lower left corners of the screen in the following: Upper left → Lower left → Upper left → Lower left → Upper left → Lower left.

iv. Diagnostic mode starts and the "System Check Mode" screen will be displayed. Service inspection starts automatically and the result will be displayed.

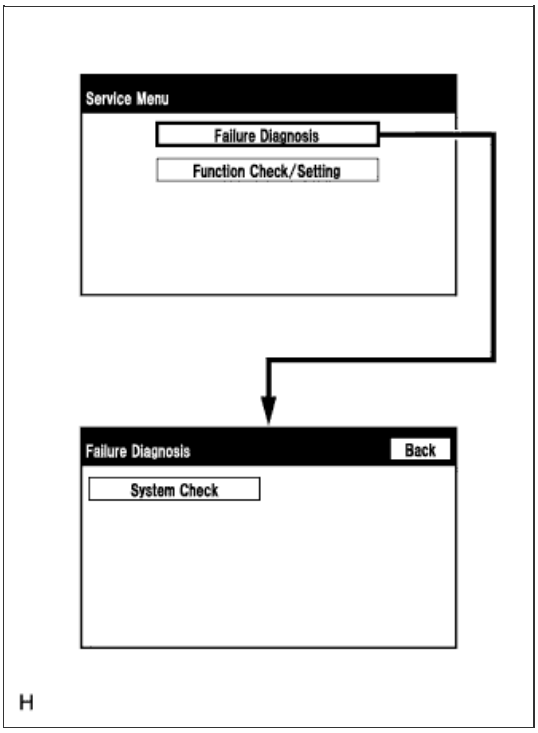



## FINISH DIAGNOSTIC MODE

a. Turn the engine switch off.

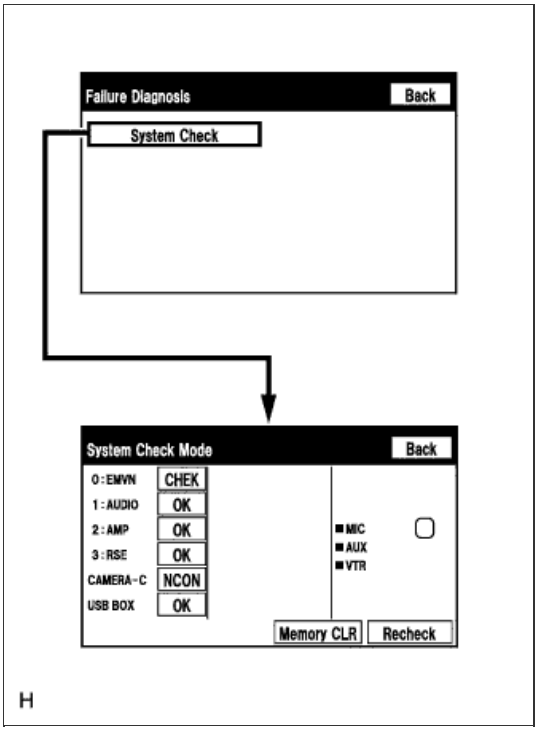
## FAILURE DIAGNOSIS

a. The "Failure Diagnosis" screen is displayed when the "Failure Diagnosis" switch on the "Service Menu" screen is selected.




## SYSTEM CHECK

a. The "System Check Mode" screen is displayed when the "System Check" switch on the "Failure Diagnosis" screen is selected.



H

## CHECK DTC (CHECK USING SYSTEM CHECK MODE SCREEN)

**HINT:**

Refer to Diagnosis Display Detailed Description for further details on the "System Check Mode" screen ( Click here).

a. Read the system check result.

i. When the result is "EXCH" or "CHEK", select the icon which displays the result, and check and record each DTC displayed on the "Unit Check Mode" screen.

**NOTICE:**

A maximum of 6 DTCs can be displayed by the display and navigation module display. When more than 6 DTCs are expected, check DTCs using the intelligent tester.

**HINT:**

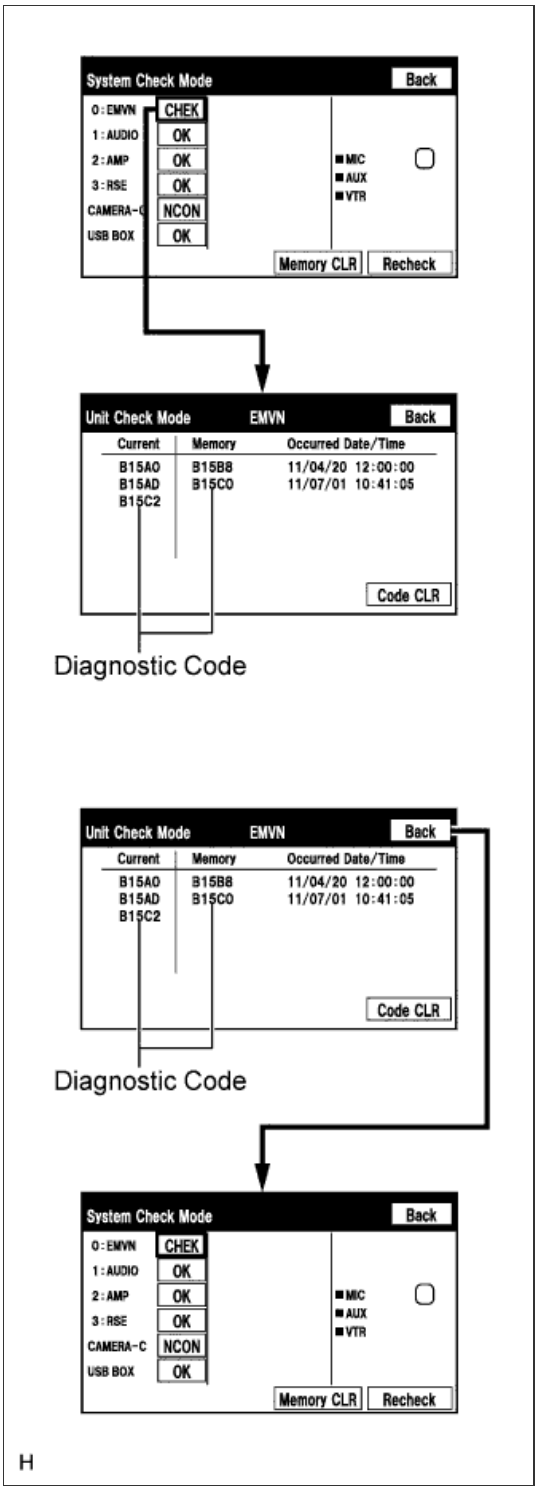
- **Refer to Diagnosis Display Detailed Description for further details on the "System Check Mode" screen (Click here).**
- **When all results are "OK", this means that no DTCs are present.**
- **When "MOST" is displayed for the result, selecting "MOST" displays the "MOST Line Check" screen and performs the MOST line check.**
- **Changing to the "MOST Line Check" screen is possible only when the MOST network is malfunctioning and "MOST" is displayed for the result.**
- **If the MOST network had a malfunction in the past, the DTCs will be displayed in the Memory column.**
- **Refer to Diagnosis Display Detailed Description for further details on the "MOST Line Check" screen (Click here).**
- **When "NCON" is displayed for all devices connected using the AVC-LAN, or when all device names are not displayed, check if there is a short circuit in the AVC-LAN or devices connected to the AVC-LAN. Repair or replace parts as necessary (Click here).**
- **When proceeding to view the results of another device, press the "Back" switch to return to the "System Check Mode" screen. Repeat the step above to view the results of other devices.**

ii. Check the details of the DTC(s) ( Click here).

**NOTICE:**

The navigation system outputs DTCs for the following system. When DTCs other than the codes in Diagnostic Trouble Code Chart for the navigation system are output, refer to Diagnostic Trouble Code Chart for the system.

| System | Proceed to |
|---|---|
| Audio and visual system (w/ Navigation System) | Click here |
| Rear seat entertainment system (w/ Rear Seat Entertainment System) | Click here |
| Parking assist monitor system (w/ Parking Assist Monitor System) | Click here |
| Wide view front monitor system (w/ Wide View Front Monitor System) | Click here |
| Side monitor system (w/ Side Monitor System) | Click here |



H

## DTC CLEAR/RECHECK (CLEAR USING SYSTEM CHECK MODE SCREEN)

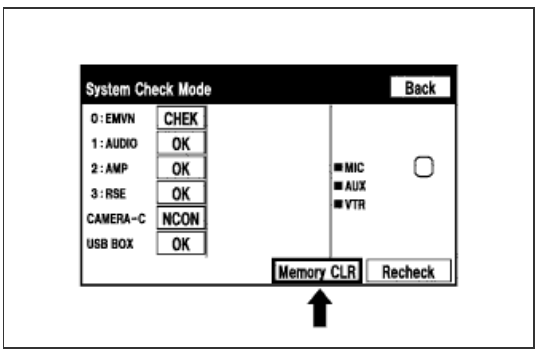
a. Clear DTC

i. Press the "Memory CLR" switch for 3 seconds.

ii. The check results are cleared.

**HINT:**

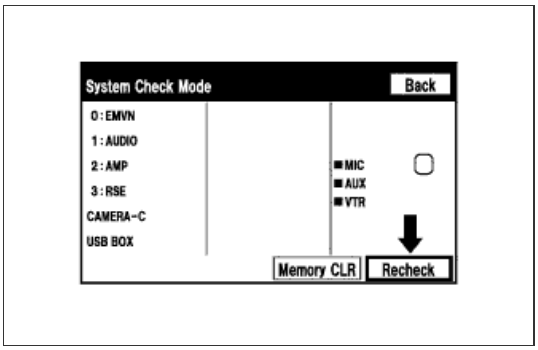
- **To clear the DTC for a specific device, clear the DTC using the "Unit Check Mode" screen.**
- **When clearing a DTC using the "Unit Check Mode" screen, press the "Code CLR" switch for 3 seconds.**




b. Recheck

b. Recheck

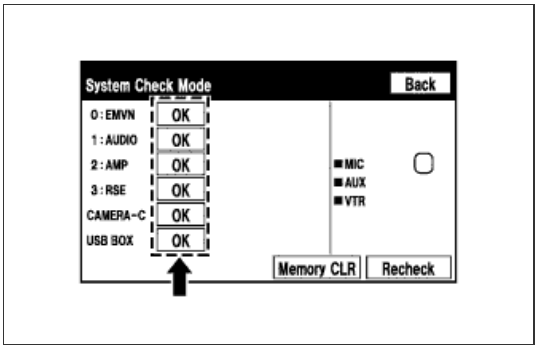
i. Press the "Recheck" switch.




ii. Confirm that all diagnostic codes are "OK" when the check results are displayed. If a code other than "OK" is displayed, troubleshoot again.

**HINT:**

When a DTC was cleared using the "Unit Check Mode" screen, press the "Back" switch to return to the "System Check Mode" screen and perform this operation.



**for Preparation** Click here

## CHECK DTC (CHECK USING INTELLIGENT TESTER)

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Body Electrical / Navigation System / Trouble Codes.

e. Check for DTC(s) and freeze frame data, and then write them down.

f. Check the details of the DTC(s) ( Click here).

**NOTICE:**

The navigation system outputs DTCs for the following system. When DTCs other than those in Diagnostic Trouble Code Chart for the navigation system are output, refer to Diagnostic Trouble Code Chart for the system.

| System | Proceed to |
|---|---|
| Audio and visual system (w/ Navigation System) | Click here |
| Rear seat entertainment system (w/ Rear Seat Entertainment) | Click here |
| Parking assist monitor system (w/ Parking Assist Monitor System) | Click here |
| Wide view front monitor system (w/ Wide View Front Monitor System) | Click here |
| Side monitor system (w/ Side Monitor System) | Click here |

## CLEAR DTC (CLEAR USING INTELLIGENT TESTER)

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Body Electrical / Navigation System / Trouble Codes.

e. Clear DTCs.

## START DIAGNOSTIC MODE

**HINT:**

- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**
- **To help find the malfunction when the system cannot change to diagnostic mode, check for DTCs using the intelligent tester.**
- **After the engine switch is turned on (IG), check that the map is displayed before starting diagnostic mode. Otherwise, some items cannot be checked.**

a. There are 2 methods to start diagnostic mode. Start the mode by using one of them.

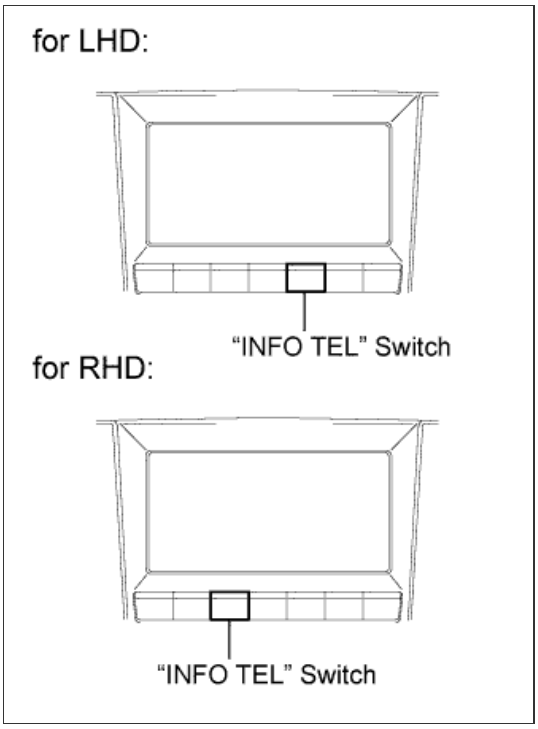
b. Method 1

i. Start the engine.

ii. While pressing and holding the "INFO TEL" switch, operate the light control switch: off → Turn on → Turn off → Turn on → Turn off → Turn on → Turn off.

iii. The diagnostic mode starts and the "System Check Mode" screen will

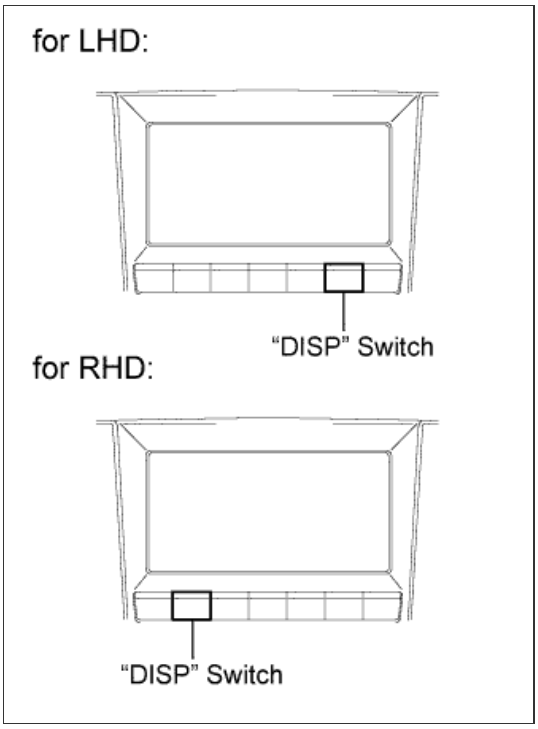
be displayed.




c. Method 2

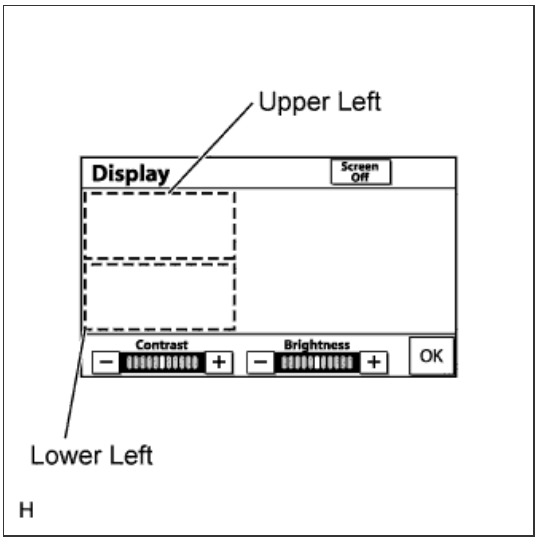
i. Start the engine.

ii. Press the "DISP" switch.




iii. From the display quality adjustment screen, touch the upper and lower left corners of the screen in the following: Upper left → Lower left → Upper left → Lower left → Upper left → Lower left.

iv. Diagnostic mode starts and the "System Check Mode" screen will be displayed. Service inspection starts automatically and the result will be displayed.

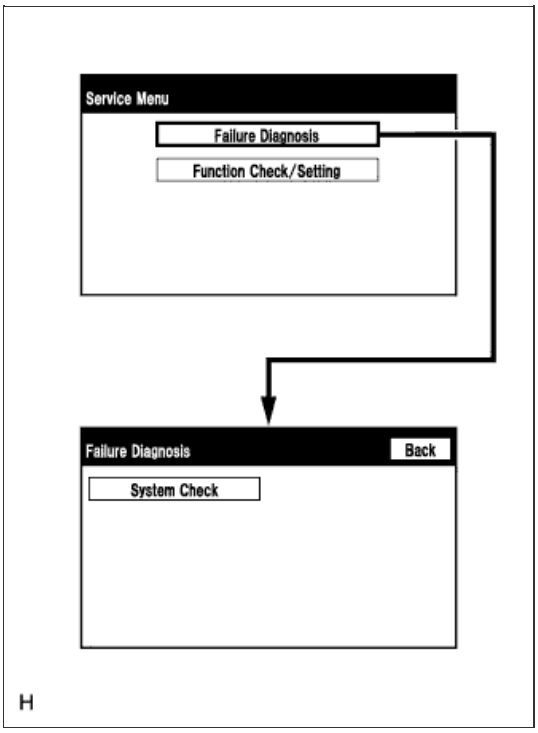



## FINISH DIAGNOSTIC MODE

a. Turn the engine switch off.

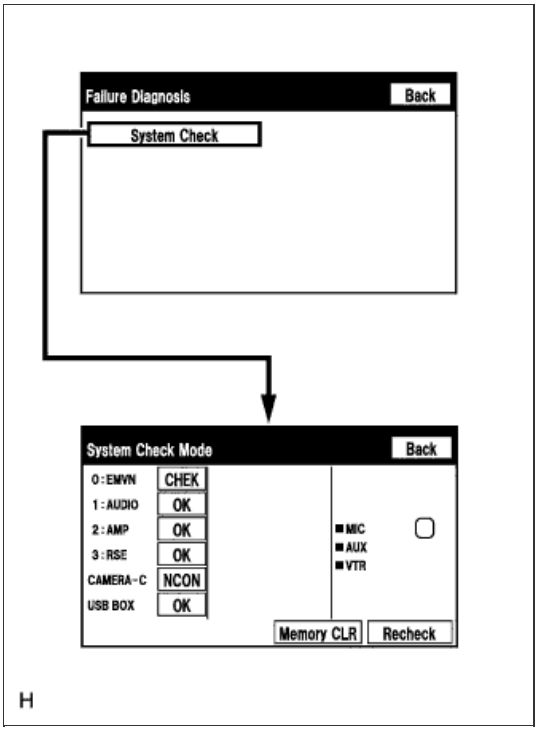
## FAILURE DIAGNOSIS

a. The "Failure Diagnosis" screen is displayed when the "Failure Diagnosis" switch on the "Service Menu" screen is selected.




## SYSTEM CHECK

a. The "System Check Mode" screen is displayed when the "System Check" switch on the "Failure Diagnosis" screen is selected.



H

## CHECK DTC (CHECK USING SYSTEM CHECK MODE SCREEN)

**HINT:**

Refer to Diagnosis Display Detailed Description for further details on the "System Check Mode" screen ( Click here).

a. Read the system check result.

i. When the result is "EXCH" or "CHEK", select the icon which displays the result, and check and record each DTC displayed on the "Unit Check Mode" screen.

**NOTICE:**

A maximum of 6 DTCs can be displayed by the display and navigation module display. When more than 6 DTCs are expected, check DTCs using the intelligent tester.

**HINT:**

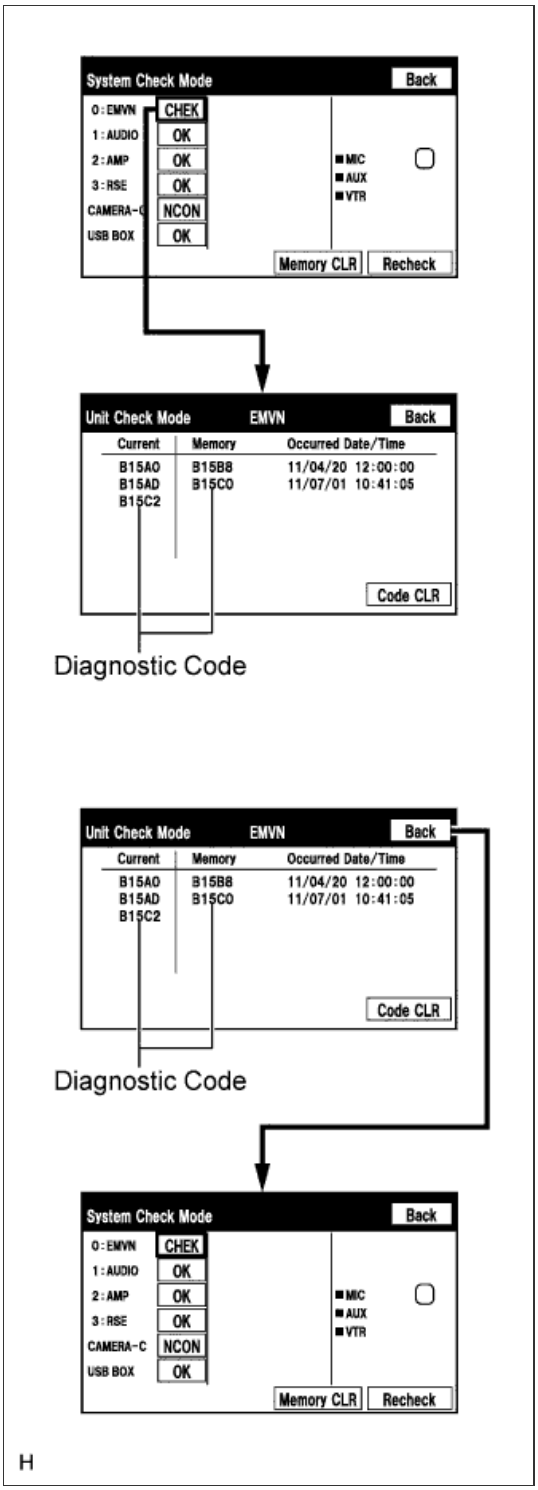
- **Refer to Diagnosis Display Detailed Description for further details on the "System Check Mode" screen (Click here).**
- **When all results are "OK", this means that no DTCs are present.**
- **When "MOST" is displayed for the result, selecting "MOST" displays the "MOST Line Check" screen and performs the MOST line check.**
- **Changing to the "MOST Line Check" screen is possible only when the MOST network is malfunctioning and "MOST" is displayed for the result.**
- **If the MOST network had a malfunction in the past, the DTCs will be displayed in the Memory column.**
- **Refer to Diagnosis Display Detailed Description for further details on the "MOST Line Check" screen (Click here).**
- **When "NCON" is displayed for all devices connected using the AVC-LAN, or when all device names are not displayed, check if there is a short circuit in the AVC-LAN or devices connected to the AVC-LAN. Repair or replace parts as necessary (Click here).**
- **When proceeding to view the results of another device, press the "Back" switch to return to the "System Check Mode" screen. Repeat the step above to view the results of other devices.**

ii. Check the details of the DTC(s) ( Click here).

**NOTICE:**

The navigation system outputs DTCs for the following system. When DTCs other than the codes in Diagnostic Trouble Code Chart for the navigation system are output, refer to Diagnostic Trouble Code Chart for the system.

| System | Proceed to |
|---|---|
| Audio and visual system (w/ Navigation System) | Click here |
| Rear seat entertainment system (w/ Rear Seat Entertainment System) | Click here |
| Parking assist monitor system (w/ Parking Assist Monitor System) | Click here |
| Wide view front monitor system (w/ Wide View Front Monitor System) | Click here |
| Side monitor system (w/ Side Monitor System) | Click here |



H

## DTC CLEAR/RECHECK (CLEAR USING SYSTEM CHECK MODE SCREEN)

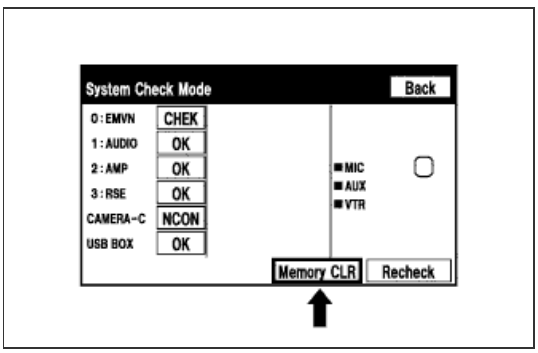
a. Clear DTC

i. Press the "Memory CLR" switch for 3 seconds.

ii. The check results are cleared.

**HINT:**

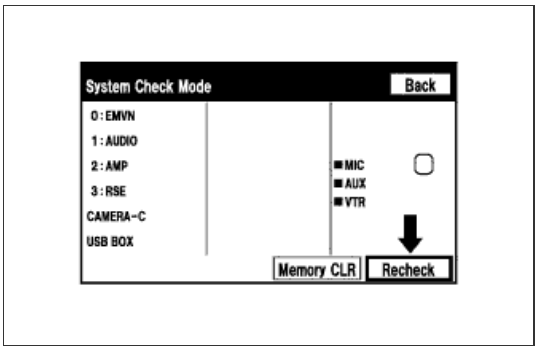
- **To clear the DTC for a specific device, clear the DTC using the "Unit Check Mode" screen.**
- **When clearing a DTC using the "Unit Check Mode" screen, press the "Code CLR" switch for 3 seconds.**




b. Recheck

b. Recheck

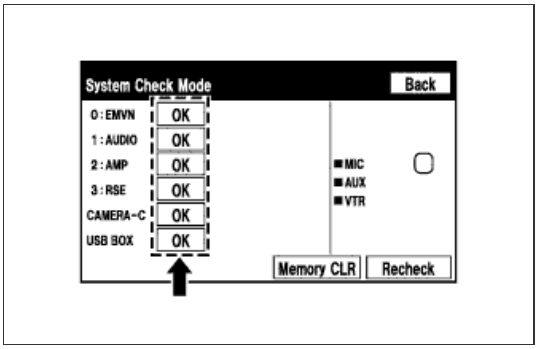
i. Press the "Recheck" switch.




ii. Confirm that all diagnostic codes are "OK" when the check results are displayed. If a code other than "OK" is displayed, troubleshoot again.

**HINT:**

When a DTC was cleared using the "Unit Check Mode" screen, press the "Back" switch to return to the "System Check Mode" screen and perform this operation.



**for Preparation** Click here

### Navigation System

| DTC Code | Detection Item | Trouble Area | See page |
|---|---|---|---|
| B1569 | DVD-ROM Deck Disconnected | - Navigation module board power source circuit<br>- IEEE cable<br>- Display and navigation module display<br>- Navigation module board | Click here |
| B156B | Multi-media Interface ECU Disconnected | - Multi-media interface ECU power source circuit<br>- AVC-LAN circuit between display and navigation module display and multi-media interface ECU<br>- Multi-media interface ECU<br>- Display and navigation module display | Click here |
| B156E | No Response from Multi-media Interface ECU | - Multi-media interface ECU power source circuit<br>- AVC-LAN circuit between display and navigation module display and multi-media interface ECU<br>- Multi-media interface ECU<br>- Display and navigation module display | Click here |
| B1582 | Map Disk Reading Malfunction | - Map disc<br>- Navigation module board | Click here |
| B1591 | No Response from Audio HU | - Radio receiver assembly power source circuit<br>- MOST circuit between display and navigation module display and radio receiver assembly<br>- MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>- Radio receiver assembly<br>- Display and navigation module display | Click here |
| B1593 | No Response from Stereo Component Amplifier | - Stereo component amplifier assembly power source circuit<br>- MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>- MOST circuit between stereo component amplifier assembly and display and navigation module display (w/o Rear Seat Entertainment System)<br>- MOST circuit between stereo component amplifier assembly and television display assembly (w/ Rear Seat Entertainment System)<br>- Stereo component amplifier assembly<br>- Display and navigation module display | Click here |
| B1595 | No Response from Rear Seat Entertainment System | - Television display assembly power source circuit<br>- MOST circuit between stereo component amplifier assembly and television display assembly<br>- MOST circuit between television display assembly and display and navigation module display<br>- Television display assembly<br>- Display and navigation module display | Click here |
| B15A0 | LAN Master Malfunction | Display and navigation module display | Click here |
| B15AD | Navigation Processor Malfunction | Display and navigation module display | Click here |
| B15B0 | Display Screen Malfunction | Display and navigation module display | Click here |
| B15B9 | DVD-ROM Deck Malfunction | Navigation module board | Click here |
| B15C0 | Short in GPS Antenna | - Wire harness<br>- Navigation antenna assembly<br>- Display and navigation module display | Click here |
| B15C1 | Open in GPS Antenna | - Wire harness<br>- Navigation antenna assembly<br>- Display and navigation module display | Click here |
| B15C2 | Speed Signal Malfunction | - Combination meter assembly<br>- Display and navigation module display<br>- Wire harness or connector | Click here |
| | | - MOST Line Check<br>- MOST communication line connector<br>- Wire harness or connector<br>- MOST communication line | Click |

| | | | |
|---|---|---|---|
| B15D0 | MOST Communication Malfunction | - Radio receiver assembly<br>- Stereo component amplifier assembly<br>- Television display assembly (w/ Rear Seat Entertainment System)<br>- Display and navigation module display | here |
| B15D1 | Audio HU Disconnected | - Radio receiver assembly power source circuit<br>- MOST circuit between display and navigation module display and radio receiver assembly<br>- MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>- Radio receiver assembly<br>- Display and navigation module display | Click here |
| B15D3 | Stereo Component Amplifier Disconnected | - Stereo component amplifier assembly power source circuit<br>- MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>- MOST circuit between stereo component amplifier assembly and display and navigation module display (w/o Rear Seat Entertainment System)<br>- MOST circuit between stereo component amplifier assembly and television display assembly (w/ Rear Seat Entertainment System)<br>- Stereo component amplifier assembly<br>- Display and navigation module display | Click here |
| B15D5 | Rear Seat Entertainment System Disconnected | - Television display assembly power source circuit<br>- MOST circuit between stereo component amplifier assembly and television display assembly<br>- MOST circuit between television display assembly and display and navigation module display<br>- Television display assembly<br>- Display and navigation module display | Click here |
| B15D8 | Monitor Disconnected | - Parking assist ECU power source circuit<br>- AVC-LAN circuit between display and navigation module display and parking assist ECU<br>- Parking assist ECU<br>- Display and navigation module display | Click here |
| B15F5 | A/C ECU Vehicle Information Reading/Writing Processor Malfunction | - CAN communication system<br>- Air conditioning system<br>- A/C ECU (air conditioning amplifier assembly)<br>- Display and navigation module display | Click here |
| B15F6 | Main Body ECU Vehicle Information Reading/Writing Process Malfunction | - CAN communication system<br>- Power door lock control system<br>- Wireless door lock control system<br>- Lighting system<br>- Main body ECU<br>- Display and navigation module display | Click here |
| B15F7 | Certification ECU Vehicle Information Reading/Writing Process Malfunction | - CAN communication system<br>- Entry and start system (for entry function)<br>- Entry and start system (for start function)<br>- Certification ECU (smart key ECU assembly)<br>- Display and navigation module display | Click here |
| U0073 | Control Module Communication Bus Off | CAN communication system | Click here |
| U0155 | Lost Communication with Combination Meter | - Combination meter assembly<br>- CAN communication system | Click here |
| U0164 | Lost Communication with A/C ECU | - Air conditioning amplifier assembly<br>- CAN communication system | Click here |
| U1110 | Lost Communication with Clearance Warning ECU | - Clearance warning ECU<br>- CAN communication system | Click here |

**for Preparation** Click here

### Navigation System

| DTC Code | Detection Item | Trouble Area | See page |
|---|---|---|---|
| B1569 | DVD-ROM Deck Disconnected | - Navigation module board power source circuit<br>- IEEE cable<br>- Display and navigation module display<br>- Navigation module board | Click here |
| B156B | Multi-media Interface ECU Disconnected | - Multi-media interface ECU power source circuit<br>- AVC-LAN circuit between display and navigation module display and multi-media interface ECU<br>- Multi-media interface ECU<br>- Display and navigation module display | Click here |
| B156E | No Response from Multi-media Interface ECU | - Multi-media interface ECU power source circuit<br>- AVC-LAN circuit between display and navigation module display and multi-media interface ECU<br>- Multi-media interface ECU<br>- Display and navigation module display | Click here |
| B1582 | Map Disk Reading Malfunction | - Map disc<br>- Navigation module board | Click here |
| B1591 | No Response from Audio HU | - Radio receiver assembly power source circuit<br>- MOST circuit between display and navigation module display and radio receiver assembly<br>- MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>- Radio receiver assembly<br>- Display and navigation module display | Click here |
| B1593 | No Response from Stereo Component Amplifier | - Stereo component amplifier assembly power source circuit<br>- MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>- MOST circuit between stereo component amplifier assembly and display and navigation module display (w/o Rear Seat Entertainment System)<br>- MOST circuit between stereo component amplifier assembly and television display assembly (w/ Rear Seat Entertainment System)<br>- Stereo component amplifier assembly<br>- Display and navigation module display | Click here |
| B1595 | No Response from Rear Seat Entertainment System | - Television display assembly power source circuit<br>- MOST circuit between stereo component amplifier assembly and television display assembly<br>- MOST circuit between television display assembly and display and navigation module display<br>- Television display assembly<br>- Display and navigation module display | Click here |
| B15A0 | LAN Master Malfunction | Display and navigation module display | Click here |
| B15AD | Navigation Processor Malfunction | Display and navigation module display | Click here |
| B15B0 | Display Screen Malfunction | Display and navigation module display | Click here |
| B15B9 | DVD-ROM Deck Malfunction | Navigation module board | Click here |
| B15C0 | Short in GPS Antenna | - Wire harness<br>- Navigation antenna assembly<br>- Display and navigation module display | Click here |
| B15C1 | Open in GPS Antenna | - Wire harness<br>- Navigation antenna assembly<br>- Display and navigation module display | Click here |
| B15C2 | Speed Signal Malfunction | - Combination meter assembly<br>- Display and navigation module display<br>- Wire harness or connector | Click here |
| | | - MOST Line Check<br>- MOST communication line connector<br>- Wire harness or connector<br>- MOST communication line | Click |

| | | | |
|---|---|---|---|
| B15D0 | MOST Communication Malfunction | - Radio receiver assembly<br>- Stereo component amplifier assembly<br>- Television display assembly (w/ Rear Seat Entertainment System)<br>- Display and navigation module display | here |
| B15D1 | Audio HU Disconnected | - Radio receiver assembly power source circuit<br>- MOST circuit between display and navigation module display and radio receiver assembly<br>- MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>- Radio receiver assembly<br>- Display and navigation module display | Click here |
| B15D3 | Stereo Component Amplifier Disconnected | - Stereo component amplifier assembly power source circuit<br>- MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>- MOST circuit between stereo component amplifier assembly and display and navigation module display (w/o Rear Seat Entertainment System)<br>- MOST circuit between stereo component amplifier assembly and television display assembly (w/ Rear Seat Entertainment System)<br>- Stereo component amplifier assembly<br>- Display and navigation module display | Click here |
| B15D5 | Rear Seat Entertainment System Disconnected | - Television display assembly power source circuit<br>- MOST circuit between stereo component amplifier assembly and television display assembly<br>- MOST circuit between television display assembly and display and navigation module display<br>- Television display assembly<br>- Display and navigation module display | Click here |
| B15D8 | Monitor Disconnected | - Parking assist ECU power source circuit<br>- AVC-LAN circuit between display and navigation module display and parking assist ECU<br>- Parking assist ECU<br>- Display and navigation module display | Click here |
| B15F5 | A/C ECU Vehicle Information Reading/Writing Processor Malfunction | - CAN communication system<br>- Air conditioning system<br>- A/C ECU (air conditioning amplifier assembly)<br>- Display and navigation module display | Click here |
| B15F6 | Main Body ECU Vehicle Information Reading/Writing Process Malfunction | - CAN communication system<br>- Power door lock control system<br>- Wireless door lock control system<br>- Lighting system<br>- Main body ECU<br>- Display and navigation module display | Click here |
| B15F7 | Certification ECU Vehicle Information Reading/Writing Process Malfunction | - CAN communication system<br>- Entry and start system (for entry function)<br>- Entry and start system (for start function)<br>- Certification ECU (smart key ECU assembly)<br>- Display and navigation module display | Click here |
| U0073 | Control Module Communication Bus Off | CAN communication system | Click here |
| U0155 | Lost Communication with Combination Meter | - Combination meter assembly<br>- CAN communication system | Click here |
| U0164 | Lost Communication with A/C ECU | - Air conditioning amplifier assembly<br>- CAN communication system | Click here |
| U1110 | Lost Communication with Clearance Warning ECU | - Clearance warning ECU<br>- CAN communication system | Click here |

## DTC B1569 DVD-ROM Deck Disconnected

**for Preparation** Click here

### DESCRIPTION

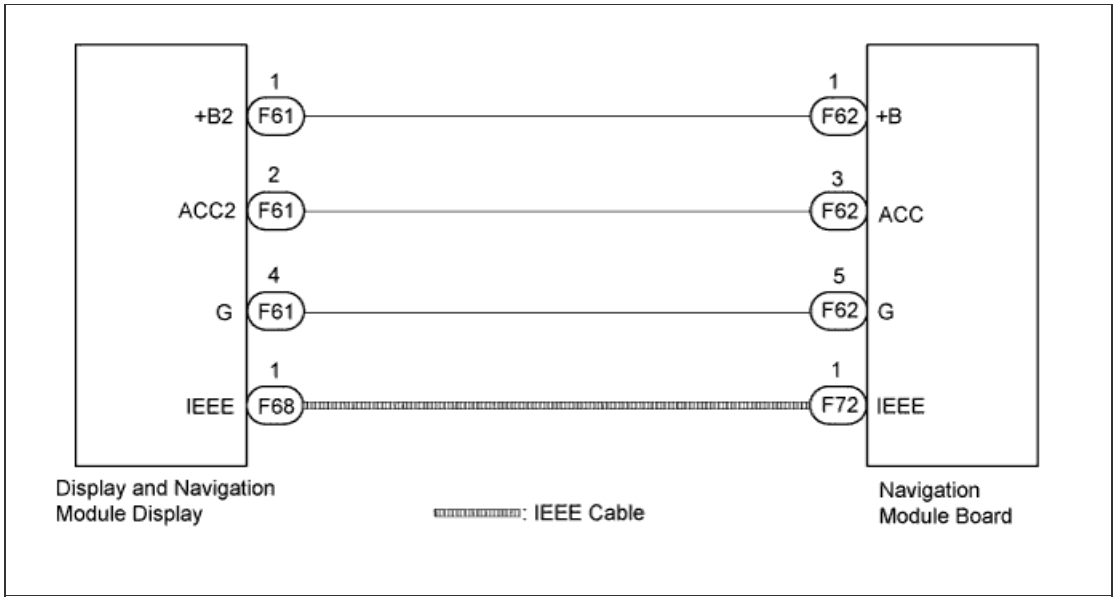
The display and navigation module display and navigation module board are connected by the IEEE cable.
When an IEEE communication error occurs between the display and navigation module display and navigation module board, this DTC will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1569 | When either of the conditions below is met:<br>• Navigation module board is/was not connected while the engine switch is on (IG or ACC).<br>• Communication between the master unit and navigation module board is not possible when the engine is started. | • Navigation module board power source circuit<br>• IEEE cable<br>• Display and navigation module display<br>• Navigation module board |

**HINT:**

- **Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

### WIRING DIAGRAM




### INSPECTION PROCEDURE

#### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect IEEE communication.**
- **This DTC may be stored when an IEEE communication error occurs due to electrical noise.**

B → Go to step 3

A

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → Go to step 4

OK

END

## 4.CHECK HARNESS AND CONNECTOR (NAVIGATION MODULE BOARD POWER SOURCE)

a. Disconnect the F62 navigation module board connector.

b. Measure the resistance according to the value(s) in the table below.

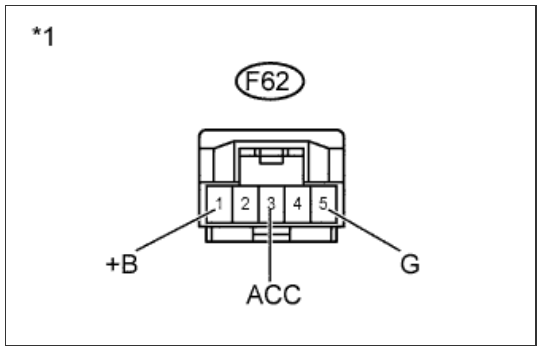
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F62-5 (G) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F62-1 (+B) - F62-5 (G) | Always | 11 to 14 V |
| F62-3 (ACC) - F62-5 (G) | Engine switch on (ACC) | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Navigation Module Board) |

NG → Go to step 8

OK

## 5.CHECK IEEE CABLE CONNECTOR

a. Check for the IEEE cable connector.

i. Check if the IEEE cable connectors between the navigation module board and the display and navigation module display have any connection problems (Click here).

b. Check that the screen display is normal.

**OK:**
**Screen display is normal.**

NG → Go to step 6

OK

END

## 6.REPLACE IEEE CABLE

a. Replace the IEEE cable between the navigation module board and the display and navigation module display.

b. Check that the screen display is normal.

**OK:**
**Screen display is normal.**

NG → Go to step 7

OK

END

## 7.REPLACE NAVIGATION MODULE BOARD

a. Replace the navigation module board.

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

END

## 8.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - NAVIGATION MODULE BOARD)

a. Disconnect the F61 display and navigation module display connector.

b. Disconnect the F62 navigation module board connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F61-1 (+B2) - F62-1 (+B) | Always | Below 1 Ω |
| F61-2 (ACC2) - F62-3 (ACC) | Always | Below 1 Ω |
| F61-4 (G) - F62-5 (G) | Always | Below 1 Ω |
| F61-1 (+B2) - Body ground | Always | 10 kΩ or higher |
| F61-2 (ACC2) - | | |

| | | |
|---|---|---|
| Body ground | Always | 10 kΩ or higher |
| F61-4 (G) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

# DTC B15B0 Display Screen Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when a malfunction occurs in the display and navigation module display.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15B0 | Picture circuit (TFT unit) malfunction | Display and navigation module display |

## INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTC and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC B1569 DVD-ROM Deck Disconnected

**for Preparation** Click here

### DESCRIPTION

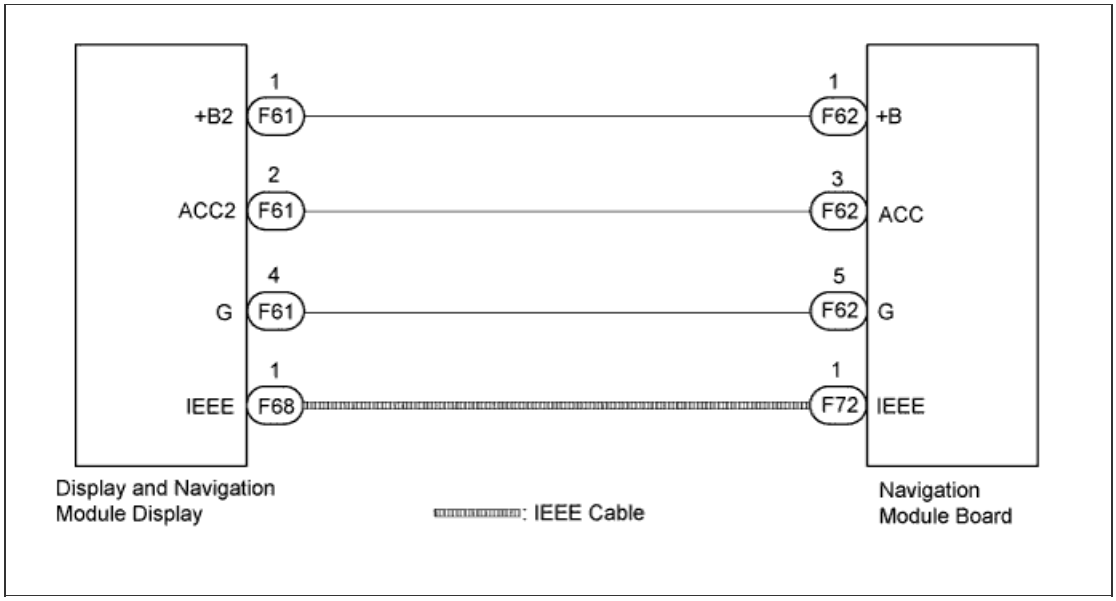
The display and navigation module display and navigation module board are connected by the IEEE cable.
When an IEEE communication error occurs between the display and navigation module display and navigation module board, this DTC will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1569 | When either of the conditions below is met:<br>• Navigation module board is/was not connected while the engine switch is on (IG or ACC).<br>• Communication between the master unit and navigation module board is not possible when the engine is started. | • Navigation module board power source circuit<br>• IEEE cable<br>• Display and navigation module display<br>• Navigation module board |

**HINT:**

- **Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

### WIRING DIAGRAM




### INSPECTION PROCEDURE

#### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect IEEE communication.**
- **This DTC may be stored when an IEEE communication error occurs due to electrical noise.**

B → Go to step 3

A

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → Go to step 4

OK

END

## 4.CHECK HARNESS AND CONNECTOR (NAVIGATION MODULE BOARD POWER SOURCE)

a. Disconnect the F62 navigation module board connector.

b. Measure the resistance according to the value(s) in the table below.

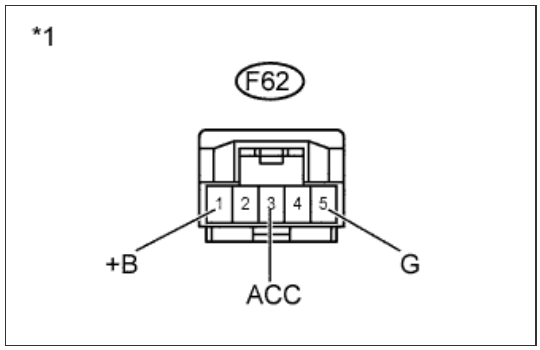
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F62-5 (G) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F62-1 (+B) - F62-5 (G) | Always | 11 to 14 V |
| F62-3 (ACC) - F62-5 (G) | Engine switch on (ACC) | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Navigation Module Board) |

NG → Go to step 8

OK

## 5.CHECK IEEE CABLE CONNECTOR

a. Check for the IEEE cable connector.

i. Check if the IEEE cable connectors between the navigation module board and the display and navigation module display have any connection problems (Click here).

b. Check that the screen display is normal.

**OK:**
**Screen display is normal.**

NG → Go to step 6

OK

END

## 6.REPLACE IEEE CABLE

a. Replace the IEEE cable between the navigation module board and the display and navigation module display.

b. Check that the screen display is normal.

**OK:**
**Screen display is normal.**

NG → Go to step 7

OK

END

## 7.REPLACE NAVIGATION MODULE BOARD

a. Replace the navigation module board.

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

END

## 8.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - NAVIGATION MODULE BOARD)

a. Disconnect the F61 display and navigation module display connector.

b. Disconnect the F62 navigation module board connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F61-1 (+B2) - F62-1 (+B) | Always | Below 1 Ω |
| F61-2 (ACC2) - F62-3 (ACC) | Always | Below 1 Ω |
| F61-4 (G) - F62-5 (G) | Always | Below 1 Ω |
| F61-1 (+B2) - Body ground | Always | 10 kΩ or higher |
| F61-2 (ACC2) - | | |

| | | |
|---|---|---|
| Body ground | Always | 10 kΩ or higher |
| F61-4 (G) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

# DTC B15B9 DVD-ROM Deck Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when a malfunction occurs in the navigation module board.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15B9 | When either of the conditions below is met:<br>• RAM error<br>• Internal power supply malfunction | Navigation module board |

## INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → **REPLACE NAVIGATION MODULE BOARD**

OK

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC B156B Multi-media Interface ECU Disconnected

## DTC B156E No Response from Multi-media Interface ECU

**for Preparation** Click here

### DESCRIPTION

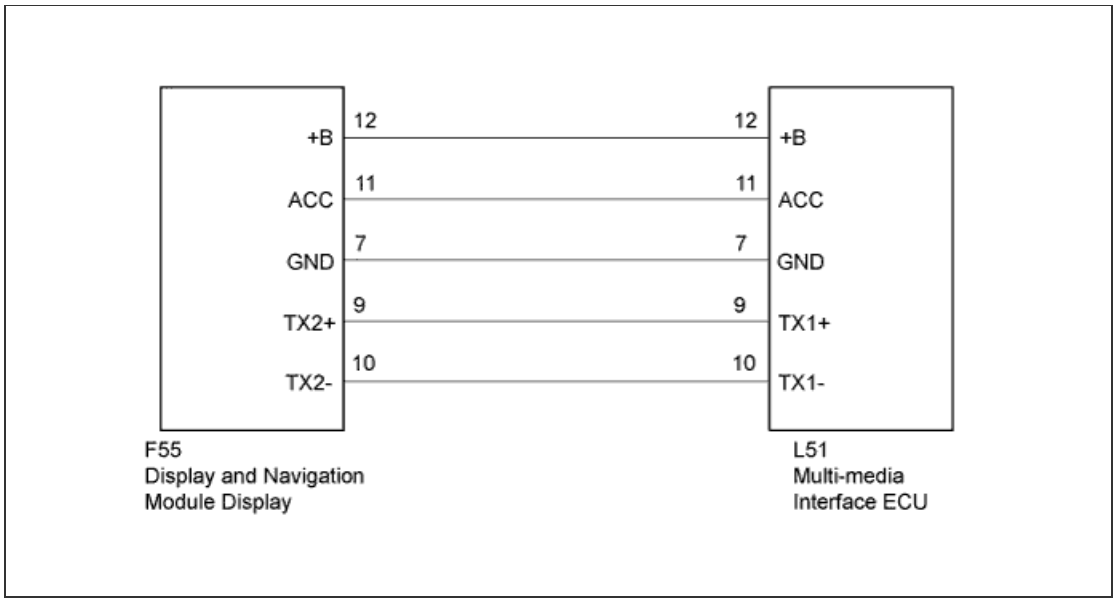
The display and navigation module display and multi-media interface ECU are connected by the AVC-LAN communication line.
When an AVC-LAN communication error occurs between the display and navigation module display and the multi-media interface ECU, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B156B*1 | When either condition below is met:<br>• Multi-media interface ECU is/was not connected while the engine switch is on (ON or ACC).<br>• Communication between the master unit and multi-media interface ECU is not possible when the engine is started. | • Multi-media interface ECU power source circuit<br>• AVC-LAN circuit between display and navigation module display and multi-media interface ECU<br>• Multi-media interface ECU<br>• Display and navigation module display |
| B156E | Within the time-out period, there was no response from the display and navigation module display to the following requests from the master unit:<br>• System inspection request<br>• System inspection result request<br>• Diagnostic memory request | |

**HINT:**

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

### WIRING DIAGRAM




### INSPECTION PROCEDURE

#### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| | |

| | |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect AVC-LAN communication.**
- **This DTC may be stored when an AVC-LAN communication error occurs due to electrical noise.**

**B** → **Go to step 3**

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

**NG** → **Go to step 4**

**OK**

**END**

## 4.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU POWER SOURCE)

a. Disconnect the L51 multi-media interface ECU connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

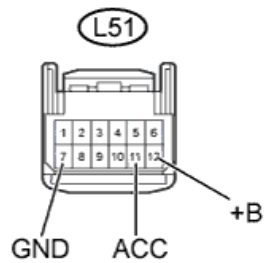
| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-7 (GND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-12 (+B) - L51-7 (GND) | Always | 11 to 14 V |
| L51-11 (ACC) - L51-7 (GND) | Engine switch on (ACC) | 11 to 14 V |

*1




**Text in Illustration**

| | |
|---|---|
| | Front view of wire harness connector |

| | |
|---|---|
| *1 | (to Multi-media Interface ECU) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

**5.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU - DISPLAY AND NAVIGATION MODULE)**

a. Disconnect the L51 multi-media interface ECU connector.

b. Disconnect the F55 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-9 (TX1+) - F55-9 (TX2+) | Always | Below 1 Ω |
| L51-10 (TX1-) - F55-10 (TX2-) | Always | Below 1 Ω |
| L51-9 (TX1+) - Body ground | Always | 10 kΩ or higher |
| L51-10 (TX1-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

**6.REPLACE MULTI-MEDIA INTERFACE ECU**

a. Replace the multi-media interface ECU (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK ↓

**END**

# DTC B15B9 DVD-ROM Deck Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when a malfunction occurs in the navigation module board.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15B9 | When either of the conditions below is met:<br>• RAM error<br>• Internal power supply malfunction | Navigation module board |

## INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → **REPLACE NAVIGATION MODULE BOARD**

OK

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC B156B Multi-media Interface ECU Disconnected

## DTC B156E No Response from Multi-media Interface ECU

**for Preparation** Click here

### DESCRIPTION

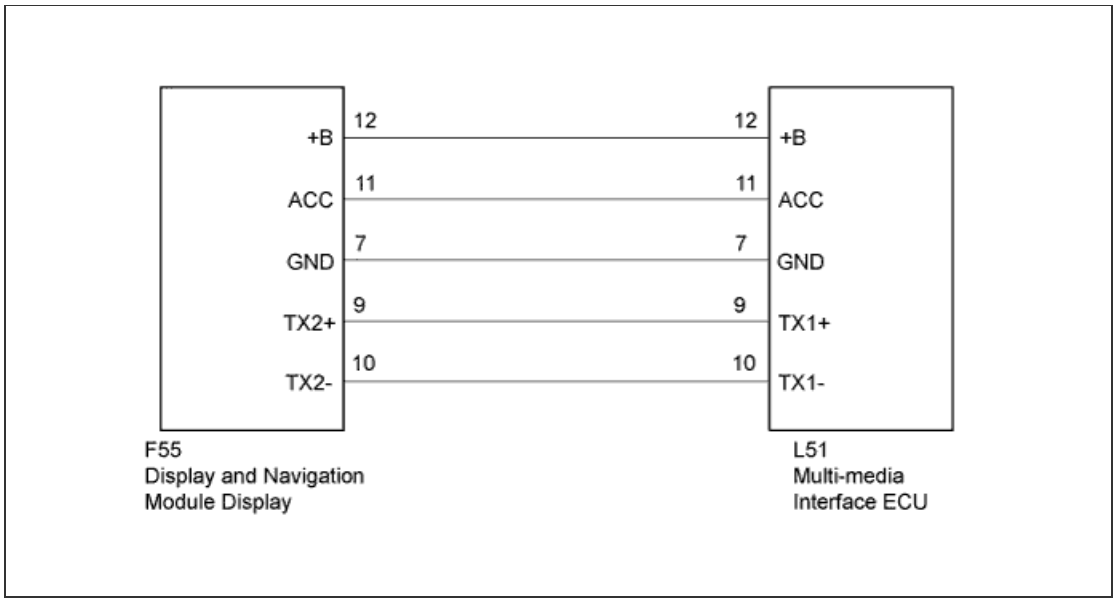
The display and navigation module display and multi-media interface ECU are connected by the AVC-LAN communication line.
When an AVC-LAN communication error occurs between the display and navigation module display and the multi-media interface ECU, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B156B*1 | When either condition below is met:<br>• Multi-media interface ECU is/was not connected while the engine switch is on (ON or ACC).<br>• Communication between the master unit and multi-media interface ECU is not possible when the engine is started. | • Multi-media interface ECU power source circuit<br>• AVC-LAN circuit between display and navigation module display and multi-media interface ECU<br>• Multi-media interface ECU<br>• Display and navigation module display |
| B156E | Within the time-out period, there was no response from the display and navigation module display to the following requests from the master unit:<br>• System inspection request<br>• System inspection result request<br>• Diagnostic memory request | |

**HINT:**

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

### WIRING DIAGRAM




### INSPECTION PROCEDURE

#### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| | |

| | |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect AVC-LAN communication.**
- **This DTC may be stored when an AVC-LAN communication error occurs due to electrical noise.**

**B** → **Go to step 3**

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

**NG** → **Go to step 4**

**OK**

**END**

## 4.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU POWER SOURCE)

a. Disconnect the L51 multi-media interface ECU connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

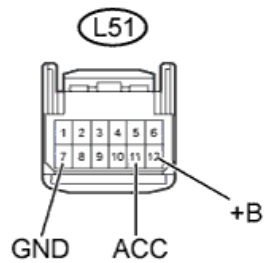
| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-7 (GND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-12 (+B) - L51-7 (GND) | Always | 11 to 14 V |
| L51-11 (ACC) - L51-7 (GND) | Engine switch on (ACC) | 11 to 14 V |

*1




**Text in Illustration**

| | |
|---|---|
| | Front view of wire harness connector |

| | |
|---|---|
| *1 | (to Multi-media Interface ECU) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

**5.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU - DISPLAY AND NAVIGATION MODULE)**

a. Disconnect the L51 multi-media interface ECU connector.

b. Disconnect the F55 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-9 (TX1+) - F55-9 (TX2+) | Always | Below 1 Ω |
| L51-10 (TX1-) - F55-10 (TX2-) | Always | Below 1 Ω |
| L51-9 (TX1+) - Body ground | Always | 10 kΩ or higher |
| L51-10 (TX1-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

**6.REPLACE MULTI-MEDIA INTERFACE ECU**

a. Replace the multi-media interface ECU (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK ↓

**END**

## DTC B15C0 Short in GPS Antenna

## DTC B15C1 Open in GPS Antenna

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the navigation antenna assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15C0 | Navigation antenna assembly error | • Wire harness<br>• Navigation antenna assembly<br>• Display and navigation module display |
| B15C1 | Error of the power source to the navigation antenna assembly | |

### INSPECTION PROCEDURE

**1.CHECK CONNECTION OF ANTENNA CABLE**

a. Check if the navigation antenna cable is securely connected to the display and navigation module display.

**OK:**
**Navigation antenna cable is securely connected.**

NG → **SECURELY CONNECT NAVIGATION ANTENNA CABLE**

OK ↓

**2.REPLACE NAVIGATION ANTENNA ASSEMBLY**

a. Replace the navigation antenna assembly with a known good one and recheck for DTCs ( Click here).

i. Clear the DTCs (Click here).

ii. Recheck for DTCs.

**OK:**
**No DTCs are output.**

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK ↓

**END**

## DTC B156B Multi-media Interface ECU Disconnected

## DTC B156E No Response from Multi-media Interface ECU

**for Preparation** Click here

### DESCRIPTION

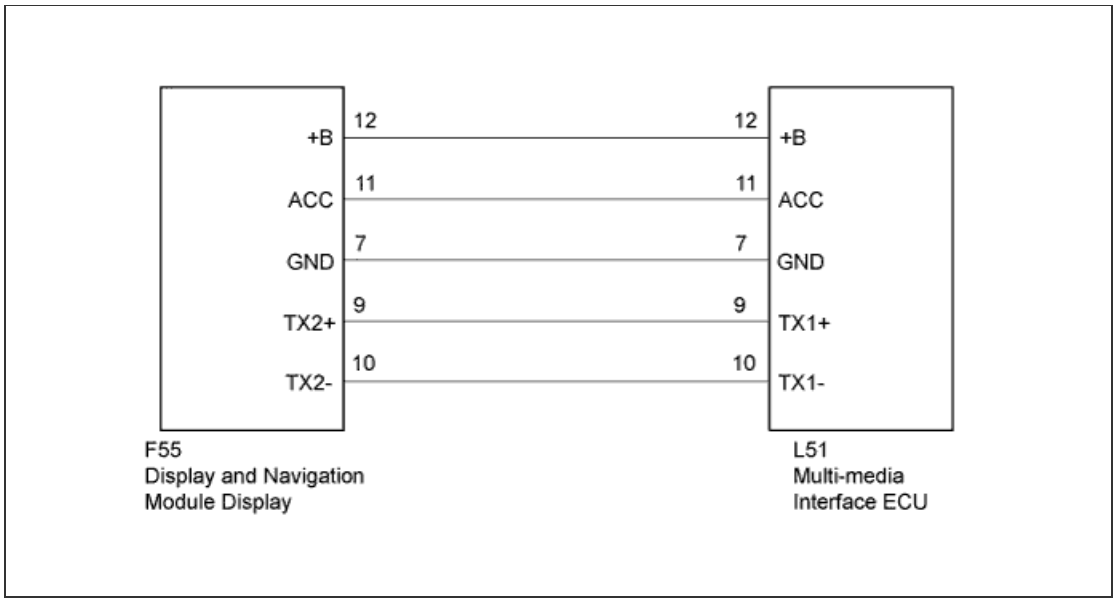
The display and navigation module display and multi-media interface ECU are connected by the AVC-LAN communication line.
When an AVC-LAN communication error occurs between the display and navigation module display and the multi-media interface ECU, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B156B*1 | When either condition below is met:<br>• Multi-media interface ECU is/was not connected while the engine switch is on (ON or ACC).<br>• Communication between the master unit and multi-media interface ECU is not possible when the engine is started. | • Multi-media interface ECU power source circuit<br>• AVC-LAN circuit between display and navigation module display and multi-media interface ECU<br>• Multi-media interface ECU<br>• Display and navigation module display |
| B156E | Within the time-out period, there was no response from the display and navigation module display to the following requests from the master unit:<br>• System inspection request<br>• System inspection result request<br>• Diagnostic memory request | |

**HINT:**

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

### WIRING DIAGRAM




### INSPECTION PROCEDURE

#### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| | |

| | |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect AVC-LAN communication.**
- **This DTC may be stored when an AVC-LAN communication error occurs due to electrical noise.**

**B** → **Go to step 3**

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

**NG** → **Go to step 4**

**OK**

**END**

## 4.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU POWER SOURCE)

a. Disconnect the L51 multi-media interface ECU connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

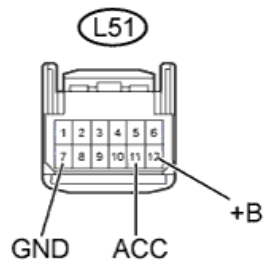
| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-7 (GND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-12 (+B) - L51-7 (GND) | Always | 11 to 14 V |
| L51-11 (ACC) - L51-7 (GND) | Engine switch on (ACC) | 11 to 14 V |

*1




**Text in Illustration**

| | |
|---|---|
| | Front view of wire harness connector |

| | |
|---|---|
| *1 | (to Multi-media Interface ECU) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

**5.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU - DISPLAY AND NAVIGATION MODULE)**

a. Disconnect the L51 multi-media interface ECU connector.

b. Disconnect the F55 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-9 (TX1+) - F55-9 (TX2+) | Always | Below 1 Ω |
| L51-10 (TX1-) - F55-10 (TX2-) | Always | Below 1 Ω |
| L51-9 (TX1+) - Body ground | Always | 10 kΩ or higher |
| L51-10 (TX1-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

**6.REPLACE MULTI-MEDIA INTERFACE ECU**

a. Replace the multi-media interface ECU (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK ↓

**END**

## DTC B15C0 Short in GPS Antenna

## DTC B15C1 Open in GPS Antenna

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the navigation antenna assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15C0 | Navigation antenna assembly error | • Wire harness<br>• Navigation antenna assembly<br>• Display and navigation module display |
| B15C1 | Error of the power source to the navigation antenna assembly | |

### INSPECTION PROCEDURE

**1.CHECK CONNECTION OF ANTENNA CABLE**

a. Check if the navigation antenna cable is securely connected to the display and navigation module display.

**OK:**
**Navigation antenna cable is securely connected.**

NG → **SECURELY CONNECT NAVIGATION ANTENNA CABLE**

OK ↓

**2.REPLACE NAVIGATION ANTENNA ASSEMBLY**

a. Replace the navigation antenna assembly with a known good one and recheck for DTCs ( Click here).

i. Clear the DTCs (Click here).

ii. Recheck for DTCs.

**OK:**
**No DTCs are output.**

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK ↓

**END**

## DTC B156B Multi-media Interface ECU Disconnected

## DTC B156E No Response from Multi-media Interface ECU

**for Preparation** Click here

### DESCRIPTION

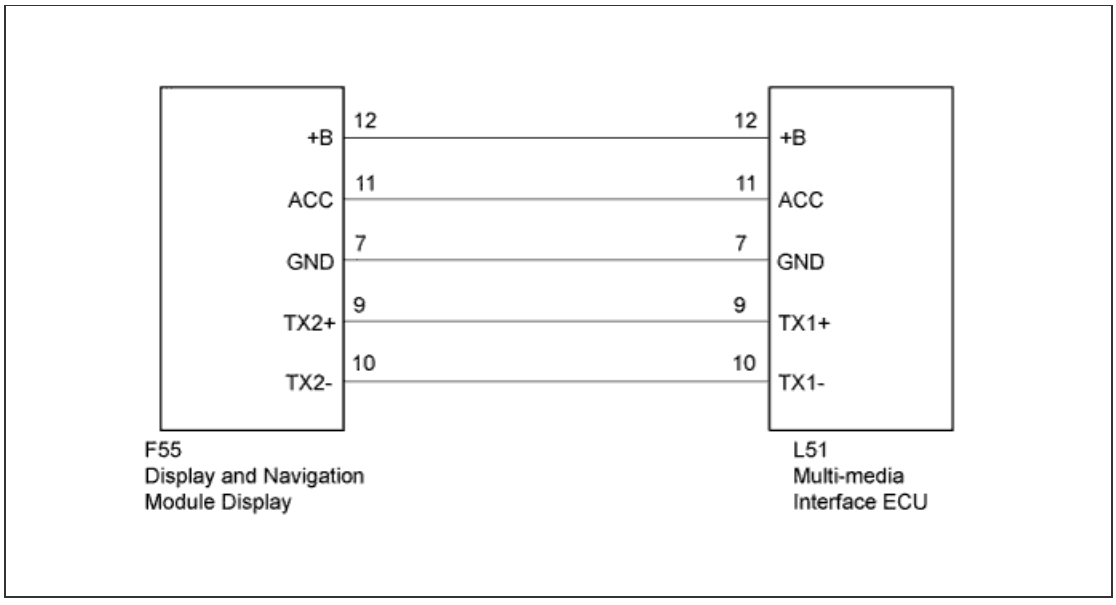
The display and navigation module display and multi-media interface ECU are connected by the AVC-LAN communication line.
When an AVC-LAN communication error occurs between the display and navigation module display and the multi-media interface ECU, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B156B*1 | When either condition below is met:<br>• Multi-media interface ECU is/was not connected while the engine switch is on (ON or ACC).<br>• Communication between the master unit and multi-media interface ECU is not possible when the engine is started. | • Multi-media interface ECU power source circuit<br>• AVC-LAN circuit between display and navigation module display and multi-media interface ECU<br>• Multi-media interface ECU<br>• Display and navigation module display |
| B156E | Within the time-out period, there was no response from the display and navigation module display to the following requests from the master unit:<br>• System inspection request<br>• System inspection result request<br>• Diagnostic memory request | |

**HINT:**

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

### WIRING DIAGRAM




### INSPECTION PROCEDURE

#### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| | |

| | |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect AVC-LAN communication.**
- **This DTC may be stored when an AVC-LAN communication error occurs due to electrical noise.**

**B** → **Go to step 3**

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

**NG** → **Go to step 4**

**OK**

**END**

## 4.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU POWER SOURCE)

a. Disconnect the L51 multi-media interface ECU connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

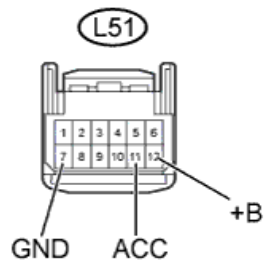
| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-7 (GND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-12 (+B) - L51-7 (GND) | Always | 11 to 14 V |
| L51-11 (ACC) - L51-7 (GND) | Engine switch on (ACC) | 11 to 14 V |

*1




**Text in Illustration**

| | |
|---|---|
| | Front view of wire harness connector |

| | |
|---|---|
| *1 | (to Multi-media Interface ECU) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

**5.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU - DISPLAY AND NAVIGATION MODULE)**

a. Disconnect the L51 multi-media interface ECU connector.

b. Disconnect the F55 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-9 (TX1+) - F55-9 (TX2+) | Always | Below 1 Ω |
| L51-10 (TX1-) - F55-10 (TX2-) | Always | Below 1 Ω |
| L51-9 (TX1+) - Body ground | Always | 10 kΩ or higher |
| L51-10 (TX1-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

**6.REPLACE MULTI-MEDIA INTERFACE ECU**

a. Replace the multi-media interface ECU (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK ↓

**END**

## DTC B15C0 Short in GPS Antenna

## DTC B15C1 Open in GPS Antenna

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the navigation antenna assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15C0 | Navigation antenna assembly error | • Wire harness<br>• Navigation antenna assembly<br>• Display and navigation module display |
| B15C1 | Error of the power source to the navigation antenna assembly | |

### INSPECTION PROCEDURE

**1.CHECK CONNECTION OF ANTENNA CABLE**

a. Check if the navigation antenna cable is securely connected to the display and navigation module display.

**OK:**
**Navigation antenna cable is securely connected.**

NG → **SECURELY CONNECT NAVIGATION ANTENNA CABLE**

OK ↓

**2.REPLACE NAVIGATION ANTENNA ASSEMBLY**

a. Replace the navigation antenna assembly with a known good one and recheck for DTCs ( Click here).

i. Clear the DTCs (Click here).

ii. Recheck for DTCs.

**OK:**
**No DTCs are output.**

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK ↓

**END**

# DTC B1582 Map Disk Reading Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when the navigation module board cannot read the map disc.

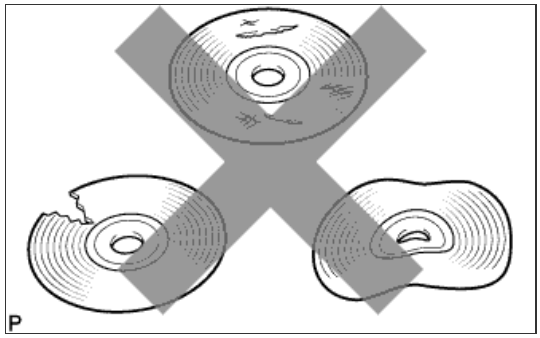
| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1582 | • Player error<br>• Scratches or dirt on the disc<br>• Access to an invalid address due to software error | • Map disc<br>• Navigation module board |

## INSPECTION PROCEDURE

### 1.CHECK MAP DISC

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on the map disc**




NG → REPLACE MAP DISC

OK

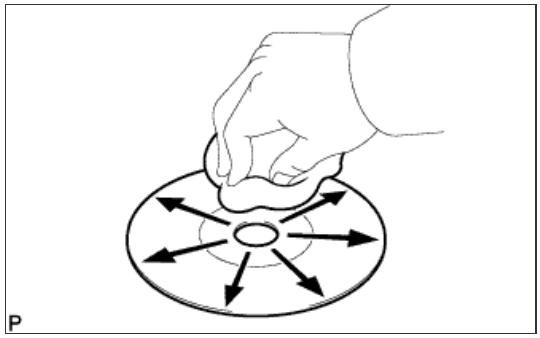
### 2.DISC CLEANING

a. Disc cleaning

i. If dirt is on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

**NOTICE:**

Do not use a conventional record cleaner or anti-static preservative.




NEXT

### 3.CHECK DTC

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

NG → REPLACE NAVIGATION MODULE BOARD

OK

USE SIMULATION METHOD TO CHECK (Click here)

## DTC B15C0 Short in GPS Antenna

## DTC B15C1 Open in GPS Antenna

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the navigation antenna assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15C0 | Navigation antenna assembly error | • Wire harness<br>• Navigation antenna assembly<br>• Display and navigation module display |
| B15C1 | Error of the power source to the navigation antenna assembly | |

### INSPECTION PROCEDURE

**1.CHECK CONNECTION OF ANTENNA CABLE**

a. Check if the navigation antenna cable is securely connected to the display and navigation module display.

**OK:**
**Navigation antenna cable is securely connected.**

NG → **SECURELY CONNECT NAVIGATION ANTENNA CABLE**

OK ↓

**2.REPLACE NAVIGATION ANTENNA ASSEMBLY**

a. Replace the navigation antenna assembly with a known good one and recheck for DTCs ( Click here).

i. Clear the DTCs (Click here).

ii. Recheck for DTCs.

**OK:**
**No DTCs are output.**

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK ↓

**END**

# DTC B1582 Map Disk Reading Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when the navigation module board cannot read the map disc.

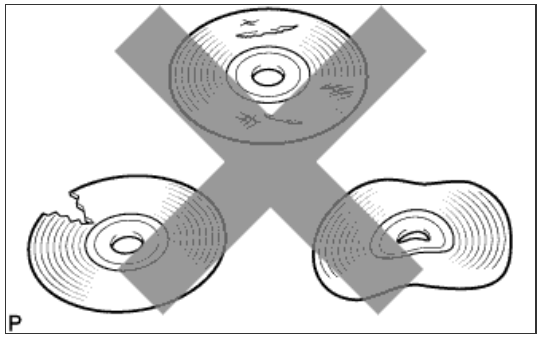
| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1582 | • Player error<br>• Scratches or dirt on the disc<br>• Access to an invalid address due to software error | • Map disc<br>• Navigation module board |

## INSPECTION PROCEDURE

### 1.CHECK MAP DISC

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on the map disc**




NG → REPLACE MAP DISC

OK

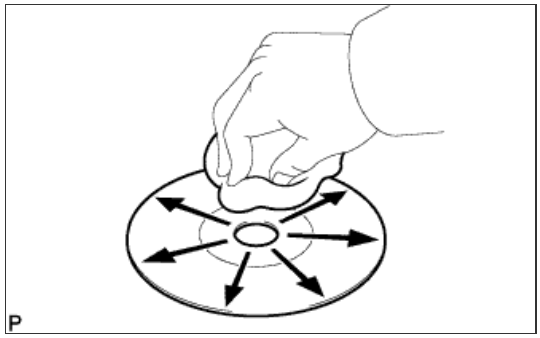
### 2.DISC CLEANING

a. Disc cleaning

i. If dirt is on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

**NOTICE:**

Do not use a conventional record cleaner or anti-static preservative.




NEXT

### 3.CHECK DTC

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

NG → REPLACE NAVIGATION MODULE BOARD

OK

USE SIMULATION METHOD TO CHECK (Click here)

## DTC B15C2 Speed Signal Malfunction

**for Preparation** Click here

### DESCRIPTION

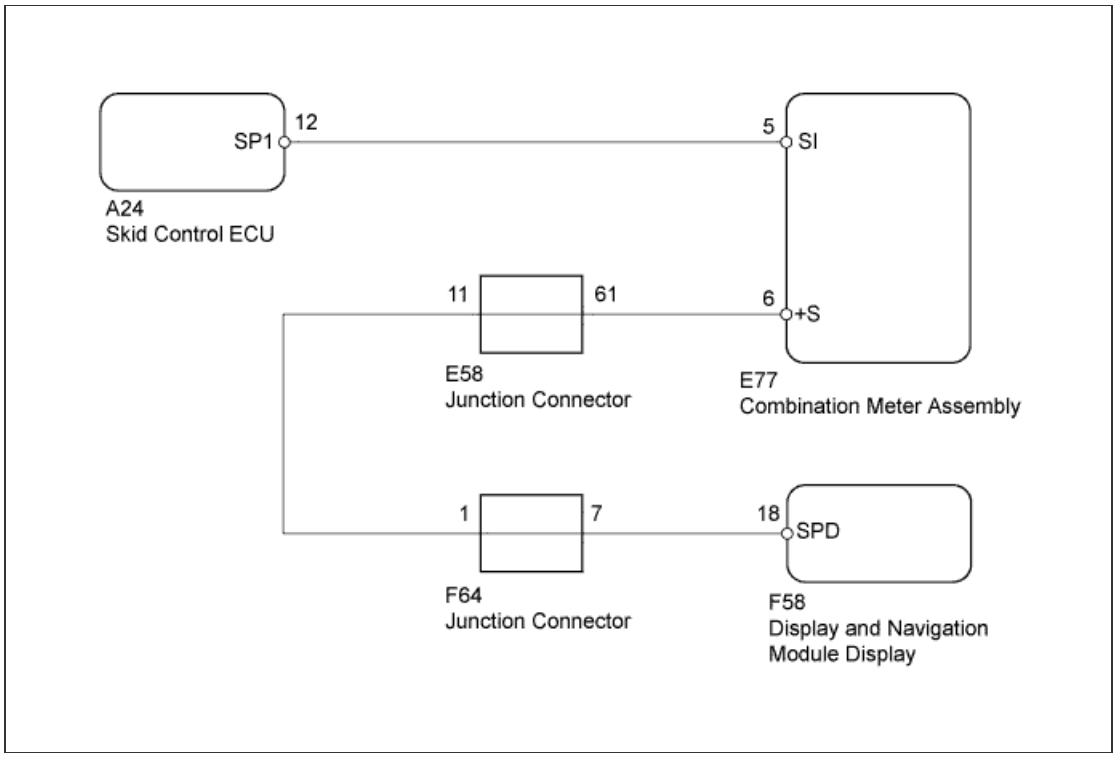
The display and navigation module display receives a vehicle speed signal from the combination meter assembly and information about the GPS antenna, and then adjusts vehicle position.
The display and navigation module display stores this DTC when the difference between the speed information that the GPS antenna receives and the SPD pulse received from the combination meter assembly becomes large.

**HINT:**

- **A voltage of 12 V or 5 V is output from each ECU and then input to the combination meter assembly. The signal is changed to a pulse signal at the transistor in the combination meter assembly. Each ECU controls the respective systems based on the pulse signal.**
- **If a short occurs in any of the ECUs or in the wire harness connected to an ECU, all systems in the diagram below will not operate normally.**

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15C2 | A difference between the GPS speed and SPD pulse is detected. | • Combination meter assembly<br>• Wire harness or connector<br>• Display and navigation module display |

### WIRING DIAGRAM



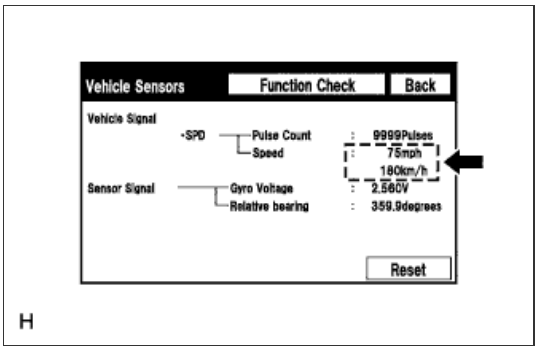

### INSPECTION PROCEDURE

**1.CHECK VEHICLE SENSOR (OPERATION CHECK)**

a. Enter the "Vehicle Sensors" screen. Refer to check GPS & Vehicle Sensors in Operation Check (Click here).

b. While driving the vehicle, compare the "SPD" indicator to the reading on the speedometer. Check if these readings are almost equal.

**OK:**
**The readings are almost equal.**




NG → Go to step 2

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

2.INSPECT COMBINATION METER ASSEMBLY (OUTPUT WAVEFORM)

a. Check the input waveform.

i. Remove the combination meter assembly with the connector(s) still connected.

ii. Connect an oscilloscope to terminal E77-6 (+S) and body ground.

iii. Turn the engine switch on (IG).

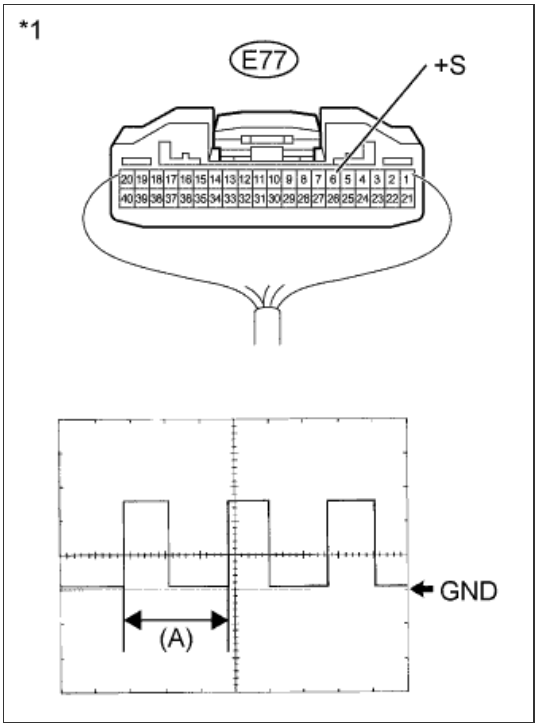
iv. Turn the wheel slowly.

v. Check the signal waveform according to the condition(s) in the table below.

| Item | Condition |
|---|---|
| Measurement terminal | E77-6 (+S) - Body ground |
| Tool setting | 5 V/DIV., 20 ms./DIV. |
| Vehicle condition | Driving at approx. 20 km/h (12 mph) |

**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Combination Meter Assembly) |




**OK:**

**The waveform is displayed as shown in the illustration.**

**HINT:**

When the system is functioning normally, one wheel revolution generates 4 pulses. As the vehicle speed increases, the width indicated by (A) in the illustration narrows.

NG → GO TO METER / GAUGE SYSTEM (Click here)

OK

3.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - COMBINATION METER)

a. Disconnect the F58 display and navigation module display connector.

b. Disconnect the E77 combination meter assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-18 (SPD) - E77-6 (+S) | Always | Below 1 Ω |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

## DTC B1591 No Response from Audio HU

## DTC B15D1 Audio HU Disconnected

**for Preparation** Click here

### DESCRIPTION

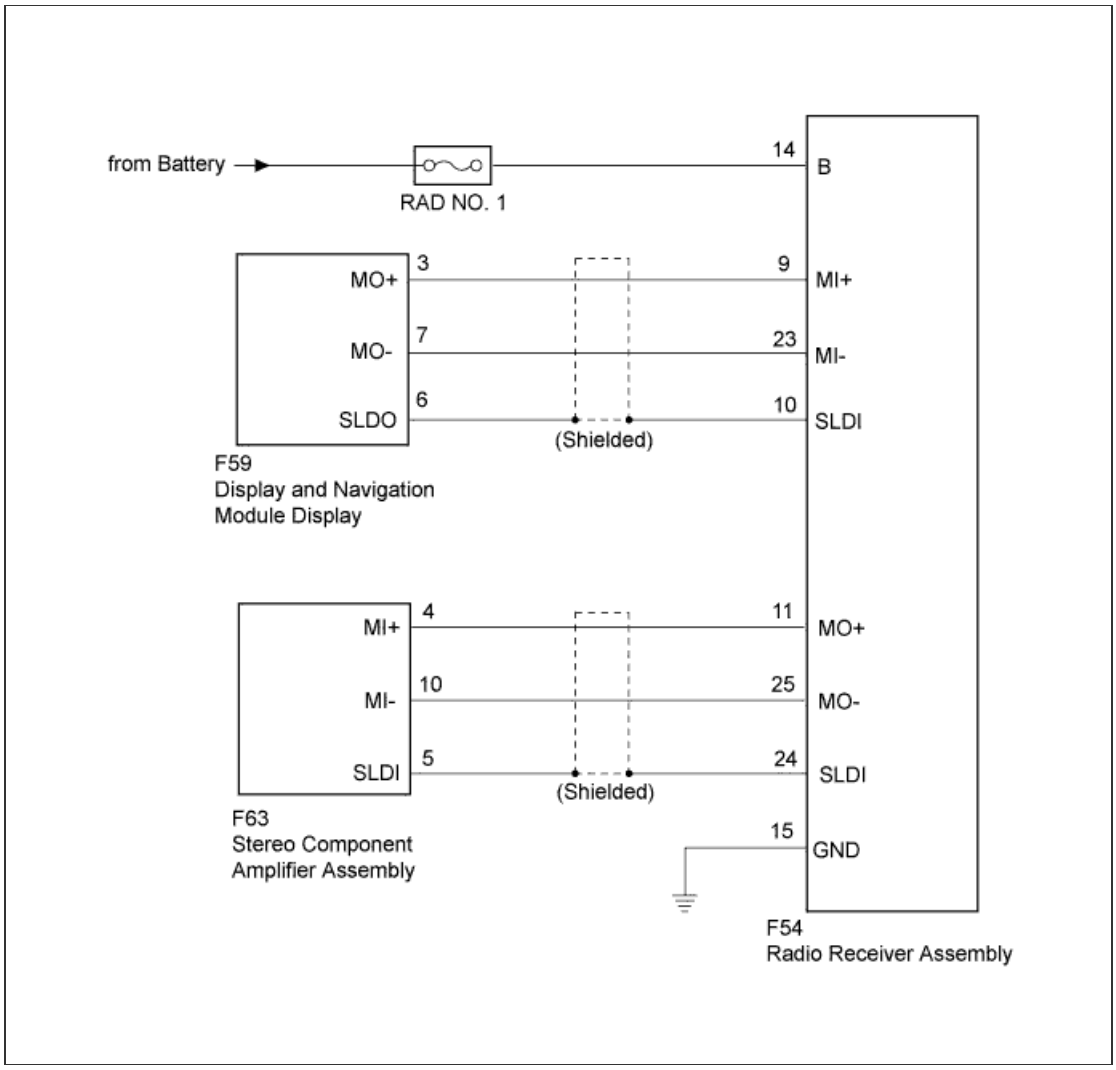
The display and navigation module display and radio receiver assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and the radio receiver assembly, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1591 | Within the time-out period, there was no response from the radio receiver assembly to the following requests from the master unit:<br>• System inspection request<br>• System inspection result request<br>• Diagnostic memory request | • Radio receiver assembly power source circuit<br>• MOST circuit between display and navigation module display and radio receiver assembly<br>• MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>• Radio receiver assembly<br>• Display and navigation module display |
| B15D1*1 | When either of the conditions below is met:<br>• Radio receiver assembly is/was not connected while the engine switch is on (IG or ACC).<br>• Communication between the master unit and the radio receiver assembly is not possible when the engine is started. | |

**HINT:**

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

### WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

**B** → Go to step 3

**A**

### 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

### 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → Go to step 4

OK

END

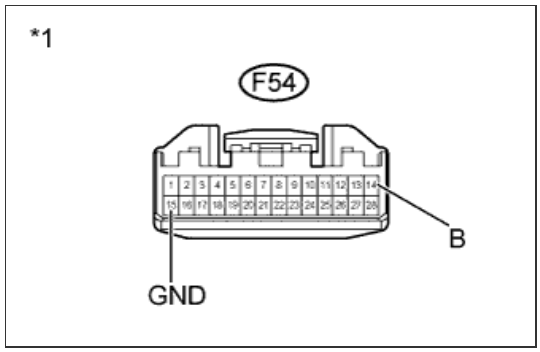
### 4.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY POWER SOURCE)

a. Disconnect the F54 radio receiver assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-15 (GND) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-14 (B) - F54-15 (GND) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Radio Receiver Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 5.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - RADIO RECEIVER)

a. Disconnect the F59 display and navigation module display connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F59-3 (MO+) - F54-9 (MI+) | Always | Below 1 Ω |
| F59-7 (MO-) - F54-23 (MI-) | Always | Below 1 Ω |

| | | |
|---|---|---|
| F59-6 (SLDO) - F54-10 (SLDI) | Always | Below 1 Ω |
| F59-3 (MO+) - Body ground | Always | 10 kΩ or higher |
| F59-7 (MO-) - Body ground | Always | 10 kΩ or higher |
| F59-6 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**6.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - STEREO COMPONENT AMPLIFIER)**

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-11 (MO+) - F63-4 (MI+) | Always | Below 1 Ω |
| F54-25 (MO-) - F63-10 (MI-) | Always | Below 1 Ω |
| F54-24 (SLDI) - F63-5 (SLDI) | Always | Below 1 Ω |
| F54-11 (MO+) - Body ground | Always | 10 kΩ or higher |
| F54-25 (MO-) - Body ground | Always | 10 kΩ or higher |
| F54-24 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**7.REPLACE RADIO RECEIVER ASSEMBLY**

a. Replace the radio receiver assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**END**

## DTC B15C2 Speed Signal Malfunction

**for Preparation** Click here

### DESCRIPTION

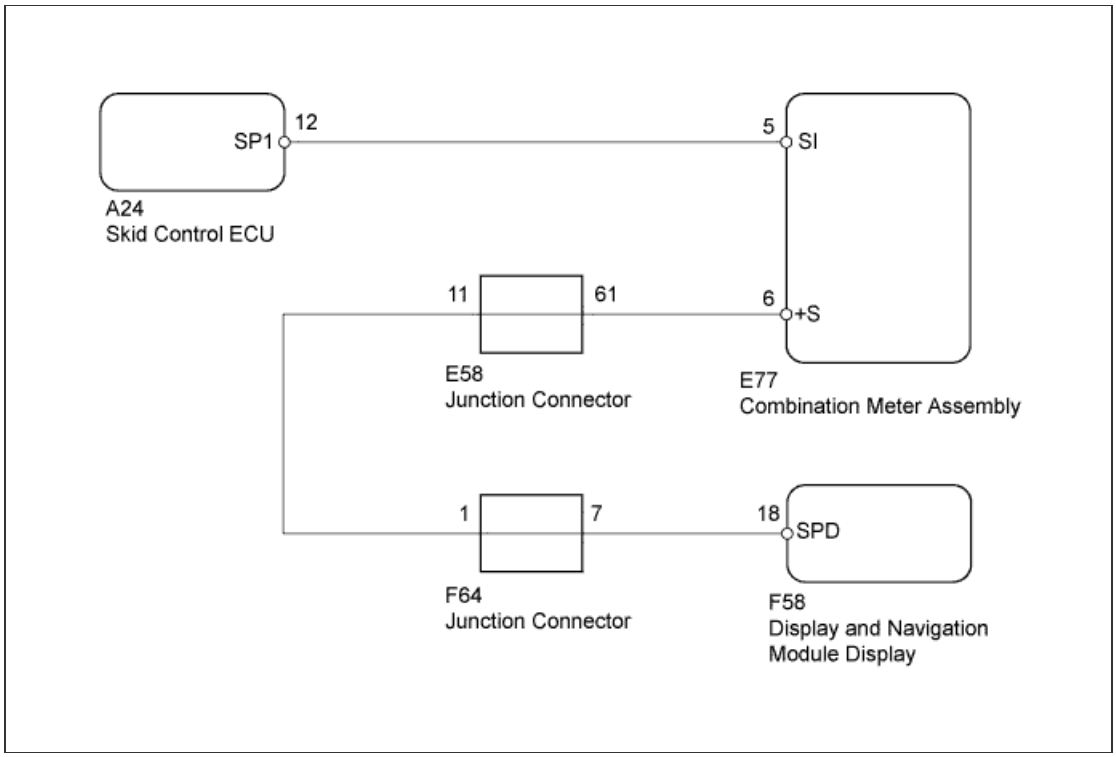
The display and navigation module display receives a vehicle speed signal from the combination meter assembly and information about the GPS antenna, and then adjusts vehicle position.
The display and navigation module display stores this DTC when the difference between the speed information that the GPS antenna receives and the SPD pulse received from the combination meter assembly becomes large.

**HINT:**

- **A voltage of 12 V or 5 V is output from each ECU and then input to the combination meter assembly. The signal is changed to a pulse signal at the transistor in the combination meter assembly. Each ECU controls the respective systems based on the pulse signal.**
- **If a short occurs in any of the ECUs or in the wire harness connected to an ECU, all systems in the diagram below will not operate normally.**

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15C2 | A difference between the GPS speed and SPD pulse is detected. | • Combination meter assembly<br>• Wire harness or connector<br>• Display and navigation module display |

### WIRING DIAGRAM



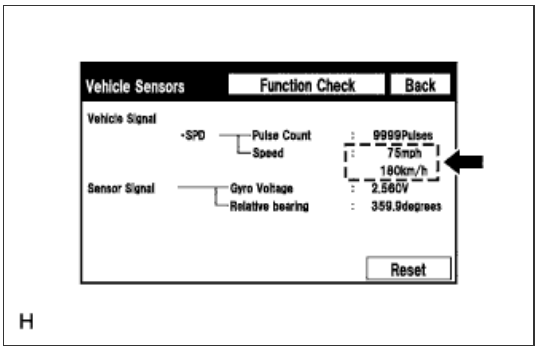

### INSPECTION PROCEDURE

**1.CHECK VEHICLE SENSOR (OPERATION CHECK)**

a. Enter the "Vehicle Sensors" screen. Refer to check GPS & Vehicle Sensors in Operation Check (Click here).

b. While driving the vehicle, compare the "SPD" indicator to the reading on the speedometer. Check if these readings are almost equal.

**OK:**
**The readings are almost equal.**




NG → Go to step 2

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

2.INSPECT COMBINATION METER ASSEMBLY (OUTPUT WAVEFORM)

a. Check the input waveform.

i. Remove the combination meter assembly with the connector(s) still connected.

ii. Connect an oscilloscope to terminal E77-6 (+S) and body ground.

iii. Turn the engine switch on (IG).

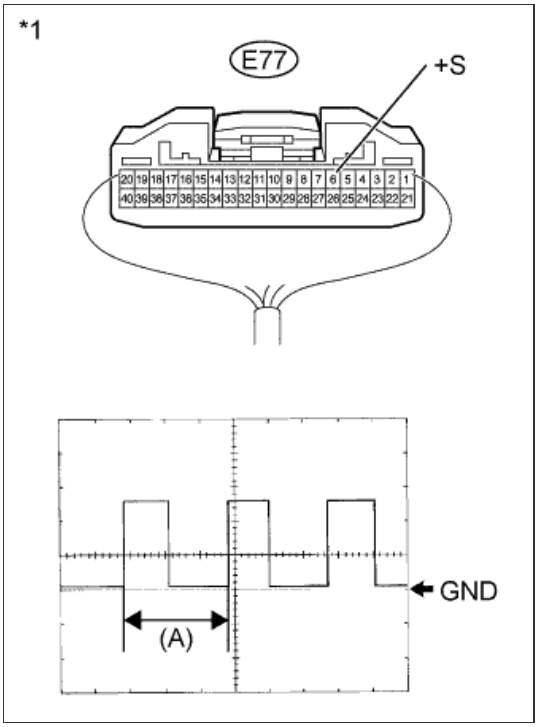
iv. Turn the wheel slowly.

v. Check the signal waveform according to the condition(s) in the table below.

| Item | Condition |
|---|---|
| Measurement terminal | E77-6 (+S) - Body ground |
| Tool setting | 5 V/DIV., 20 ms./DIV. |
| Vehicle condition | Driving at approx. 20 km/h (12 mph) |

**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Combination Meter Assembly) |




**OK:**

**The waveform is displayed as shown in the illustration.**

**HINT:**

When the system is functioning normally, one wheel revolution generates 4 pulses. As the vehicle speed increases, the width indicated by (A) in the illustration narrows.

NG → GO TO METER / GAUGE SYSTEM (Click here)

OK

3.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - COMBINATION METER)

a. Disconnect the F58 display and navigation module display connector.

b. Disconnect the E77 combination meter assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-18 (SPD) - E77-6 (+S) | Always | Below 1 Ω |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

## DTC B1591 No Response from Audio HU

## DTC B15D1 Audio HU Disconnected

**for Preparation** Click here

### DESCRIPTION

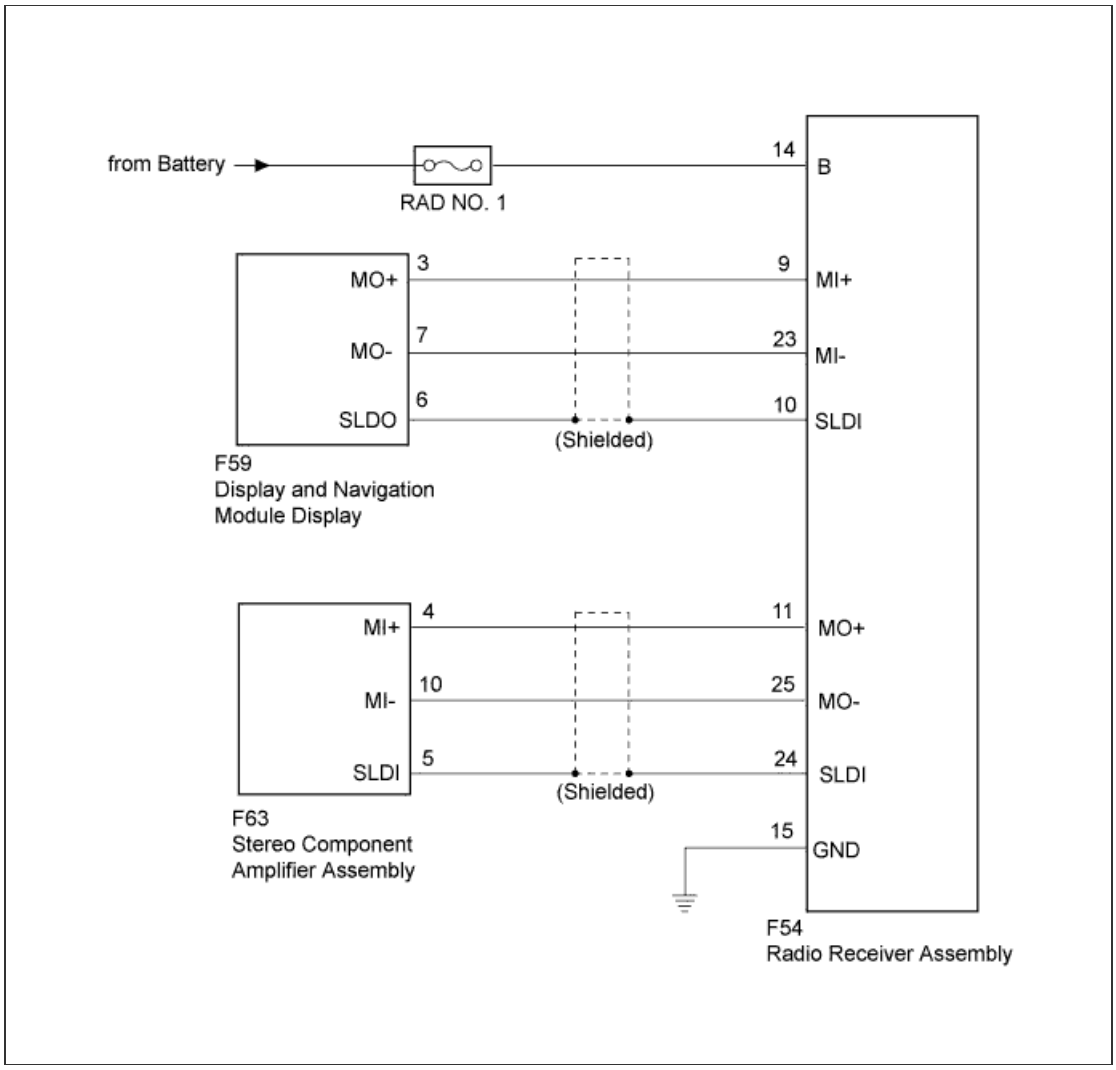
The display and navigation module display and radio receiver assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and the radio receiver assembly, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1591 | Within the time-out period, there was no response from the radio receiver assembly to the following requests from the master unit:<br>• System inspection request<br>• System inspection result request<br>• Diagnostic memory request | • Radio receiver assembly power source circuit<br>• MOST circuit between display and navigation module display and radio receiver assembly<br>• MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>• Radio receiver assembly<br>• Display and navigation module display |
| B15D1*1 | When either of the conditions below is met:<br>• Radio receiver assembly is/was not connected while the engine switch is on (IG or ACC).<br>• Communication between the master unit and the radio receiver assembly is not possible when the engine is started. | |

**HINT:**

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

### WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

**B** → Go to step 3

**A**

### 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

### 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → Go to step 4

OK

END

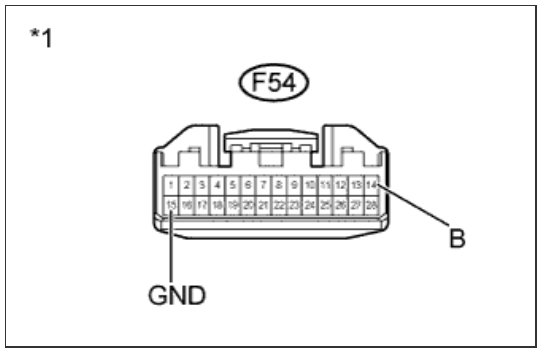
### 4.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY POWER SOURCE)

a. Disconnect the F54 radio receiver assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-15 (GND) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-14 (B) - F54-15 (GND) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Radio Receiver Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 5.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - RADIO RECEIVER)

a. Disconnect the F59 display and navigation module display connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F59-3 (MO+) - F54-9 (MI+) | Always | Below 1 Ω |
| F59-7 (MO-) - F54-23 (MI-) | Always | Below 1 Ω |

| | | |
|---|---|---|
| F59-6 (SLDO) - F54-10 (SLDI) | Always | Below 1 Ω |
| F59-3 (MO+) - Body ground | Always | 10 kΩ or higher |
| F59-7 (MO-) - Body ground | Always | 10 kΩ or higher |
| F59-6 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**6.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - STEREO COMPONENT AMPLIFIER)**

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-11 (MO+) - F63-4 (MI+) | Always | Below 1 Ω |
| F54-25 (MO-) - F63-10 (MI-) | Always | Below 1 Ω |
| F54-24 (SLDI) - F63-5 (SLDI) | Always | Below 1 Ω |
| F54-11 (MO+) - Body ground | Always | 10 kΩ or higher |
| F54-25 (MO-) - Body ground | Always | 10 kΩ or higher |
| F54-24 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**7.REPLACE RADIO RECEIVER ASSEMBLY**

a. Replace the radio receiver assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**END**

# DTC B15D0 MOST Communication Malfunction

**for Preparation** Click here

## DESCRIPTION

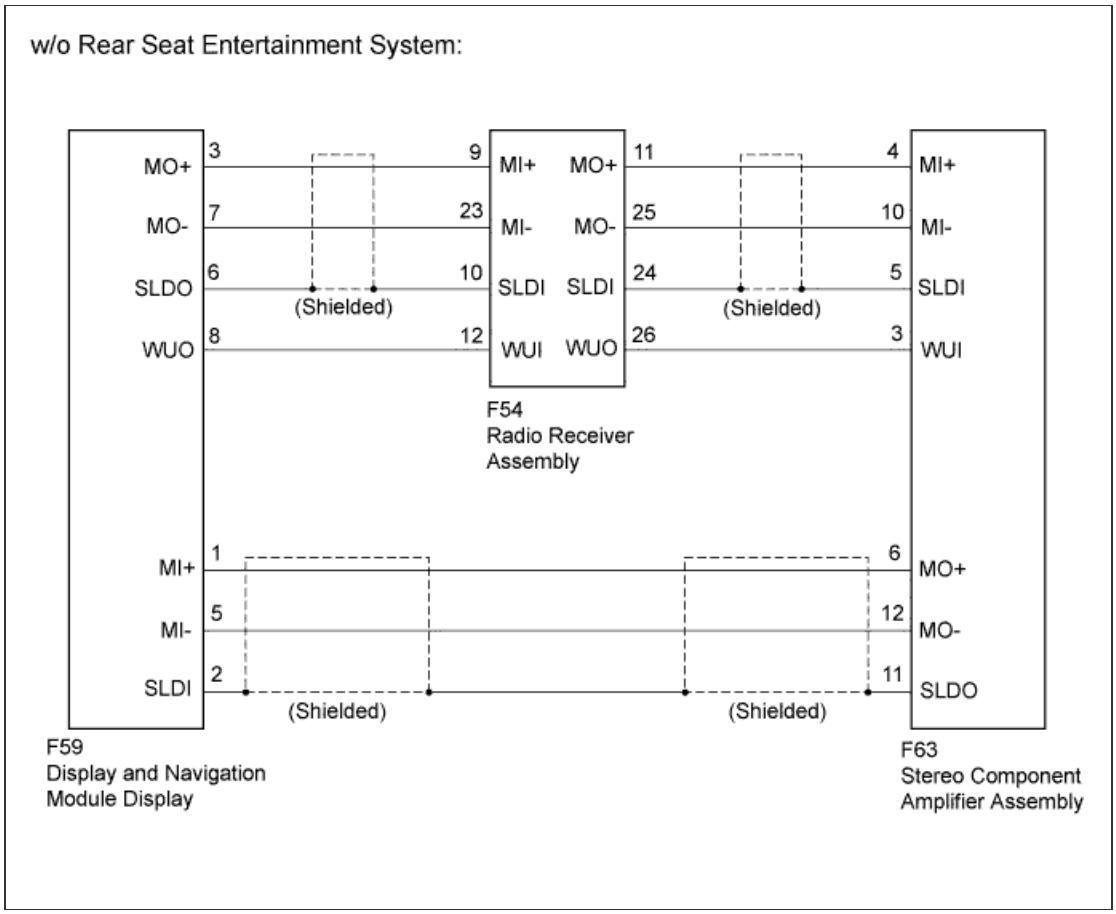
This DTC is stored when the MOST network cannot be established after the master unit is activated.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15D0 | MOST network cannot be established. | • MOST line check<br>• MOST communication line connector<br>• Wire harness or connector<br>• MOST communication line<br>• Radio receiver assembly<br>• Stereo component amplifier assembly<br>• Television display assembly (w/ Rear Seat Entertainment System)<br>• Display and navigation module display |

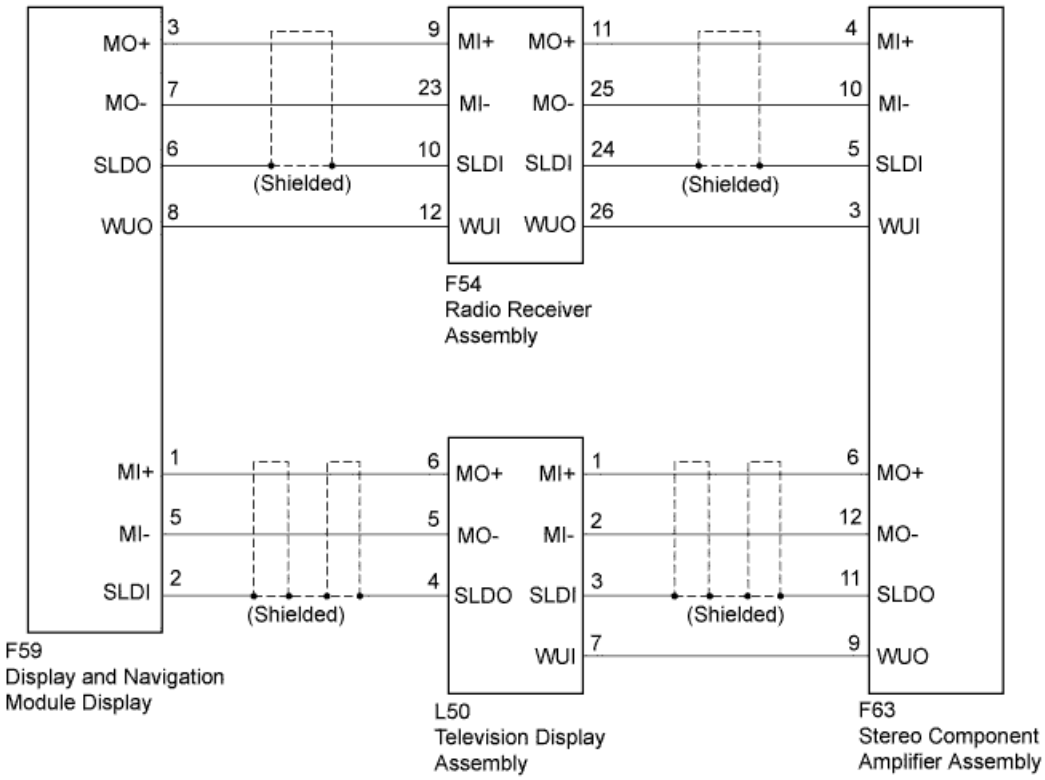
**HINT:**

- **For the MOST network, the display and navigation module display is the master unit.**
- **Errors may occur in MOST communication between devices due to problems such as electrical noise.**

## WIRING DIAGRAM



w/ Rear Seat Entertainment System:

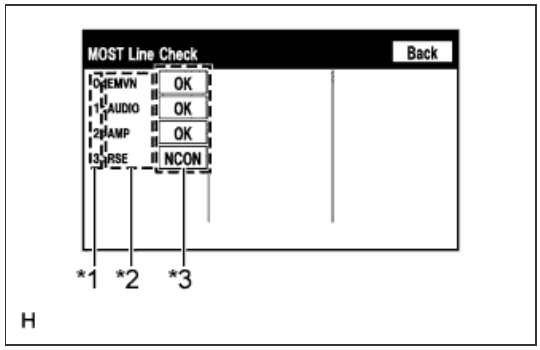



## INSPECTION PROCEDURE

### 1.PERFORM MOST LINE CHECK

a. Display the "MOST Line Check" screen ( Click here).

b. Check the result on the "MOST Line Check" screen.




**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "AUDIO". | A |
| "NCON" is displayed for "AMP". | B |
| "NCON" is displayed for "RSE" (w/ rear seat entertainment system). | C |
| "OK" is displayed for all items. | D |

**HINT:**

- **When "NCON" is displayed for more than 1 item, proceed to the step for the device that has the smallest node position number.**
- **The "MOST Line Check" screen can be displayed only when DTC B15D0 is stored.**

**Text in Illustration**

| | |
|---|---|
| *1 | Node position number for devices that use MOST communication |
| *2 | Device name |
| *3 | Result |

| | |
|---|---|
| B | Go to step 5 |
| | |

| | |
|---|---|
| C | Go to step 8 |
| D | Go to step 11 |

A

## 2.CHECK MOST COMMUNICATION CONNECTOR

a. Check MOST communication line connector.

i. Check if a MOST communication line connector between the display and navigation module display and radio receiver assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "AUDIO". | A |
| The screen cannot be changed to the "MOST Line Check" screen. | B |

**HINT:**

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

| | |
|---|---|
| B | END |

A

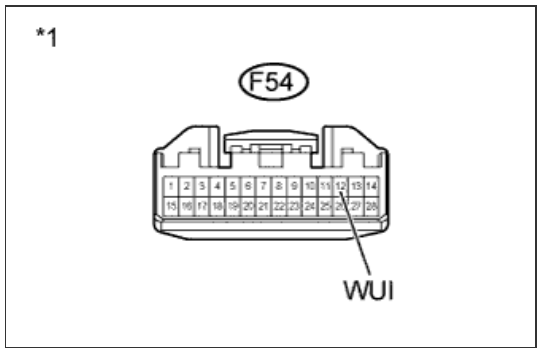
## 3.CHECK HARNESS AND CONNECTOR (WAKE UP SIGNAL)

a. Disconnect the F54 radio receiver assembly connector.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-12 (WUI) - Body ground | Engine switch on (ACC) | 4.5 V or higher |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Radio Receiver Assembly) |

| | |
|---|---|
| NG | Go to step 4 |

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

## 4.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-12 (WUI) - F59-8 (WUO) | Always | Below 1 Ω |
| | | |

| | | |
|---|---|---|
| F54-12 (WUI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

## 5.CHECK MOST COMMUNICATION CONNECTOR

a. Check MOST communication line connector.

i. Check if a MOST communication line connector between the radio receiver assembly and stereo component amplifier assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "AMP". | A |
| The screen cannot be changed to the "MOST Line Check" screen. | B |

**HINT:**

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

B → END

A

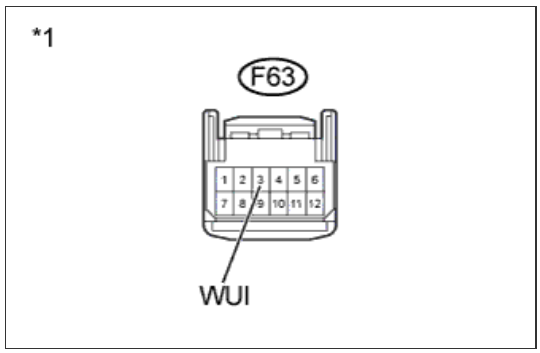
## 6.CHECK HARNESS AND CONNECTOR (WAKE UP SIGNAL)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-3 (WUI) - Body ground | Engine switch on (ACC) | 4.5 V or higher |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |

NG → Go to step 7

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 7.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - RADIO RECEIVER)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified |
|---|---|---|

| | | Condition |
|---|---|---|
| F63-3 (WUI) - F54-26 (WUO) | Always | Below 1 Ω |
| F63-3 (WUI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

## 8.CHECK MOST COMMUNICATION CONNECTOR

a. Check MOST communication line connector.

i. Check if a MOST communication line connector between the stereo component amplifier assembly and television display assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "RSE". | A |
| The screen cannot be changed to the "MOST Line Check" screen. | B |

**HINT:**

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

B → END

A

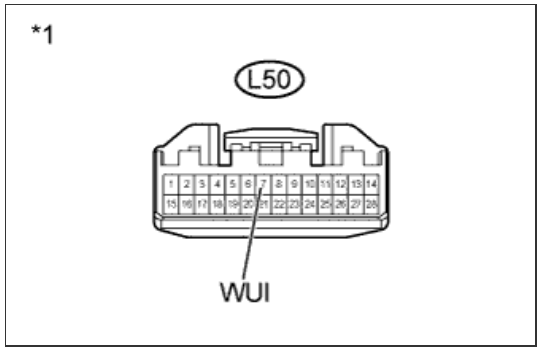
## 9.CHECK HARNESS AND CONNECTOR (WAKE UP SIGNAL)

a. Disconnect the L50 television display assembly connector.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-7 (WUI) - Body ground | Engine switch on (ACC) | 4.5 V or higher |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Television Display Assembly) |

NG → Go to step 10

OK

REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

## 10.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - STEREO COMPONENT AMPLIFIER)

a. Disconnect the L50 television display assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-7 (WUI) - F63-9 (WUO) | Always | Below 1 Ω |
| L50-7 (WUI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

11.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - RADIO RECEIVER)

a. Disconnect the F59 display and navigation module display connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F59-3 (MO+) - F54-9 (MI+) | Always | Below 1 Ω |
| F59-7 (MO-) - F54-23 (MI-) | Always | Below 1 Ω |
| F59-6 (SLDO) - F54-10 (SLDI) | Always | Below 1 Ω |
| F59-3 (MO+) - Body ground | Always | 10 kΩ or higher |
| F59-7 (MO-) - Body ground | Always | 10 kΩ or higher |
| F59-6 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

12.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - STEREO COMPONENT AMPLIFIER)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-11 (MO+) - F63-4 (MI+) | Always | Below 1 Ω |
| F54-25 (MO-) - F63-10 (MI-) | Always | Below 1 Ω |
| F54-24 (SLDI) - F63-5 (SLDI) | Always | Below 1 Ω |
| F54-11 (MO+) - Body ground | Always | 10 kΩ or higher |
| F54-25 (MO-) - Body ground | Always | 10 kΩ or higher |
| F54-24 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

13.CONFIRM MODEL

a. Choose the model to be inspected.

**Result**

| Result | Proceed to |
|---|---|
| w/o Rear Seat Entertainment System | A |
| w/ Rear Seat Entertainment System | B |

B → Go to step 16

A

14.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

15.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

USE SIMULATION METHOD TO CHECK (Click here)

16.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - TELEVISION DISPLAY)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the L50 television display assembly.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - L50-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - L50-2 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - L50-3 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**17.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - DISPLAY AND NAVIGATION MODULE DISPLAY)**

a. Disconnect the L50 television display assembly.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| L50-5 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| L50-4 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| L50-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| L50-5 (MO-) - Body ground | Always | 10 kΩ or higher |
| L50-4 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**18.CHECK DTC**

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

USE SIMULATION METHOD TO CHECK (Click here)

## DTC B1591 No Response from Audio HU

## DTC B15D1 Audio HU Disconnected

**for Preparation** Click here

### DESCRIPTION

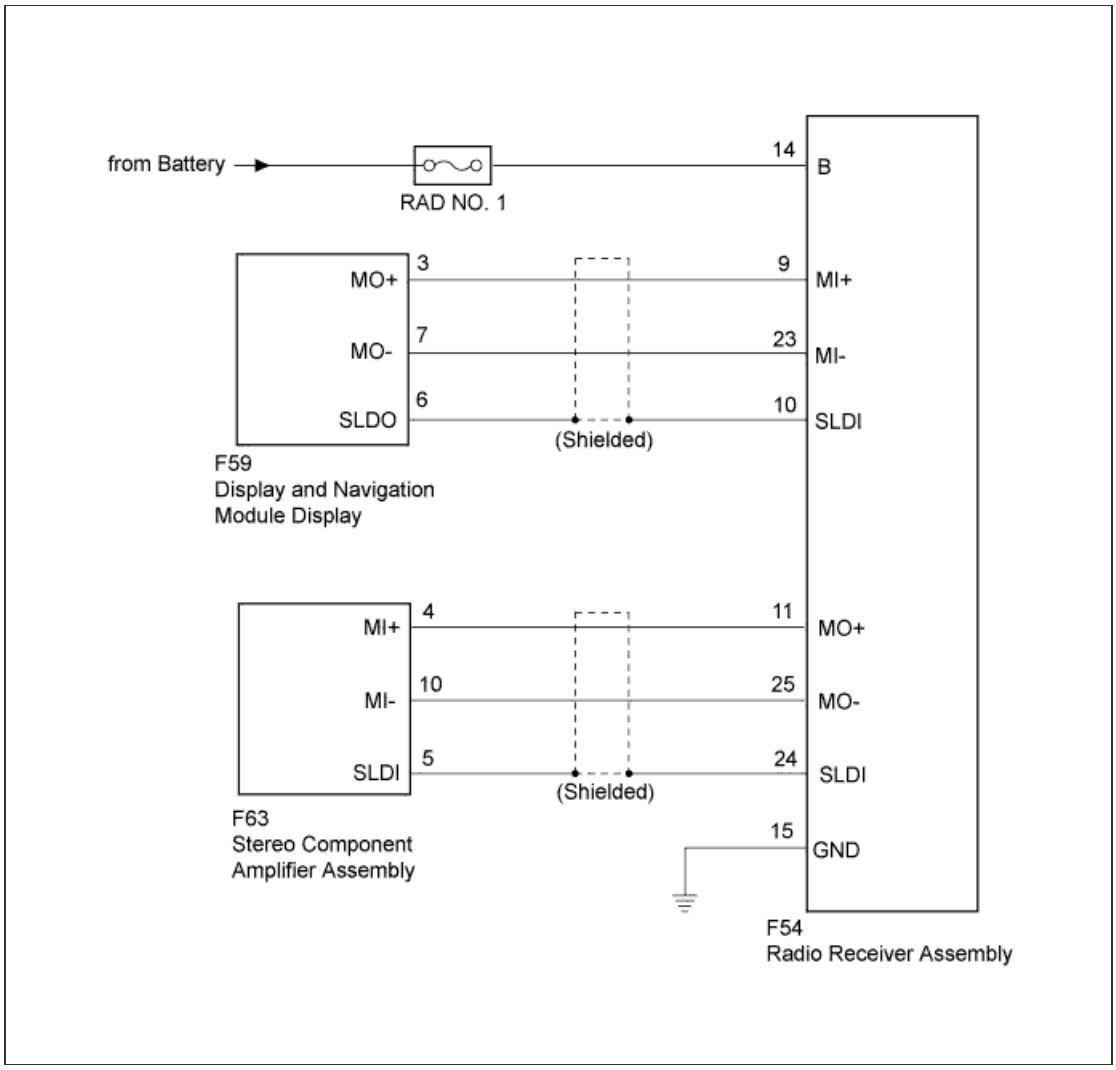
The display and navigation module display and radio receiver assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and the radio receiver assembly, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1591 | Within the time-out period, there was no response from the radio receiver assembly to the following requests from the master unit:<br>• System inspection request<br>• System inspection result request<br>• Diagnostic memory request | • Radio receiver assembly power source circuit<br>• MOST circuit between display and navigation module display and radio receiver assembly<br>• MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>• Radio receiver assembly<br>• Display and navigation module display |
| B15D1*1 | When either of the conditions below is met:<br>• Radio receiver assembly is/was not connected while the engine switch is on (IG or ACC).<br>• Communication between the master unit and the radio receiver assembly is not possible when the engine is started. | |

**HINT:**

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

### WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

**B** → Go to step 3

**A**

### 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

### 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → Go to step 4

OK

END

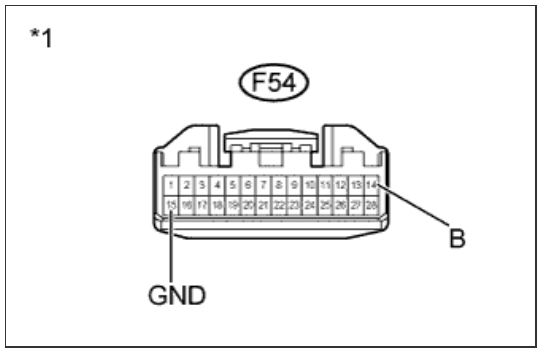
### 4.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY POWER SOURCE)

a. Disconnect the F54 radio receiver assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-15 (GND) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-14 (B) - F54-15 (GND) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Radio Receiver Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 5.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - RADIO RECEIVER)

a. Disconnect the F59 display and navigation module display connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F59-3 (MO+) - F54-9 (MI+) | Always | Below 1 Ω |
| F59-7 (MO-) - F54-23 (MI-) | Always | Below 1 Ω |

| | | |
|---|---|---|
| F59-6 (SLDO) - F54-10 (SLDI) | Always | Below 1 Ω |
| F59-3 (MO+) - Body ground | Always | 10 kΩ or higher |
| F59-7 (MO-) - Body ground | Always | 10 kΩ or higher |
| F59-6 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**6.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - STEREO COMPONENT AMPLIFIER)**

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-11 (MO+) - F63-4 (MI+) | Always | Below 1 Ω |
| F54-25 (MO-) - F63-10 (MI-) | Always | Below 1 Ω |
| F54-24 (SLDI) - F63-5 (SLDI) | Always | Below 1 Ω |
| F54-11 (MO+) - Body ground | Always | 10 kΩ or higher |
| F54-25 (MO-) - Body ground | Always | 10 kΩ or higher |
| F54-24 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**7.REPLACE RADIO RECEIVER ASSEMBLY**

a. Replace the radio receiver assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**END**

# DTC B15D0 MOST Communication Malfunction

**for Preparation** Click here

## DESCRIPTION

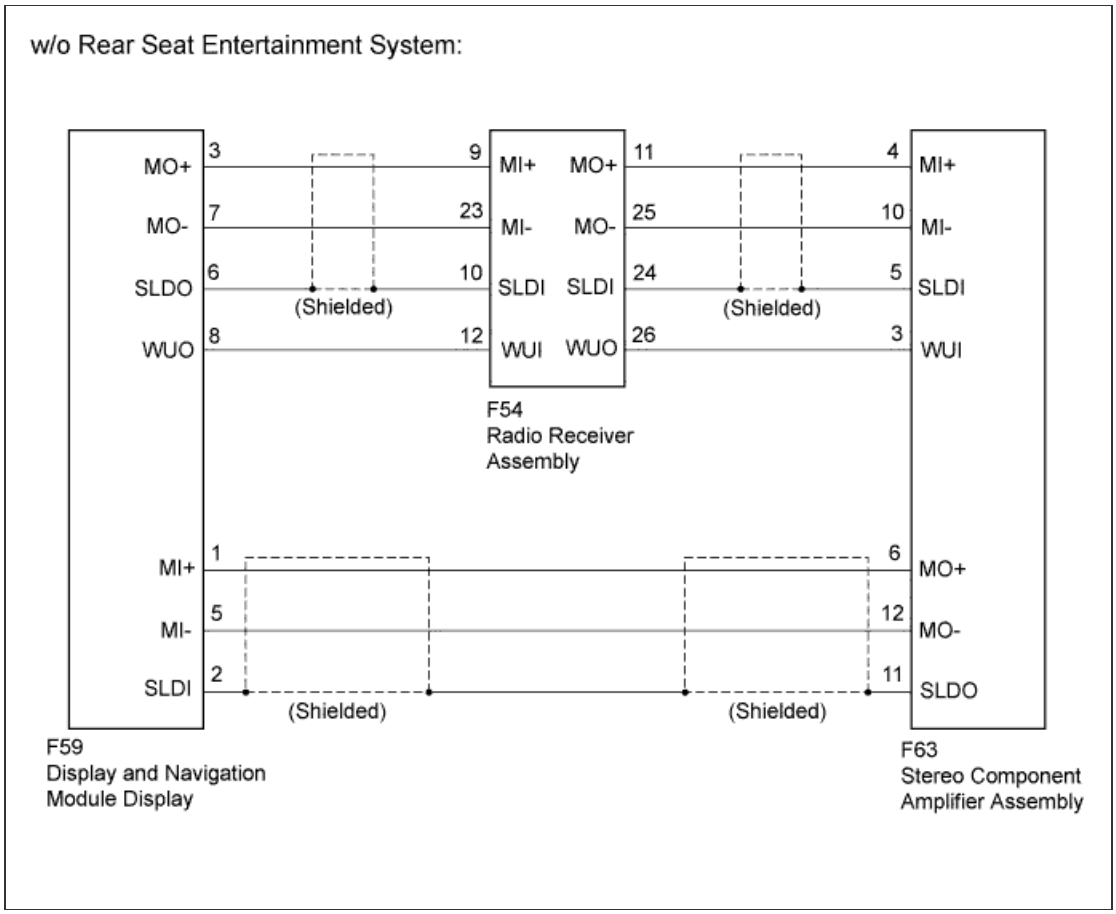
This DTC is stored when the MOST network cannot be established after the master unit is activated.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15D0 | MOST network cannot be established. | • MOST line check<br>• MOST communication line connector<br>• Wire harness or connector<br>• MOST communication line<br>• Radio receiver assembly<br>• Stereo component amplifier assembly<br>• Television display assembly (w/ Rear Seat Entertainment System)<br>• Display and navigation module display |

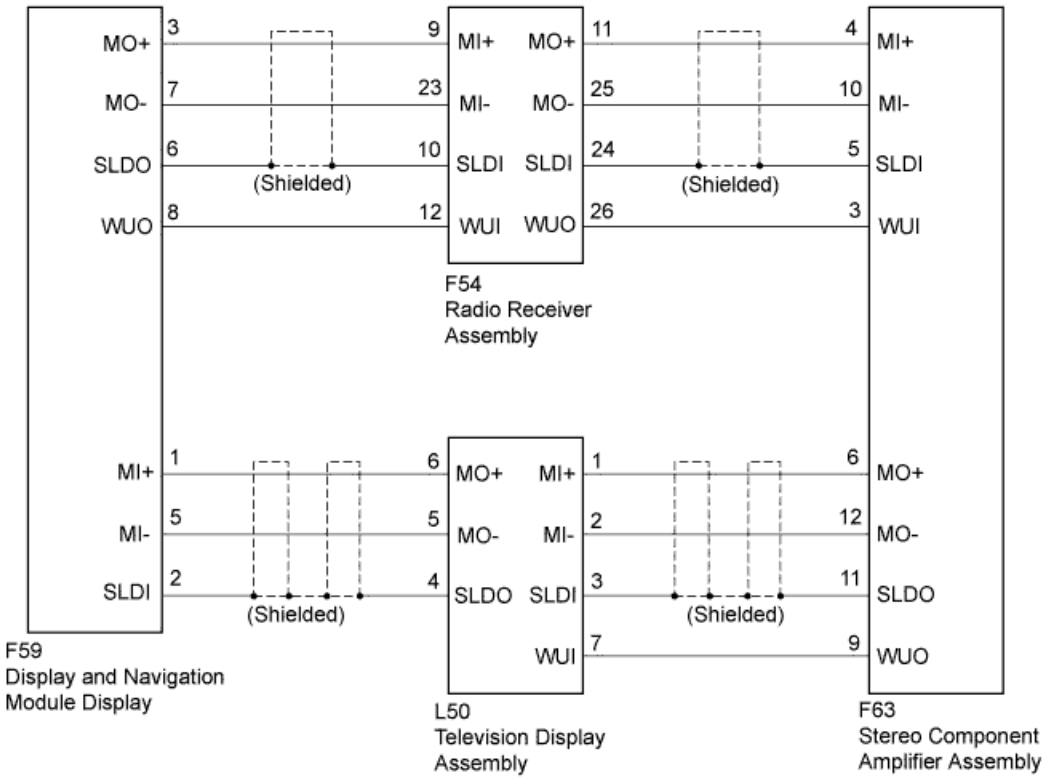
**HINT:**

- **For the MOST network, the display and navigation module display is the master unit.**
- **Errors may occur in MOST communication between devices due to problems such as electrical noise.**

## WIRING DIAGRAM



w/ Rear Seat Entertainment System:

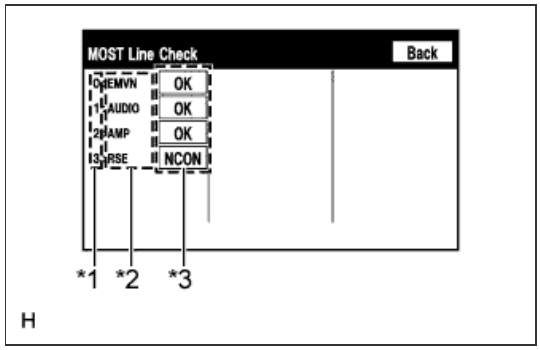



## INSPECTION PROCEDURE

### 1.PERFORM MOST LINE CHECK

a. Display the "MOST Line Check" screen ( Click here).

b. Check the result on the "MOST Line Check" screen.




**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "AUDIO". | A |
| "NCON" is displayed for "AMP". | B |
| "NCON" is displayed for "RSE" (w/ rear seat entertainment system). | C |
| "OK" is displayed for all items. | D |

**HINT:**

- **When "NCON" is displayed for more than 1 item, proceed to the step for the device that has the smallest node position number.**
- **The "MOST Line Check" screen can be displayed only when DTC B15D0 is stored.**

**Text in Illustration**

| | |
|---|---|
| *1 | Node position number for devices that use MOST communication |
| *2 | Device name |
| *3 | Result |

| | |
|---|---|
| B | Go to step 5 |
| | |

| | |
|---|---|
| C | Go to step 8 |
| D | Go to step 11 |

A

## 2.CHECK MOST COMMUNICATION CONNECTOR

a. Check MOST communication line connector.

i. Check if a MOST communication line connector between the display and navigation module display and radio receiver assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "AUDIO". | A |
| The screen cannot be changed to the "MOST Line Check" screen. | B |

**HINT:**

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

| | |
|---|---|
| B | END |

A

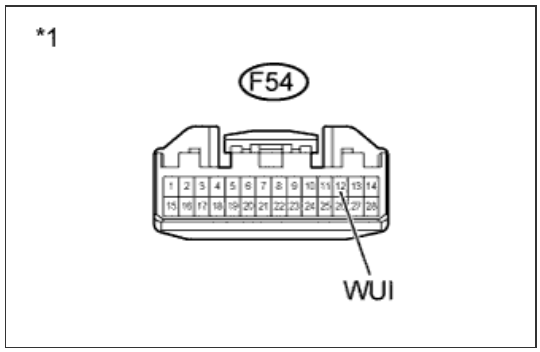
## 3.CHECK HARNESS AND CONNECTOR (WAKE UP SIGNAL)

a. Disconnect the F54 radio receiver assembly connector.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-12 (WUI) - Body ground | Engine switch on (ACC) | 4.5 V or higher |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Radio Receiver Assembly) |

| | |
|---|---|
| NG | Go to step 4 |

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

## 4.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-12 (WUI) - F59-8 (WUO) | Always | Below 1 Ω |
| | | |

| | | |
|---|---|---|
| F54-12 (WUI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

## 5.CHECK MOST COMMUNICATION CONNECTOR

a. Check MOST communication line connector.

i. Check if a MOST communication line connector between the radio receiver assembly and stereo component amplifier assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "AMP". | A |
| The screen cannot be changed to the "MOST Line Check" screen. | B |

**HINT:**

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

B → END

A

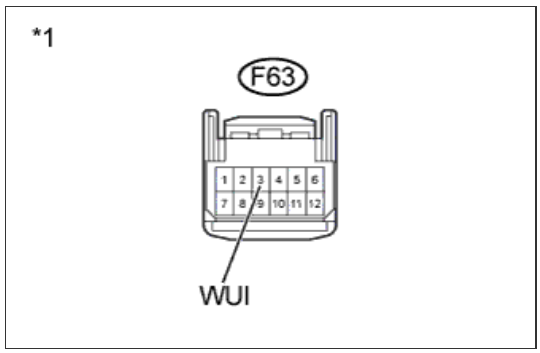
## 6.CHECK HARNESS AND CONNECTOR (WAKE UP SIGNAL)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-3 (WUI) - Body ground | Engine switch on (ACC) | 4.5 V or higher |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |

NG → Go to step 7

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 7.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - RADIO RECEIVER)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified |
|---|---|---|

| | | Condition |
|---|---|---|
| F63-3 (WUI) - F54-26 (WUO) | Always | Below 1 Ω |
| F63-3 (WUI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

## 8.CHECK MOST COMMUNICATION CONNECTOR

a. Check MOST communication line connector.

i. Check if a MOST communication line connector between the stereo component amplifier assembly and television display assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "RSE". | A |
| The screen cannot be changed to the "MOST Line Check" screen. | B |

**HINT:**

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

B → END

A

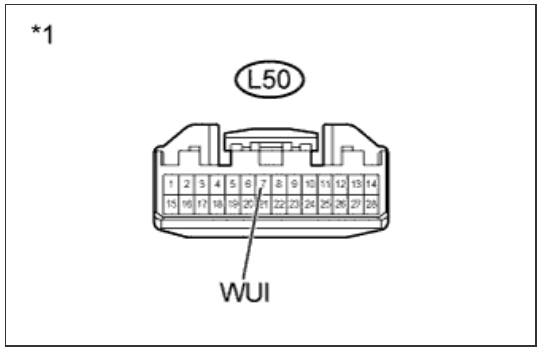
## 9.CHECK HARNESS AND CONNECTOR (WAKE UP SIGNAL)

a. Disconnect the L50 television display assembly connector.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-7 (WUI) - Body ground | Engine switch on (ACC) | 4.5 V or higher |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Television Display Assembly) |

NG → Go to step 10

OK

REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

## 10.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - STEREO COMPONENT AMPLIFIER)

a. Disconnect the L50 television display assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-7 (WUI) - F63-9 (WUO) | Always | Below 1 Ω |
| L50-7 (WUI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

11.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - RADIO RECEIVER)

a. Disconnect the F59 display and navigation module display connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F59-3 (MO+) - F54-9 (MI+) | Always | Below 1 Ω |
| F59-7 (MO-) - F54-23 (MI-) | Always | Below 1 Ω |
| F59-6 (SLDO) - F54-10 (SLDI) | Always | Below 1 Ω |
| F59-3 (MO+) - Body ground | Always | 10 kΩ or higher |
| F59-7 (MO-) - Body ground | Always | 10 kΩ or higher |
| F59-6 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

12.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - STEREO COMPONENT AMPLIFIER)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-11 (MO+) - F63-4 (MI+) | Always | Below 1 Ω |
| F54-25 (MO-) - F63-10 (MI-) | Always | Below 1 Ω |
| F54-24 (SLDI) - F63-5 (SLDI) | Always | Below 1 Ω |
| F54-11 (MO+) - Body ground | Always | 10 kΩ or higher |
| F54-25 (MO-) - Body ground | Always | 10 kΩ or higher |
| F54-24 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

13.CONFIRM MODEL

a. Choose the model to be inspected.

**Result**

| Result | Proceed to |
|---|---|
| w/o Rear Seat Entertainment System | A |
| w/ Rear Seat Entertainment System | B |

B → Go to step 16

A

14.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

15.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

USE SIMULATION METHOD TO CHECK (Click here)

16.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - TELEVISION DISPLAY)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the L50 television display assembly.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - L50-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - L50-2 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - L50-3 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**17.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - DISPLAY AND NAVIGATION MODULE DISPLAY)**

a. Disconnect the L50 television display assembly.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| L50-5 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| L50-4 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| L50-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| L50-5 (MO-) - Body ground | Always | 10 kΩ or higher |
| L50-4 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**18.CHECK DTC**

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

USE SIMULATION METHOD TO CHECK (Click here)

## DTC B1591 No Response from Audio HU

## DTC B15D1 Audio HU Disconnected

**for Preparation** Click here

### DESCRIPTION

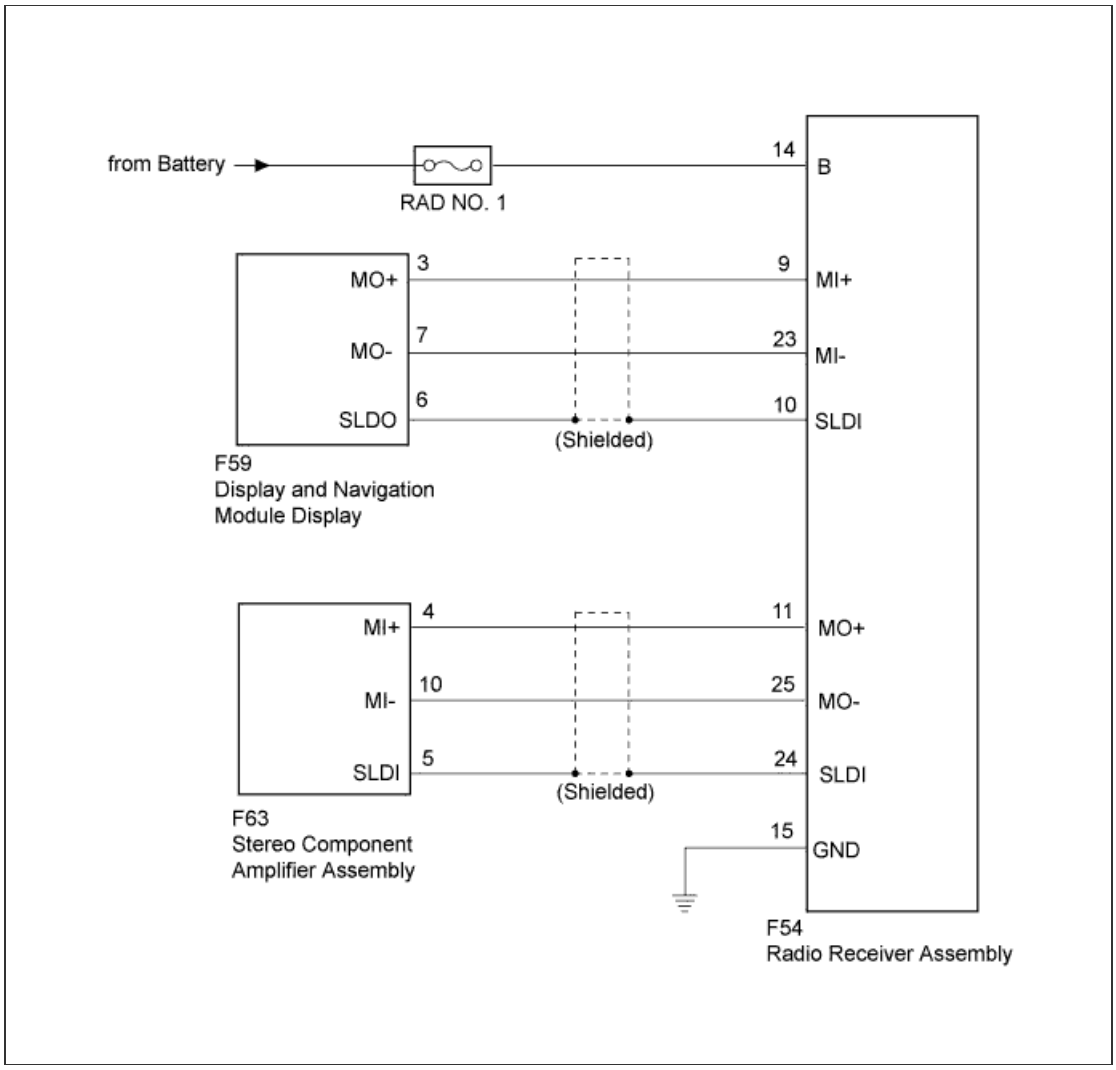
The display and navigation module display and radio receiver assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and the radio receiver assembly, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1591 | Within the time-out period, there was no response from the radio receiver assembly to the following requests from the master unit:<br>• System inspection request<br>• System inspection result request<br>• Diagnostic memory request | • Radio receiver assembly power source circuit<br>• MOST circuit between display and navigation module display and radio receiver assembly<br>• MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>• Radio receiver assembly<br>• Display and navigation module display |
| B15D1*1 | When either of the conditions below is met:<br>• Radio receiver assembly is/was not connected while the engine switch is on (IG or ACC).<br>• Communication between the master unit and the radio receiver assembly is not possible when the engine is started. | |

**HINT:**

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

### WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

**B** → Go to step 3

**A**

### 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

### 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → Go to step 4

OK

END

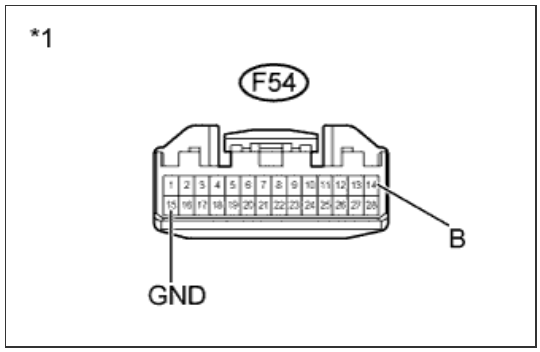
### 4.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY POWER SOURCE)

a. Disconnect the F54 radio receiver assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-15 (GND) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-14 (B) - F54-15 (GND) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Radio Receiver Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 5.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - RADIO RECEIVER)

a. Disconnect the F59 display and navigation module display connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F59-3 (MO+) - F54-9 (MI+) | Always | Below 1 Ω |
| F59-7 (MO-) - F54-23 (MI-) | Always | Below 1 Ω |

| | | |
|---|---|---|
| F59-6 (SLDO) - F54-10 (SLDI) | Always | Below 1 Ω |
| F59-3 (MO+) - Body ground | Always | 10 kΩ or higher |
| F59-7 (MO-) - Body ground | Always | 10 kΩ or higher |
| F59-6 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**6.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - STEREO COMPONENT AMPLIFIER)**

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-11 (MO+) - F63-4 (MI+) | Always | Below 1 Ω |
| F54-25 (MO-) - F63-10 (MI-) | Always | Below 1 Ω |
| F54-24 (SLDI) - F63-5 (SLDI) | Always | Below 1 Ω |
| F54-11 (MO+) - Body ground | Always | 10 kΩ or higher |
| F54-25 (MO-) - Body ground | Always | 10 kΩ or higher |
| F54-24 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**7.REPLACE RADIO RECEIVER ASSEMBLY**

a. Replace the radio receiver assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**END**

# DTC B15D8 Monitor Disconnected

**for Preparation** Click here

## DESCRIPTION

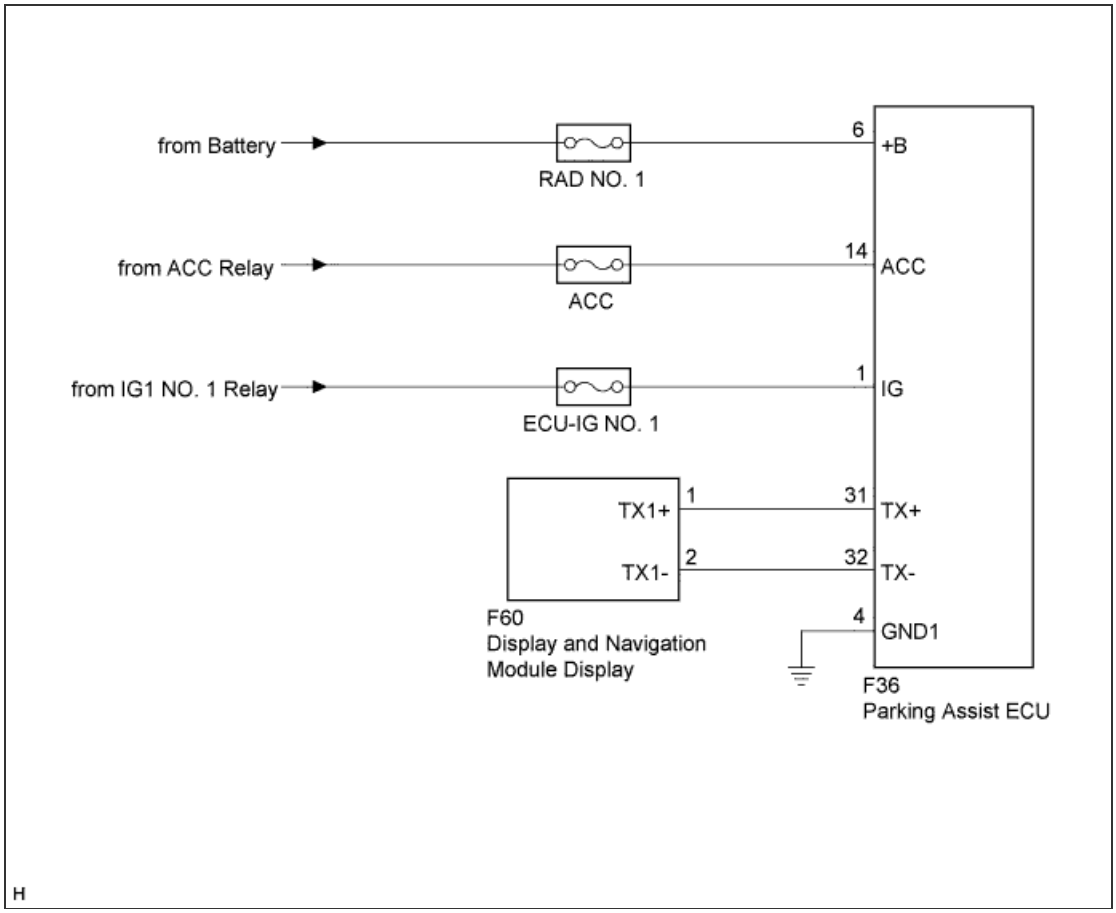
The display and navigation module display and parking assist ECU are connected by the AVC-LAN communication line.
When an AVC-LAN communication error occurs between the display and navigation module display and parking assist ECU, this DTC will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15D8 | A device that is listed in the AVC-LAN connected device record of the master unit is missing. | • Parking assist ECU power source circuit<br>• AVC-LAN circuit between display and navigation module display and parking assist ECU<br>• Parking assist ECU<br>• Display and navigation module display |

**HINT:**

The display and navigation module display is the master unit.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| | |
|---|---|
| | Proceed |

| Result | to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect AVC-LAN communication.**
- **This DTC may be stored when an AVC-LAN communication error occurs due to electrical noise.**

**B** → Go to step 3

**A**

## 2.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

**NG** → Go to step 4

**OK**

**END**

## 4.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU POWER SOURCE)

a. Disconnect the F36 parking assist ECU connector.

b. Measure the resistance according to the value(s) in the table below.

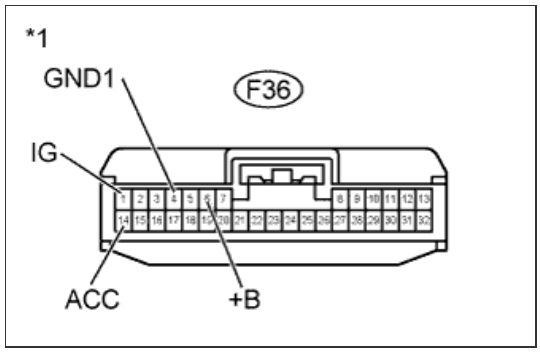
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F36-4 (GND1) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F36-6 (+B) - F36-4 (GND1) | Always | 11 to 14 V |
| F36-1 (IG) - F36-4 (GND1) | Engine switch on (IG) | 11 to 14 V |
| F36-14 (ACC) - F36-4 (GND1) | Engine switch on (ACC) | 11 to 14 V |



**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector<br>(to Parking Assist ECU) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**5.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - DISPLAY AND NAVIGATION MODULE DISPLAY)**

a. Disconnect the F36 parking assist ECU connector.

b. Disconnect the F60 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F36-31 (TX+) - F60-1 (TX1+) | Always | Below 1 Ω |
| F36-32 (TX-) - F60-2 (TX1-) | Always | Below 1 Ω |
| F36-31 (TX+) - Body ground | Always | 10 kΩ or higher |
| F36-32 (TX-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**6.REPLACE PARKING ASSIST ECU**

a. Replace the parking assist ECU (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**END**

## DTC B1593 No Response from Stereo Component Amplifier

## DTC B15D3 Stereo Component Amplifier Disconnected

**for Preparation** Click here

### DESCRIPTION

The display and navigation module display and stereo component amplifier assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and stereo component amplifier assembly, these DTCs will be stored.

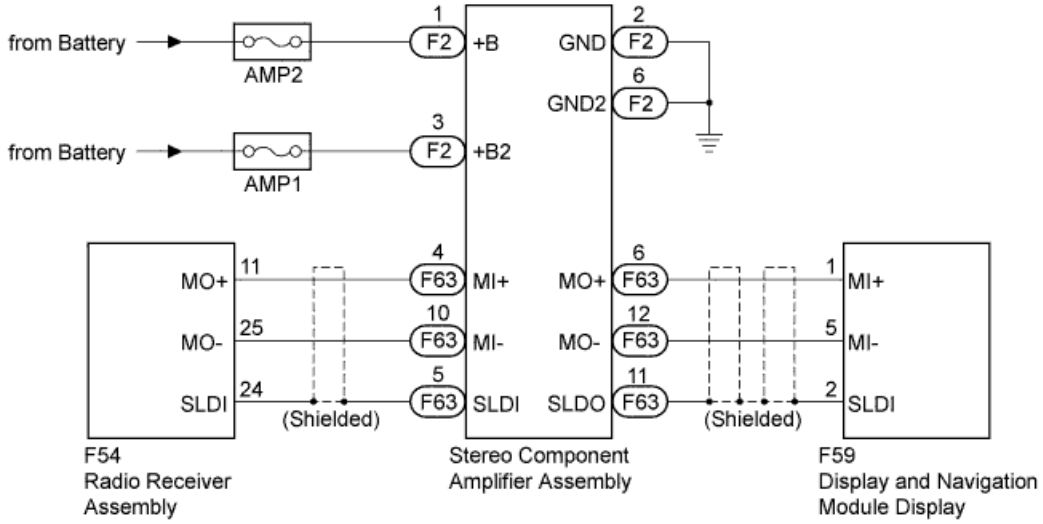
| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1593 | No response to the diagnostic memory request from the master unit. | • Stereo component amplifier assembly power source circuit<br>• MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>• MOST circuit between stereo component amplifier assembly and display and navigation module display (w/o Rear Seat Entertainment System)<br>• MOST circuit between stereo component amplifier assembly and television display assembly (w/ Rear Seat Entertainment System)<br>• Stereo component amplifier assembly<br>• Display and navigation module display |
| B15D3 | A device that is listed in the MOST network connected device record of the master unit is missing. | |

**HINT:**

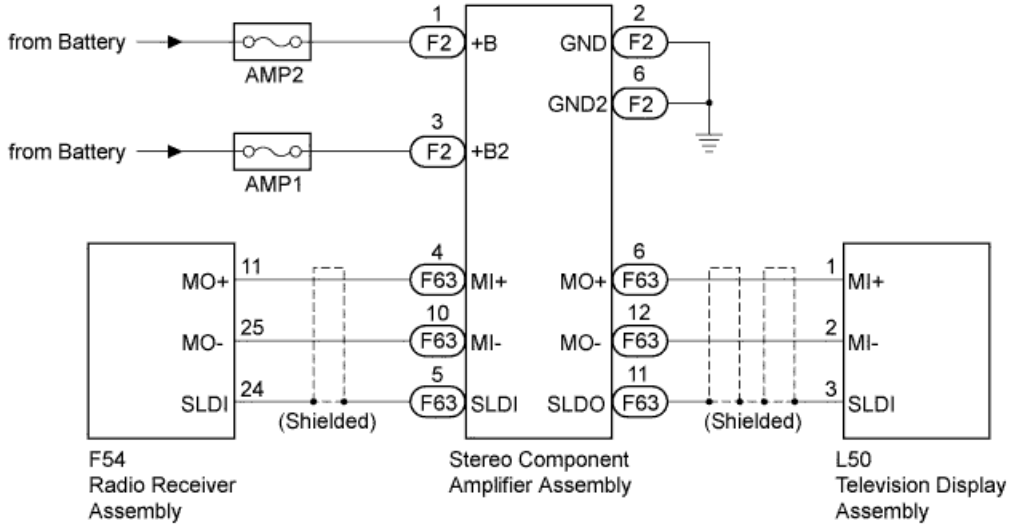
For the MOST network, the display and navigation module display is the master unit.

### WIRING DIAGRAM

w/o Rear Seat Entertainment System:




w/ Rear Seat Entertainment System:




H

## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

B → Go to step 3

A

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → Go to step 4

OK

## END

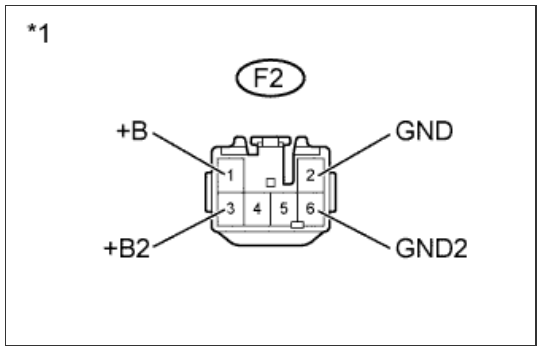
## 4.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY POWER SOURCE)

a. Disconnect the F2 stereo component amplifier assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-2 (GND) - Body ground | Always | Below 1 Ω |
| F2-6 (GND2) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-1 (+B) - F2-2 (GND) | Always | 11 to 14 V |
| F2-3 (+B2) - F2-2 (GND) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 5.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - RADIO RECEIVER)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-4 (MI+) - F54-11 (MO+) | Always | Below 1 Ω |
| F63-10 (MI-) - F54-25 (MO-) | Always | Below 1 Ω |
| F63-5 (SLDI) - F54-24 (SLDI) | Always | Below 1 Ω |
| F63-4 (MI+) - Body ground | Always | 10 kΩ or higher |
| F63-10 (MI-) - Body ground | Always | 10 kΩ or higher |
| F63-5 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 6.CONFIRM MODEL

a. Choose the model to be inspected.

**Result**

| Model | Proceed to |
|---|---|
| w/o Rear Seat Entertainment System | A |
| w/ Rear Seat Entertainment System | B |

B → Go to step 9

A

### 7.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - DISPLAY AND NAVIGATION MODULE)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**8.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Replace the stereo component amplifier assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**END**

**9.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - TELEVISION DISPLAY)**

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the L50 television display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - L50-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - L50-2 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - L50-3 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**10.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Replace the stereo component amplifier assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

```
END
```

# DTC B15D8 Monitor Disconnected

**for Preparation** Click here

## DESCRIPTION

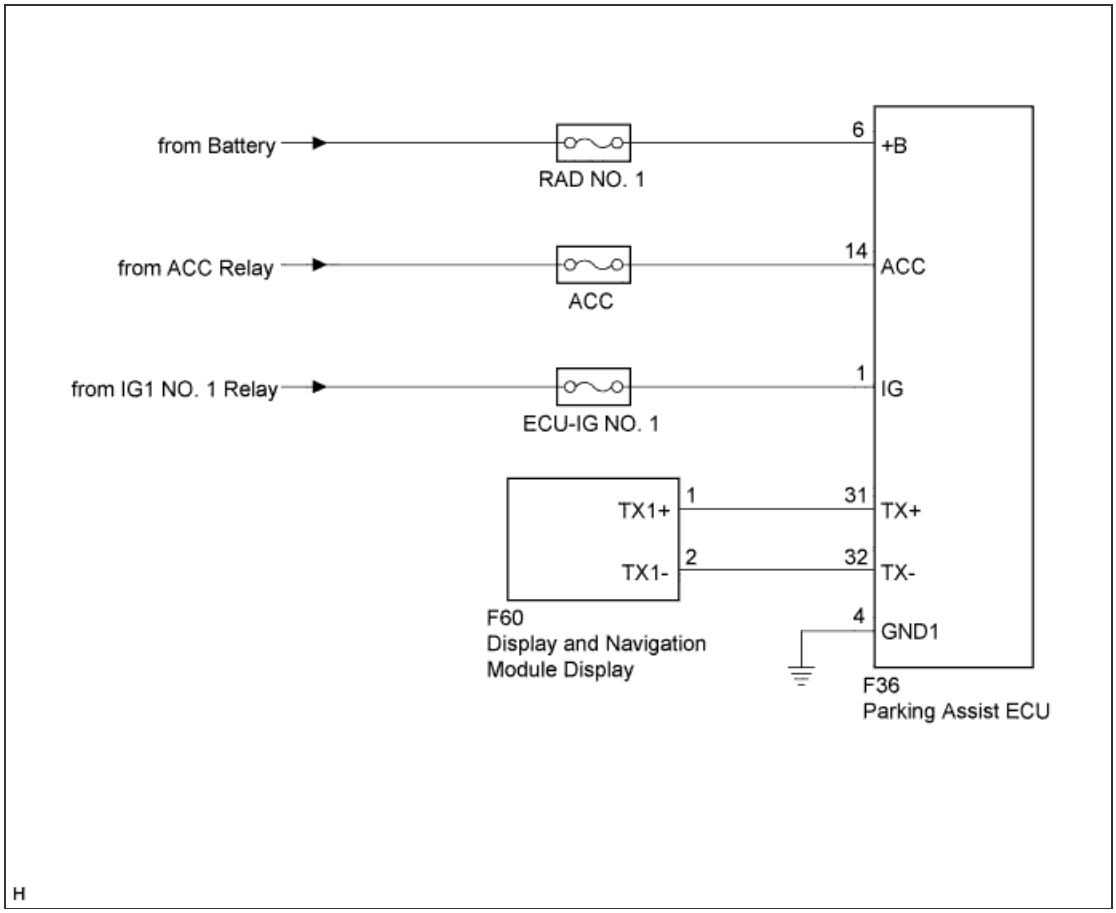
The display and navigation module display and parking assist ECU are connected by the AVC-LAN communication line.
When an AVC-LAN communication error occurs between the display and navigation module display and parking assist ECU, this DTC will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15D8 | A device that is listed in the AVC-LAN connected device record of the master unit is missing. | • Parking assist ECU power source circuit<br>• AVC-LAN circuit between display and navigation module display and parking assist ECU<br>• Parking assist ECU<br>• Display and navigation module display |

**HINT:**

The display and navigation module display is the master unit.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| | |
|---|---|
| | Proceed |

| Result | to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect AVC-LAN communication.**
- **This DTC may be stored when an AVC-LAN communication error occurs due to electrical noise.**

**B** → Go to step 3

**A**

## 2.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

**NG** → Go to step 4

**OK**

**END**

## 4.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU POWER SOURCE)

a. Disconnect the F36 parking assist ECU connector.

b. Measure the resistance according to the value(s) in the table below.

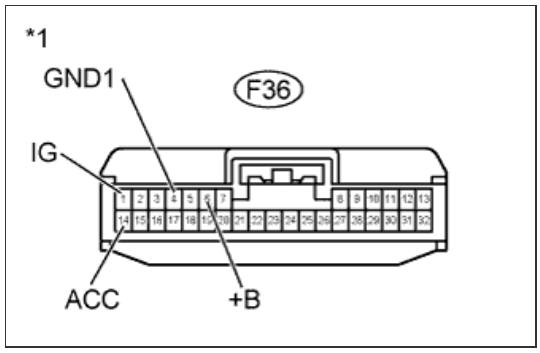
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F36-4 (GND1) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F36-6 (+B) - F36-4 (GND1) | Always | 11 to 14 V |
| F36-1 (IG) - F36-4 (GND1) | Engine switch on (IG) | 11 to 14 V |
| F36-14 (ACC) - F36-4 (GND1) | Engine switch on (ACC) | 11 to 14 V |



**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector<br>(to Parking Assist ECU) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**5.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - DISPLAY AND NAVIGATION MODULE DISPLAY)**

a. Disconnect the F36 parking assist ECU connector.

b. Disconnect the F60 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F36-31 (TX+) - F60-1 (TX1+) | Always | Below 1 Ω |
| F36-32 (TX-) - F60-2 (TX1-) | Always | Below 1 Ω |
| F36-31 (TX+) - Body ground | Always | 10 kΩ or higher |
| F36-32 (TX-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**6.REPLACE PARKING ASSIST ECU**

a. Replace the parking assist ECU (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**END**

## DTC B1593 No Response from Stereo Component Amplifier

## DTC B15D3 Stereo Component Amplifier Disconnected

**for Preparation** Click here

### DESCRIPTION

The display and navigation module display and stereo component amplifier assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and stereo component amplifier assembly, these DTCs will be stored.

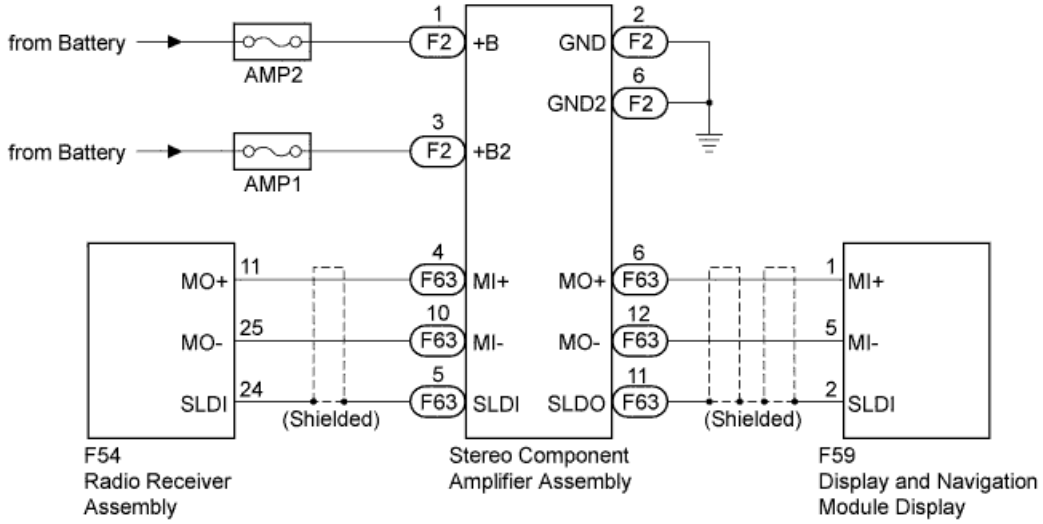
| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1593 | No response to the diagnostic memory request from the master unit. | • Stereo component amplifier assembly power source circuit<br>• MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>• MOST circuit between stereo component amplifier assembly and display and navigation module display (w/o Rear Seat Entertainment System)<br>• MOST circuit between stereo component amplifier assembly and television display assembly (w/ Rear Seat Entertainment System)<br>• Stereo component amplifier assembly<br>• Display and navigation module display |
| B15D3 | A device that is listed in the MOST network connected device record of the master unit is missing. | |

**HINT:**

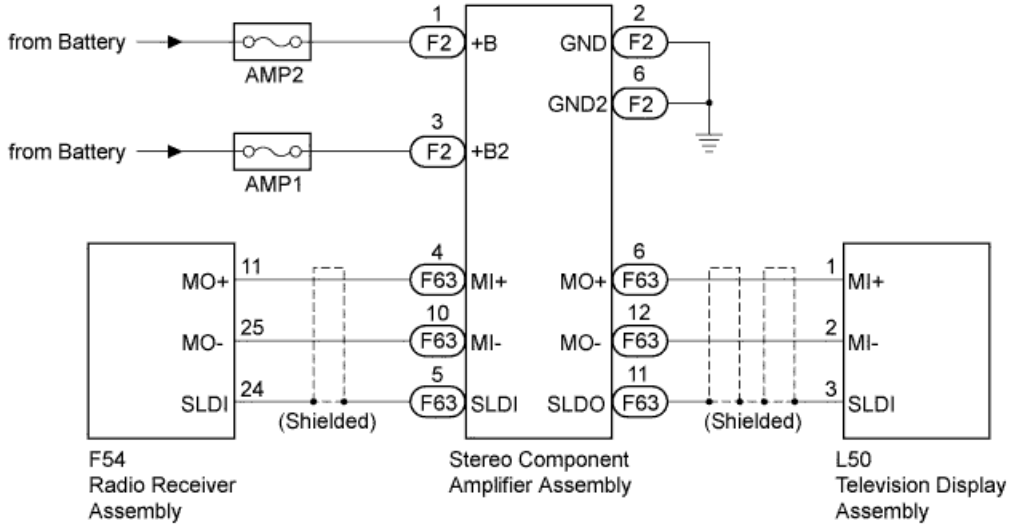
For the MOST network, the display and navigation module display is the master unit.

### WIRING DIAGRAM

w/o Rear Seat Entertainment System:




w/ Rear Seat Entertainment System:




H

## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

B → Go to step 3

A

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → Go to step 4

OK

## END

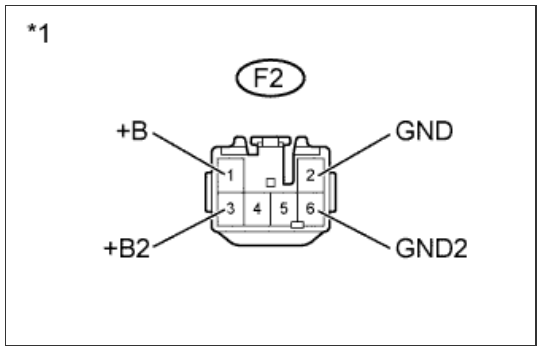
## 4.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY POWER SOURCE)

a. Disconnect the F2 stereo component amplifier assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-2 (GND) - Body ground | Always | Below 1 Ω |
| F2-6 (GND2) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-1 (+B) - F2-2 (GND) | Always | 11 to 14 V |
| F2-3 (+B2) - F2-2 (GND) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 5.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - RADIO RECEIVER)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-4 (MI+) - F54-11 (MO+) | Always | Below 1 Ω |
| F63-10 (MI-) - F54-25 (MO-) | Always | Below 1 Ω |
| F63-5 (SLDI) - F54-24 (SLDI) | Always | Below 1 Ω |
| F63-4 (MI+) - Body ground | Always | 10 kΩ or higher |
| F63-10 (MI-) - Body ground | Always | 10 kΩ or higher |
| F63-5 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 6.CONFIRM MODEL

a. Choose the model to be inspected.

**Result**

| Model | Proceed to |
|---|---|
| w/o Rear Seat Entertainment System | A |
| w/ Rear Seat Entertainment System | B |

B → Go to step 9

A

### 7.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - DISPLAY AND NAVIGATION MODULE)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**8.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Replace the stereo component amplifier assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**END**

**9.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - TELEVISION DISPLAY)**

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the L50 television display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - L50-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - L50-2 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - L50-3 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**10.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Replace the stereo component amplifier assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

```
END
```

# DTC B15F5 A/C ECU Vehicle Information Reading/Writing Processor Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when items controlled by the A/C ECU (air conditioning amplifier assembly) cannot be customized via the navigation system vehicle customization screen.

**HINT:**

The A/C ECU (air conditioning amplifier assembly) controls the air conditioning system related items that are customizable via the navigation system screen.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15F5 | A/C ECU (air conditioning amplifier assembly) vehicle setting processing error. | • CAN communication system<br>• Air conditioning system<br>• A/C ECU (air conditioning amplifier assembly)<br>• Display and navigation module display |

## INSPECTION PROCEDURE

### 1.CHECK CAN COMMUNICATION SYSTEM

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

**HINT:**

- **for LHD (Click here)**
- **for RHD (Click here)**

**OK:**

**CAN communication DTC is not output.**

Result

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

### 2.CHECK AIR CONDITIONING SYSTEM

a. Check if the air conditioning system is malfunctioning (Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the air conditioning system.

**OK:**

**No malfunctions are present in the air conditioning system.**

NG → GO TO AIR CONDITIONING SYSTEM (Click here)

OK

### 3.CHECK CUSTOMIZE ITEMS

a. Display the "Vehicle Customization" screen.

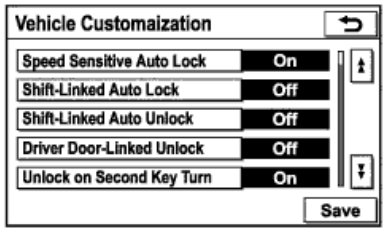
b. Make a note of the customizable items for the air conditioning system.

**HINT:**

These air conditioning system items shown as customizable via the navigation system vehicle customization screen can also be changed using the intelligent tester. In the following steps, the intelligent tester will be used.

i. To match-up the items in the navigation display with the items on the intelligent tester, check the customize parameters list for the air conditioning system related items that can be customized via the navigation system screen (Click here).

Example:




c. Using the intelligent tester, confirm that it is possible to change the settings of the air conditioning system related customize parameters that are shown as customizable via the navigation system screen.

**OK:**

**The items available for customization via the navigation system screen can be customized successfully using the intelligent tester.**

NG → REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY (Click here)

OK → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

## DTC B1593 No Response from Stereo Component Amplifier

## DTC B15D3 Stereo Component Amplifier Disconnected

**for Preparation** Click here

### DESCRIPTION

The display and navigation module display and stereo component amplifier assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and stereo component amplifier assembly, these DTCs will be stored.

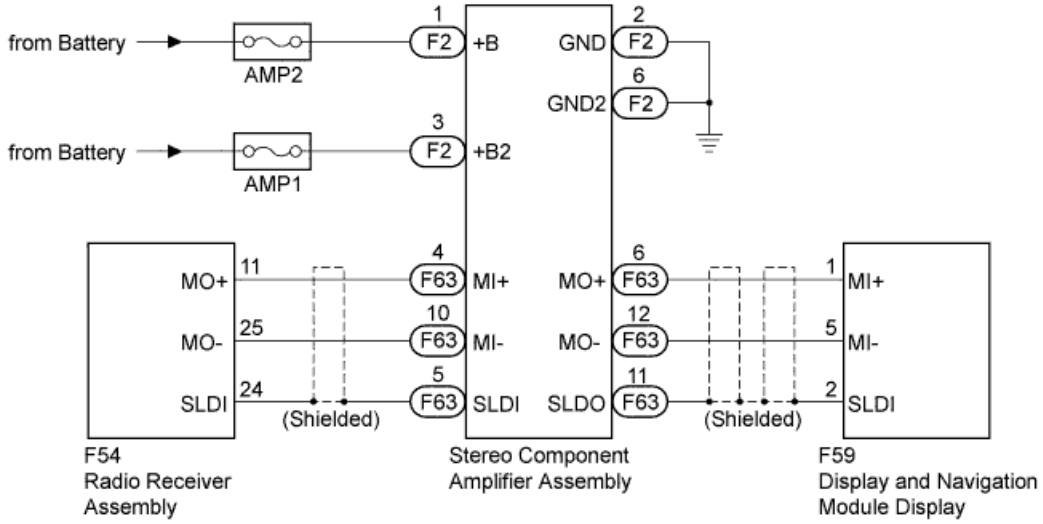
| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1593 | No response to the diagnostic memory request from the master unit. | • Stereo component amplifier assembly power source circuit<br>• MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>• MOST circuit between stereo component amplifier assembly and display and navigation module display (w/o Rear Seat Entertainment System)<br>• MOST circuit between stereo component amplifier assembly and television display assembly (w/ Rear Seat Entertainment System)<br>• Stereo component amplifier assembly<br>• Display and navigation module display |
| B15D3 | A device that is listed in the MOST network connected device record of the master unit is missing. | |

**HINT:**

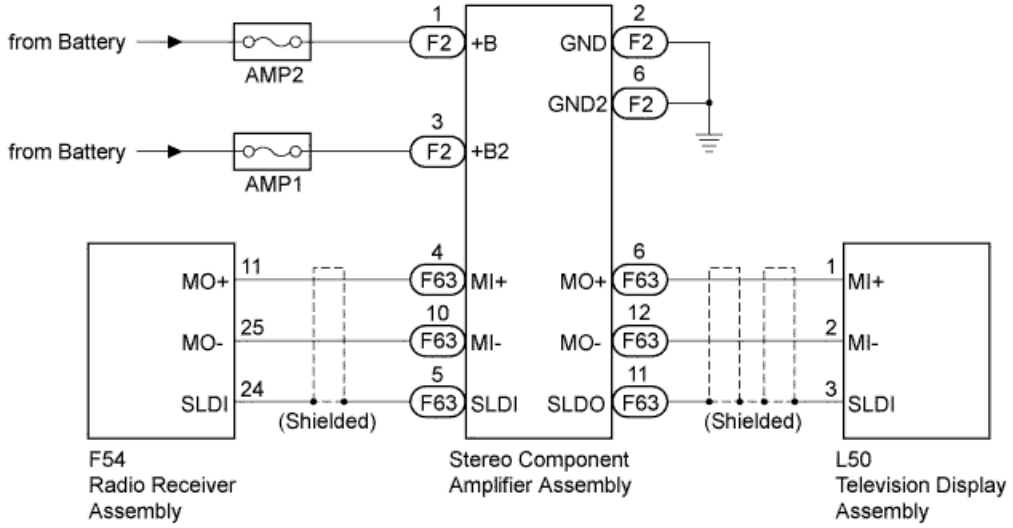
For the MOST network, the display and navigation module display is the master unit.

### WIRING DIAGRAM

w/o Rear Seat Entertainment System:




w/ Rear Seat Entertainment System:




H

## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

B → Go to step 3

A

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → Go to step 4

OK

## END

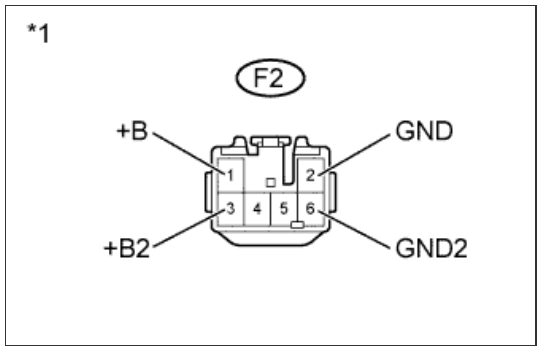
## 4.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY POWER SOURCE)

a. Disconnect the F2 stereo component amplifier assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-2 (GND) - Body ground | Always | Below 1 Ω |
| F2-6 (GND2) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-1 (+B) - F2-2 (GND) | Always | 11 to 14 V |
| F2-3 (+B2) - F2-2 (GND) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 5.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - RADIO RECEIVER)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-4 (MI+) - F54-11 (MO+) | Always | Below 1 Ω |
| F63-10 (MI-) - F54-25 (MO-) | Always | Below 1 Ω |
| F63-5 (SLDI) - F54-24 (SLDI) | Always | Below 1 Ω |
| F63-4 (MI+) - Body ground | Always | 10 kΩ or higher |
| F63-10 (MI-) - Body ground | Always | 10 kΩ or higher |
| F63-5 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 6.CONFIRM MODEL

a. Choose the model to be inspected.

**Result**

| Model | Proceed to |
|---|---|
| w/o Rear Seat Entertainment System | A |
| w/ Rear Seat Entertainment System | B |

B → Go to step 9

A

### 7.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - DISPLAY AND NAVIGATION MODULE)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**8.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Replace the stereo component amplifier assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**END**

**9.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - TELEVISION DISPLAY)**

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the L50 television display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - L50-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - L50-2 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - L50-3 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**10.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Replace the stereo component amplifier assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

```
END
```

# DTC B15F6 Main Body ECU Vehicle Information Reading/Writing Process Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when items controlled by the main body ECU cannot be customized via the navigation system vehicle customization screen.

**HINT:**

**The main body ECU controls the items for the following systems that are customizable via the navigation system screen:**

- **Power door lock control system**
- **Wireless door lock control system**
- **Lighting system**

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15F6 | Main body ECU vehicle setting processing error. | • CAN communication system<br>• Power door lock control system<br>• Wireless door lock control system<br>• Lighting system<br>• Main body ECU<br>• Display and navigation module display |

## INSPECTION PROCEDURE

### 1.CHECK CAN COMMUNICATION SYSTEM

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

**HINT:**

- **for LHD (Click here)**
- **for RHD (Click here)**

**OK:**
**CAN communication DTC is not output.**

Result

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**B** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**C** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**A**

### 2.CHECK POWER DOOR LOCK CONTROL SYSTEM

a. Check if the power door lock control system is malfunctioning ( Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the power door lock control system.

**OK:**
**No malfunctions are present in the power door lock control system.**

**NG** → GO TO POWER DOOR LOCK CONTROL SYSTEM (Click here)

**OK**

### 3.CHECK WIRELESS DOOR LOCK CONTROL SYSTEM

a. Check if the wireless door lock control system is malfunctioning ( Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the wireless door lock control system.

**OK:**

**No malfunctions are present in the wireless door lock control system.**

NG → GO TO WIRELESS DOOR LOCK CONTROL SYSTEM (**Click here**)

OK

### 4.CHECK LIGHTING SYSTEM

a. Check if the lighting system is malfunctioning (Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the lighting system.

**OK:**

**No malfunctions are present in the lighting system.**

NG → GO TO LIGHTING SYSTEM (**Click here**)

OK

### 5.CHECK CUSTOMIZE ITEMS

a. Display the "Vehicle Customization" screen.

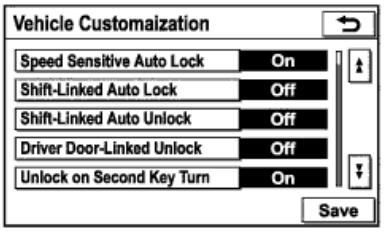
b. Make a note of the customizable items for each main body ECU related system.

**HINT:**

These items shown as customizable via the navigation system vehicle customization screen can also be changed using the intelligent tester. In a following step, the intelligent tester will be used.

i. To match-up the items in the navigation display with the items on the intelligent tester, check the customize parameters list for the power door lock control system related items that can be customized via the navigation system screen (Click here).

Example:




ii. To match-up the items in the navigation display with the items on the intelligent tester, check the customize parameters list for the wireless door lock control system related items that can be customized via the navigation system screen (Click here).

iii. To match-up the items in the navigation display with the items on the intelligent tester, check the customize parameters list for the lighting system related items that can be customized via the navigation system screen (Click here).

c. Using the intelligent tester, confirm that it is possible to change the settings of the customize parameters that are available for customization via the navigation system screen.

**OK:**

**The items available for customization via the navigation system screen can be customized successfully using the intelligent tester.**

NG → REPLACE MAIN BODY ECU

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

## DTC B1593 No Response from Stereo Component Amplifier

## DTC B15D3 Stereo Component Amplifier Disconnected

**for Preparation** Click here

### DESCRIPTION

The display and navigation module display and stereo component amplifier assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and stereo component amplifier assembly, these DTCs will be stored.

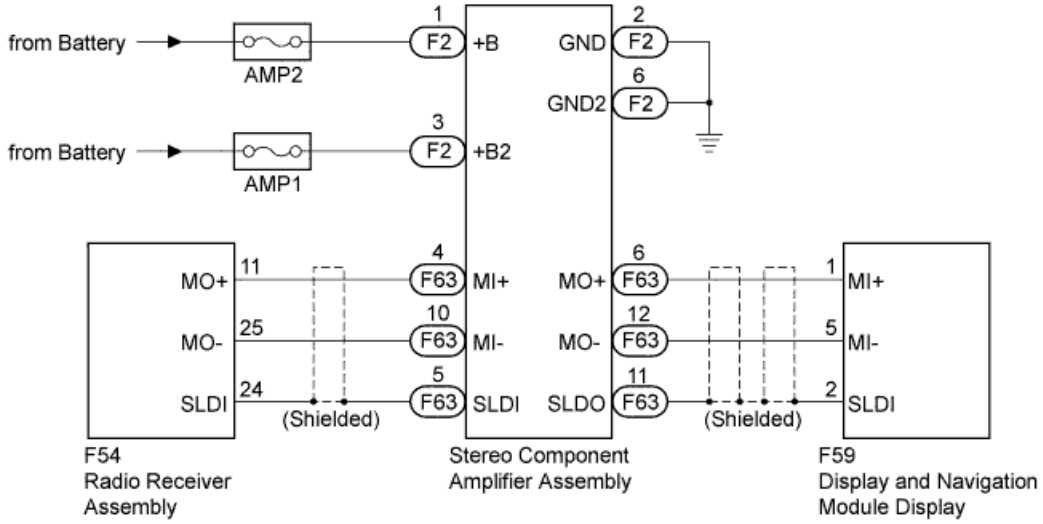
| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1593 | No response to the diagnostic memory request from the master unit. | • Stereo component amplifier assembly power source circuit<br>• MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>• MOST circuit between stereo component amplifier assembly and display and navigation module display (w/o Rear Seat Entertainment System)<br>• MOST circuit between stereo component amplifier assembly and television display assembly (w/ Rear Seat Entertainment System)<br>• Stereo component amplifier assembly<br>• Display and navigation module display |
| B15D3 | A device that is listed in the MOST network connected device record of the master unit is missing. | |

**HINT:**

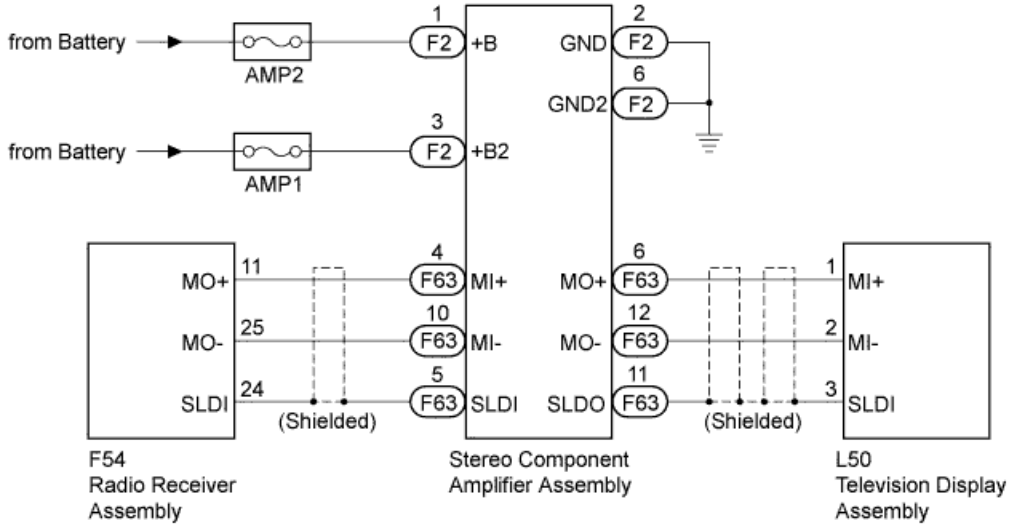
For the MOST network, the display and navigation module display is the master unit.

### WIRING DIAGRAM

w/o Rear Seat Entertainment System:




w/ Rear Seat Entertainment System:




H

## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

B → Go to step 3

A

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → Go to step 4

OK

## END

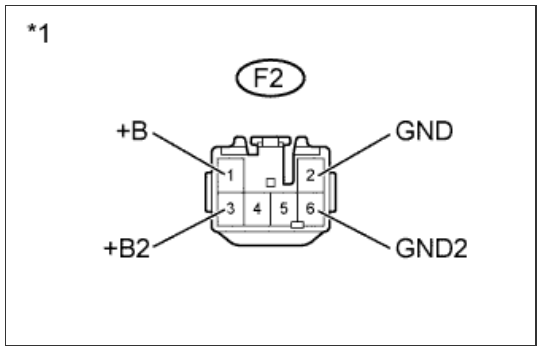
## 4.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY POWER SOURCE)

a. Disconnect the F2 stereo component amplifier assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-2 (GND) - Body ground | Always | Below 1 Ω |
| F2-6 (GND2) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-1 (+B) - F2-2 (GND) | Always | 11 to 14 V |
| F2-3 (+B2) - F2-2 (GND) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 5.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - RADIO RECEIVER)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-4 (MI+) - F54-11 (MO+) | Always | Below 1 Ω |
| F63-10 (MI-) - F54-25 (MO-) | Always | Below 1 Ω |
| F63-5 (SLDI) - F54-24 (SLDI) | Always | Below 1 Ω |
| F63-4 (MI+) - Body ground | Always | 10 kΩ or higher |
| F63-10 (MI-) - Body ground | Always | 10 kΩ or higher |
| F63-5 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 6.CONFIRM MODEL

a. Choose the model to be inspected.

**Result**

| Model | Proceed to |
|---|---|
| w/o Rear Seat Entertainment System | A |
| w/ Rear Seat Entertainment System | B |

B → Go to step 9

A

### 7.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - DISPLAY AND NAVIGATION MODULE)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**8.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Replace the stereo component amplifier assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**END**

**9.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - TELEVISION DISPLAY)**

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the L50 television display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - L50-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - L50-2 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - L50-3 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**10.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Replace the stereo component amplifier assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

```
END
```

## DTC B15F7 Certification ECU Vehicle Information Reading/Writing Process Malfunction

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when items controlled by the certification ECU (smart key ECU assembly) cannot be customized via the navigation system vehicle customization screen.

**HINT:**

**The certification ECU (smart key ECU assembly) controls the items for the following systems that are customizable via the navigation system screen:**

- **Entry and start system (for Entry Function)**
- **Entry and start system (for Start Function)**

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15F7 | Certification ECU (smart key ECU assembly) vehicle setting processing error. | • CAN communication system<br>• Entry and start system (for entry function)<br>• Entry and start system (for start function)<br>• Certification ECU (smart key ECU assembly)<br>• Display and navigation module display |

### INSPECTION PROCEDURE

**1.CHECK CAN COMMUNICATION SYSTEM**

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

**HINT:**

- **for LHD (Click here)**
- **for RHD (Click here)**

**OK:**
**CAN communication DTC is not output.**

Result

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**B** → **GO TO CAN COMMUNICATION SYSTEM (Click here)**

**C** → **GO TO CAN COMMUNICATION SYSTEM (Click here)**

**A**

**2.CHECK ENTRY AND START SYSTEM (for Entry Function)**

a. Check if the entry and start system (for entry function) is malfunctioning ( Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the entry and start system (for entry function).

**OK:**
**No malfunctions are present in the entry and start system (for entry function).**

**NG** → **GO TO ENTRY AND START SYSTEM (for Entry Function) ( Click here)**

**OK**

### 3.CHECK ENTRY AND START SYSTEM (for Start Function)

a. Check if the entry and start system (for start function) is malfunctioning ( Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the entry and start system (for start function).

**OK:**

**No malfunctions are present in the entry and start system (for start function).**

NG → GO TO ENTRY AND START SYSTEM (for Start Function) ( **Click here**)

OK ↓

### 4.CHECK CUSTOMIZE ITEMS

a. Display the "Vehicle Customization" screen.

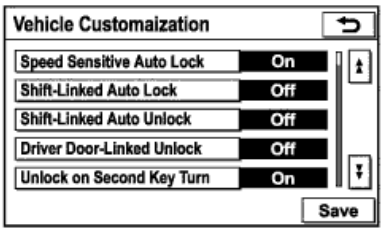
b. Make a note of the customizable items for each certification ECU related system.

**HINT:**

These items shown as customizable via the navigation system vehicle customization screen can also be changed using the intelligent tester. In a following step, the intelligent tester will be used.

i. To match-up the items in the navigation display with the items on the intelligent tester, check the customize parameters list for the entry and start system (for entry function) related items that can be customized via the navigation system screen (Click here).

Example:




ii. To match-up the items in the navigation display with the items on the intelligent tester, check the customize parameters list for the entry and start system (for start function) related items that can be customized via the navigation system screen (Click here).

c. Using the intelligent tester, confirm that it is possible to change the settings of the customize parameters that are available for customization via the navigation system screen.

**OK:**

**The items available for customization via the navigation system screen can be customized successfully using the intelligent tester.**

NG → REPLACE SMART KEY ECU ASSEMBLY

OK ↓

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

## DTC B1595 No Response from Rear Seat Entertainment System

## DTC B15D5 Rear Seat Entertainment System Disconnected

**for Preparation** Click here

### DESCRIPTION

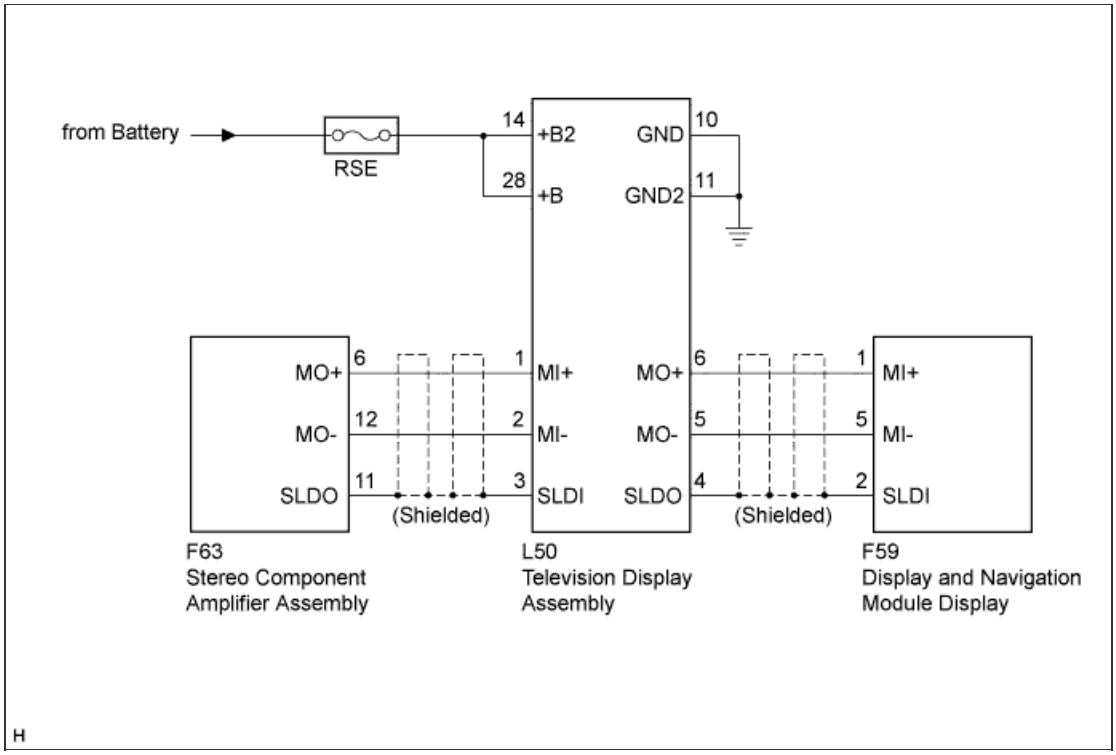
The display and navigation module display and television display assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and television display assembly, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1595 | No response to the diagnostic memory request from the master unit. | • Television display assembly power source circuit<br>• MOST circuit between stereo component amplifier assembly and television display assembly<br>• MOST circuit between television display assembly and display and navigation module display<br>• Television display assembly<br>• Display and navigation module display |
| B15D5 | A device that is listed in the MOST network connected device record of the master unit is missing. | |

**HINT:**

For the MOST network, the display and navigation module display is the master unit.

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

#### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

**B** → Go to step 3

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

**NG** → Go to step 4

**OK**

## END

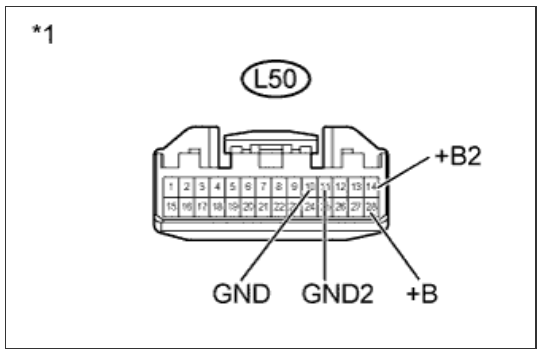
## 4.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY POWER SOURCE)

a. Disconnect the L50 television display assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-10 (GND) - Body ground | Always | Below 1 Ω |
| L50-11 (GND2) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-14 (+B2) - L50-10 (GND) | Always | 11 to 14 V |

| | | |
|---|---|---|
| L50-28 (+B) - L50-10 (GND) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Television Display Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - STEREO COMPONENT AMPLIFIER)

a. Disconnect the L50 television display assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-1 (MI+) - F63-6 (MO+) | Always | Below 1 Ω |
| L50-2 (MI-) - F63-12 (MO-) | Always | Below 1 Ω |
| L50-3 (SLDI) - F63-11 (SLDO) | Always | Below 1 Ω |
| L50-1 (MI+) - Body ground | Always | 10 kΩ or higher |
| L50-2 (MI-) - Body ground | Always | 10 kΩ or higher |
| L50-3 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 6.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the L50 television display assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| L50-5 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| L50-4 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| L50-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| L50-5 (MO-) - Body ground | Always | 10 kΩ or higher |
| L50-4 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**7.REPLACE TELEVISION DISPLAY ASSEMBLY**

a. Replace the television display assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK

**END**

## DTC B15F7 Certification ECU Vehicle Information Reading/Writing Process Malfunction

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when items controlled by the certification ECU (smart key ECU assembly) cannot be customized via the navigation system vehicle customization screen.

**HINT:**

**The certification ECU (smart key ECU assembly) controls the items for the following systems that are customizable via the navigation system screen:**

- **Entry and start system (for Entry Function)**
- **Entry and start system (for Start Function)**

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15F7 | Certification ECU (smart key ECU assembly) vehicle setting processing error. | • CAN communication system<br>• Entry and start system (for entry function)<br>• Entry and start system (for start function)<br>• Certification ECU (smart key ECU assembly)<br>• Display and navigation module display |

### INSPECTION PROCEDURE

**1.CHECK CAN COMMUNICATION SYSTEM**

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

**HINT:**

- **for LHD (Click here)**
- **for RHD (Click here)**

**OK:**
**CAN communication DTC is not output.**

Result

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**B** → **GO TO CAN COMMUNICATION SYSTEM (Click here)**

**C** → **GO TO CAN COMMUNICATION SYSTEM (Click here)**

**A**

**2.CHECK ENTRY AND START SYSTEM (for Entry Function)**

a. Check if the entry and start system (for entry function) is malfunctioning ( Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the entry and start system (for entry function).

**OK:**
**No malfunctions are present in the entry and start system (for entry function).**

**NG** → **GO TO ENTRY AND START SYSTEM (for Entry Function) ( Click here)**

**OK**

### 3.CHECK ENTRY AND START SYSTEM (for Start Function)

a. Check if the entry and start system (for start function) is malfunctioning ( Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the entry and start system (for start function).

**OK:**

**No malfunctions are present in the entry and start system (for start function).**

NG → GO TO ENTRY AND START SYSTEM (for Start Function) ( **Click here**)

OK

### 4.CHECK CUSTOMIZE ITEMS

a. Display the "Vehicle Customization" screen.

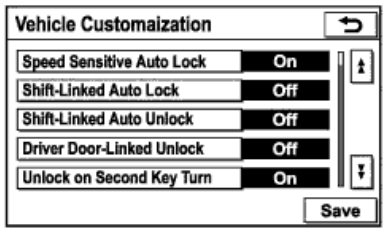
b. Make a note of the customizable items for each certification ECU related system.

**HINT:**

These items shown as customizable via the navigation system vehicle customization screen can also be changed using the intelligent tester. In a following step, the intelligent tester will be used.

i. To match-up the items in the navigation display with the items on the intelligent tester, check the customize parameters list for the entry and start system (for entry function) related items that can be customized via the navigation system screen (Click here).

Example:




ii. To match-up the items in the navigation display with the items on the intelligent tester, check the customize parameters list for the entry and start system (for start function) related items that can be customized via the navigation system screen (Click here).

c. Using the intelligent tester, confirm that it is possible to change the settings of the customize parameters that are available for customization via the navigation system screen.

**OK:**

**The items available for customization via the navigation system screen can be customized successfully using the intelligent tester.**

NG → REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

## DTC B1595 No Response from Rear Seat Entertainment System

## DTC B15D5 Rear Seat Entertainment System Disconnected

**for Preparation** Click here

### DESCRIPTION

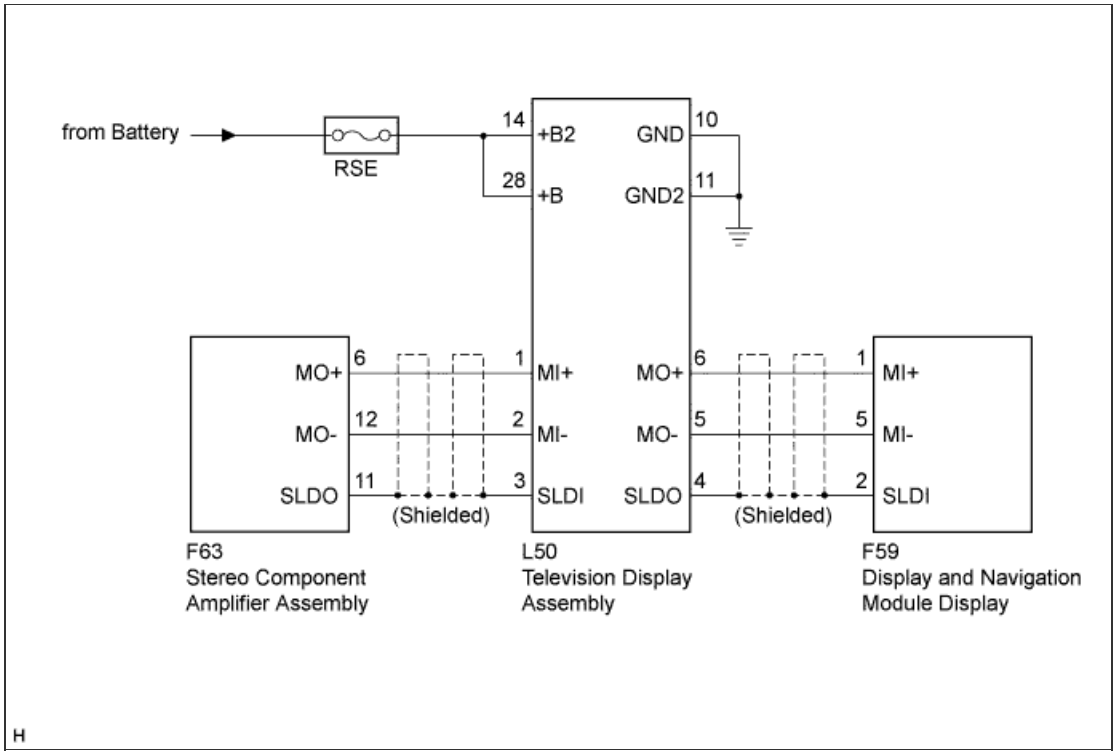
The display and navigation module display and television display assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and television display assembly, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1595 | No response to the diagnostic memory request from the master unit. | • Television display assembly power source circuit<br>• MOST circuit between stereo component amplifier assembly and television display assembly<br>• MOST circuit between television display assembly and display and navigation module display<br>• Television display assembly<br>• Display and navigation module display |
| B15D5 | A device that is listed in the MOST network connected device record of the master unit is missing. | |

**HINT:**

For the MOST network, the display and navigation module display is the master unit.

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

#### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

**B** → Go to step 3

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

**NG** → Go to step 4

**OK**

## END

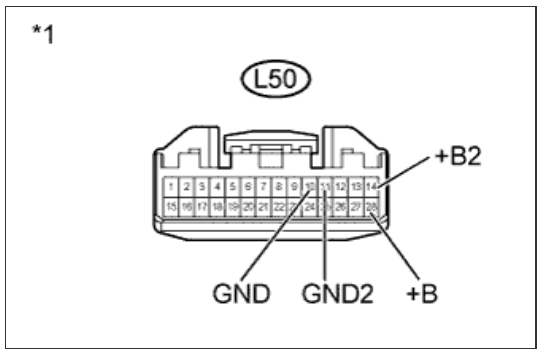
## 4.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY POWER SOURCE)

a. Disconnect the L50 television display assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-10 (GND) - Body ground | Always | Below 1 Ω |
| L50-11 (GND2) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-14 (+B2) - L50-10 (GND) | Always | 11 to 14 V |

| | | |
|---|---|---|
| L50-28 (+B) - L50-10 (GND) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Television Display Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - STEREO COMPONENT AMPLIFIER)

a. Disconnect the L50 television display assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-1 (MI+) - F63-6 (MO+) | Always | Below 1 Ω |
| L50-2 (MI-) - F63-12 (MO-) | Always | Below 1 Ω |
| L50-3 (SLDI) - F63-11 (SLDO) | Always | Below 1 Ω |
| L50-1 (MI+) - Body ground | Always | 10 kΩ or higher |
| L50-2 (MI-) - Body ground | Always | 10 kΩ or higher |
| L50-3 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 6.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the L50 television display assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| L50-5 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| L50-4 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| L50-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| L50-5 (MO-) - Body ground | Always | 10 kΩ or higher |
| L50-4 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**7.REPLACE TELEVISION DISPLAY ASSEMBLY**

a. Replace the television display assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK

**END**

## DTC U0073 Control Module Communication Bus Off

## DTC U0155 Lost Communication with Combination Meter

## DTC U0164 Lost Communication with A/C ECU

## DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a CAN communication circuit malfunction is detected by the display and navigation module display self check.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN connection malfunction | CAN communication system |
| U0155 | No communication with combination meter assembly | • Combination meter assembly<br>• CAN communication system |
| U0164 | No communication with A/C amplifier | • Air conditioning amplifier assembly<br>• CAN communication system |
| U1110 | No communication with clearance warning ECU | • Clearance warning ECU assembly<br>• CAN communication system |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**

**No DTCs are output.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**B** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**C** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**A**

USE SIMULATION METHOD TO CHECK (Click here)

## DTC B1595 No Response from Rear Seat Entertainment System

## DTC B15D5 Rear Seat Entertainment System Disconnected

**for Preparation** Click here

### DESCRIPTION

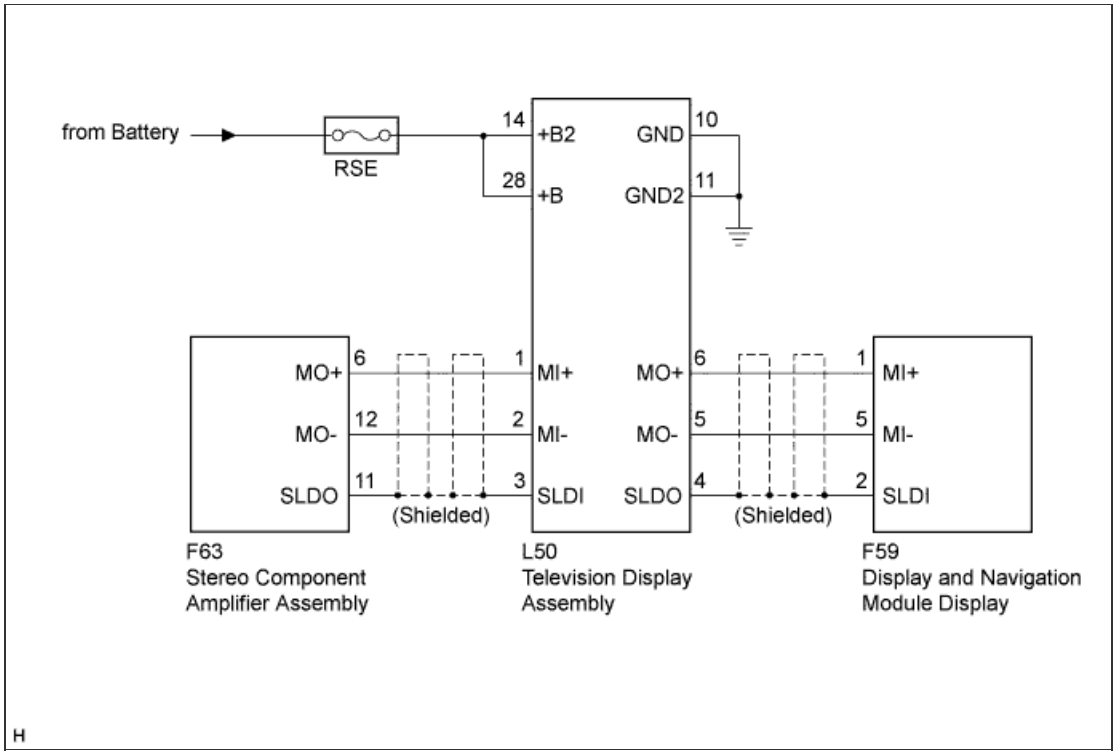
The display and navigation module display and television display assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and television display assembly, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1595 | No response to the diagnostic memory request from the master unit. | • Television display assembly power source circuit<br>• MOST circuit between stereo component amplifier assembly and television display assembly<br>• MOST circuit between television display assembly and display and navigation module display<br>• Television display assembly<br>• Display and navigation module display |
| B15D5 | A device that is listed in the MOST network connected device record of the master unit is missing. | |

**HINT:**

For the MOST network, the display and navigation module display is the master unit.

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

#### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

**B** → Go to step 3

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

**NG** → Go to step 4

**OK**

## END

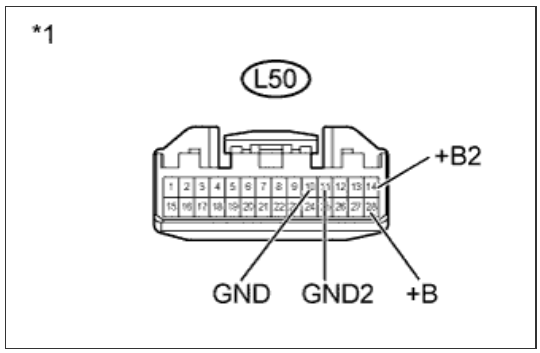
## 4.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY POWER SOURCE)

a. Disconnect the L50 television display assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-10 (GND) - Body ground | Always | Below 1 Ω |
| L50-11 (GND2) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-14 (+B2) - L50-10 (GND) | Always | 11 to 14 V |

| | | |
|---|---|---|
| L50-28 (+B) - L50-10 (GND) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Television Display Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - STEREO COMPONENT AMPLIFIER)

a. Disconnect the L50 television display assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-1 (MI+) - F63-6 (MO+) | Always | Below 1 Ω |
| L50-2 (MI-) - F63-12 (MO-) | Always | Below 1 Ω |
| L50-3 (SLDI) - F63-11 (SLDO) | Always | Below 1 Ω |
| L50-1 (MI+) - Body ground | Always | 10 kΩ or higher |
| L50-2 (MI-) - Body ground | Always | 10 kΩ or higher |
| L50-3 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 6.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the L50 television display assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| L50-5 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| L50-4 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| L50-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| L50-5 (MO-) - Body ground | Always | 10 kΩ or higher |
| L50-4 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**7.REPLACE TELEVISION DISPLAY ASSEMBLY**

a. Replace the television display assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK

**END**

## DTC U0073 Control Module Communication Bus Off

## DTC U0155 Lost Communication with Combination Meter

## DTC U0164 Lost Communication with A/C ECU

## DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a CAN communication circuit malfunction is detected by the display and navigation module display self check.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN connection malfunction | CAN communication system |
| U0155 | No communication with combination meter assembly | • Combination meter assembly<br>• CAN communication system |
| U0164 | No communication with A/C amplifier | • Air conditioning amplifier assembly<br>• CAN communication system |
| U1110 | No communication with clearance warning ECU | • Clearance warning ECU assembly<br>• CAN communication system |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**

**No DTCs are output.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**B** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**C** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**A**

USE SIMULATION METHOD TO CHECK (Click here)

## DTC B1595 No Response from Rear Seat Entertainment System

## DTC B15D5 Rear Seat Entertainment System Disconnected

**for Preparation** Click here

### DESCRIPTION

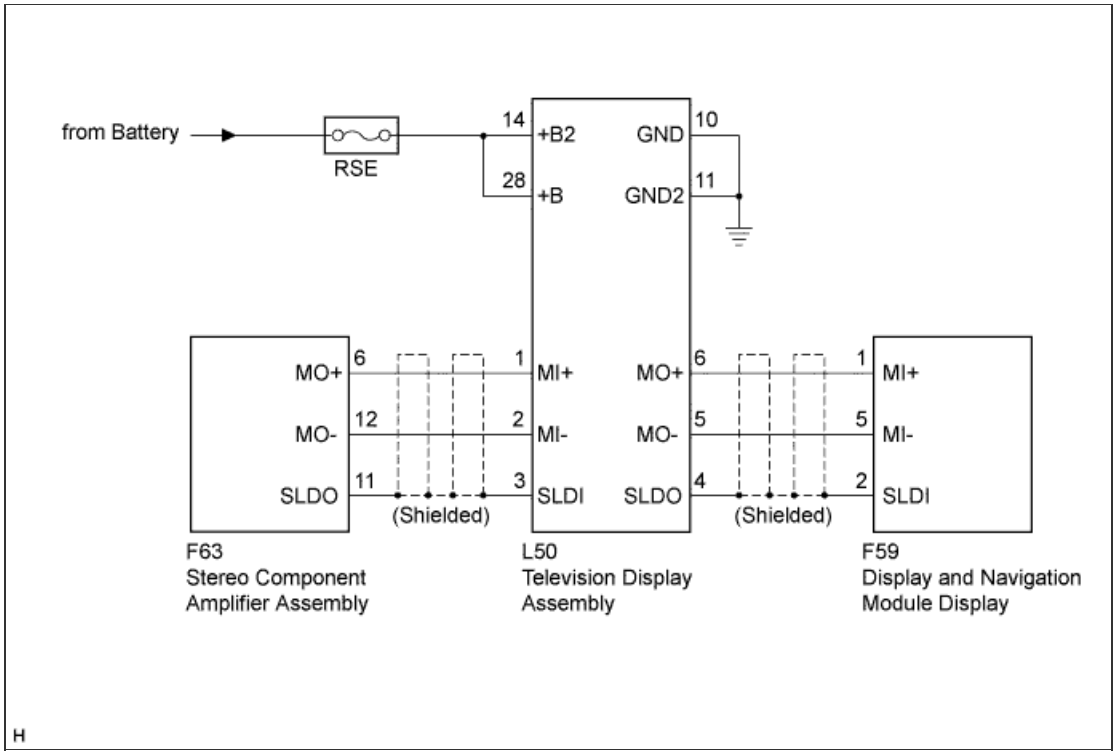
The display and navigation module display and television display assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and television display assembly, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1595 | No response to the diagnostic memory request from the master unit. | • Television display assembly power source circuit<br>• MOST circuit between stereo component amplifier assembly and television display assembly<br>• MOST circuit between television display assembly and display and navigation module display<br>• Television display assembly<br>• Display and navigation module display |
| B15D5 | A device that is listed in the MOST network connected device record of the master unit is missing. | |

**HINT:**

For the MOST network, the display and navigation module display is the master unit.

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

#### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

**B** → Go to step 3

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

**NG** → Go to step 4

**OK**

## END

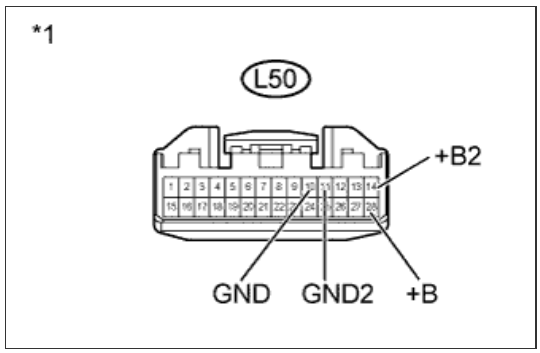
## 4.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY POWER SOURCE)

a. Disconnect the L50 television display assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-10 (GND) - Body ground | Always | Below 1 Ω |
| L50-11 (GND2) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-14 (+B2) - L50-10 (GND) | Always | 11 to 14 V |

| | | |
|---|---|---|
| L50-28 (+B) - L50-10 (GND) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Television Display Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - STEREO COMPONENT AMPLIFIER)

a. Disconnect the L50 television display assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-1 (MI+) - F63-6 (MO+) | Always | Below 1 Ω |
| L50-2 (MI-) - F63-12 (MO-) | Always | Below 1 Ω |
| L50-3 (SLDI) - F63-11 (SLDO) | Always | Below 1 Ω |
| L50-1 (MI+) - Body ground | Always | 10 kΩ or higher |
| L50-2 (MI-) - Body ground | Always | 10 kΩ or higher |
| L50-3 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 6.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the L50 television display assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| L50-5 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| L50-4 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| L50-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| L50-5 (MO-) - Body ground | Always | 10 kΩ or higher |
| L50-4 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**7.REPLACE TELEVISION DISPLAY ASSEMBLY**

a. Replace the television display assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK

**END**

## DTC U0073 Control Module Communication Bus Off

## DTC U0155 Lost Communication with Combination Meter

## DTC U0164 Lost Communication with A/C ECU

## DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a CAN communication circuit malfunction is detected by the display and navigation module display self check.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN connection malfunction | CAN communication system |
| U0155 | No communication with combination meter assembly | • Combination meter assembly<br>• CAN communication system |
| U0164 | No communication with A/C amplifier | • Air conditioning amplifier assembly<br>• CAN communication system |
| U1110 | No communication with clearance warning ECU | • Clearance warning ECU assembly<br>• CAN communication system |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**

**No DTCs are output.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**B** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**C** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**A**

USE SIMULATION METHOD TO CHECK (Click here)

## DTC B15A0 LAN Master Malfunction

## DTC B15AD Navigation Processor Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the display and navigation module display.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A0 | When either of the conditions below is met:<br>• Bus malfunction<br>• Sub-microprocessor malfunction | Display and navigation module display |
| B15AD | When either of the conditions below is met:<br>• A short to ground, short to +B or open occurs in the gyro signal circuit<br>• Gyro sensor malfunction | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

**NG** → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC U0073 Control Module Communication Bus Off

## DTC U0155 Lost Communication with Combination Meter

## DTC U0164 Lost Communication with A/C ECU

## DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a CAN communication circuit malfunction is detected by the display and navigation module display self check.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN connection malfunction | CAN communication system |
| U0155 | No communication with combination meter assembly | • Combination meter assembly<br>• CAN communication system |
| U0164 | No communication with A/C amplifier | • Air conditioning amplifier assembly<br>• CAN communication system |
| U1110 | No communication with clearance warning ECU | • Clearance warning ECU assembly<br>• CAN communication system |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**

**No DTCs are output.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**B** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**C** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**A**

USE SIMULATION METHOD TO CHECK (Click here)

## DTC B15A0 LAN Master Malfunction

## DTC B15AD Navigation Processor Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the display and navigation module display.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A0 | When either of the conditions below is met:<br>• Bus malfunction<br>• Sub-microprocessor malfunction | Display and navigation module display |
| B15AD | When either of the conditions below is met:<br>• A short to ground, short to +B or open occurs in the gyro signal circuit<br>• Gyro sensor malfunction | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

**NG** → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC U0073 Control Module Communication Bus Off

## DTC U0155 Lost Communication with Combination Meter

## DTC U0164 Lost Communication with A/C ECU

## DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a CAN communication circuit malfunction is detected by the display and navigation module display self check.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN connection malfunction | CAN communication system |
| U0155 | No communication with combination meter assembly | • Combination meter assembly<br>• CAN communication system |
| U0164 | No communication with A/C amplifier | • Air conditioning amplifier assembly<br>• CAN communication system |
| U1110 | No communication with clearance warning ECU | • Clearance warning ECU assembly<br>• CAN communication system |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**

**No DTCs are output.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**B** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**C** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**A**

USE SIMULATION METHOD TO CHECK (Click here)

## DTC B15A0 LAN Master Malfunction

## DTC B15AD Navigation Processor Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the display and navigation module display.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A0 | When either of the conditions below is met:<br>• Bus malfunction<br>• Sub-microprocessor malfunction | Display and navigation module display |
| B15AD | When either of the conditions below is met:<br>• A short to ground, short to +B or open occurs in the gyro signal circuit<br>• Gyro sensor malfunction | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

**NG** → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC U0073 Control Module Communication Bus Off

## DTC U0155 Lost Communication with Combination Meter

## DTC U0164 Lost Communication with A/C ECU

## DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a CAN communication circuit malfunction is detected by the display and navigation module display self check.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN connection malfunction | CAN communication system |
| U0155 | No communication with combination meter assembly | • Combination meter assembly<br>• CAN communication system |
| U0164 | No communication with A/C amplifier | • Air conditioning amplifier assembly<br>• CAN communication system |
| U1110 | No communication with clearance warning ECU | • Clearance warning ECU assembly<br>• CAN communication system |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**

**No DTCs are output.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**B** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**C** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**A**

USE SIMULATION METHOD TO CHECK (Click here)

## DTC B15A0 LAN Master Malfunction

## DTC B15AD Navigation Processor Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the display and navigation module display.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A0 | When either of the conditions below is met:<br>• Bus malfunction<br>• Sub-microprocessor malfunction | Display and navigation module display |
| B15AD | When either of the conditions below is met:<br>• A short to ground, short to +B or open occurs in the gyro signal circuit<br>• Gyro sensor malfunction | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

**NG** → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC U0073 Control Module Communication Bus Off

## DTC U0155 Lost Communication with Combination Meter

## DTC U0164 Lost Communication with A/C ECU

## DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a CAN communication circuit malfunction is detected by the display and navigation module display self check.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN connection malfunction | CAN communication system |
| U0155 | No communication with combination meter assembly | • Combination meter assembly<br>• CAN communication system |
| U0164 | No communication with A/C amplifier | • Air conditioning amplifier assembly<br>• CAN communication system |
| U1110 | No communication with clearance warning ECU | • Clearance warning ECU assembly<br>• CAN communication system |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**

**No DTCs are output.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**B** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**C** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**A**

USE SIMULATION METHOD TO CHECK (Click here)

# DTC B15B0 Display Screen Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when a malfunction occurs in the display and navigation module display.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15B0 | Picture circuit (TFT unit) malfunction | Display and navigation module display |

## INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTC and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC U0073 Control Module Communication Bus Off

## DTC U0155 Lost Communication with Combination Meter

## DTC U0164 Lost Communication with A/C ECU

## DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a CAN communication circuit malfunction is detected by the display and navigation module display self check.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN connection malfunction | CAN communication system |
| U0155 | No communication with combination meter assembly | • Combination meter assembly<br>• CAN communication system |
| U0164 | No communication with A/C amplifier | • Air conditioning amplifier assembly<br>• CAN communication system |
| U1110 | No communication with clearance warning ECU | • Clearance warning ECU assembly<br>• CAN communication system |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**

**No DTCs are output.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**B** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**C** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**A**

USE SIMULATION METHOD TO CHECK (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

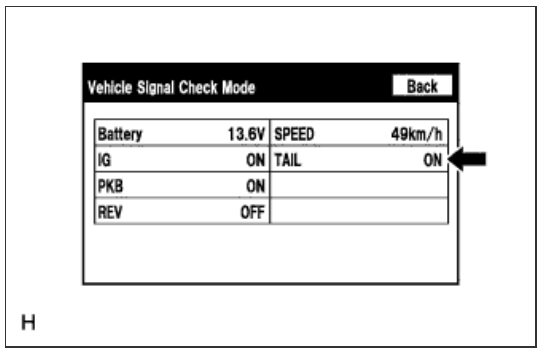
### 1.CHECK VEHICLE SIGNAL (OPERATION CHECK)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check (Click here).

b. Cover the automatic light control sensor on the instrument panel with a cloth.

c. Set the instrument panel light control to less than the maximum (to activate the dimmer function that works when the light control switch is in the TAIL position).

d. Check that the display changes between ON and OFF according to the light control switch operation.




**OK:**

| Light Control Switch Condition | Display Condition |
|---|---|
| TAIL or HEAD | ON |
| OFF | OFF |

**HINT:**

This display is updated once per second. As a result, it is normal for the display to lag behind the actual switch operation.

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

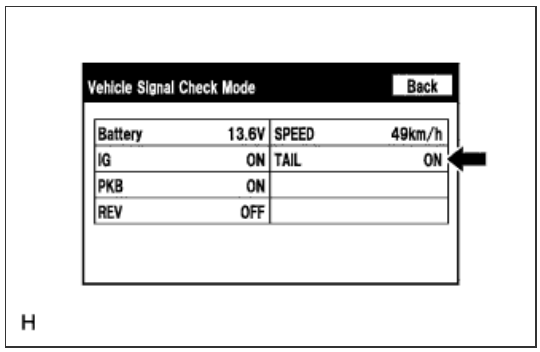
### 1.CHECK VEHICLE SIGNAL (OPERATION CHECK)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check (Click here).

b. Cover the automatic light control sensor on the instrument panel with a cloth.

c. Set the instrument panel light control to less than the maximum (to activate the dimmer function that works when the light control switch is in the TAIL position).

d. Check that the display changes between ON and OFF according to the light control switch operation.




**OK:**

| Light Control Switch Condition | Display Condition |
|---|---|
| TAIL or HEAD | ON |
| OFF | OFF |

**HINT:**

This display is updated once per second. As a result, it is normal for the display to lag behind the actual switch operation.

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

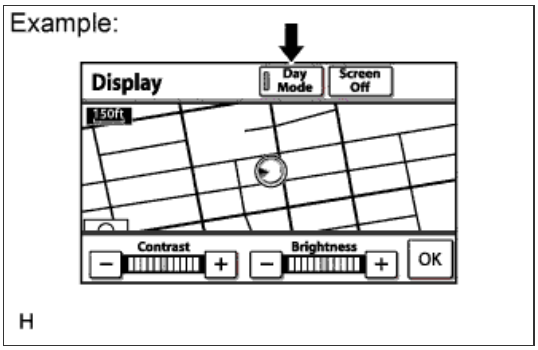
### 1.CHECK IMAGE QUALITY SETTING

a. Enter the display adjustment screen by pressing the "DISP" switch.

b. Turn the light control switch to the tail position.

c. Check if "Day Mode" on the display adjustment is on.

**OK:**
**"Day Mode" is on.**




NG → Go to step 2

OK →

### TURN "Day Mode" SETTING OFF

### 2.CHECK VEHICLE SIGNAL (OPERATION CHECK)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check (Click here).

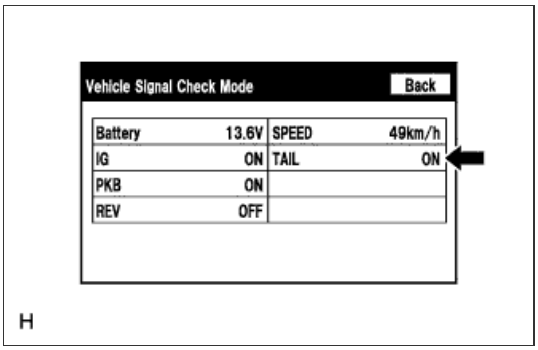
b. Cover the automatic light control sensor on the instrument panel with a cloth.

c. Set the instrument panel light control to less than the maximum (to activate the dimmer function that works when the light control switch is in the TAIL position).

d. Check that the display changes between ON and OFF according to the light control switch operation.

**OK:**

| Light Control Switch Condition | Display Condition |
|---|---|
| TAIL or HEAD | ON |
| OFF | OFF |




**HINT:**

The display is updated once per second. It is normal for the display to lag behind the actual switch operation.

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK →

### REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

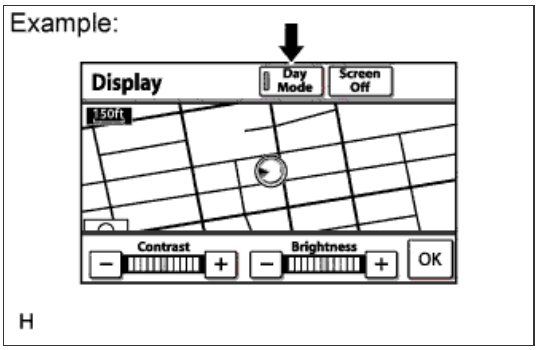
### 1.CHECK IMAGE QUALITY SETTING

a. Enter the display adjustment screen by pressing the "DISP" switch.

b. Turn the light control switch to the tail position.

c. Check if "Day Mode" on the display adjustment is on.

**OK:**
**"Day Mode" is on.**




NG → Go to step 2

OK →

### TURN "Day Mode" SETTING OFF

### 2.CHECK VEHICLE SIGNAL (OPERATION CHECK)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check (Click here).

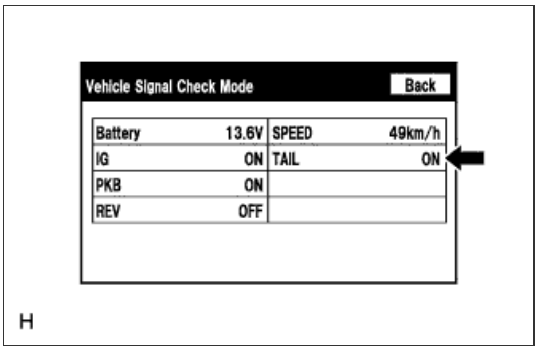
b. Cover the automatic light control sensor on the instrument panel with a cloth.

c. Set the instrument panel light control to less than the maximum (to activate the dimmer function that works when the light control switch is in the TAIL position).

d. Check that the display changes between ON and OFF according to the light control switch operation.

**OK:**

| Light Control Switch Condition | Display Condition |
|---|---|
| TAIL or HEAD | ON |
| OFF | OFF |




**HINT:**

The display is updated once per second. It is normal for the display to lag behind the actual switch operation.

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK →

### REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK PANEL SWITCH

a. Check for foreign matter around the switches that might prevent operation.

**OK:**
**No foreign matter is found.**

NG → REMOVE ANY FOREIGN MATTER FOUND

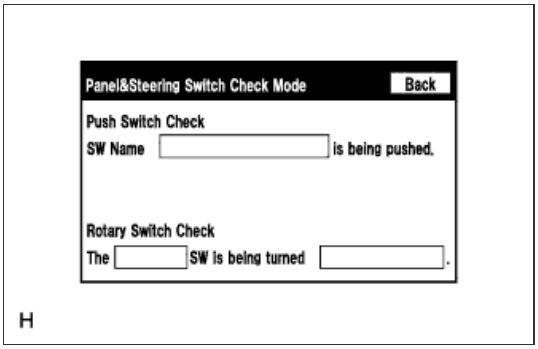
OK ↓

### 2.CHECK PANEL SWITCH (OPERATION CHECK)

a. Enter the "Panel & Steering Switch Check Mode" screen. Refer to Check Panel & Steering Switch in Operation Check (Click here).

b. Operate the abnormal switch and check if the switch name and status are correctly displayed.

**OK:**
**The switch name and status are correctly displayed as operated.**




NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK ↓

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK PANEL SWITCH

a. Check for foreign matter around the switches that might prevent operation.

**OK:**
**No foreign matter is found.**

NG → REMOVE ANY FOREIGN MATTER FOUND

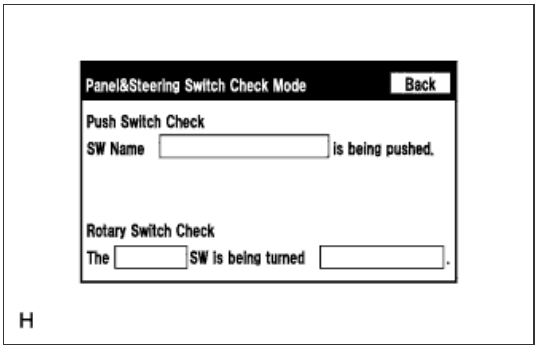
OK ↓

### 2.CHECK PANEL SWITCH (OPERATION CHECK)

a. Enter the "Panel & Steering Switch Check Mode" screen. Refer to Check Panel & Steering Switch in Operation Check (Click here).

b. Operate the abnormal switch and check if the switch name and status are correctly displayed.

**OK:**
**The switch name and status are correctly displayed as operated.**




NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK ↓

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK TOUCH PANEL

a. Check for foreign matter on the display.

**OK:**
**The display is clean.**

NG → CLEAN DISPLAY AND RECHECK TOUCH PANEL

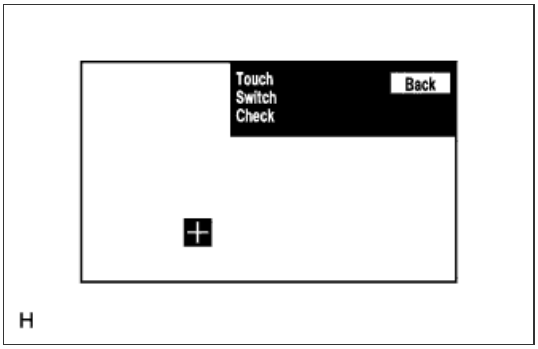
OK

### 2.CHECK TOUCH SWITCH (OPERATION CHECK)

a. Enter the "Touch Switch Check" screen. Refer to Check Touch Switch in Operation Check (Click here).

b. Touch the display in the area where the switch malfunction occurs.

**OK:**
**A "+" mark appears at the touched position.**




NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK TOUCH PANEL

a. Check for foreign matter on the display.

**OK:**
**The display is clean.**

NG → CLEAN DISPLAY AND RECHECK TOUCH PANEL

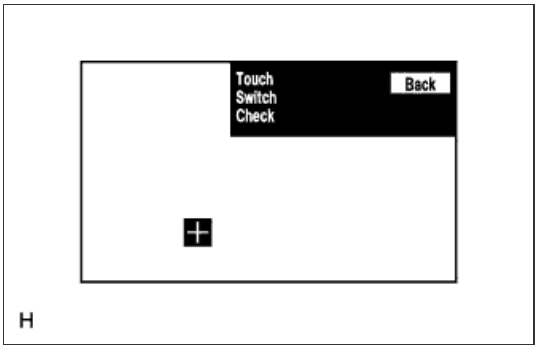
OK

### 2.CHECK TOUCH SWITCH (OPERATION CHECK)

a. Enter the "Touch Switch Check" screen. Refer to Check Touch Switch in Operation Check (Click here).

b. Touch the display in the area where the switch malfunction occurs.

**OK:**
**A "+" mark appears at the touched position.**




NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

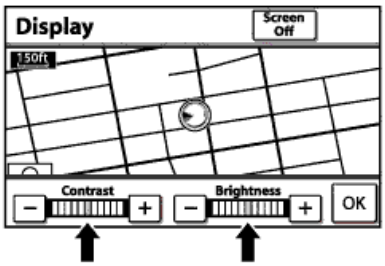
### 1.CHECK DISPLAY SETTING

a. Enter the display adjustment screen by pressing the "DISP" switch.

b. Reset display settings (contrast, brightness) and check that the screen appears normal.

**OK:**
**The display returns to normal.**

Example:




H

NG → Go to step 2

OK →

END

### 2.CHECK CABIN

a. Check that the temperature in the cabin is neither -20°C (-4°F) or lower nor 65°C (149°F) or higher.

**HINT:**

The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.

**Standard:**
**Temperature in the cabin is between -20°C (-4°F) and 65°C (149°F).**

NG → SET CABIN TO APPROPRIATE TEMPERATURE

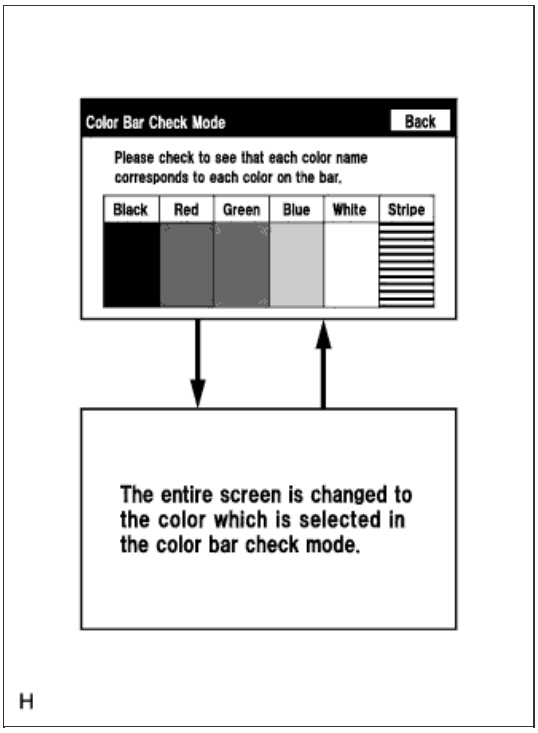
OK →

### 3.CHECK COLOR BAR (OPERATION CHECK)

a. Enter the "Color Bar Check Mode" screen. Refer to Check Color Bar in Operation Check (Click here).

b. Check that the color bars match the displayed names.

**OK:**
**Color bars match the displayed names.**




NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

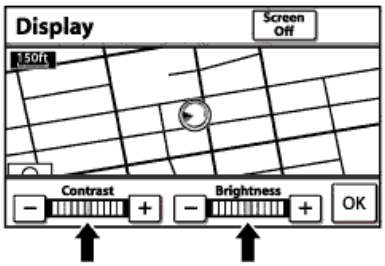
### 1.CHECK DISPLAY SETTING

a. Enter the display adjustment screen by pressing the "DISP" switch.

b. Reset display settings (contrast, brightness) and check that the screen appears normal.

**OK:**
**The display returns to normal.**

Example:




H

NG → Go to step 2

OK →

END

### 2.CHECK CABIN

a. Check that the temperature in the cabin is neither -20°C (-4°F) or lower nor 65°C (149°F) or higher.

**HINT:**

The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.

**Standard:**
**Temperature in the cabin is between -20°C (-4°F) and 65°C (149°F).**

NG → SET CABIN TO APPROPRIATE TEMPERATURE

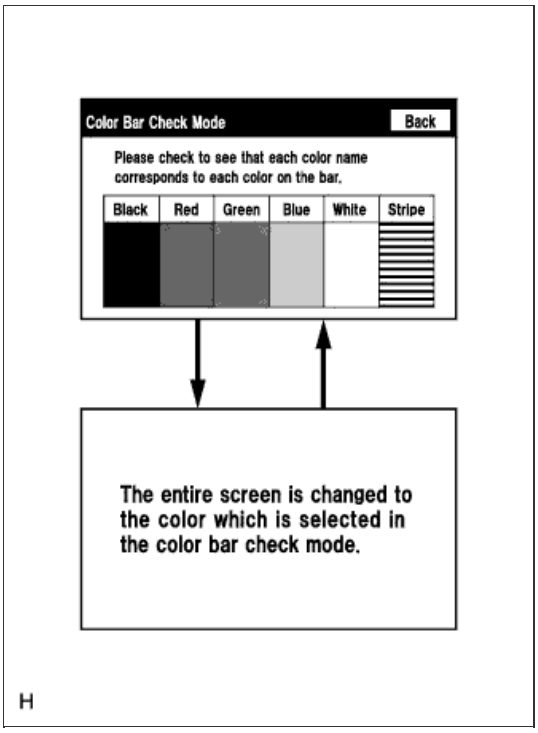
OK →

### 3.CHECK COLOR BAR (OPERATION CHECK)

a. Enter the "Color Bar Check Mode" screen. Refer to Check Color Bar in Operation Check (Click here).

b. Check that the color bars match the displayed names.

**OK:**
**Color bars match the displayed names.**




NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK NAVIGATION MODULE BOARD

a. Display the "Map DVD" screen.

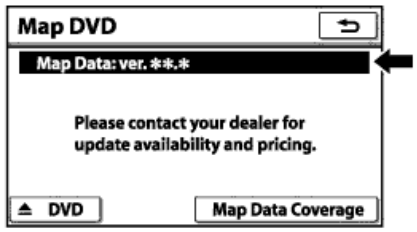
b. Check if a disc is inserted into the map disc slot.

i. Check if the map data version is displayed in the "Map Data" section.

Result

| Result | Proceed to |
|---|---|
| The map data version is not displayed. | A |
| The map data version is displayed. | B |

Example:




H

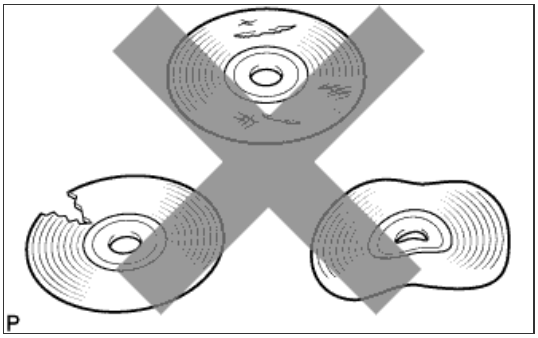
B → EJECT MAP DISC

A

### 2.CHECK MAP DISC

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on the map disc**



P

NG → REPLACE MAP DISC

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK NAVIGATION MODULE BOARD

a. Display the "Map DVD" screen.

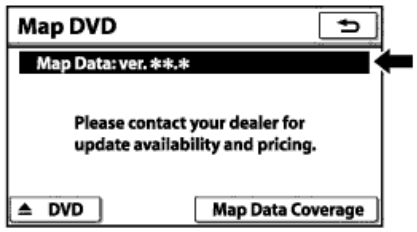
b. Check if a disc is inserted into the map disc slot.

i. Check if the map data version is displayed in the "Map Data" section.

Result

| Result | Proceed to |
|---|---|
| The map data version is not displayed. | A |
| The map data version is displayed. | B |

Example:




H

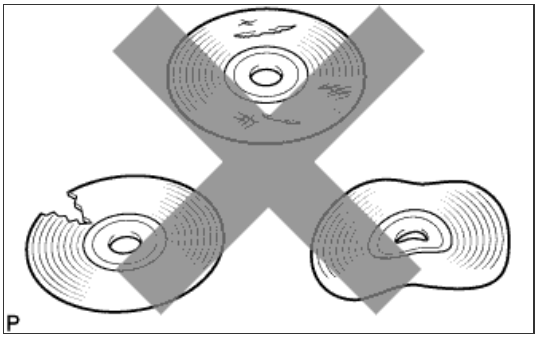
B → EJECT MAP DISC

A

### 2.CHECK MAP DISC

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on the map disc**



P

NG → REPLACE MAP DISC

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

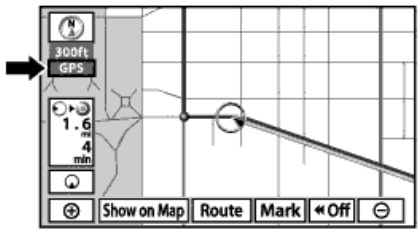
## INSPECTION PROCEDURE

### 1.CHECK GPS MARK

a. Check that the GPS mark is displayed.

**OK:**
**GPS mark is displayed.**

Example:




H

NG → GO TO "GPS MARK IS NOT DISPLAYED" IN PROBLEM SYMPTOMS TABLE (Click here)

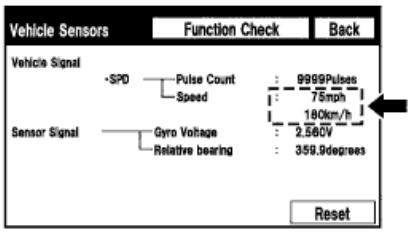
OK

### 2.CHECK VEHICLE SENSOR (OPERATION CHECK)

a. Enter the "Vehicle Sensors" screen. Refer to Check GPS & Vehicle Sensors in Operation Check (Click here).

b. While driving the vehicle, compare the "Speed" indicator to the reading on the speedometer. Check that these readings are almost equal.

**OK:**
**The readings are almost equal.**




H

NG → CHECK DTC OUTPUT (Click here)

OK

### 3.CHECK VEHICLE SIGNAL (OPERATION CHECK)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check ( Click here).

b. Check that the display changes between ON and OFF according to the shift lever operation.

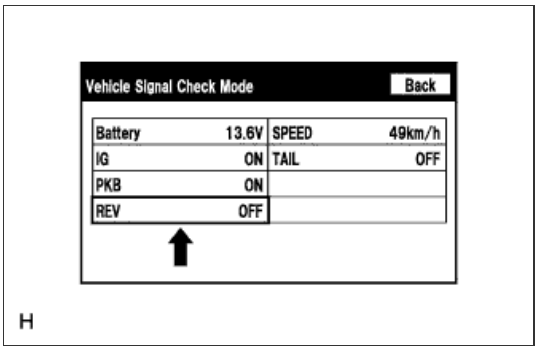
**OK:**

| Shift Lever Position | Display |
|---|---|
| Except R | OFF |
| R | ON |

**HINT:**

The display is updated once per second. It is normal for the display to lag

behind the actual switch operation.




NG → CHECK DTC OUTPUT (Click here)

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

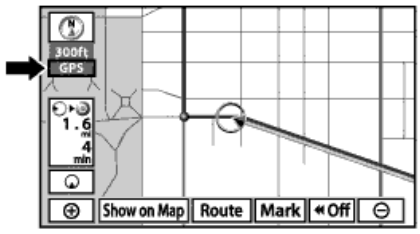
## INSPECTION PROCEDURE

### 1.CHECK GPS MARK

a. Check that the GPS mark is displayed.

**OK:**
**GPS mark is displayed.**

Example:




H

NG → GO TO "GPS MARK IS NOT DISPLAYED" IN PROBLEM SYMPTOMS TABLE (Click here)

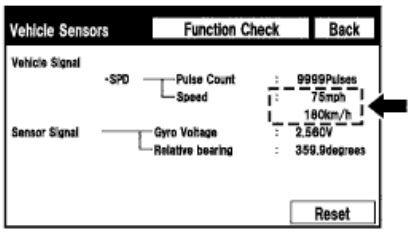
OK

### 2.CHECK VEHICLE SENSOR (OPERATION CHECK)

a. Enter the "Vehicle Sensors" screen. Refer to Check GPS & Vehicle Sensors in Operation Check (Click here).

b. While driving the vehicle, compare the "Speed" indicator to the reading on the speedometer. Check that these readings are almost equal.

**OK:**
**The readings are almost equal.**




H

NG → CHECK DTC OUTPUT (Click here)

OK

### 3.CHECK VEHICLE SIGNAL (OPERATION CHECK)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check ( Click here).

b. Check that the display changes between ON and OFF according to the shift lever operation.

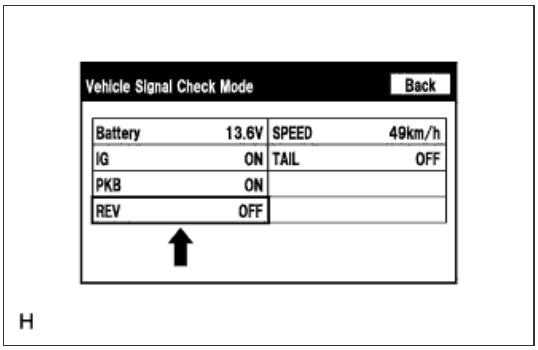
**OK:**

| Shift Lever Position | Display |
|---|---|
| Except R | OFF |
| R | ON |

**HINT:**

The display is updated once per second. It is normal for the display to lag

behind the actual switch operation.




NG → CHECK DTC OUTPUT (Click here)

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.CHECK CONDITION**

a. Check with the customer if the vehicle has been turned by a turntable.

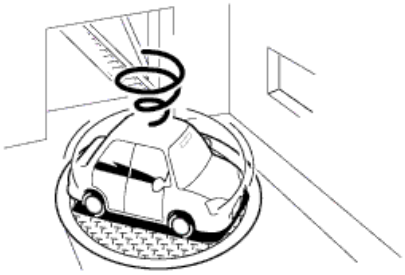
**OK:**

**Vehicle has not been turned by turntable.**

**HINT:**

If the vehicle is turned on a turntable with the engine switch on (IG), the system may store the angular velocity. As a result, the vehicle position cursor may deviate.

Example:



P

NG → TURN ENGINE SWITCH ON (IG) WHEN VEHICLE IS COMPLETELY STOPPED

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**1.CHECK CONDITION**

a. Check with the customer if the vehicle has been turned by a turntable.

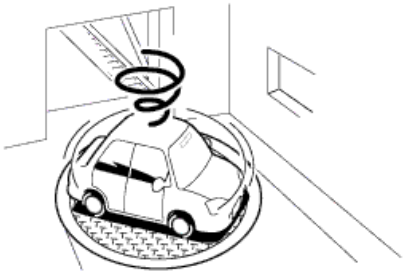
**OK:**

**Vehicle has not been turned by turntable.**

**HINT:**

If the vehicle is turned on a turntable with the engine switch on (IG), the system may store the angular velocity. As a result, the vehicle position cursor may deviate.

Example:



P

NG → TURN ENGINE SWITCH ON (IG) WHEN VEHICLE IS COMPLETELY STOPPED

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

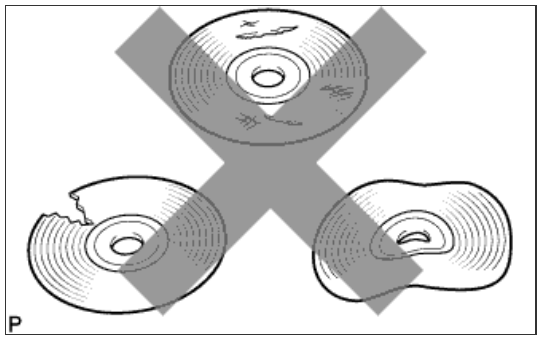
**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK MAP DISC

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on the map disc**




NG → REPLACE MAP DISC

OK

### 2.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

**HINT:**

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

**OK:**
**Condensation is not likely being produced and the temperature is not high or extremely low.**

NG → SET CABIN TO APPROPRIATE TEMPERATURE

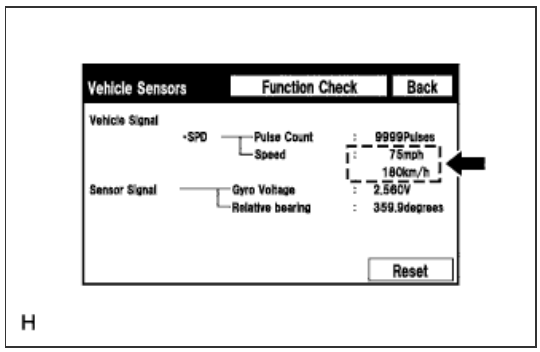
OK

### 3.CHECK VEHICLE SENSOR (OPERATION CHECK)

a. Enter the "Vehicle Sensors" screen. Refer to Check GPS & Vehicle Sensors in Operation Check (Click here).

b. While driving the vehicle, compare the "Speed" indicator to the reading on the speedometer. Check if these readings are almost equal.

**OK:**
**The readings are almost equal.**




NG → CHECK DTC OUTPUT (Click here)

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

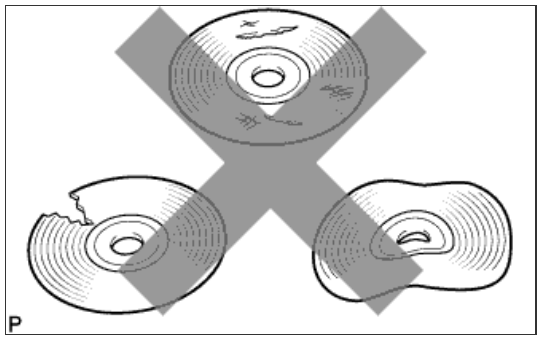
**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK MAP DISC

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on the map disc**




NG → REPLACE MAP DISC

OK

### 2.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

**HINT:**

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

**OK:**
**Condensation is not likely being produced and the temperature is not high or extremely low.**

NG → SET CABIN TO APPROPRIATE TEMPERATURE

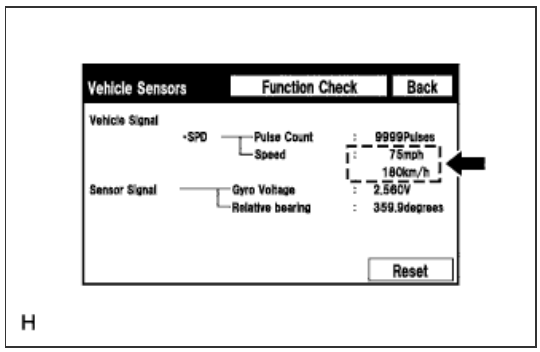
OK

### 3.CHECK VEHICLE SENSOR (OPERATION CHECK)

a. Enter the "Vehicle Sensors" screen. Refer to Check GPS & Vehicle Sensors in Operation Check (Click here).

b. While driving the vehicle, compare the "Speed" indicator to the reading on the speedometer. Check if these readings are almost equal.

**OK:**
**The readings are almost equal.**




NG → CHECK DTC OUTPUT (Click here)

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK NAVIGATION MODULE BOARD

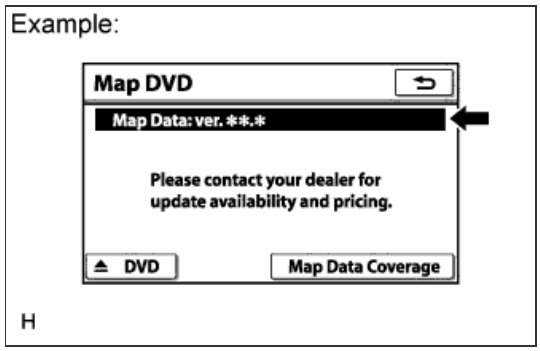
a. Display the "Map DVD" screen.

b. Check if a disc is inserted into the map disc slot.

i. Check if the map data version is displayed in the "Map Data" section.

**Result**

| Result | Proceed to |
|---|---|
| The map data version is displayed. | A |
| The map data version is not displayed. | B |



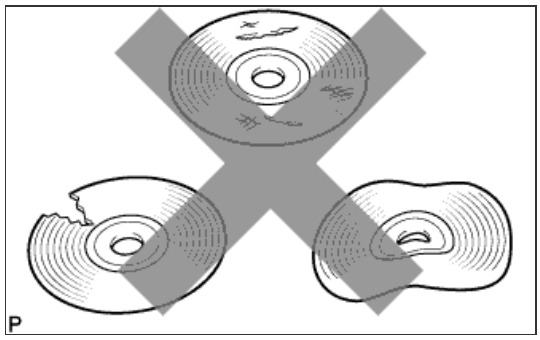

B → INSERT MAP DISC IN MAP DISC SLOT

A

### 2.CHECK MAP DISC

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on the map disc**




NG → REPLACE MAP DISC

OK

### 3.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

**HINT:**

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

**OK:**
**Condensation is not likely being produced and the temperature is not high or extremely low.**

NG → CABIN TO APPROPRIATE TEMPERATURE

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK NAVIGATION MODULE BOARD

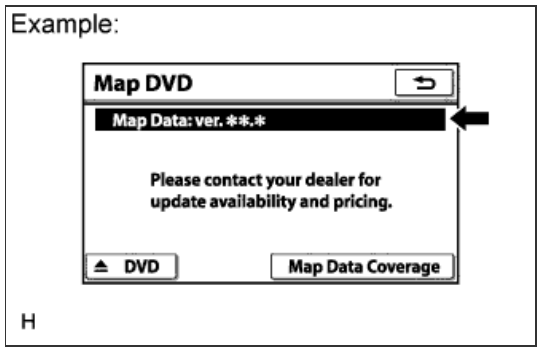
a. Display the "Map DVD" screen.

b. Check if a disc is inserted into the map disc slot.

i. Check if the map data version is displayed in the "Map Data" section.

**Result**

| Result | Proceed to |
|---|---|
| The map data version is displayed. | A |
| The map data version is not displayed. | B |



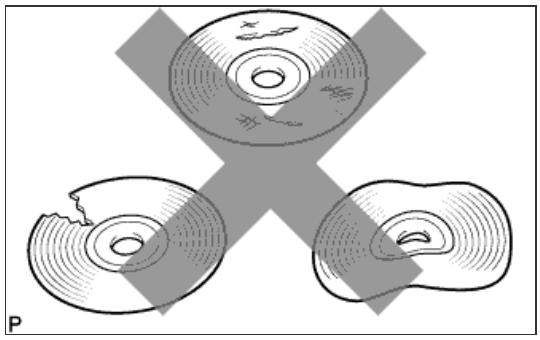

B → INSERT MAP DISC IN MAP DISC SLOT

A

### 2.CHECK MAP DISC

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on the map disc**




NG → REPLACE MAP DISC

OK

### 3.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

**HINT:**

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

**OK:**
**Condensation is not likely being produced and the temperature is not high or extremely low.**

NG → CABIN TO APPROPRIATE TEMPERATURE

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CABIN

a. Check the cabin for any object that might interrupt radio reception on the instrument panel. If such an object exists, remove it and check if the GPS mark reappears.

**HINT:**

The GPS uses extremely faint radio waves originating from satellites. If the signal is interrupted by obstructions or other radio waves, the GPS may not be able to properly receive the signal.

**OK:**
**The GPS mark appears.**

NG → Go to step 2

OK

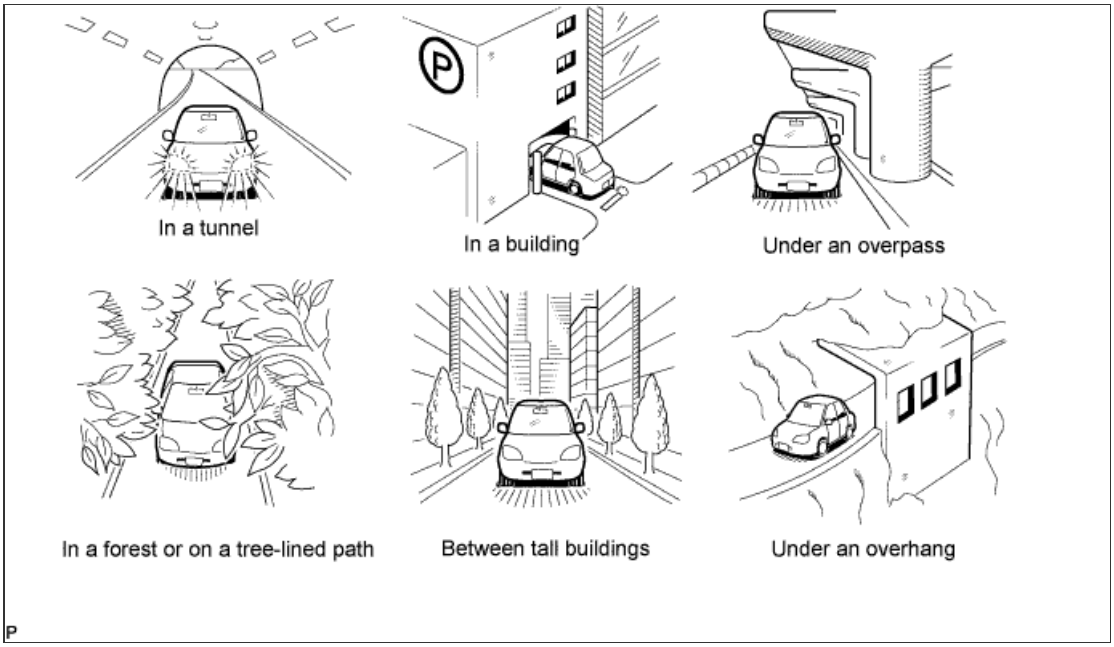
### NORMAL OPERATION

### 2.CHECK SURROUNDINGS

a. Check if the vehicle is in a location where GPS signal reception is poor. If the vehicle is in such a place, relocate the vehicle and check if the GPS mark reappears.

**HINT:**

The GPS uses 24 satellites in 6 orbits. At any point in time, 4 satellites should be able to pinpoint your vehicle. However, GPS signals may not reach the vehicle due to influence from the surroundings, vehicle direction and time. For examples, see the following illustration.




**OK:**
**The GPS mark is displayed.**

NG → Go to step 3

OK

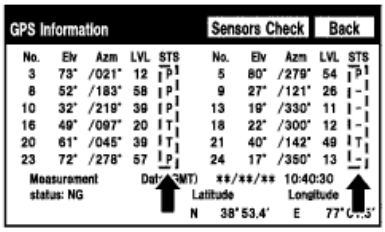
SYSTEM RETURNS TO NORMAL

3.CHECK GPS INFORMATION (OPERATION CHECK)

a. Enter the "GPS Information" screen. Refer to Check GPS & Vehicle Sensors in Operation Check (Click here).

b. Check how many of the following codes appear in the "STS" column.

**OK:**
**At least 3 codes appear.**




H

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CABIN

a. Check the cabin for any object that might interrupt radio reception on the instrument panel. If such an object exists, remove it and check if the GPS mark reappears.

**HINT:**

The GPS uses extremely faint radio waves originating from satellites. If the signal is interrupted by obstructions or other radio waves, the GPS may not be able to properly receive the signal.

**OK:**
**The GPS mark appears.**

NG → Go to step 2

OK

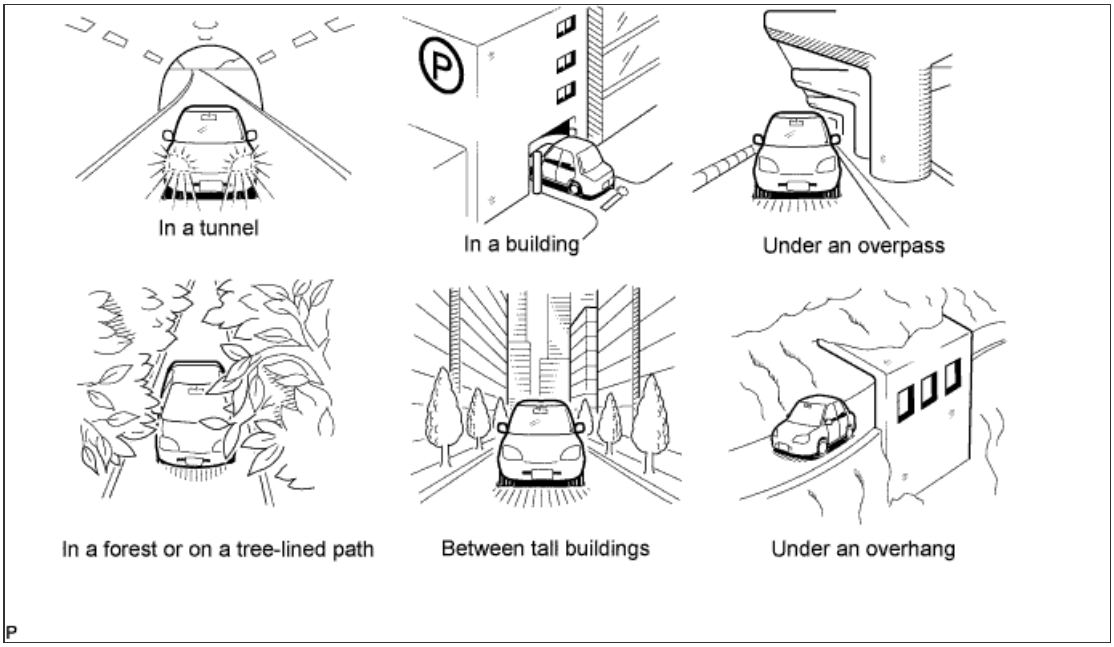
### NORMAL OPERATION

### 2.CHECK SURROUNDINGS

a. Check if the vehicle is in a location where GPS signal reception is poor. If the vehicle is in such a place, relocate the vehicle and check if the GPS mark reappears.

**HINT:**

The GPS uses 24 satellites in 6 orbits. At any point in time, 4 satellites should be able to pinpoint your vehicle. However, GPS signals may not reach the vehicle due to influence from the surroundings, vehicle direction and time. For examples, see the following illustration.




**OK:**
**The GPS mark is displayed.**

NG → Go to step 3

OK

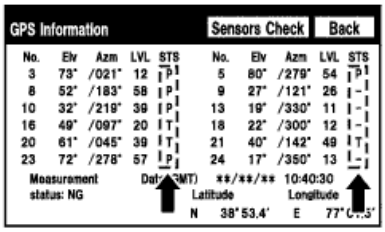
SYSTEM RETURNS TO NORMAL

3.CHECK GPS INFORMATION (OPERATION CHECK)

a. Enter the "GPS Information" screen. Refer to Check GPS & Vehicle Sensors in Operation Check (Click here).

b. Check how many of the following codes appear in the "STS" column.

**OK:**
**At least 3 codes appear.**




H

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

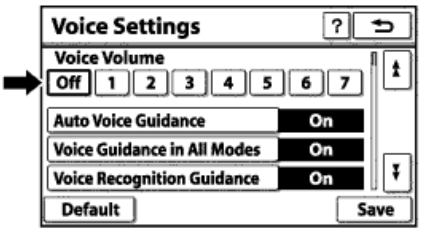
### 1.CHECK NAVIGATION SETTING

a. Display the "Voice Settings" screen.

b. Check that "Voice Volume" is not "Off".

**OK:**
**Voice volume is not "Off".**

Example:




H

NG → TURN VOICE VOLUME EXCEPT "Off"

OK

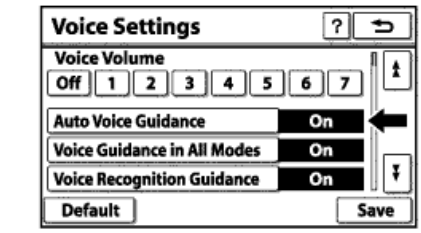
### 2.CHECK NAVIGATION SETTING

a. Display the "Voice Settings" screen.

b. Check that "Auto Voice Guidance" is not "Off".

**OK:**
**Auto voice guidance is not "Off".**

Example:




H

NG → TURN AUTO VOICE GUIDANCE "On"

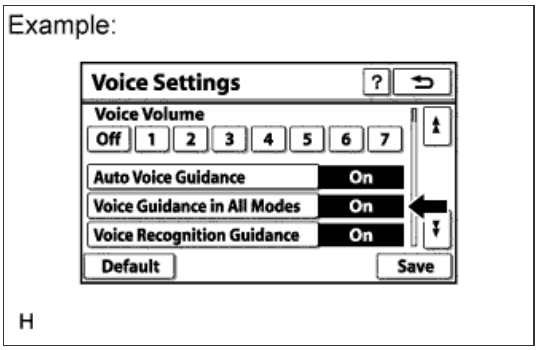
OK

### 3.CHECK NAVIGATION SETTING

a. Display the "Voice Settings" screen.

b. Check that "Voice Guidance in All Modes" is not "Off".

**OK:**
**Voice guidance in all modes is not "Off".**



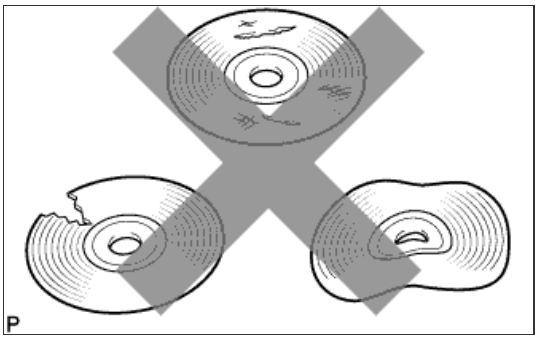

NG → TURN VOICE GUIDANCE IN ALL MODES "On"

OK

## 4.CHECK MAP DISC

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on the map disc**




NG → REPLACE MAP DISC

OK

## 5.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

**HINT:**

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

**OK:**
**Condensation is not likely being produced and the temperature is not high or extremely low.**

NG → SET CABIN TO APPROPRIATE TEMPERATURE

OK

## 6.CHECK AUDIO FUNCTION

a. Check that audio sound can be heard from the driver side speaker.

**OK:**
**Sound can be heard from the audio system.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

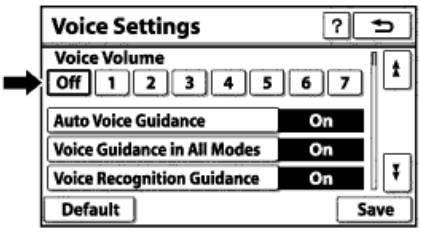
### 1.CHECK NAVIGATION SETTING

a. Display the "Voice Settings" screen.

b. Check that "Voice Volume" is not "Off".

**OK:**
**Voice volume is not "Off".**

Example:




H

NG → TURN VOICE VOLUME EXCEPT "Off"

OK

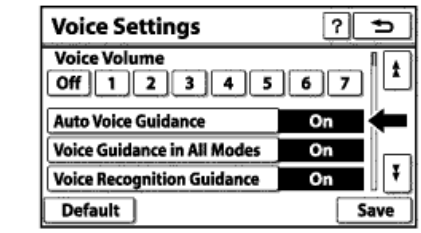
### 2.CHECK NAVIGATION SETTING

a. Display the "Voice Settings" screen.

b. Check that "Auto Voice Guidance" is not "Off".

**OK:**
**Auto voice guidance is not "Off".**

Example:




H

NG → TURN AUTO VOICE GUIDANCE "On"

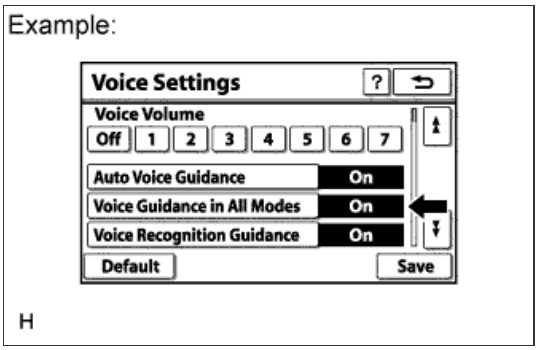
OK

### 3.CHECK NAVIGATION SETTING

a. Display the "Voice Settings" screen.

b. Check that "Voice Guidance in All Modes" is not "Off".

**OK:**
**Voice guidance in all modes is not "Off".**



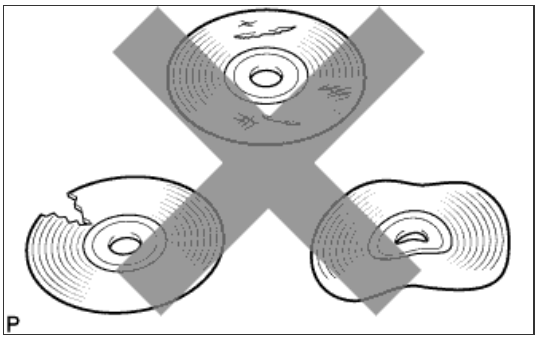

NG → TURN VOICE GUIDANCE IN ALL MODES "On"

OK

## 4.CHECK MAP DISC

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on the map disc**




NG → REPLACE MAP DISC

OK

## 5.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

**HINT:**

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

**OK:**
**Condensation is not likely being produced and the temperature is not high or extremely low.**

NG → SET CABIN TO APPROPRIATE TEMPERATURE

OK

## 6.CHECK AUDIO FUNCTION

a. Check that audio sound can be heard from the driver side speaker.

**OK:**
**Sound can be heard from the audio system.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

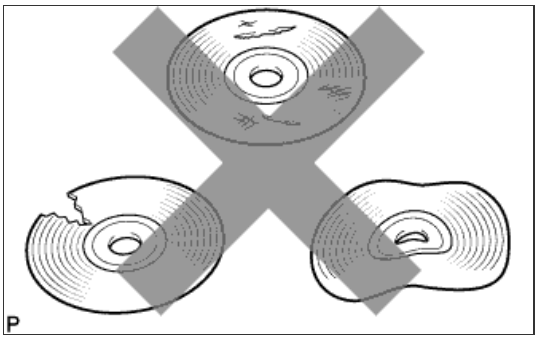
**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK MAP DISC

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on the map disc**




NG → REPLACE MAP DISC

OK

### 2.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

**HINT:**

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

**OK:**
**Condensation is not likely being produced and the temperature is not high or extremely low.**

NG → SET CABIN TO APPROPRIATE TEMPERATURE

OK

### 3.CHECK NAVIGATION DISPLAY

a. Check that displays other than the navigation display are complete.

**OK:**
**No other incomplete displays are found.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

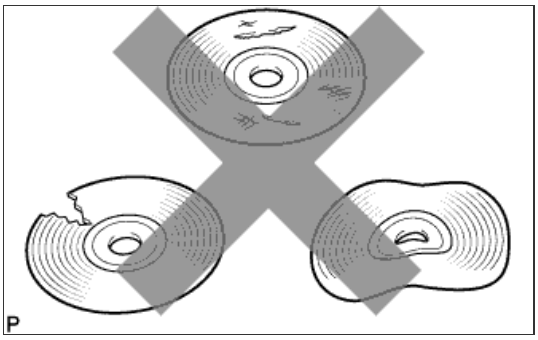
**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK MAP DISC

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on the map disc**




NG → REPLACE MAP DISC

OK

### 2.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

**HINT:**

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

**OK:**
**Condensation is not likely being produced and the temperature is not high or extremely low.**

NG → SET CABIN TO APPROPRIATE TEMPERATURE

OK

### 3.CHECK NAVIGATION DISPLAY

a. Check that displays other than the navigation display are complete.

**OK:**
**No other incomplete displays are found.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

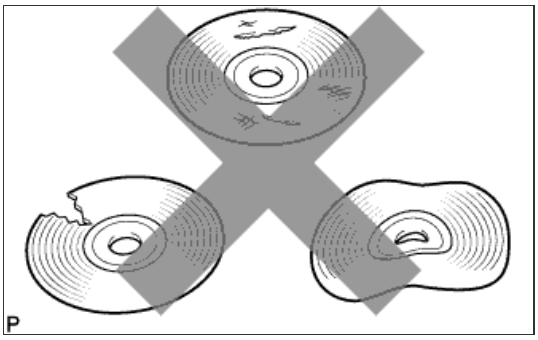
**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK MAP DISC

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on the map disc**




NG → REPLACE MAP DISC

OK

### 2.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

**HINT:**

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

**OK:**
**Condensation is not likely being produced and the temperature is not high or extremely low.**

NG → CABIN TO APPROPRIATE TEMPERATURE

OK

### 3.SET DESTINATION

a. Set another destination and check if the system can calculate the route correctly.

**OK:**
**Route can be correctly calculated.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

### NORMAL OPERATION

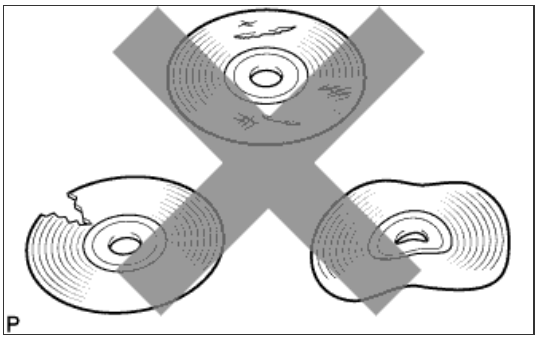
**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK MAP DISC

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on the map disc**




NG → REPLACE MAP DISC

OK

### 2.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

**HINT:**

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

**OK:**
**Condensation is not likely being produced and the temperature is not high or extremely low.**

NG → CABIN TO APPROPRIATE TEMPERATURE

OK

### 3.SET DESTINATION

a. Set another destination and check if the system can calculate the route correctly.

**OK:**
**Route can be correctly calculated.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

### NORMAL OPERATION

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CONDITION

a. Check if the system voice recognition level is low when recognizing a particular voice.

**Result**

| Result | Proceed to |
|---|---|
| System voice recognition level is low with any voice. | A |
| System voice recognition level is low only for a particular voice. | B |

**HINT:**

System voice recognition level varies depending on voice and pronunciation. This is not a malfunction.

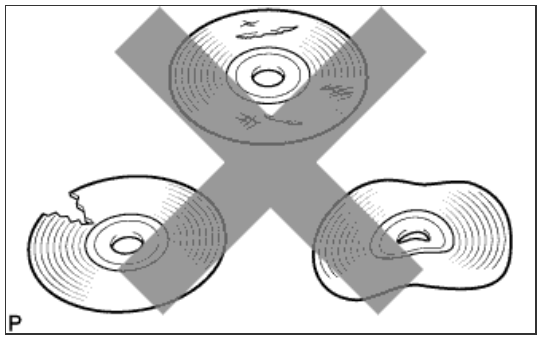
B → END

A

### 2.CHECK MAP DISC

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on the map disc**




NG → REPLACE MAP DISC

OK

### 3.CHECK MAP DISC

a. Check for dirt on the map disc surface.

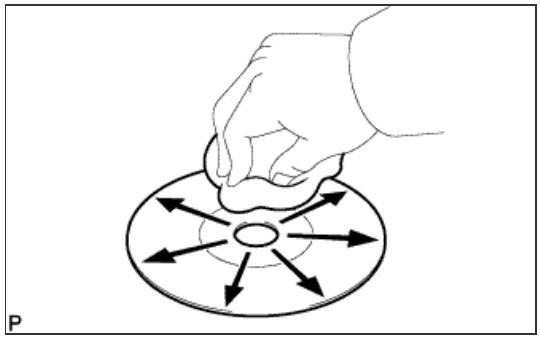
**OK:**
**No dirt is on the map disc surface.**

**NOTICE:**

Do not use a conventional record cleaner or anti-static preservative.

**HINT:**

If dirt on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.




NG → CLEAN MAP DISC

OK

## 4.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

**HINT:**

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

**OK:**
**Condensation is not likely being produced and the temperature is not high or extremely low.**

**NG** → CABIN TO APPROPRIATE TEMPERATURE

**OK**

## 5.CHECK MICROPHONE (OPERATION CHECK)

a. Enter the "Microphone & Voice Recognition Check" screen. Refer to Check Mic & Voice Recognition in Operation Check (Click here).

b. When voice is input into the microphone, check that the microphone input level meter changes according to the input voice.

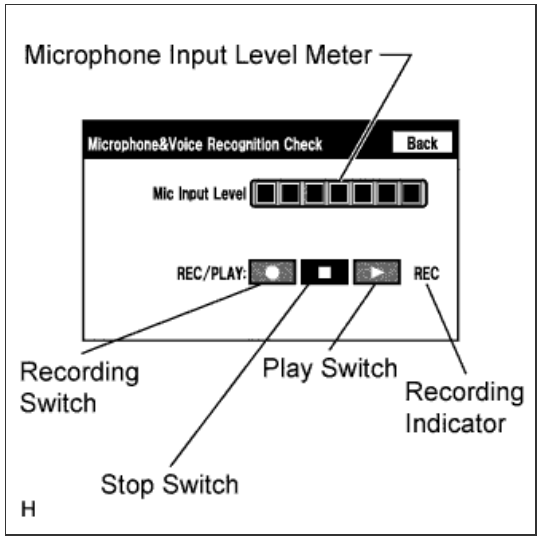
c. Push the recording switch and perform voice recording.

**HINT:**

Voice can be recorded up to 5 seconds.

d. Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.

**OK:**
**All check results are normal.**




**NG** → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

**OK**

## END

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CONDITION

a. Check if the system voice recognition level is low when recognizing a particular voice.

**Result**

| Result | Proceed to |
|---|---|
| System voice recognition level is low with any voice. | A |
| System voice recognition level is low only for a particular voice. | B |

**HINT:**

System voice recognition level varies depending on voice and pronunciation. This is not a malfunction.

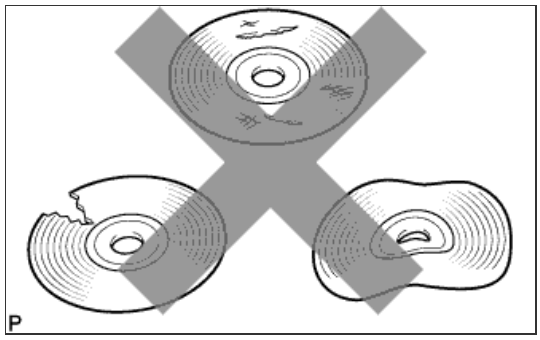
B → END

A

### 2.CHECK MAP DISC

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on the map disc**




NG → REPLACE MAP DISC

OK

### 3.CHECK MAP DISC

a. Check for dirt on the map disc surface.

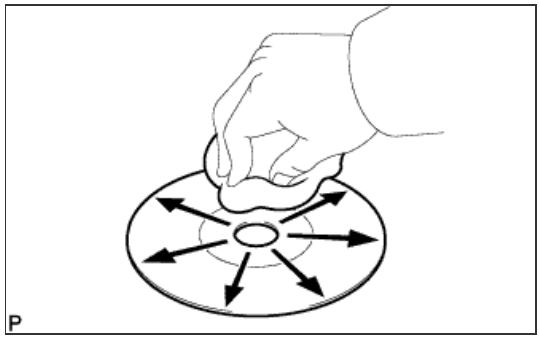
**OK:**
**No dirt is on the map disc surface.**

**NOTICE:**

Do not use a conventional record cleaner or anti-static preservative.

**HINT:**

If dirt on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.




NG → CLEAN MAP DISC

OK

## 4.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

**HINT:**

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

**OK:**
**Condensation is not likely being produced and the temperature is not high or extremely low.**

**NG** → CABIN TO APPROPRIATE TEMPERATURE

**OK**

## 5.CHECK MICROPHONE (OPERATION CHECK)

a. Enter the "Microphone & Voice Recognition Check" screen. Refer to Check Mic & Voice Recognition in Operation Check (Click here).

b. When voice is input into the microphone, check that the microphone input level meter changes according to the input voice.

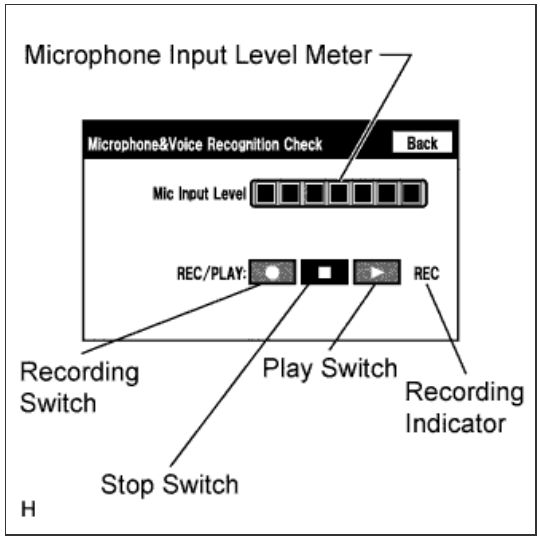
c. Push the recording switch and perform voice recording.

**HINT:**

Voice can be recorded up to 5 seconds.

d. Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.

**OK:**
**All check results are normal.**




**NG** → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

**OK**

## END

**for Preparation** Click here

## INSPECTION PROCEDURE

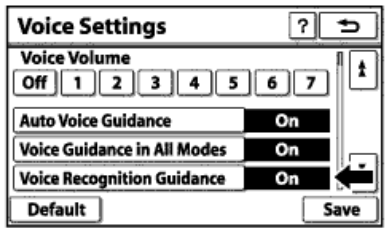
### 1.CHECK NAVIGATION SETTING

a. Display the "Voice Settings" screen.

b. Check that "Voice Recognition Guidance" is not "Off".

**OK:**
**"Voice Recognition Guidance" is not "Off".**

Example:




H

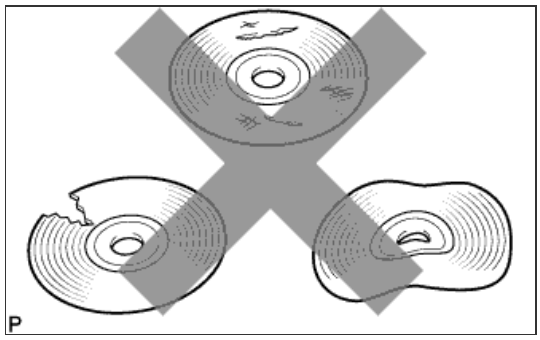
NG → TURN VOICE RECOGNITION GUIDANCE "On"

OK

### 2.CHECK MAP DISC

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on the map disc**



P

NG → REPLACE MAP DISC

OK

### 3.CHECK MAP DISC

a. Check for dirt on the map disc surface.

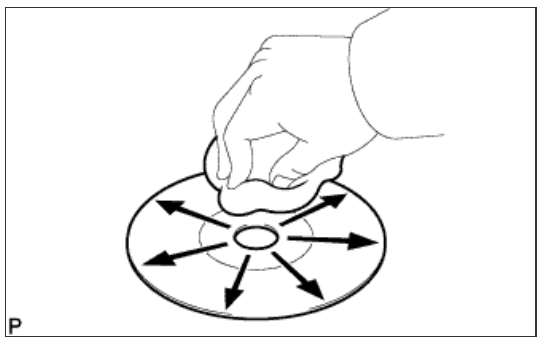
**OK:**
**No dirt is on the map disc surface.**

**NOTICE:**

Do not use a conventional record cleaner or anti-static preservative.

**HINT:**

If dirt on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.



P

NG → CLEAN MAP DISC

OK

## 4.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

**HINT:**

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

**OK:**
**Condensation is not likely being produced and the temperature is not high or extremely low.**

NG → SET CABIN TO APPROPRIATE TEMPERATURE

OK

## 5.CHECK MICROPHONE (OPERATION CHECK)

a. Enter the "Microphone & Voice Recognition Check" screen. Refer to Check Mic & Voice Recognition in Operation Check (Click here).

b. When voice is input into the microphone, check that the microphone input level meter changes according to the input voice.

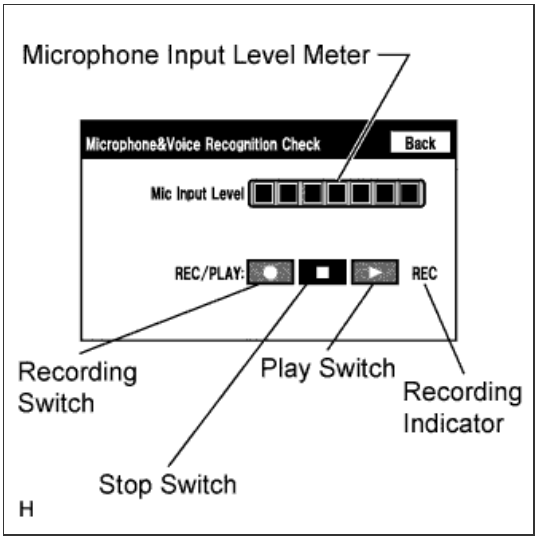
c. Push the recording switch and perform voice recording.

**HINT:**

Voice can be recorded up to 5 seconds.

d. Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.

**OK:**
**All check results are normal.**




NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

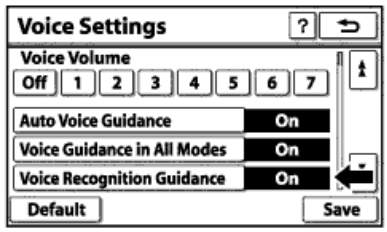
### 1.CHECK NAVIGATION SETTING

a. Display the "Voice Settings" screen.

b. Check that "Voice Recognition Guidance" is not "Off".

**OK:**
**"Voice Recognition Guidance" is not "Off".**

Example:




H

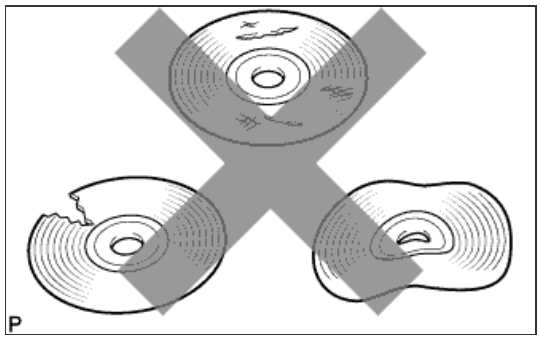
NG → TURN VOICE RECOGNITION GUIDANCE "On"

OK

### 2.CHECK MAP DISC

a. Check that the map disc is not deformed or cracked.

**OK:**
**No deformations or cracks on the map disc**



P

NG → REPLACE MAP DISC

OK

### 3.CHECK MAP DISC

a. Check for dirt on the map disc surface.

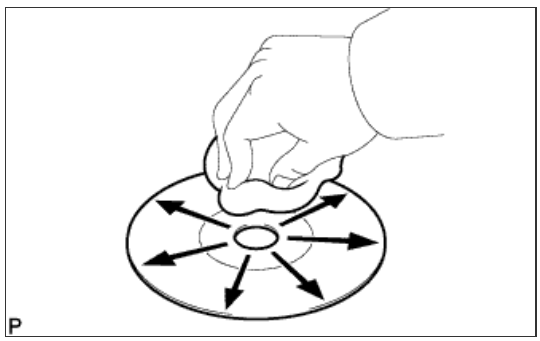
**OK:**
**No dirt is on the map disc surface.**

**NOTICE:**

Do not use a conventional record cleaner or anti-static preservative.

**HINT:**

If dirt on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.



P

NG → CLEAN MAP DISC

OK

## 4.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

**HINT:**

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

**OK:**
**Condensation is not likely being produced and the temperature is not high or extremely low.**

NG → SET CABIN TO APPROPRIATE TEMPERATURE

OK

## 5.CHECK MICROPHONE (OPERATION CHECK)

a. Enter the "Microphone & Voice Recognition Check" screen. Refer to Check Mic & Voice Recognition in Operation Check (Click here).

b. When voice is input into the microphone, check that the microphone input level meter changes according to the input voice.

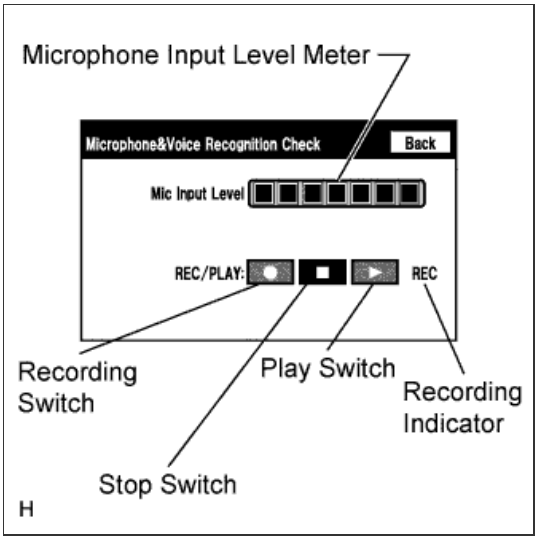
c. Push the recording switch and perform voice recording.

**HINT:**

Voice can be recorded up to 5 seconds.

d. Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.

**OK:**
**All check results are normal.**




NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CURRENT CONDITIONS

a. Proceed to the next step according to the table below.

**Result**

| Result | Proceed to |
|---|---|
| Another "Bluetooth" compatible cellular phone is present. | A |
| Another "Bluetooth" compatible vehicle is present. | B |
| None of the above | C |

B → Go to step 3

C → Go to step 4

A

### 2.CHECK USING ANOTHER CELLULAR PHONE

a. Check if the system functions using another "Bluetooth" compatible cellular phone.

**HINT:**

- **Confirm that either the same or a different version of another "Bluetooth" compatible cellular phone complies with the system.**
- **Depending on the version, some "Bluetooth" compatible cellular phones cannot be used.**

**OK:**
**The system functions.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

### USE A "Bluetooth" COMPATIBLE CELLULAR PHONE

### 3.CHECK USING ANOTHER "Bluetooth" COMPATIBLE VEHICLE

a. Register the cellular phone with another vehicle and check if the system functions normally.

**HINT:**

Depending on the version, some "Bluetooth" compatible cellular phones cannot be used.

**OK:**
**The system functions.**

NG → REPAIR OR REPLACE CELLULAR PHONE

OK

### REPLACE RADIO RECEIVER ASSEMBLY (Click here)

### 4.CHECK CELLULAR PHONE

a. Check if the cellular phone is "Bluetooth" compatible.

**HINT:**

Some versions of "Bluetooth" compatible cellular phones may not function.

**OK:**

**The phone is "Bluetooth" compatible.**

NG → USE A "Bluetooth" COMPATIBLE CELLULAR PHONE

OK ↓

5.CHECK CELLULAR PHONE

a. Check if a call can be made from the cellular phone.

**HINT:**

When the battery is low, registration or directory transfer cannot be done.

**OK:**

**A call can be made from the cellular phone.**

NG → REPAIR OR REPLACE CELLULAR PHONE

OK ↓

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK "Bluetooth" SETTINGS

a. Check if the "Bluetooth" settings are correct.

**OK:**
**"Bluetooth" settings are correct.**

NG → SET SETTINGS CORRECTLY

OK

### 2.CHECK CELLULAR PHONE

a. Check if the cellular phone is "Bluetooth" compatible.

**HINT:**

Some versions of "Bluetooth" compatible cellular phones may not function.

**OK:**
**The phone is "Bluetooth" compatible.**

NG → END (ONLY A "Bluetooth" COMPATIBLE CELLULAR PHONE CAN BE USED)

OK

### 3.CHECK SETTINGS

a. Check if the cellular phone functions.

**HINT:**

The cellular phone is unable to call under any of the following conditions:

- **The cellular phone is locked.**
- **The directory is being transferred.**
- **The line is crossed.**
- **Outside service range**
- **The power is off.**
- **The cellular phone is not connected to "Bluetooth" ("BT" is displayed while connected).**

**OK:**
**None of the above conditions exist.**

NG → SET SETTINGS CORRECTLY

OK

### 4.CHECK CELLULAR PHONE

a. Check if the cellular phone can make a call.

**HINT:**

When the battery is low, calls cannot be made or received.

**OK:**
**Cellular phone can make a call.**

NG → REPAIR OR REPLACE CELLULAR PHONE

OK

5.CHECK RECEPTION

a. Set the cellular phone so that it can receive calls.

b. Place the cellular phone close to the radio receiver assembly.

c. Check if the cellular phone has reception according to the radio receiver assembly.

**OK:**
**The cellular phone has reception.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK "Bluetooth" SETTINGS

a. Check if the "Bluetooth" settings are correct.

**OK:**
**"Bluetooth" settings are correct.**

NG → SET SETTINGS CORRECTLY

OK

### 2.CHECK CELLULAR PHONE

a. Check if the cellular phone is "Bluetooth" compatible.

**HINT:**

Some versions of "Bluetooth" compatible cellular phones may not function.

**OK:**
**The phone is "Bluetooth" compatible.**

NG → END (ONLY A "Bluetooth" COMPATIBLE CELLULAR PHONE CAN BE USED)

OK

### 3.CHECK SETTINGS

a. Check if the cellular phone functions.

**HINT:**

The cellular phone is unable to call under any of the following conditions:

- **The cellular phone is locked.**
- **The directory is being transferred.**
- **The line is crossed.**
- **Outside service range**
- **The power is off.**
- **The cellular phone is not connected to "Bluetooth" ("BT" is displayed while connected).**

**OK:**
**None of the above conditions exist.**

NG → SET SETTINGS CORRECTLY

OK

### 4.CHECK CELLULAR PHONE

a. Check if the cellular phone can make a call.

**HINT:**

When the battery is low, calls cannot be made or received.

**OK:**
**Cellular phone can make a call.**

NG → REPAIR OR REPLACE CELLULAR PHONE

OK

5.CHECK RECEPTION

a. Set the cellular phone so that it can receive calls.

b. Place the cellular phone close to the radio receiver assembly.

c. Check if the cellular phone has reception according to the radio receiver assembly.

**OK:**
**The cellular phone has reception.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK SURROUNDING CONDITIONS

a. Check if the cellular phone can make calls in a certain place.

**OK:**
**It can make calls.**

NG → END (CELLULAR PHONES CAN ONLY FUNCTION IN CELLULAR SERVICE AREAS)

OK

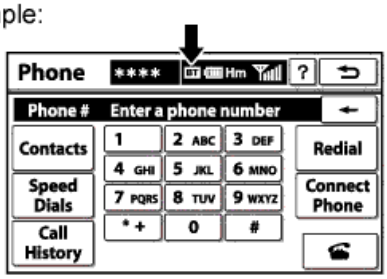
### 2.CHECK RECEPTION

a. Display the "Phone" screen and check the "Bluetooth" connection indicator ("BT" indicator).

**Result**

| Result | Proceed to |
|---|---|
| "BT" indicator color is yellow. | A |
| "BT" indicator color is blue. | B |
| No connection mark is displayed. | C |

Example:




H

B → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

C → SELECT A REGISTERED CELLULAR PHONE OR REGISTER "Bluetooth" COMPATIBLE PHONE

A

MOVE CELLULAR PHONE TO LOCATION WHERE "BT" MARK TURNS BLUE

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CELLULAR PHONE

a. Check if the voice on the other side can be heard using a cellular phone.

**OK:**
**Voice can be heard.**

NG → REPAIR OR REPLACE CELLULAR PHONE

OK

### 2.CHECK NAVIGATION SYSTEM

a. Check that navigation sound can be heard from the driver side speaker.

**OK:**
**Sound can be heard from the audio system.**

NG → GO TO "VOICE GUIDANCE DOES NOT FUNCTION" IN PROBLEM SYMPTOMS TABLE (Click here)

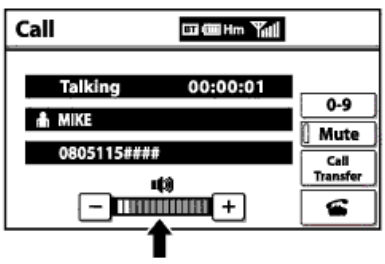
OK

### 3.CHECK SETTINGS

a. Check if the volume level is set to low on the "Call" screen.

**OK:**
**The level is not set low.**

Example:




NG → SET VOLUME TO HIGH

OK

### 4.CHECK SETTINGS (OPERATION CHECK)

a. Enter the "Hands-free Volume Setting" screen. Refer to Check Hands-free Volume Setting in Operation Check (Click here).

b. Check if the receive voice level is set to "0".

**HINT:**

The receive voice level can be set to 11 different levels, -5 to +5, with a 3 dB difference.

c. Check if the receive voice level is set to the minimum or maximum level.

**HINT:**

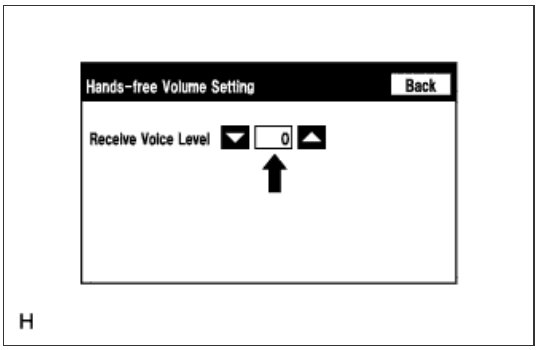
When the receive voice level is set to the minimum or maximum level, the sound may be distorted.

**NOTICE:**

"Voice Quality Type" should not be changed.

**OK:**

**The receive voice level is set to "0".**




H

NG → SET RECEIVE VOICE LEVEL TO "0"

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CELLULAR PHONE

a. Check if the voice on the other side can be heard using a cellular phone.

**OK:**
**Voice can be heard.**

NG → REPAIR OR REPLACE CELLULAR PHONE

OK

### 2.CHECK NAVIGATION SYSTEM

a. Check that navigation sound can be heard from the driver side speaker.

**OK:**
**Sound can be heard from the audio system.**

NG → GO TO "VOICE GUIDANCE DOES NOT FUNCTION" IN PROBLEM SYMPTOMS TABLE (Click here)

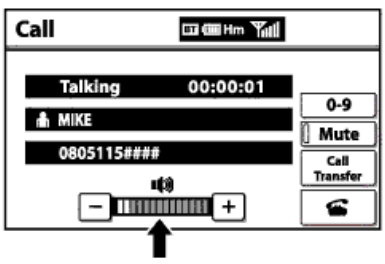
OK

### 3.CHECK SETTINGS

a. Check if the volume level is set to low on the "Call" screen.

**OK:**
**The level is not set low.**

Example:




NG → SET VOLUME TO HIGH

OK

### 4.CHECK SETTINGS (OPERATION CHECK)

a. Enter the "Hands-free Volume Setting" screen. Refer to Check Hands-free Volume Setting in Operation Check (Click here).

b. Check if the receive voice level is set to "0".

**HINT:**

The receive voice level can be set to 11 different levels, -5 to +5, with a 3 dB difference.

c. Check if the receive voice level is set to the minimum or maximum level.

**HINT:**

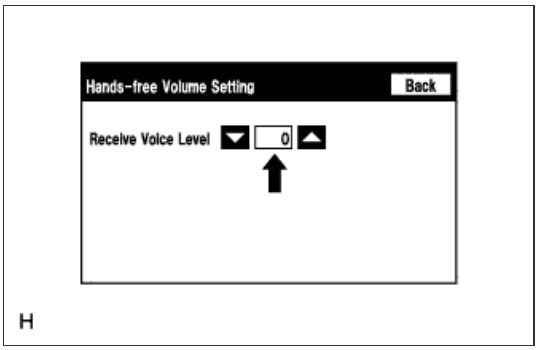
When the receive voice level is set to the minimum or maximum level, the sound may be distorted.

**NOTICE:**

"Voice Quality Type" should not be changed.

**OK:**

**The receive voice level is set to "0".**




H

NG → SET RECEIVE VOICE LEVEL TO "0"

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CELLULAR PHONE

a. Check if the other caller can hear your voice correctly.

**OK:**
**Your voice can be heard correctly.**

NG → REPLACE CELLULAR PHONE

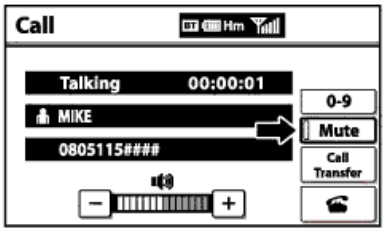
OK

### 2.CHECK SETTINGS

a. Check if the mute switch is set to on.

**OK:**
**Mute switch is not set to on.**

Example:




H

NG → TURN MUTE SWITCH OFF

OK

### 3.CHECK MICROPHONE (OPERATION CHECK)

a. Enter the "Microphone & Voice Recognition Check" screen. Refer to Check Mic & Voice Recognition in Operation Check (Click here).

b. When voice is input into the microphone, check that the microphone input level meter changes according to the input voice.

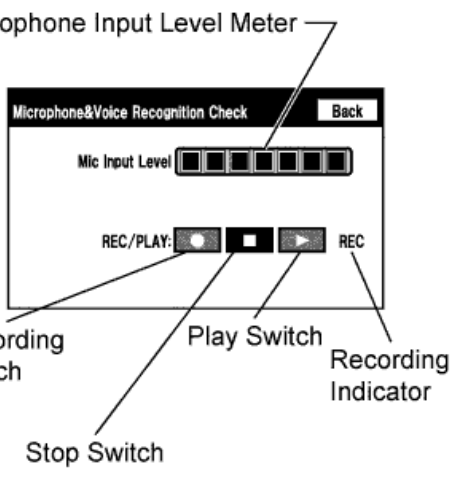
c. Push the recording switch and perform voice recording.

**HINT:**

Voice can be recorded up to 5 seconds.

d. Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.

**OK:**
**All check results are normal.**




H

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

**4.REPLACE RADIO RECEIVER ASSEMBLY**

a. Replace the radio receiver assembly (Click here).

b. Check symptoms again.

**OK:**
**The other caller can hear your voice loud enough without noise or distortion.**

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK

**END**

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CELLULAR PHONE

a. Check if the other caller can hear your voice correctly.

**OK:**
**Your voice can be heard correctly.**

NG → REPLACE CELLULAR PHONE

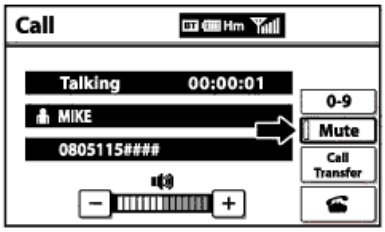
OK

### 2.CHECK SETTINGS

a. Check if the mute switch is set to on.

**OK:**
**Mute switch is not set to on.**

Example:




H

NG → TURN MUTE SWITCH OFF

OK

### 3.CHECK MICROPHONE (OPERATION CHECK)

a. Enter the "Microphone & Voice Recognition Check" screen. Refer to Check Mic & Voice Recognition in Operation Check (Click here).

b. When voice is input into the microphone, check that the microphone input level meter changes according to the input voice.

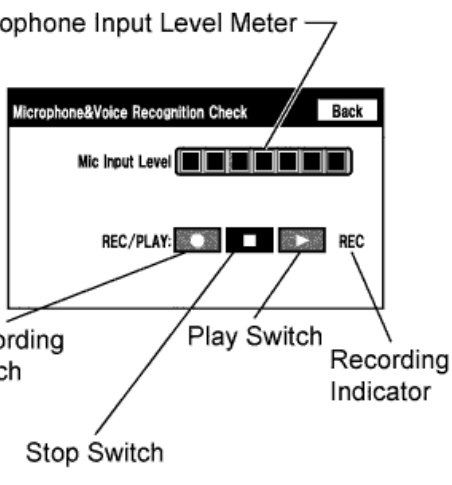
c. Push the recording switch and perform voice recording.

**HINT:**

Voice can be recorded up to 5 seconds.

d. Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.

**OK:**
**All check results are normal.**




H

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

**4.REPLACE RADIO RECEIVER ASSEMBLY**

a. Replace the radio receiver assembly (Click here).

b. Check symptoms again.

**OK:**
**The other caller can hear your voice loud enough without noise or distortion.**

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK

**END**

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK DISPLAY SETTING

a. Check that the display is not in "Screen Off" mode.

**OK:**
**The display setting is not in "Screen Off" mode.**

NG → CHANGE SCREEN TO "Screen On" MODE

OK

### 2.CHECK IMAGE QUALITY SETTING

a. Check that the screen color quality can be set.

**OK:**
**Setting is possible.**

NG → Go to step 3

OK

PRESS REMOTE TOUCH SWITCH "DISP" AND SET SCREEN COLOR QUALITY TO NORMAL

### 3.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

**HINT:**

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

**OK:**
**Condensation is not likely being produced and the temperature is not high or extremely low.**

NG → SET CABIN TO APPROPRIATE TEMPERATURE

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK DISPLAY SETTING

a. Check that the display is not in "Screen Off" mode.

**OK:**
**The display setting is not in "Screen Off" mode.**

NG → CHANGE SCREEN TO "Screen On" MODE

OK

### 2.CHECK IMAGE QUALITY SETTING

a. Check that the screen color quality can be set.

**OK:**
**Setting is possible.**

NG → Go to step 3

OK

PRESS REMOTE TOUCH SWITCH "DISP" AND SET SCREEN COLOR QUALITY TO NORMAL

### 3.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

**HINT:**

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

**OK:**
**Condensation is not likely being produced and the temperature is not high or extremely low.**

NG → SET CABIN TO APPROPRIATE TEMPERATURE

OK

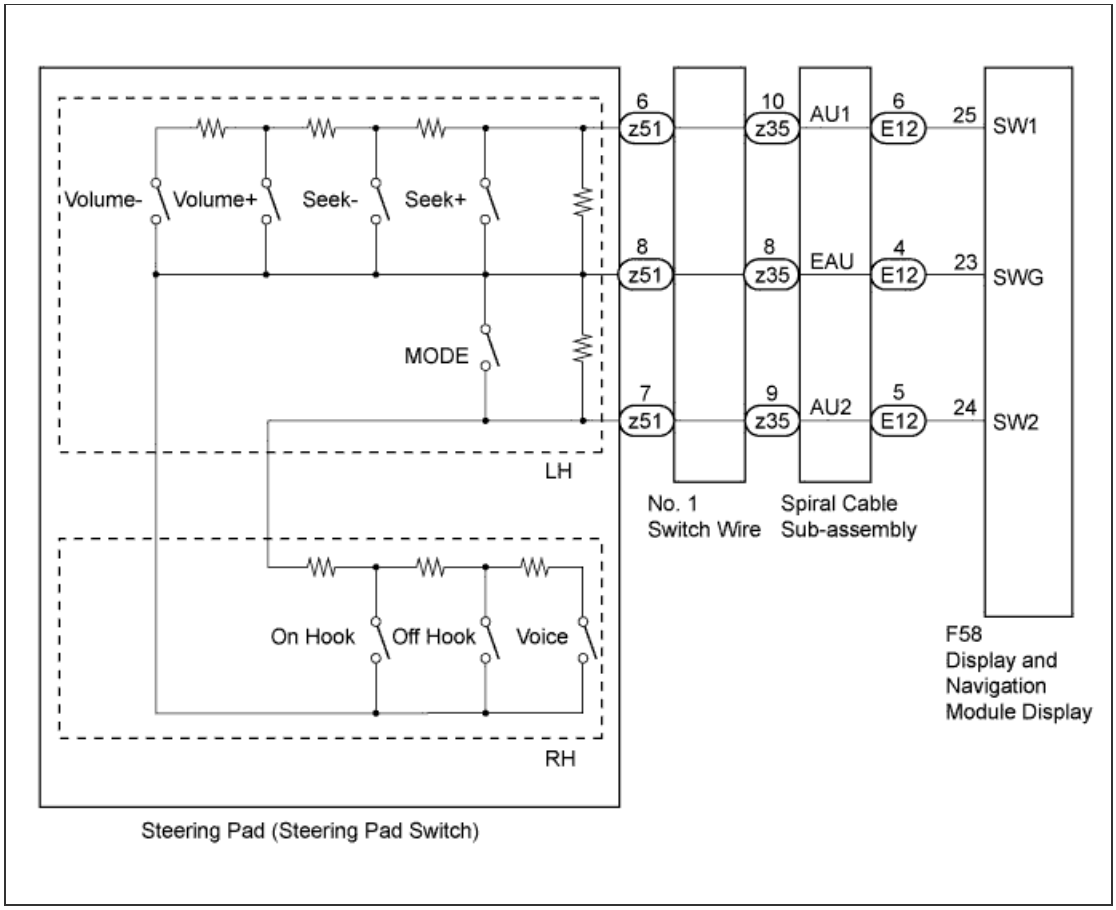
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit sends an operation signal from the steering pad (steering pad switch) to the display and navigation module display.
If there is an open in the circuit, the navigation system cannot be operated using the steering pad (steering pad switch).
If there is a short in the circuit, the resulting condition is the same as if the switch were continuously pressed. Therefore, the display and navigation module display cannot be operated using the steering pad (steering pad switch), and the display and navigation module display itself cannot function.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

The vehicle is equipped with an Supplemental Restraint System (SRS). Before servicing (including removal or installation of parts), be sure to read the precaution for Supplemental Restraint System (Click here).

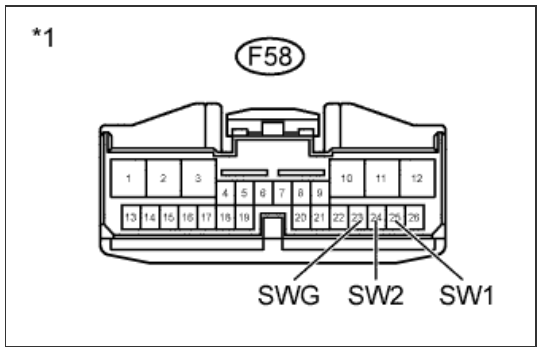
### 1.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

a. Disconnect the F58 display and navigation module display connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F58-25 (SW1) - F58-23 (SWG) | No switch pushed | 95 to 105 kΩ |
| F58-25 (SW1) - F58-23 (SWG) | Seek+ switch pushed | Below 2.5 Ω |
| F58-25 (SW1) - | Seek- switch | 312 to 345 Ω |



| | | |
|---|---|---|
| F58-23 (SWG) | pushed | |
| F58-25 (SW1) - F58-23 (SWG) | Volume+ switch pushed | 950 to 1050 Ω |
| F58-25 (SW1) - F58-23 (SWG) | Volume- switch pushed | 2954 to 3265 Ω |
| F58-24 (SW2) - F58-23 (SWG) | No switch pushed | 95 to 105 kΩ |
| F58-24 (SW2) - F58-23 (SWG) | MODE switch pushed | Below 2.5 Ω |
| F58-24 (SW2) - F58-23 (SWG) | Voice switch pushed | 2954 to 3265 Ω |
| F58-24 (SW2) - F58-23 (SWG) | On Hook switch pushed | 312 to 345 Ω |
| F58-24 (SW2) - F58-23 (SWG) | Off Hook switch pushed | 950 to 1050 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Display and Navigation Module Display) |

NG → Go to step 2

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

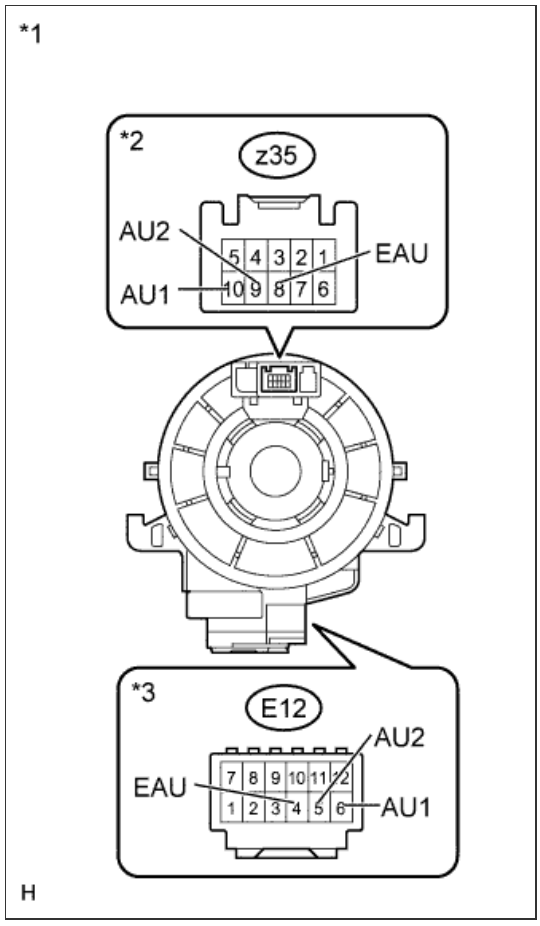
## 2.INSPECT SPIRAL CABLE SUB-ASSEMBLY

a. Disconnect the z35 and E12 spiral cable sub-assembly connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| z35-8 (EAU) - E12-4 (EAU) | Center | Below 1 Ω |
| | 2.5 rotations to the left | |
| | 2.5 rotations to the right | |
| z35-10 (AU1) - E12-6 (AU1) | Center | Below 1 Ω |
| | 2.5 rotations to the left | |
| | 2.5 rotations to the right | |
| z35-9 (AU2) - E12-5 (AU2) | Center | Below 1 Ω |
| | 2.5 rotations to the left | |
| | 2.5 rotations to the right | |




**NOTICE:**

The spiral cable is an important part of the SRS airbag system. Incorrect removal or installation of the spiral cable may prevent the airbag from deploying. Refer to the pages shown in the brackets.

**HINT:**

- **Removal (Click here)**
- **Installation (Click here)**

**Text in Illustration**

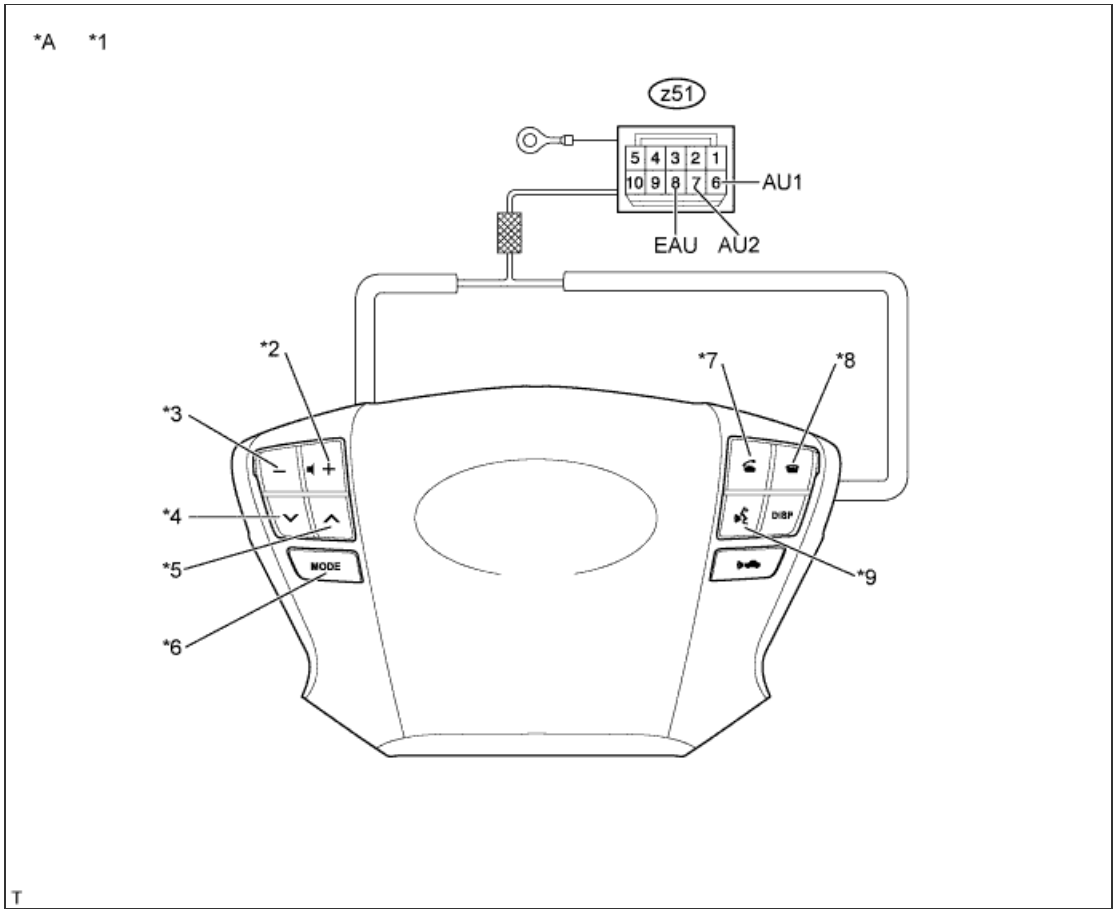
| | |
|---|---|
| *1 | Component without harness connected (Spiral Cable Sub-assembly) |

| | |
|---|---|
| *2 | Steering Pad Switch Side |
| *3 | Vehicle Side |

NG → REPLACE SPIRAL CABLE SUB-ASSEMBLY (Click here)

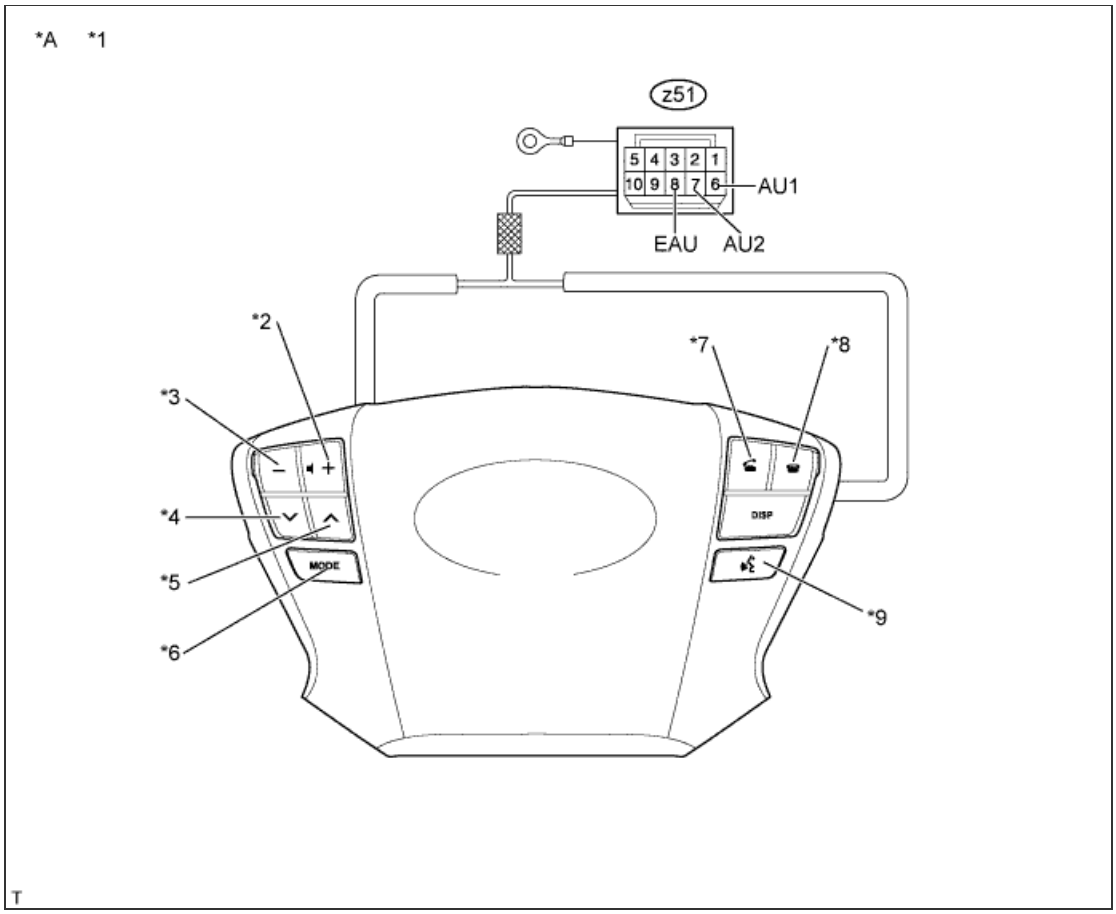
OK

### 3.INSPECT STEERING PAD (STEERING PAD SWITCH)




**Text in Illustration**

| | | | |
|---|---|---|---|
| *A | w/ Dynamic Radar Cruise Control System | *1 | Component without harness connected<br>(Steering Pad (Steering Pad Switch)) |
| *2 | Volume+ | *3 | Volume- |
| *4 | Seek- | *5 | Seek+ |
| *6 | MODE | *7 | Off Hook |
| *8 | On Hook | *9 | Voice |




**Text in Illustration**

| | | | |
|---|---|---|---|
| *A | w/o Dynamic Radar Cruise Control System | *1 | Component without harness connected (Steering Pad (Steering Pad Switch)) |
| *2 | Volume+ | *3 | Volume- |
| *4 | Seek- | *5 | Seek+ |
| *6 | MODE | *7 | Off Hook |
| *8 | On Hook | *9 | Voice |

a. Disconnect the z51 steering pad (steering pad switch) connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| z51-6 (AU1) - z51-8 (EAU) | No switch pushed | 95 to 105 kΩ |
| z51-6 (AU1) - z51-8 (EAU) | Seek+ switch pushed | Below 2.5 Ω |
| z51-6 (AU1) - z51-8 (EAU) | Seek- switch pushed | 312 to 345 Ω |
| z51-6 (AU1) - z51-8 (EAU) | Volume+ switch pushed | 950 to 1050 Ω |
| z51-6 (AU1) - z51-8 (EAU) | Volume- switch pushed | 2954 to 3265 Ω |
| z51-7 (AU2) - z51-8 (EAU) | No switch pushed | 95 to 105 kΩ |
| z51-7 (AU2) - z51-8 (EAU) | MODE switch pushed | Below 2.5 Ω |
| z51-7 (AU2) - z51-8 (EAU) | Voice switch pushed | 2954 to 3265 Ω |
| z51-7 (AU2) - z51-8 (EAU) | On Hook switch pushed | 312 to 345 Ω |
| z51-7 (AU2) - z51-8 (EAU) | Off Hook switch pushed | 950 to 1050 Ω |

NG → REPLACE STEERING PAD (STEERING PAD SWITCH) (Click here)

OK

**4.CHECK NO. 1 SWITCH WIRE**

a. Disconnect the z35 spiral cable sub-assembly connector.

b. Disconnect the z51 steering pad (steering pad switch) connector.

c. Measure the resistance according to the valve(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| z35-10 - z51-6 | Always | Below 1 Ω |
| z35-9 - z51-7 | Always | Below 1 Ω |
| z35-8 - z51-8 | Always | Below 1 Ω |
| z35-10 - Body ground | Always | 10 kΩ or higher |
| z35-9 - Body ground | Always | 10 kΩ or higher |
| z35-8 - Body ground | Always | 10 kΩ or higher |

NG → REPLACE NO. 1 SWITCH WIRE

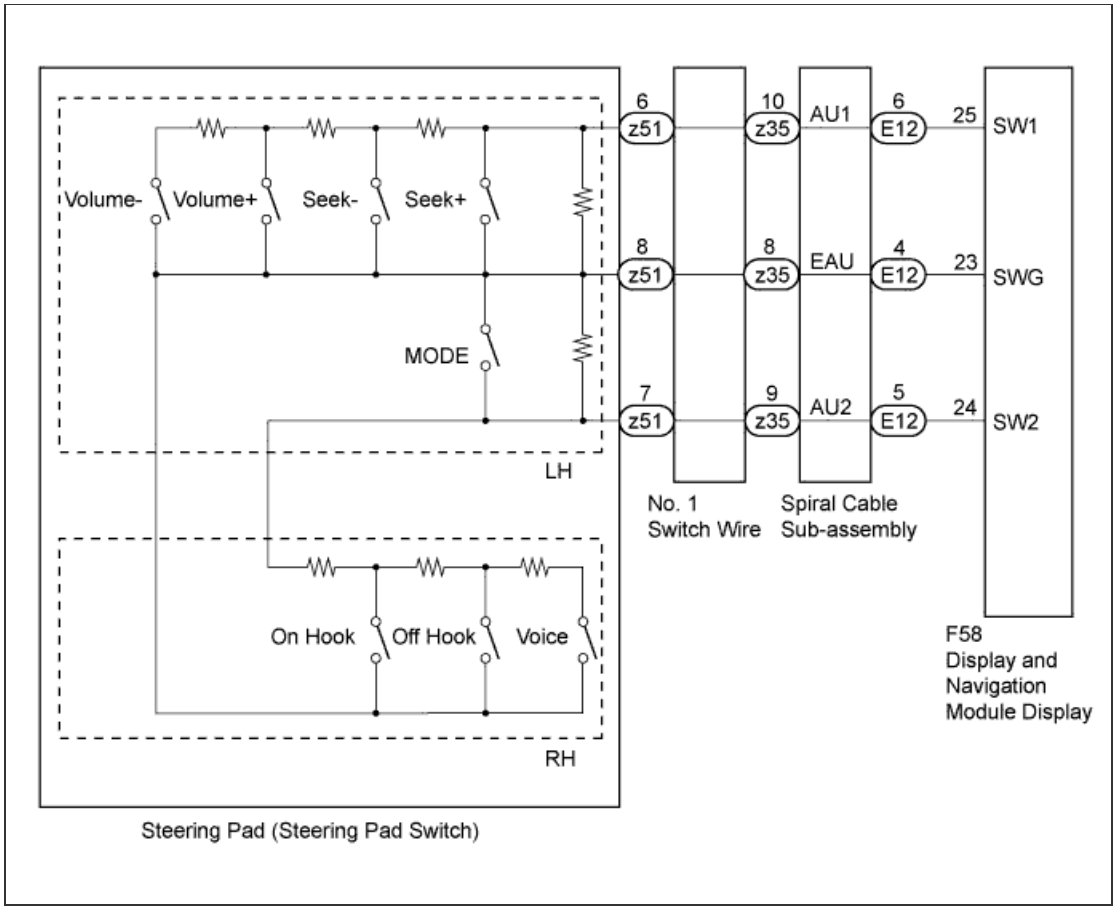
OK → REPAIR OR REPLACE HARNESS OR CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - SPIRAL CABLE)

**for Preparation** Click here

## DESCRIPTION

This circuit sends an operation signal from the steering pad (steering pad switch) to the display and navigation module display.
If there is an open in the circuit, the navigation system cannot be operated using the steering pad (steering pad switch).
If there is a short in the circuit, the resulting condition is the same as if the switch were continuously pressed. Therefore, the display and navigation module display cannot be operated using the steering pad (steering pad switch), and the display and navigation module display itself cannot function.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

The vehicle is equipped with an Supplemental Restraint System (SRS). Before servicing (including removal or installation of parts), be sure to read the precaution for Supplemental Restraint System (Click here).

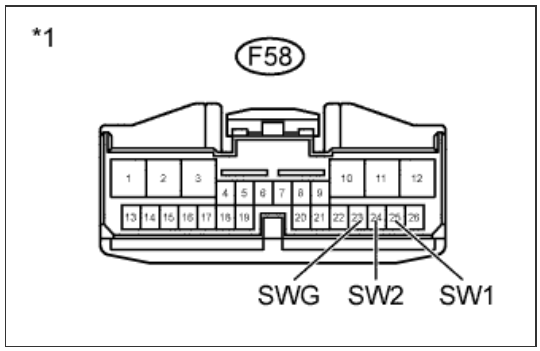
### 1.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

a. Disconnect the F58 display and navigation module display connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F58-25 (SW1) - F58-23 (SWG) | No switch pushed | 95 to 105 kΩ |
| F58-25 (SW1) - F58-23 (SWG) | Seek+ switch pushed | Below 2.5 Ω |
| F58-25 (SW1) - | Seek- switch | 312 to 345 Ω |



| | | |
|---|---|---|
| F58-23 (SWG) | pushed | |
| F58-25 (SW1) - F58-23 (SWG) | Volume+ switch pushed | 950 to 1050 Ω |
| F58-25 (SW1) - F58-23 (SWG) | Volume- switch pushed | 2954 to 3265 Ω |
| F58-24 (SW2) - F58-23 (SWG) | No switch pushed | 95 to 105 kΩ |
| F58-24 (SW2) - F58-23 (SWG) | MODE switch pushed | Below 2.5 Ω |
| F58-24 (SW2) - F58-23 (SWG) | Voice switch pushed | 2954 to 3265 Ω |
| F58-24 (SW2) - F58-23 (SWG) | On Hook switch pushed | 312 to 345 Ω |
| F58-24 (SW2) - F58-23 (SWG) | Off Hook switch pushed | 950 to 1050 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Display and Navigation Module Display) |

NG → Go to step 2

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

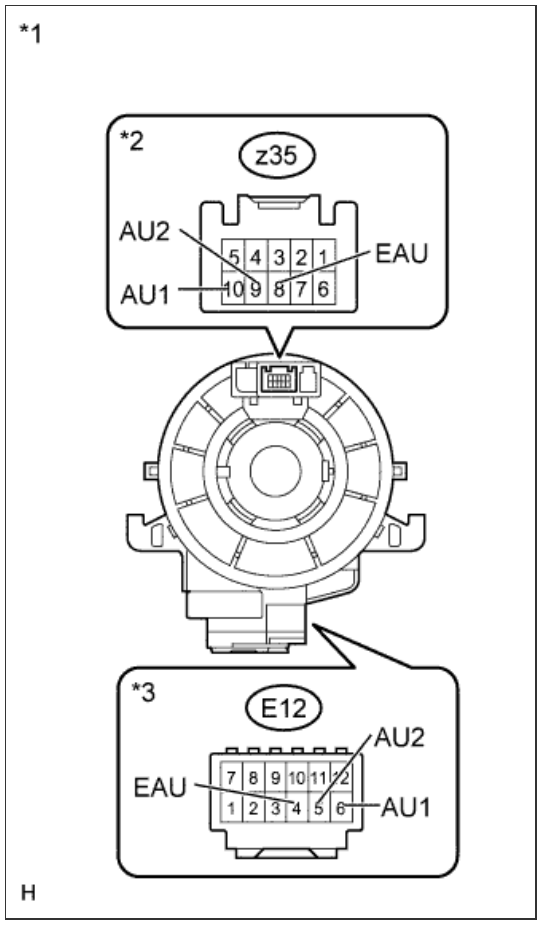
## 2.INSPECT SPIRAL CABLE SUB-ASSEMBLY

a. Disconnect the z35 and E12 spiral cable sub-assembly connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| z35-8 (EAU) - E12-4 (EAU) | Center | Below 1 Ω |
| | 2.5 rotations to the left | |
| | 2.5 rotations to the right | |
| z35-10 (AU1) - E12-6 (AU1) | Center | Below 1 Ω |
| | 2.5 rotations to the left | |
| | 2.5 rotations to the right | |
| z35-9 (AU2) - E12-5 (AU2) | Center | Below 1 Ω |
| | 2.5 rotations to the left | |
| | 2.5 rotations to the right | |




**NOTICE:**

The spiral cable is an important part of the SRS airbag system. Incorrect removal or installation of the spiral cable may prevent the airbag from deploying. Refer to the pages shown in the brackets.

**HINT:**

- **Removal (Click here)**
- **Installation (Click here)**

**Text in Illustration**

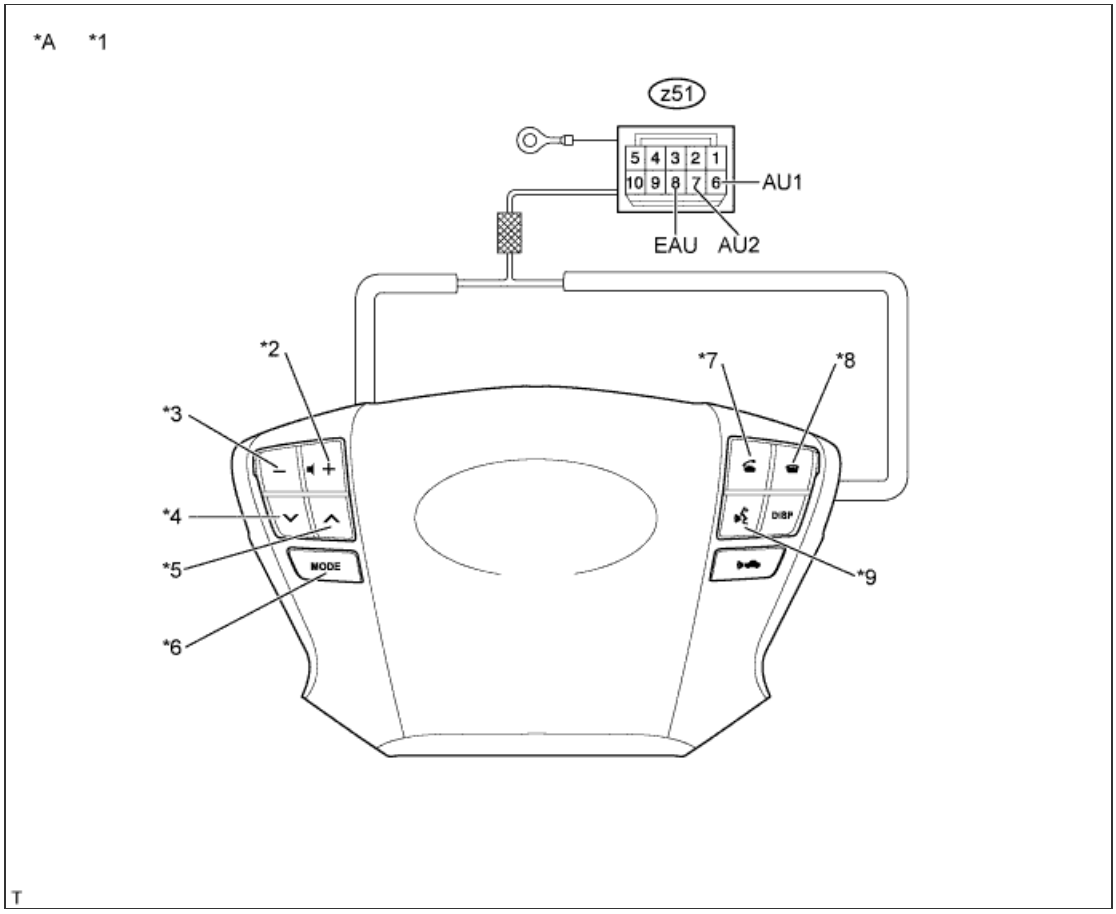
| | |
|---|---|
| *1 | Component without harness connected (Spiral Cable Sub-assembly) |

| | |
|---|---|
| *2 | Steering Pad Switch Side |
| *3 | Vehicle Side |

NG → REPLACE SPIRAL CABLE SUB-ASSEMBLY (Click here)

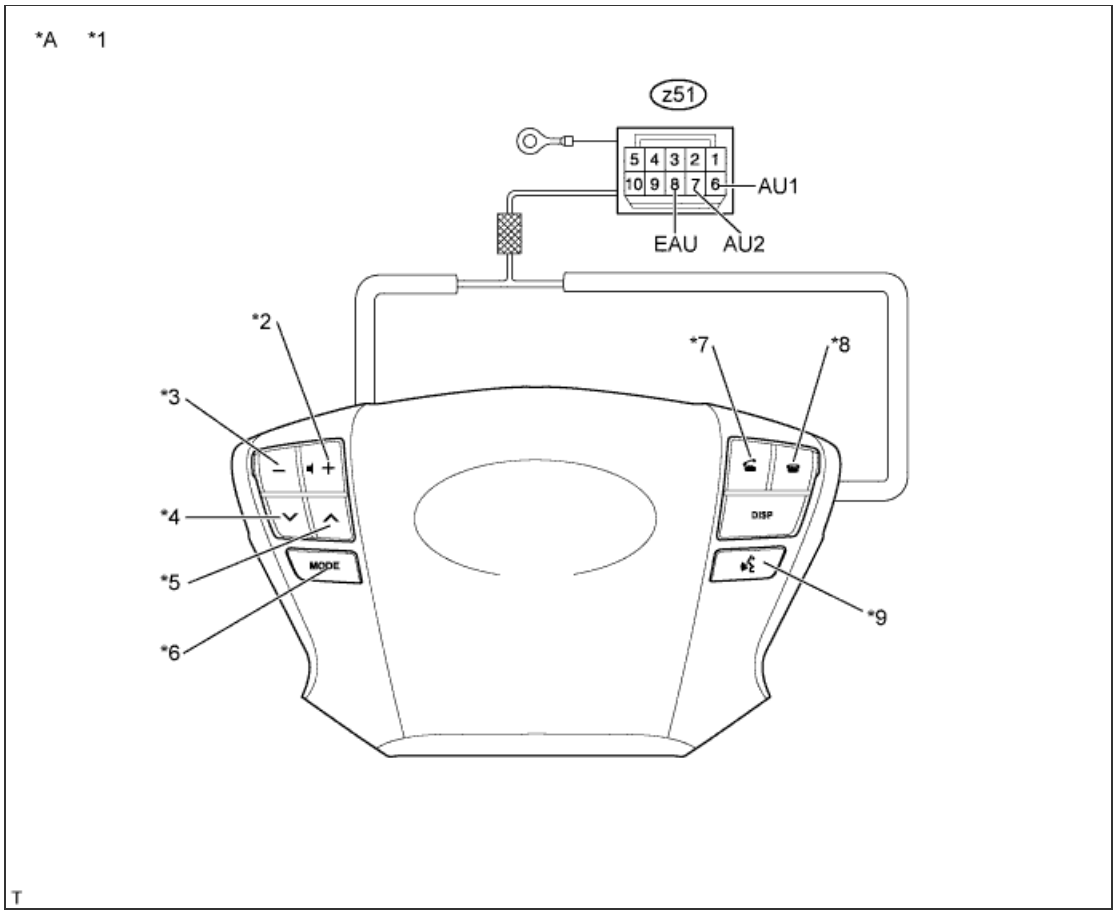
OK

### 3.INSPECT STEERING PAD (STEERING PAD SWITCH)




**Text in Illustration**

| | | | |
|---|---|---|---|
| *A | w/ Dynamic Radar Cruise Control System | *1 | Component without harness connected<br>(Steering Pad (Steering Pad Switch)) |
| *2 | Volume+ | *3 | Volume- |
| *4 | Seek- | *5 | Seek+ |
| *6 | MODE | *7 | Off Hook |
| *8 | On Hook | *9 | Voice |




**Text in Illustration**

| | | | |
|---|---|---|---|
| *A | w/o Dynamic Radar Cruise Control System | *1 | Component without harness connected (Steering Pad (Steering Pad Switch)) |
| *2 | Volume+ | *3 | Volume- |
| *4 | Seek- | *5 | Seek+ |
| *6 | MODE | *7 | Off Hook |
| *8 | On Hook | *9 | Voice |

a. Disconnect the z51 steering pad (steering pad switch) connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| z51-6 (AU1) - z51-8 (EAU) | No switch pushed | 95 to 105 kΩ |
| z51-6 (AU1) - z51-8 (EAU) | Seek+ switch pushed | Below 2.5 Ω |
| z51-6 (AU1) - z51-8 (EAU) | Seek- switch pushed | 312 to 345 Ω |
| z51-6 (AU1) - z51-8 (EAU) | Volume+ switch pushed | 950 to 1050 Ω |
| z51-6 (AU1) - z51-8 (EAU) | Volume- switch pushed | 2954 to 3265 Ω |
| z51-7 (AU2) - z51-8 (EAU) | No switch pushed | 95 to 105 kΩ |
| z51-7 (AU2) - z51-8 (EAU) | MODE switch pushed | Below 2.5 Ω |
| z51-7 (AU2) - z51-8 (EAU) | Voice switch pushed | 2954 to 3265 Ω |
| z51-7 (AU2) - z51-8 (EAU) | On Hook switch pushed | 312 to 345 Ω |
| z51-7 (AU2) - z51-8 (EAU) | Off Hook switch pushed | 950 to 1050 Ω |

NG → REPLACE STEERING PAD (STEERING PAD SWITCH) (Click here)

OK

**4.CHECK NO. 1 SWITCH WIRE**

a. Disconnect the z35 spiral cable sub-assembly connector.

b. Disconnect the z51 steering pad (steering pad switch) connector.

c. Measure the resistance according to the valve(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| z35-10 - z51-6 | Always | Below 1 Ω |
| z35-9 - z51-7 | Always | Below 1 Ω |
| z35-8 - z51-8 | Always | Below 1 Ω |
| z35-10 - Body ground | Always | 10 kΩ or higher |
| z35-9 - Body ground | Always | 10 kΩ or higher |
| z35-8 - Body ground | Always | 10 kΩ or higher |

NG → REPLACE NO. 1 SWITCH WIRE

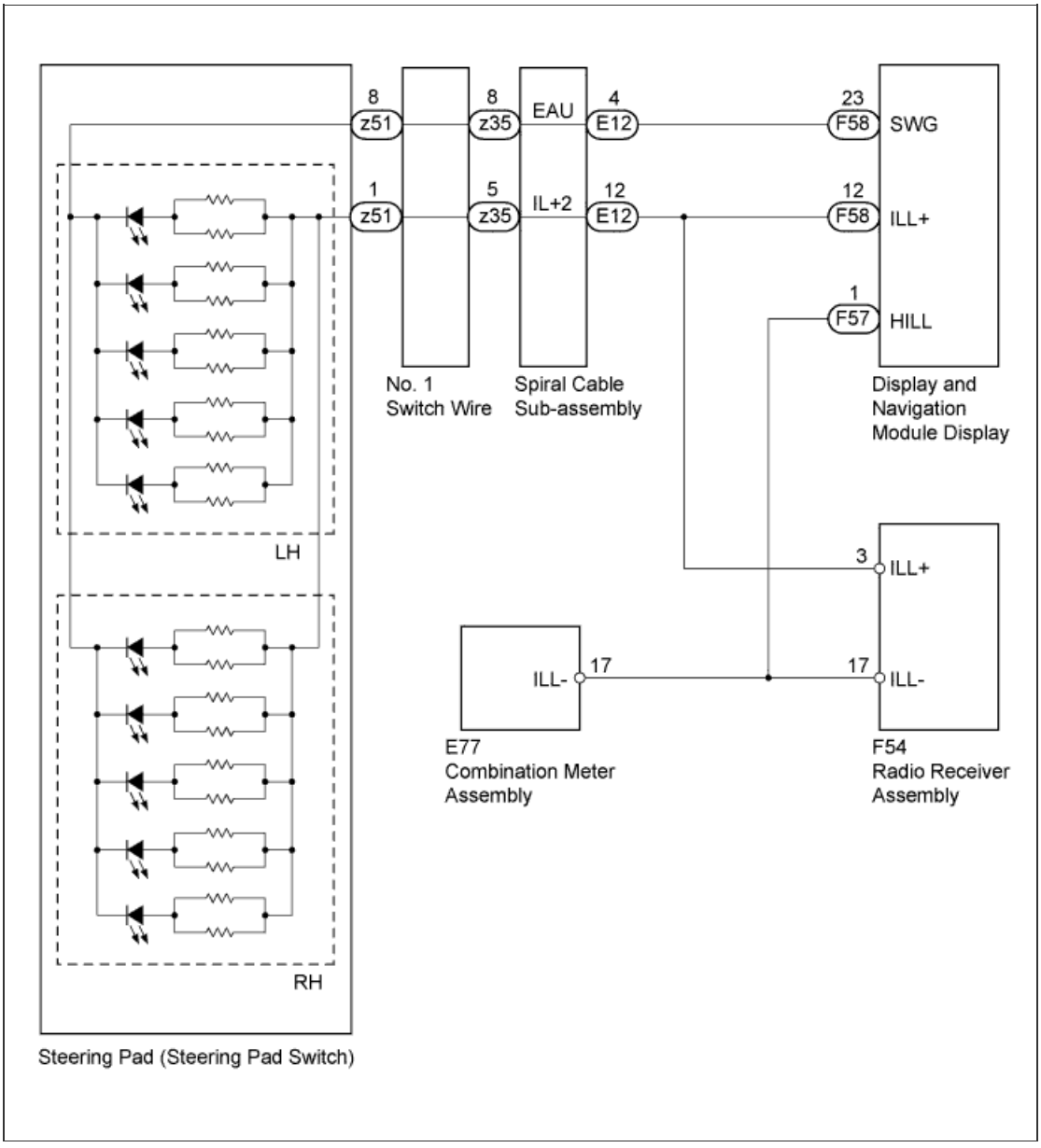
OK → REPAIR OR REPLACE HARNESS OR CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - SPIRAL CABLE)

**for Preparation** Click here

## DESCRIPTION

Power is supplied to the display and navigation module display, radio receiver assembly and steering pad (steering pad switch) illumination when the light control switch is in the TAIL or HEAD position.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

The vehicle is equipped with an SRS (Supplemental Restraint System) which includes components such as airbags. Before servicing (including removal or installation of parts), be sure to read the Precaution in the Supplemental Restraint System (Click here).

### 1.CHECK ILLUMINATION

a. Check if the illumination for the display and navigation module display, steering pad switch, glove box light, cigarette lighter, or other parts (seat heater switch, front seat memory switch, etc.) comes on when the light control switch is turned to the HEAD or TAIL position.

**Result**

| Result | Proceed to |
|---|---|
| Illumination comes on for all components except steering pad (steering pad switch). | A |

| | |
|---|---|
| Illumination comes on for all components except radio receiver assembly. | B |
| Illumination comes on for all components except display and navigation module display. | C |
| No illumination comes on for all components. | D |

B → Go to step 7

C → Go to step 8

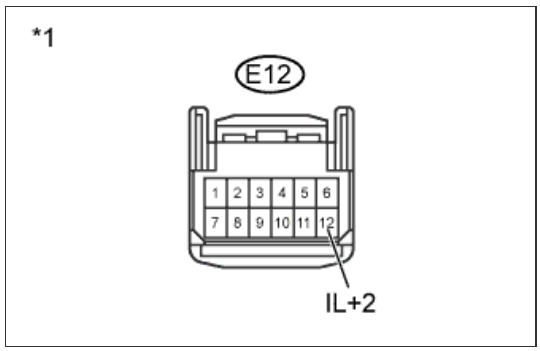
D → GO TO LIGHTING SYSTEM (Click here)

A

## 2.CHECK HARNESS AND CONNECTOR (BATTERY - SPIRAL CABLE SUB-ASSEMBLY)

a. Disconnect the E12 spiral cable sub-assembly connector.

b. Measure the voltage according to the value(s) in the table below.




**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E12-12 (IL+2) - Body ground | Light control switch in tail or head | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Spiral Cable Sub-assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 3.CHECK NO. 1 SWITCH WIRE

a. Disconnect the z35 spiral cable sub-assembly connector.

b. Disconnect the z51 steering pad (steering pad switch) connector.

c. Measure the resistance according to the valve(s) in the table below.

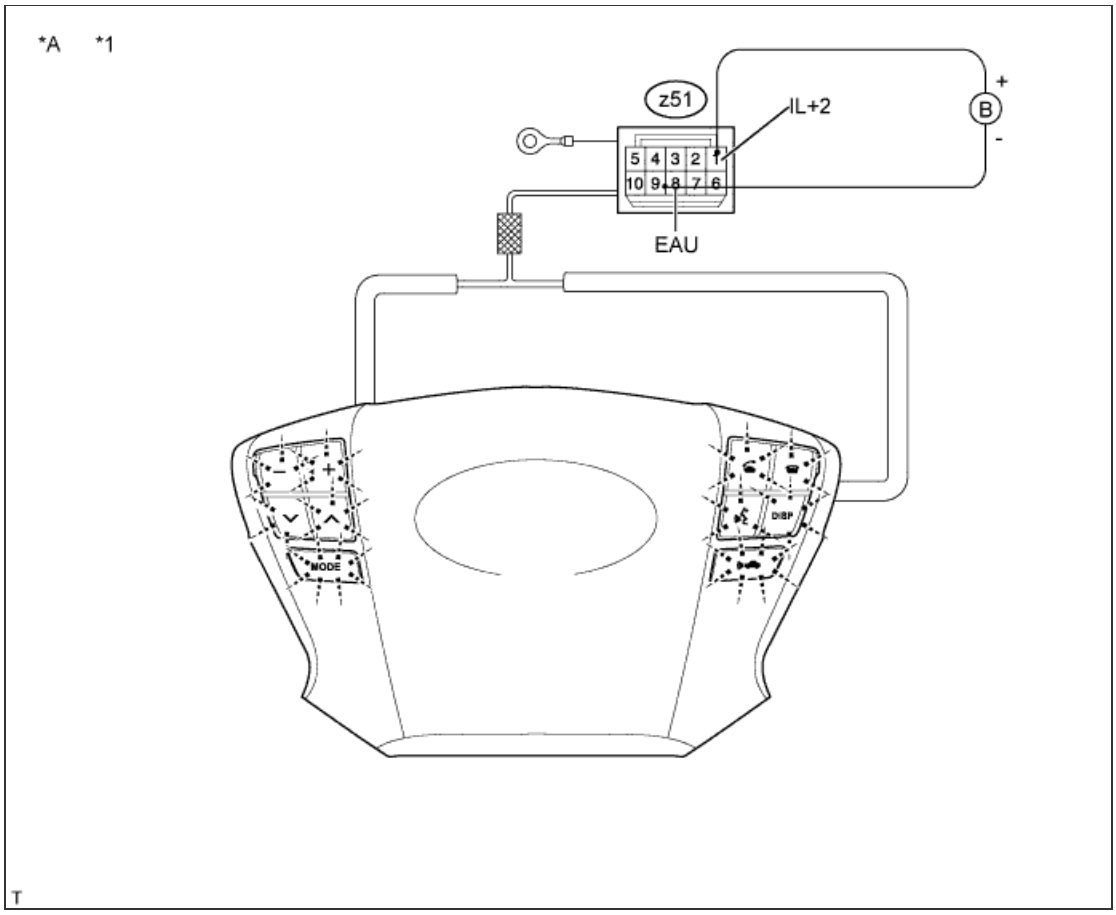
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| z35-8 - z51-8 | Always | Below 1 Ω |
| z35-5 - z51-1 | Always | Below 1 Ω |
| z35-8 - Body ground | Always | 10 kΩ or higher |
| z35-5 - Body ground | Always | 10 kΩ or higher |

NG → REPLACE NO. 1 SWITCH WIRE

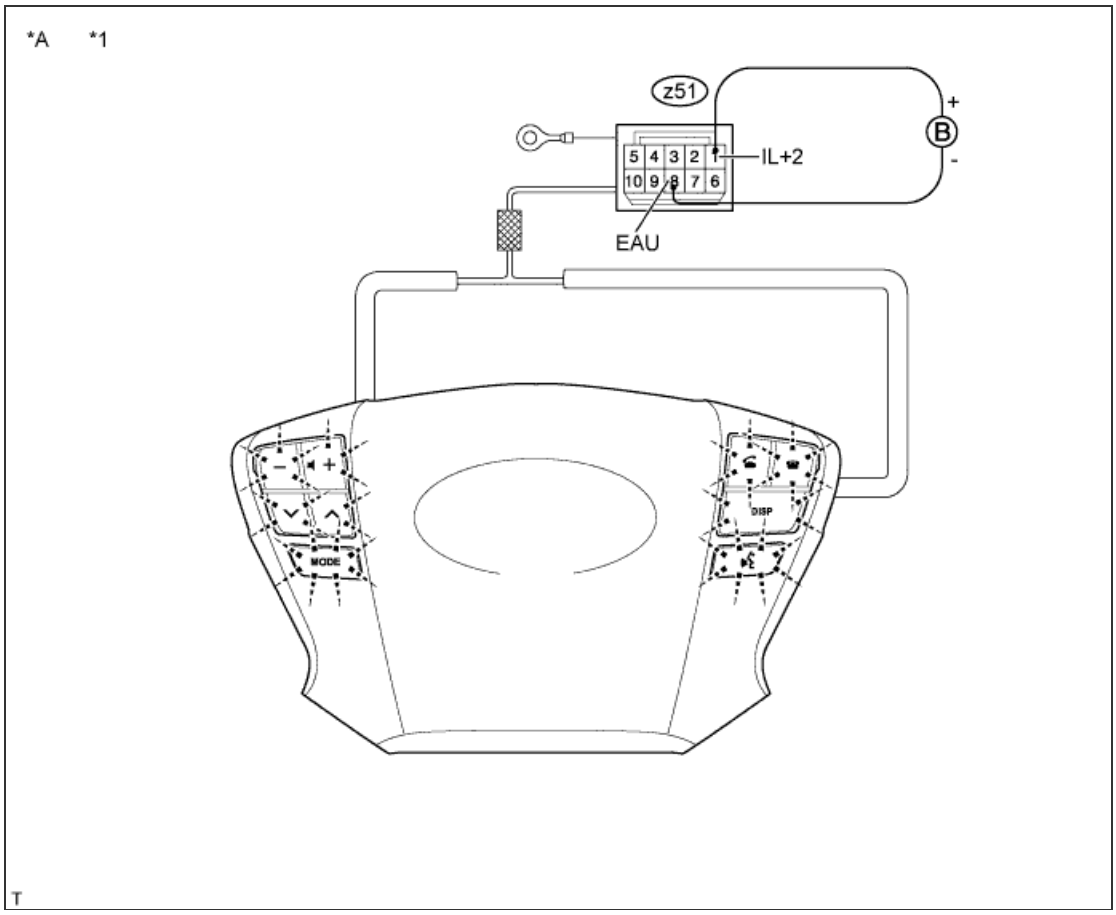
OK

## 4.INSPECT STEERING PAD (STEERING PAD SWITCH)




**Text in Illustration**

| | | | |
|---|---|---|---|
| *A | w/ Dynamic Radar Cruise Control System | *1 | Component without harness connected<br>(Steering Pad (Steering Pad Switch)) |




**Text in Illustration**

| | | | |
|---|---|---|---|
| *A | w/o Dynamic Radar Cruise Control System | *1 | Component without harness connected (Steering Pad (Steering Pad Switch)) |

a. Disconnect the z51 steering pad (steering pad switch) connector.

b. Connect a positive (+) lead from the battery to terminal 1 (IL+2) and a negative (-) lead from the battery to terminal 8 (EAU) of the steering pad switch assembly connector.

c. Check if the illumination for the steering pad switch assembly comes on.

**OK:**

**Illumination for the steering pad switch assembly comes on.**

NG → REPLACE STEERING PAD (STEERING PAD SWITCH) (Click here)

OK

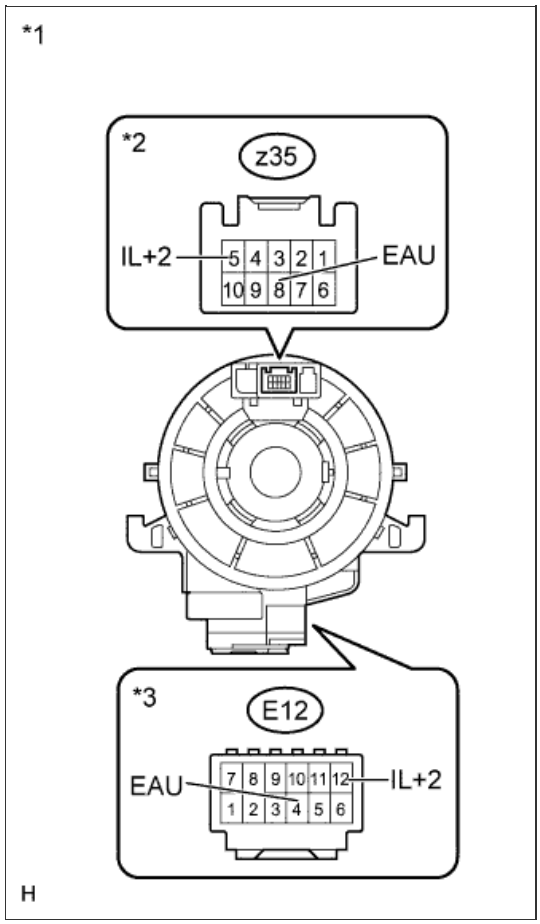
## 5.INSPECT SPIRAL CABLE SUB-ASSEMBLY

a. Disconnect the z35 and E12 spiral cable sub-assembly connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| z35-5 (IL+2) - E12-12 (IL+2) | Center | Below 1 Ω |
| | 2.5 rotations to the left | |
| | 2.5 rotations to the right | |
| z35-8 (EAU) - E12-4 (EAU) | Center | Below 1 Ω |
| | 2.5 rotations to the left | |
| | 2.5 rotations to the right | |




**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Spiral Cable Sub-assembly) |
| *2 | Steering Pad Switch Side |
| *3 | Vehicle Side |

**NOTICE:**

The spiral cable is an important part of the SRS airbag system. Incorrect removal or installation of the spiral cable may prevent the airbag from deploying. Be sure to read the Precaution for the supplemental restraint system (Click here).

NG → REPLACE SPIRAL CABLE SUB-ASSEMBLY (Click here)

OK

## 6.CHECK HARNESS AND CONNECTOR (SPIRAL CABLE - DISPLAY AND NAVIGATION MODULE DISPLAY AND RADIO RECEIVER)

a. Disconnect the E12 spiral cable sub-assembly connector.

b. Disconnect the F58 display and navigation module display connector.

c. Disconnect the F54 radio receiver assembly connector.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E12-12 (IL+2) - F58-12 (ILL+) | Always | Below 1 Ω |
| E12-12 (IL+2) - F54-3 (ILL+) | Always | Below 1 Ω |
| E12-4 (EAU) - F58-23 (SWG) | Always | Below 1 Ω |
| E12-12 (IL+2) - Body ground | Always | 10 kΩ or higher |
| E12-4 (EAU) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

7.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - BATTERY AND COMBINATION METER)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the E77 combination meter assembly connector.

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-3 (ILL+) - Body ground | Light control switch in TAIL or HEAD | 11 to 14 V |

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-17 (ILL-) - E77-17 (ILL-) | Always | Below 1 Ω |
| F54-17 (ILL-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

8.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - BATTERY AND COMBINATION METER)

a. Disconnect the F58 and F57 display and navigation module display connector.

b. Disconnect the E77 combination meter assembly connector.

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-12 (ILL+) - Body ground | Light control switch in TAIL or HEAD | 11 to 14 V |

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F57-1 (HILL) - E77-17 (ILL-) | Always | Below 1 Ω |
| F57-1 (HILL) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

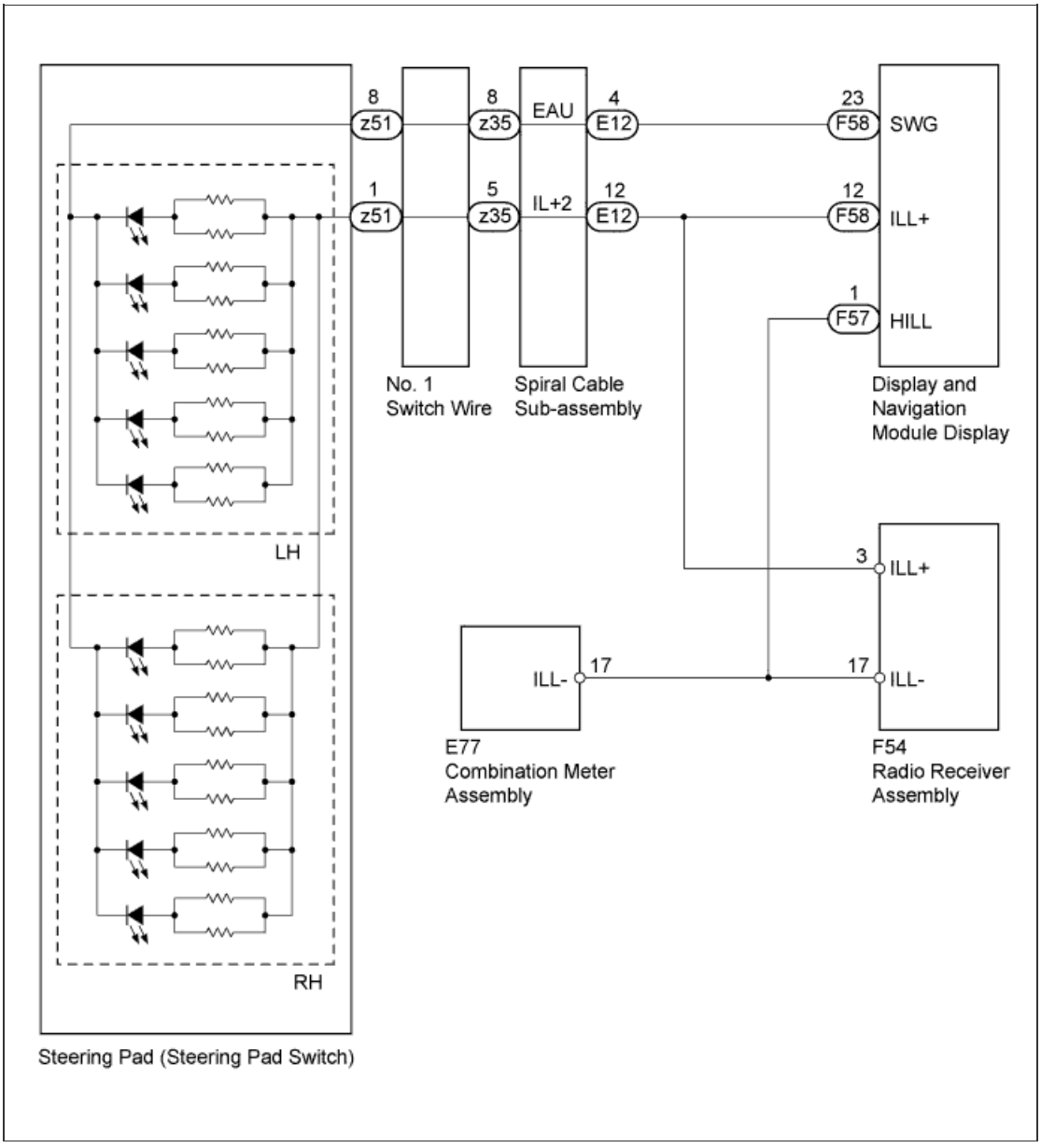
REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## DESCRIPTION

Power is supplied to the display and navigation module display, radio receiver assembly and steering pad (steering pad switch) illumination when the light control switch is in the TAIL or HEAD position.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

The vehicle is equipped with an SRS (Supplemental Restraint System) which includes components such as airbags. Before servicing (including removal or installation of parts), be sure to read the Precaution in the Supplemental Restraint System (Click here).

### 1.CHECK ILLUMINATION

a. Check if the illumination for the display and navigation module display, steering pad switch, glove box light, cigarette lighter, or other parts (seat heater switch, front seat memory switch, etc.) comes on when the light control switch is turned to the HEAD or TAIL position.

**Result**

| Result | Proceed to |
|---|---|
| Illumination comes on for all components except steering pad (steering pad switch). | A |

| | |
|---|---|
| Illumination comes on for all components except radio receiver assembly. | B |
| Illumination comes on for all components except display and navigation module display. | C |
| No illumination comes on for all components. | D |

B → Go to step 7

C → Go to step 8

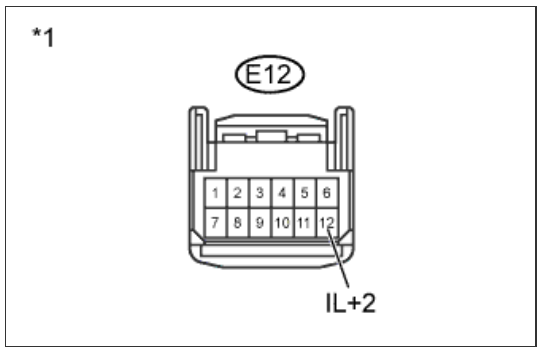
D → GO TO LIGHTING SYSTEM (Click here)

A

## 2.CHECK HARNESS AND CONNECTOR (BATTERY - SPIRAL CABLE SUB-ASSEMBLY)

a. Disconnect the E12 spiral cable sub-assembly connector.

b. Measure the voltage according to the value(s) in the table below.




**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E12-12 (IL+2) - Body ground | Light control switch in tail or head | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Spiral Cable Sub-assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 3.CHECK NO. 1 SWITCH WIRE

a. Disconnect the z35 spiral cable sub-assembly connector.

b. Disconnect the z51 steering pad (steering pad switch) connector.

c. Measure the resistance according to the valve(s) in the table below.

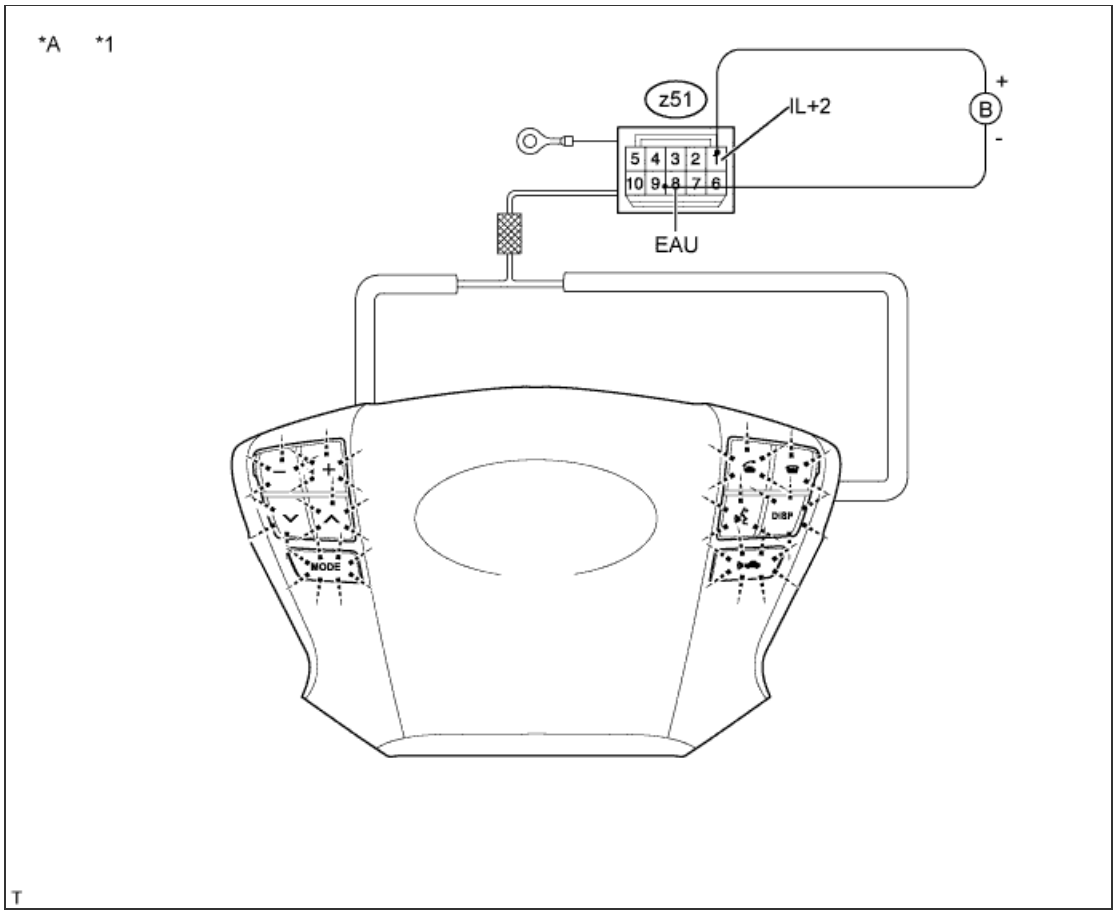
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| z35-8 - z51-8 | Always | Below 1 Ω |
| z35-5 - z51-1 | Always | Below 1 Ω |
| z35-8 - Body ground | Always | 10 kΩ or higher |
| z35-5 - Body ground | Always | 10 kΩ or higher |

NG → REPLACE NO. 1 SWITCH WIRE

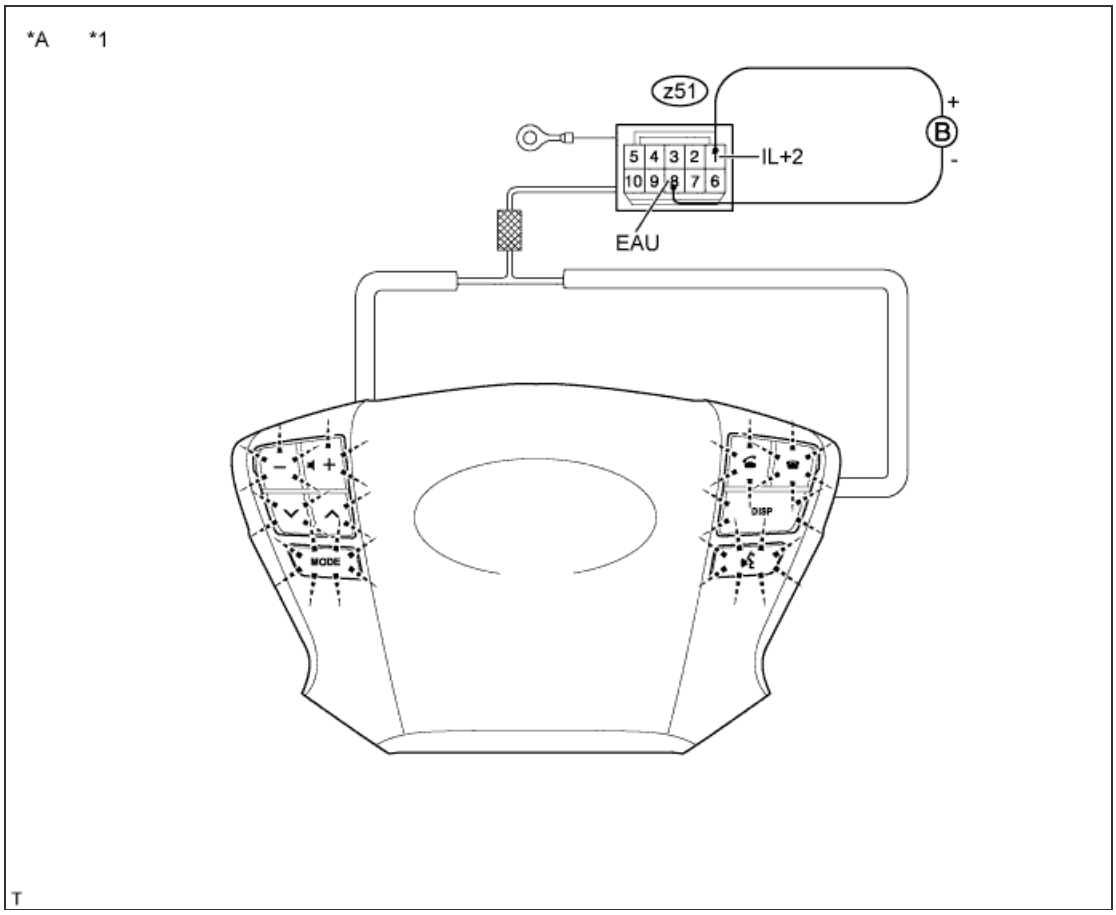
OK

## 4.INSPECT STEERING PAD (STEERING PAD SWITCH)




**Text in Illustration**

| | | | |
|---|---|---|---|
| *A | w/ Dynamic Radar Cruise Control System | *1 | Component without harness connected<br>(Steering Pad (Steering Pad Switch)) |




**Text in Illustration**

| | | | |
|---|---|---|---|
| *A | w/o Dynamic Radar Cruise Control System | *1 | Component without harness connected (Steering Pad (Steering Pad Switch)) |

a. Disconnect the z51 steering pad (steering pad switch) connector.

b. Connect a positive (+) lead from the battery to terminal 1 (IL+2) and a negative (-) lead from the battery to terminal 8 (EAU) of the steering pad switch assembly connector.

c. Check if the illumination for the steering pad switch assembly comes on.

**OK:**

**Illumination for the steering pad switch assembly comes on.**

NG → REPLACE STEERING PAD (STEERING PAD SWITCH) (Click here)

OK

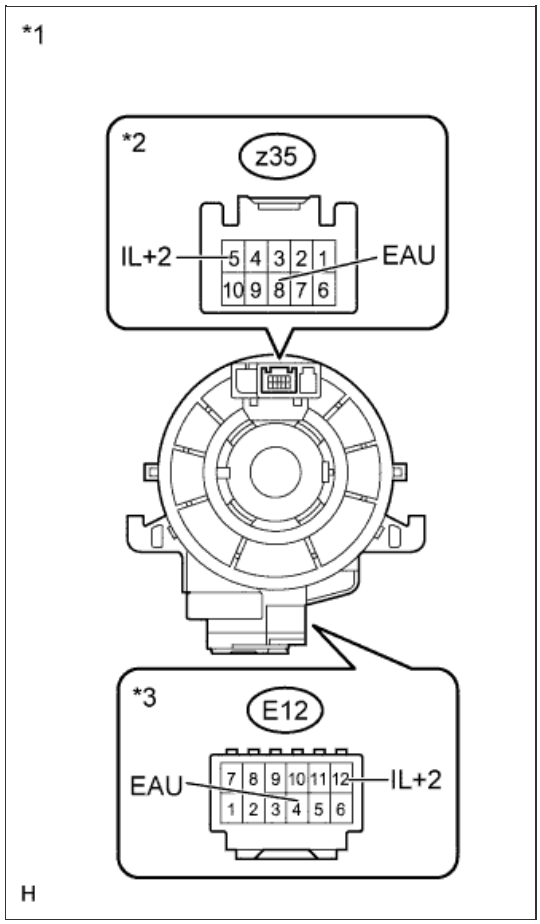
## 5.INSPECT SPIRAL CABLE SUB-ASSEMBLY

a. Disconnect the z35 and E12 spiral cable sub-assembly connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| z35-5 (IL+2) - E12-12 (IL+2) | Center | Below 1 Ω |
| | 2.5 rotations to the left | |
| | 2.5 rotations to the right | |
| z35-8 (EAU) - E12-4 (EAU) | Center | Below 1 Ω |
| | 2.5 rotations to the left | |
| | 2.5 rotations to the right | |




**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Spiral Cable Sub-assembly) |
| *2 | Steering Pad Switch Side |
| *3 | Vehicle Side |

**NOTICE:**

The spiral cable is an important part of the SRS airbag system. Incorrect removal or installation of the spiral cable may prevent the airbag from deploying. Be sure to read the Precaution for the supplemental restraint system (Click here).

NG → REPLACE SPIRAL CABLE SUB-ASSEMBLY (Click here)

OK

## 6.CHECK HARNESS AND CONNECTOR (SPIRAL CABLE - DISPLAY AND NAVIGATION MODULE DISPLAY AND RADIO RECEIVER)

a. Disconnect the E12 spiral cable sub-assembly connector.

b. Disconnect the F58 display and navigation module display connector.

c. Disconnect the F54 radio receiver assembly connector.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E12-12 (IL+2) - F58-12 (ILL+) | Always | Below 1 Ω |
| E12-12 (IL+2) - F54-3 (ILL+) | Always | Below 1 Ω |
| E12-4 (EAU) - F58-23 (SWG) | Always | Below 1 Ω |
| E12-12 (IL+2) - Body ground | Always | 10 kΩ or higher |
| E12-4 (EAU) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

7.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - BATTERY AND COMBINATION METER)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the E77 combination meter assembly connector.

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-3 (ILL+) - Body ground | Light control switch in TAIL or HEAD | 11 to 14 V |

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-17 (ILL-) - E77-17 (ILL-) | Always | Below 1 Ω |
| F54-17 (ILL-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

8.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - BATTERY AND COMBINATION METER)

a. Disconnect the F58 and F57 display and navigation module display connector.

b. Disconnect the E77 combination meter assembly connector.

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-12 (ILL+) - Body ground | Light control switch in TAIL or HEAD | 11 to 14 V |

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F57-1 (HILL) - E77-17 (ILL-) | Always | Below 1 Ω |
| F57-1 (HILL) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

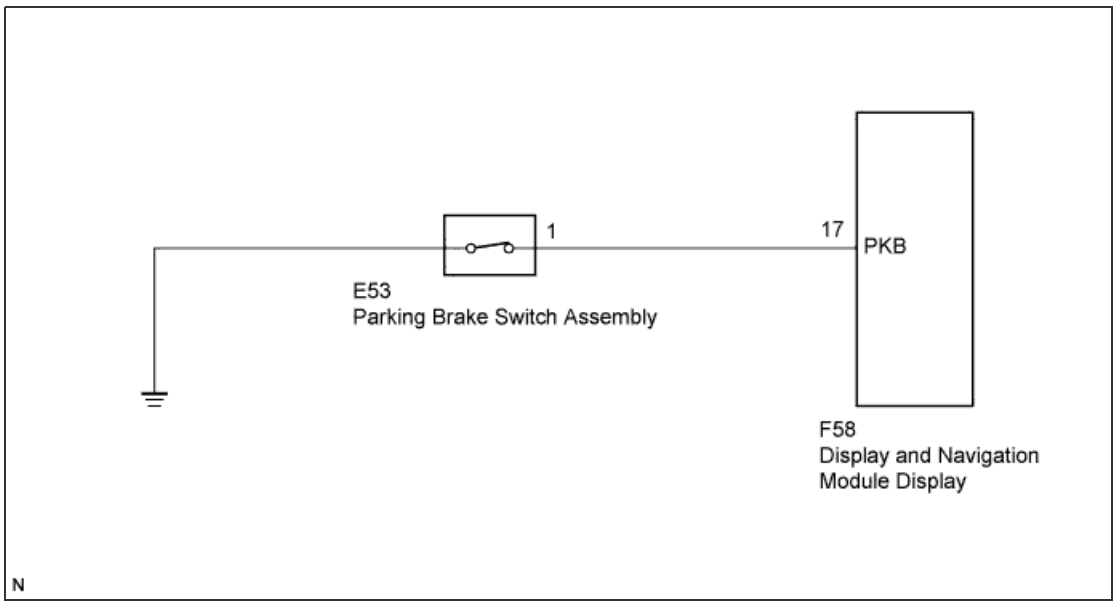
REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit is from the parking brake switch assembly to the display and navigation module display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK BRAKE WARNING LIGHT

a. Check that the brake warning light comes on when the parking brake is applied and goes off when it is released.

**OK:**
**The brake warning light operates as specified above.**

NG → Go to step 3

OK ↓

### 2.CHECK HARNESS AND CONNECTOR (PARKING BRAKE SWITCH - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F58 display and navigation module display connector.

b. Disconnect the E53 parking brake switch assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-17 (PKB) - E53-1 | Always | Below 1 Ω |
| F58-17 (PKB) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

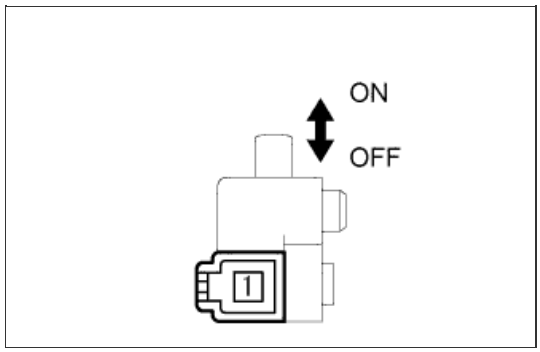
### 3.INSPECT PARKING BRAKE SWITCH ASSEMBLY

a. Disconnect the parking brake switch assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - Switch body | ON (When shaft is not pressed) | Below 1 Ω |
| 1 - Switch body | OFF (When shaft is pressed) | 10 kΩ or higher |




NG → REPLACE PARKING BRAKE SWITCH ASSEMBLY

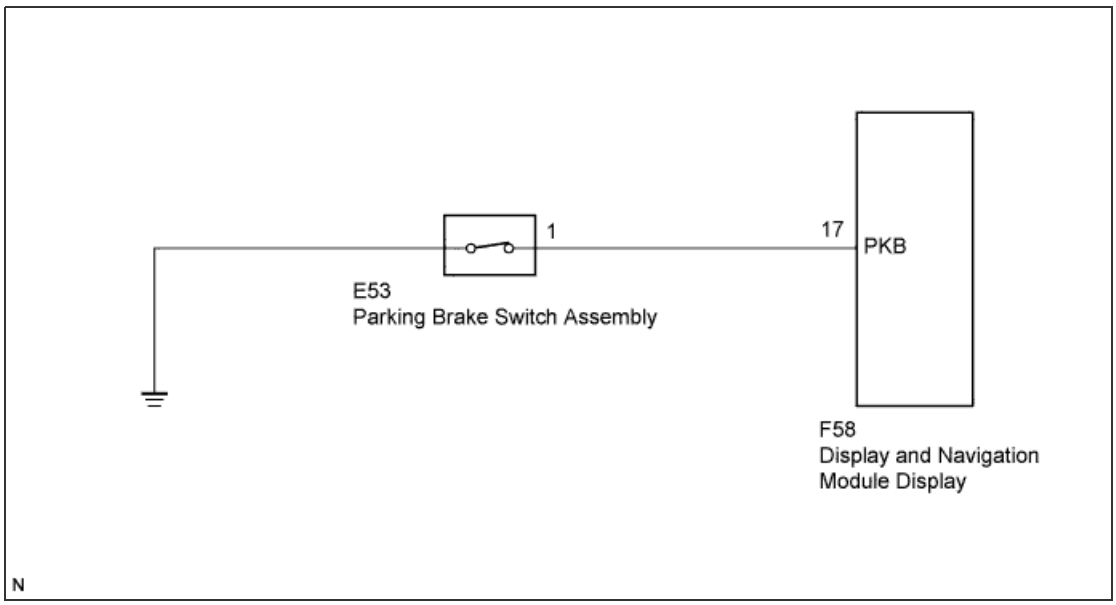
OK → REPAIR OR REPLACE HARNESS OR CONNECTOR (PARKING BRAKE SWITCH - BODY GROUND)

**for Preparation** Click here

## DESCRIPTION

This circuit is from the parking brake switch assembly to the display and navigation module display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK BRAKE WARNING LIGHT

a. Check that the brake warning light comes on when the parking brake is applied and goes off when it is released.

**OK:**
**The brake warning light operates as specified above.**

NG → Go to step 3

OK ↓

### 2.CHECK HARNESS AND CONNECTOR (PARKING BRAKE SWITCH - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F58 display and navigation module display connector.

b. Disconnect the E53 parking brake switch assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-17 (PKB) - E53-1 | Always | Below 1 Ω |
| F58-17 (PKB) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

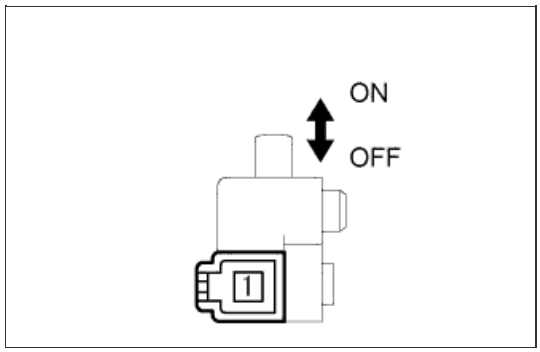
### 3.INSPECT PARKING BRAKE SWITCH ASSEMBLY

a. Disconnect the parking brake switch assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - Switch body | ON (When shaft is not pressed) | Below 1 Ω |
| 1 - Switch body | OFF (When shaft is pressed) | 10 kΩ or higher |




NG → REPLACE PARKING BRAKE SWITCH ASSEMBLY

OK → REPAIR OR REPLACE HARNESS OR CONNECTOR (PARKING BRAKE SWITCH - BODY GROUND)

**for Preparation** Click here

## DESCRIPTION

Each unit of the navigation system connected to the AVC-LAN (communication bus) transfers switch signals by the audio visual communication local area network.
If a short to +B or short to ground occurs in this AVC-LAN, the navigation system will not function normally as communication is stopped.

## INSPECTION PROCEDURE

**HINT:**

The display and navigation module display is the master unit.

### 1.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

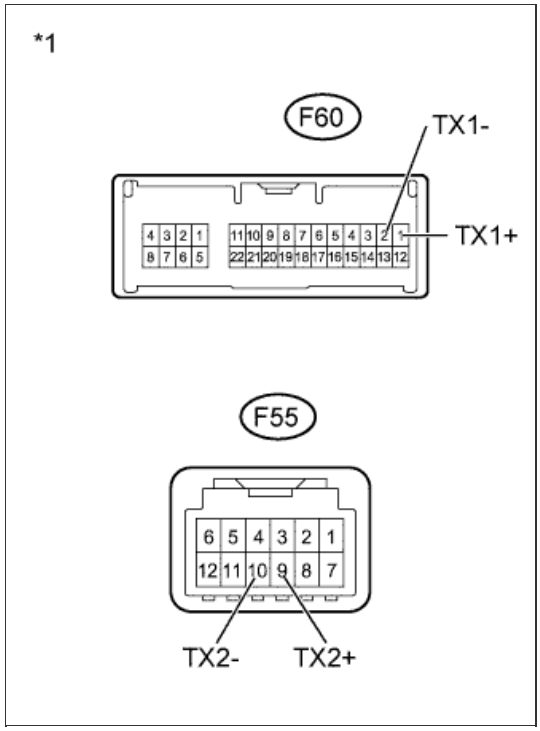
a. Disconnect the F60 display and navigation module display connector.

b. Disconnect the F55 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F60-1 (TX1+) - F60-2 (TX1-) | Always | 60 to 80 Ω |
| F55-9 (TX2+) - F55-10 (TX2-) | Always | 60 to 80 Ω |




**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Display and Navigation Module Display) |

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

### 2.CHECK HARNESS AND CONNECTOR (AVC-LAN CIRCUIT)

**HINT:**

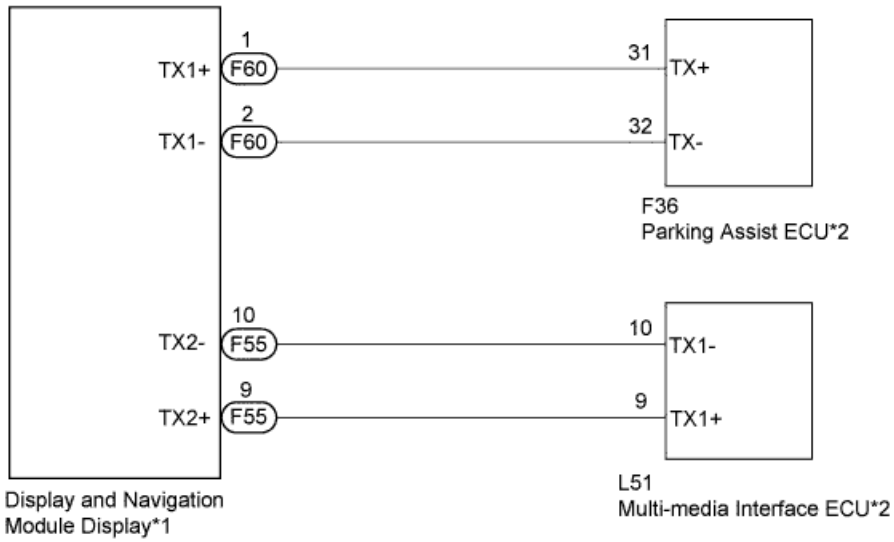
For details of the connectors, refer to Terminals of ECU ( Click here).

a. Referring to the AVC-LAN wiring diagram below, check all AVC-LAN circuits.

i. Disconnect all connectors in all AVC-LAN circuits.

ii. Check for an open or short in all AVC-LAN circuits.

AVC-LAN WIRING DIAGRAM:




*1: Master Unit

*2: Slave Unit

**OK:**

**There is no open or short circuit.**

| | |
|---|---|
| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR |

OK

**3.INSPECT MALFUNCTIONING PARTS**

a. Disconnect and reconnect each slave unit one by one until the master unit returns to normal operation.

**HINT:**

- **Check all slave units.**
- **If disconnecting a slave unit causes the master unit to return to normal operation, the slave unit is defective and should be replaced.**

**OK:**

**Master unit returns to normal operation.**

| | |
|---|---|
| NG | REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here) |

OK

**REPLACE MALFUNCTIONING PARTS**

**for Preparation** Click here

## DESCRIPTION

Each unit of the navigation system connected to the AVC-LAN (communication bus) transfers switch signals by the audio visual communication local area network.
If a short to +B or short to ground occurs in this AVC-LAN, the navigation system will not function normally as communication is stopped.

## INSPECTION PROCEDURE

**HINT:**

The display and navigation module display is the master unit.

### 1.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

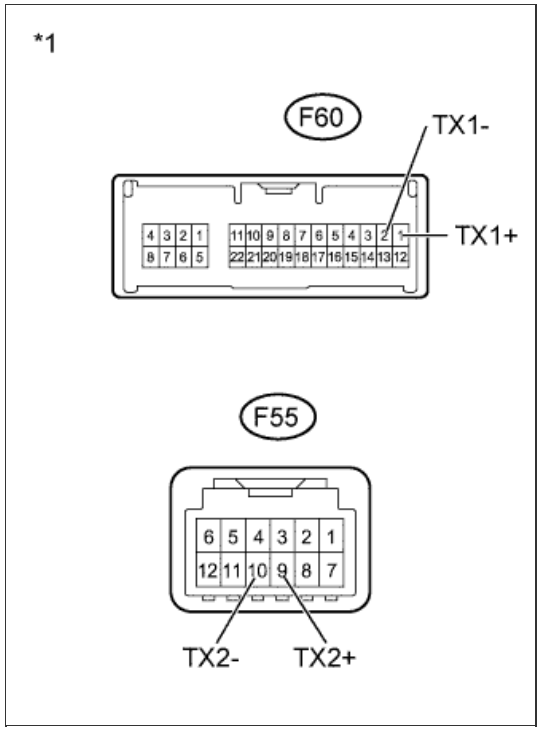
a. Disconnect the F60 display and navigation module display connector.

b. Disconnect the F55 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F60-1 (TX1+) - F60-2 (TX1-) | Always | 60 to 80 Ω |
| F55-9 (TX2+) - F55-10 (TX2-) | Always | 60 to 80 Ω |




**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Display and Navigation Module Display) |

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

### 2.CHECK HARNESS AND CONNECTOR (AVC-LAN CIRCUIT)

**HINT:**

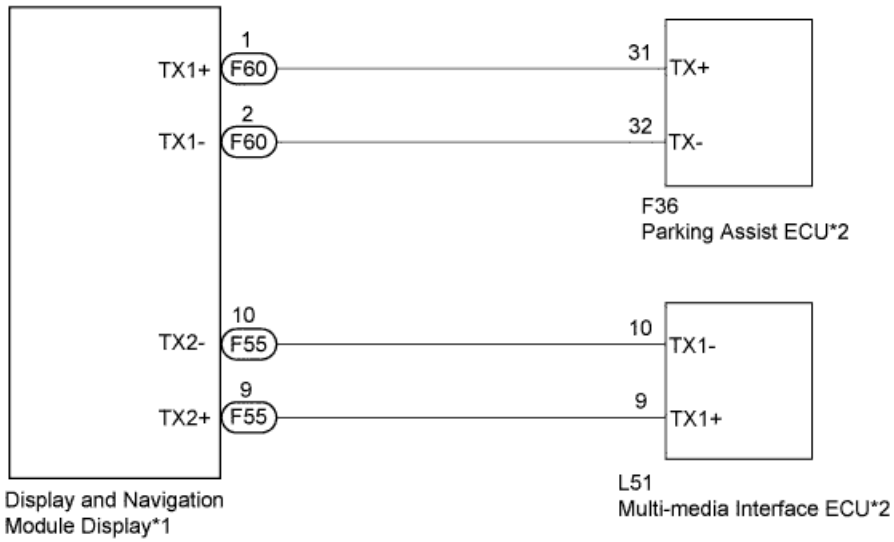
For details of the connectors, refer to Terminals of ECU ( Click here).

a. Referring to the AVC-LAN wiring diagram below, check all AVC-LAN circuits.

i. Disconnect all connectors in all AVC-LAN circuits.

ii. Check for an open or short in all AVC-LAN circuits.

AVC-LAN WIRING DIAGRAM:




*1: Master Unit

*2: Slave Unit

**OK:**

**There is no open or short circuit.**

| | |
|---|---|
| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR |

OK

**3.INSPECT MALFUNCTIONING PARTS**

a. Disconnect and reconnect each slave unit one by one until the master unit returns to normal operation.

**HINT:**

- **Check all slave units.**
- **If disconnecting a slave unit causes the master unit to return to normal operation, the slave unit is defective and should be replaced.**

**OK:**

**Master unit returns to normal operation.**

| | |
|---|---|
| NG | REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here) |

OK

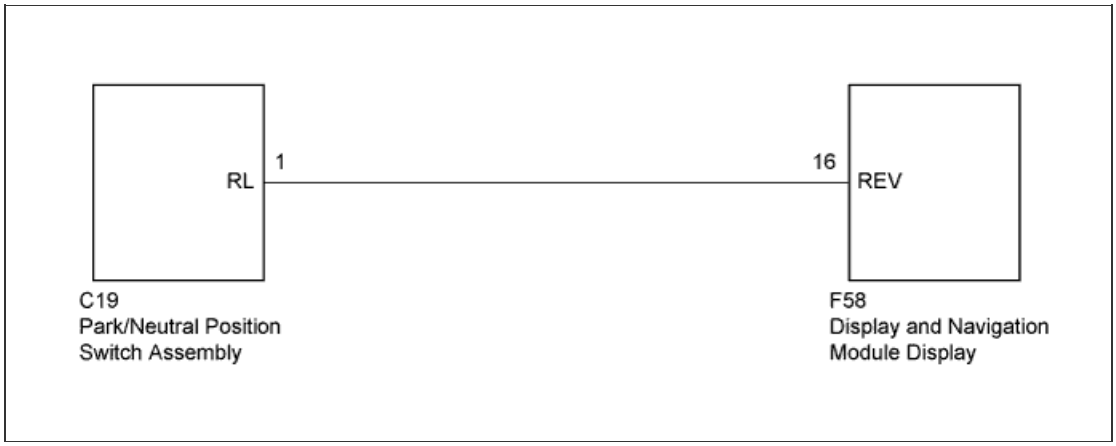
**REPLACE MALFUNCTIONING PARTS**

**for Preparation** Click here

## DESCRIPTION

The display and navigation module display receives a reverse signal from the park/neutral position switch and information about the navigation antenna assembly, and then adjusts the vehicle position on the navigation display.

## WIRING DIAGRAM

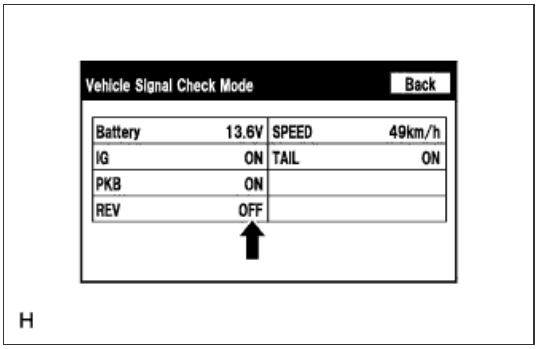



## INSPECTION PROCEDURE

### 1.CHECK REVERSE SIGNAL (DISPLAY CHECK MODE)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check (Click here).

b. Check that the display changes between ON and OFF according to the shift lever operation.




**OK:**

| Condition | Display |
|---|---|
| Shift lever in R | ON |
| Shift lever in any position except R | OFF |

**HINT:**

This display is updated once per second. As a result, it is normal for the display to lag behind the actual switch operation.

NG → Go to step 2

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

### 2.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

a. Disconnect the F58 display and navigation module display connector.

b. Measure the voltage according to the value(s) in the table below.

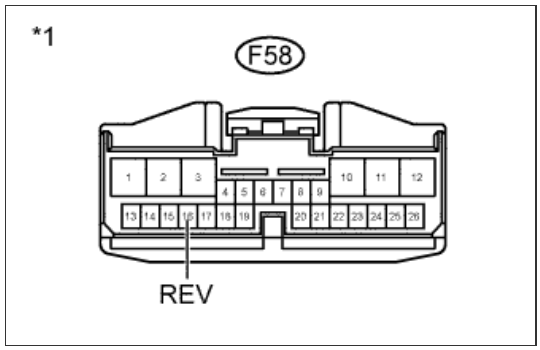
**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-16 (REV) - Body ground | Engine switch on (IG) | 11 to 14 V |

| | | |
|---|---|---|
| | Shift lever in R | |
| F58-16 (REV) - Body ground | Engine switch on (IG)<br>Shift lever in any position except R | Below 1 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Display and Navigation Module Display) |




NG → Go to step 3

OK →

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

3.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - PNP SWITCH)

a. Disconnect the F58 display and navigation module display connector.

b. Disconnect the C19 park/neutral position switch assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-16 (REV) - C19-1 (RL) | Always | Below 1 Ω |
| F58-16 (REV) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK →

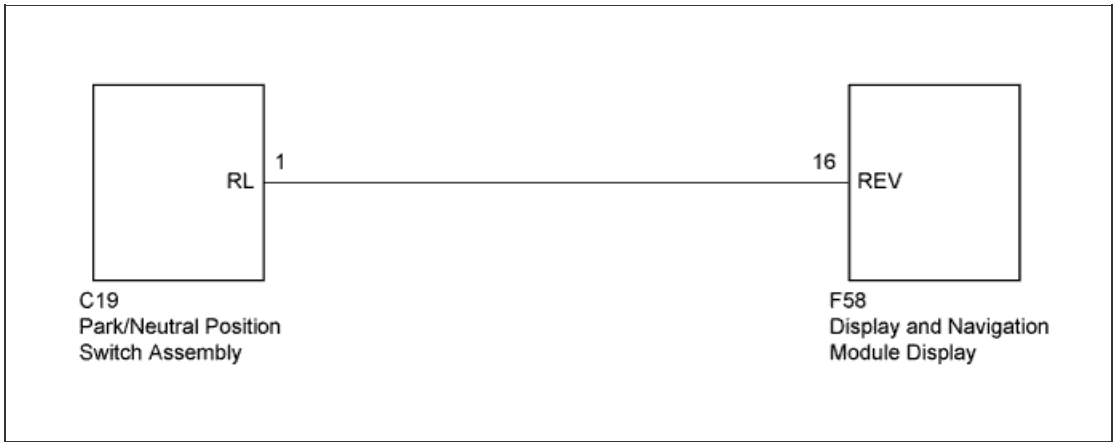
REPLACE PARK/NEUTRAL POSITION SWITCH ASSEMBLY (Click here)

**for Preparation** Click here

## DESCRIPTION

The display and navigation module display receives a reverse signal from the park/neutral position switch and information about the navigation antenna assembly, and then adjusts the vehicle position on the navigation display.

## WIRING DIAGRAM

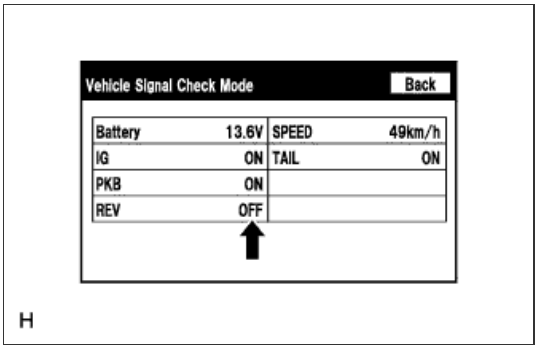



## INSPECTION PROCEDURE

### 1.CHECK REVERSE SIGNAL (DISPLAY CHECK MODE)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check (Click here).

b. Check that the display changes between ON and OFF according to the shift lever operation.




**OK:**

| Condition | Display |
|---|---|
| Shift lever in R | ON |
| Shift lever in any position except R | OFF |

**HINT:**

This display is updated once per second. As a result, it is normal for the display to lag behind the actual switch operation.

NG → Go to step 2

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

### 2.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

a. Disconnect the F58 display and navigation module display connector.

b. Measure the voltage according to the value(s) in the table below.

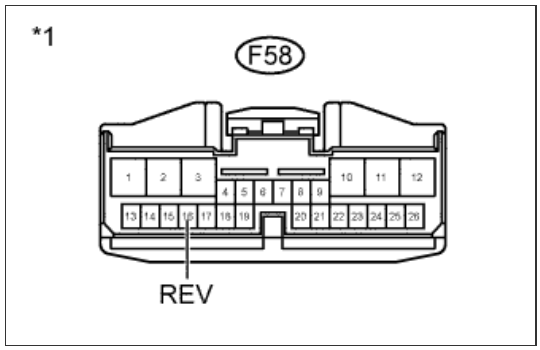
**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-16 (REV) - Body ground | Engine switch on (IG) | 11 to 14 V |

| | | |
|---|---|---|
| | Shift lever in R | |
| F58-16 (REV) - Body ground | Engine switch on (IG)<br>Shift lever in any position except R | Below 1 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Display and Navigation Module Display) |




NG → Go to step 3

OK →

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

3.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - PNP SWITCH)

a. Disconnect the F58 display and navigation module display connector.

b. Disconnect the C19 park/neutral position switch assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-16 (REV) - C19-1 (RL) | Always | Below 1 Ω |
| F58-16 (REV) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK →

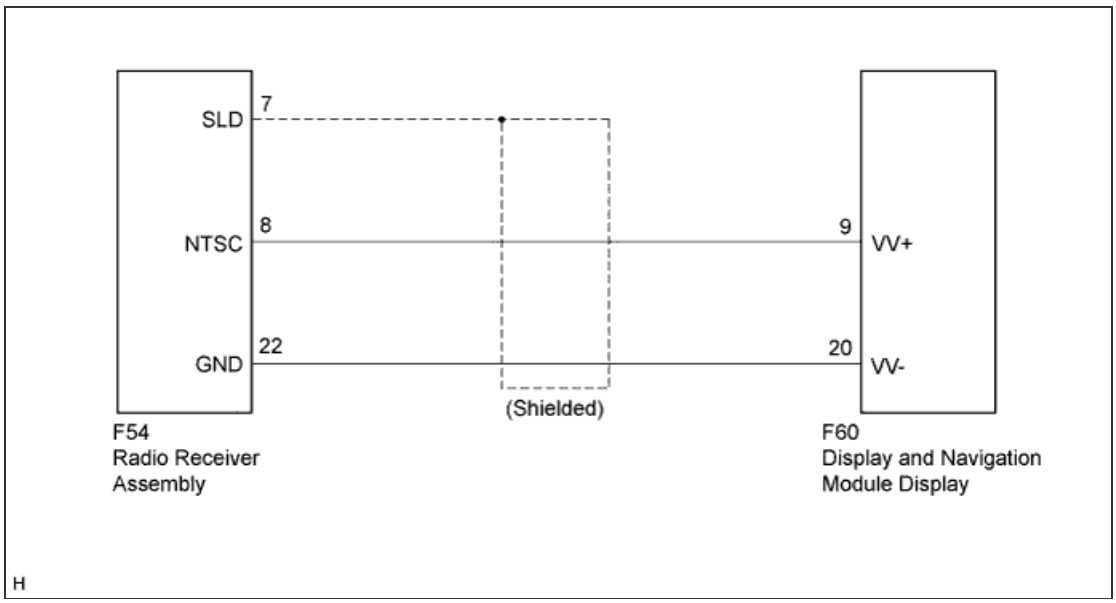
REPLACE PARK/NEUTRAL POSITION SWITCH ASSEMBLY (Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit sends a DVD image signal from the radio receiver assembly to the display and navigation module display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F60 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-8 (NTSC) - F60-9 (VV+) | Always | Below 1 Ω |
| F54-22 (GND) - F60-20 (VV-) | Always | Below 1 Ω |
| F54-8 (NTSC) - Body ground | Always | 10 kΩ or higher |
| F54-22 (GND) - Body ground | Always | 10 kΩ or higher |
| F54-7 (SLD) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 2.INSPECT RADIO RECEIVER ASSEMBLY (DVD IMAGE SIGNAL)

a. Reconnect the F54 radio receiver assembly connector.

b. Check the waveform according to the table below.

### Oscilloscope Waveform

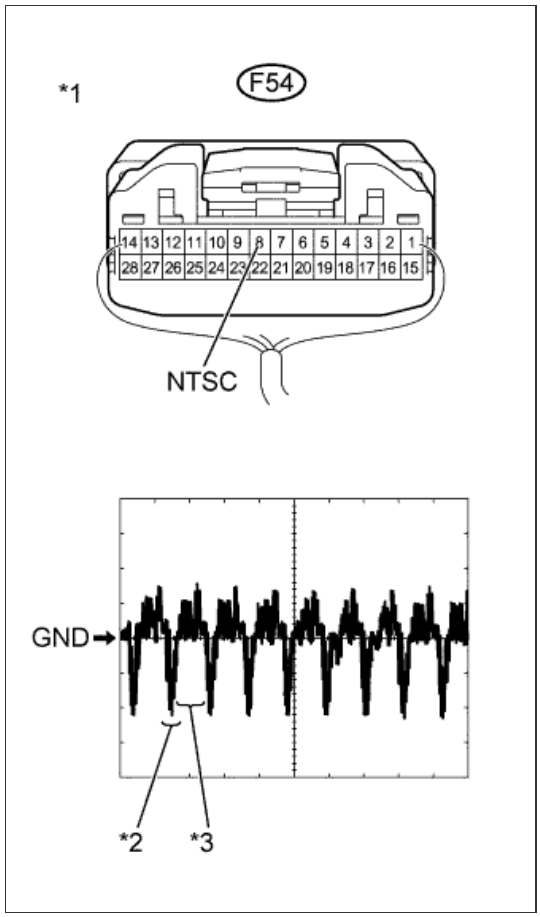
| Item | Content |
|---|---|
| Measurement terminal | F54-8 (NTSC) - Body ground |
| Tool setting | 200 mV/DIV., 10 µs/DIV. |
| Condition | DVD display is on |

**HINT:**

The video waveform changes according to the image output from the radio receiver assembly to the display and navigation module display, but the synchronization signal does not change.

### Text in Illustration

| | |
|---|---|
| *1 | Component with harness connected (Radio Receiver Assembly) |
| *2 | Synchronization Signal |
| *3 | Video Waveform |




NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

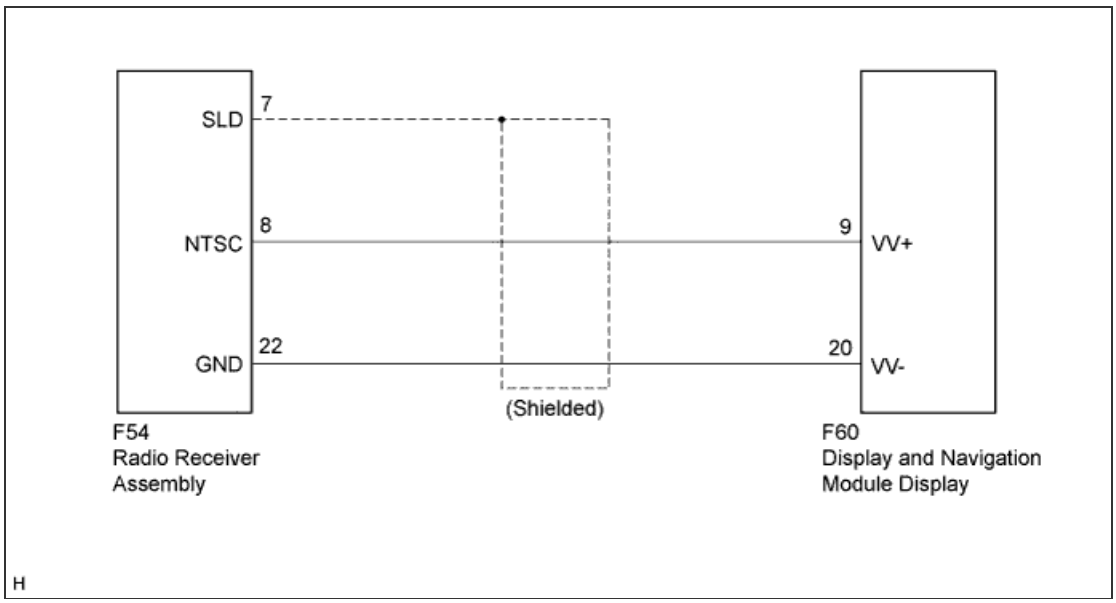
OK → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit sends a DVD image signal from the radio receiver assembly to the display and navigation module display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F60 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-8 (NTSC) - F60-9 (VV+) | Always | Below 1 Ω |
| F54-22 (GND) - F60-20 (VV-) | Always | Below 1 Ω |
| F54-8 (NTSC) - Body ground | Always | 10 kΩ or higher |
| F54-22 (GND) - Body ground | Always | 10 kΩ or higher |
| F54-7 (SLD) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 2.INSPECT RADIO RECEIVER ASSEMBLY (DVD IMAGE SIGNAL)

a. Reconnect the F54 radio receiver assembly connector.

b. Check the waveform according to the table below.

### Oscilloscope Waveform

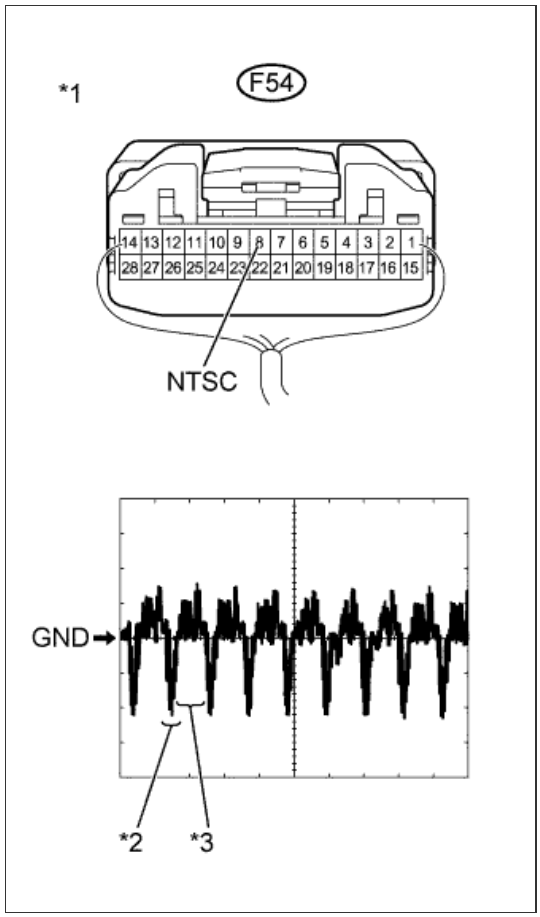
| Item | Content |
|---|---|
| Measurement terminal | F54-8 (NTSC) - Body ground |
| Tool setting | 200 mV/DIV., 10 µs/DIV. |
| Condition | DVD display is on |

**HINT:**

The video waveform changes according to the image output from the radio receiver assembly to the display and navigation module display, but the synchronization signal does not change.

### Text in Illustration

| | |
|---|---|
| *1 | Component with harness connected (Radio Receiver Assembly) |
| *2 | Synchronization Signal |
| *3 | Video Waveform |




NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

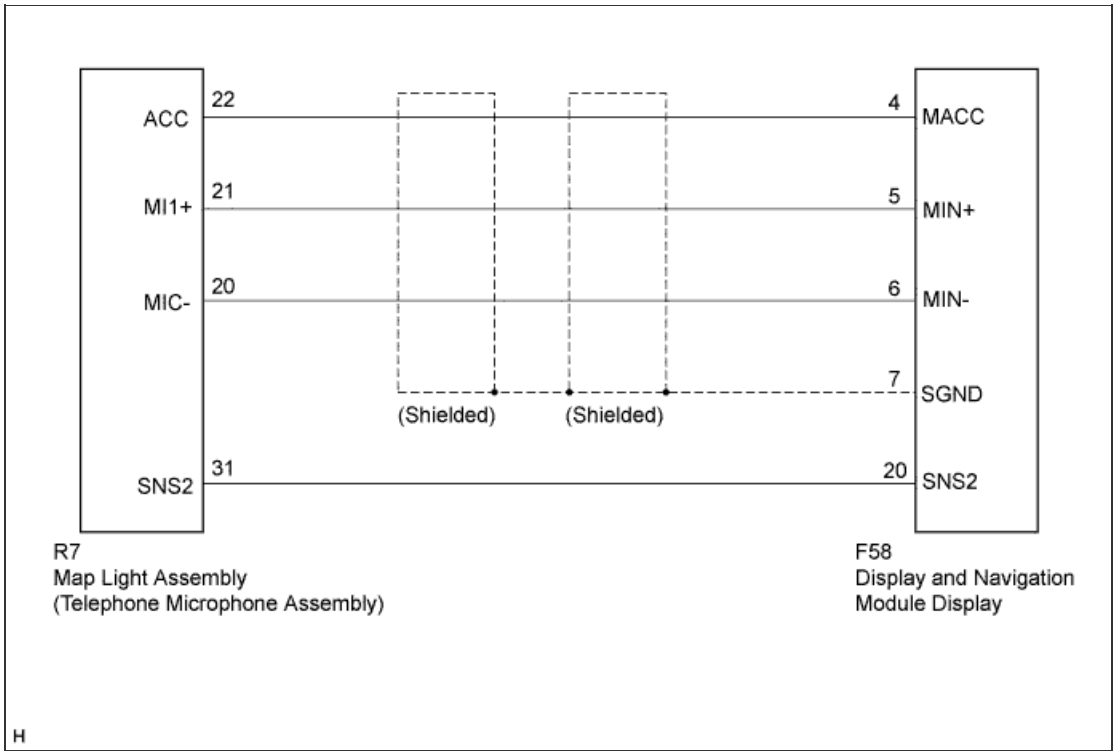
OK → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit sends a microphone signal from the map light assembly (telephone microphone assembly) to the display and navigation module display. It also supplies power from the display and navigation module display to the map light assembly (telephone microphone assembly).

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - MAP LIGHT ASSEMBLY)

a. Disconnect the F58 display and navigation module display connector.

b. Disconnect the R7 map light assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-20 (SNS2) - R7-31 (SNS2) | Always | Below 1 Ω |
| F58-4 (MACC) - R7-22 (ACC) | Always | Below 1 Ω |
| F58-5 (MIN+) - R7-21 (MI1+) | Always | Below 1 Ω |
| F58-6 (MIN-) - R7-20 (MIC-) | Always | Below 1 Ω |
| F58-20 (SNS2) - Body ground | Always | 10 kΩ or higher |
| F58-4 (MACC) - Body ground | Always | 10 kΩ or higher |
| F58-5 (MIN+) - Body ground | Always | 10 kΩ or higher |
| F58-6 (MIN-) - Body ground | Always | 10 kΩ or higher |
| F58-7 (SGND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 2.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

a. Reconnect the F58 display and navigation module display connector.

b. Measure the voltage according to the value(s) in the table below.

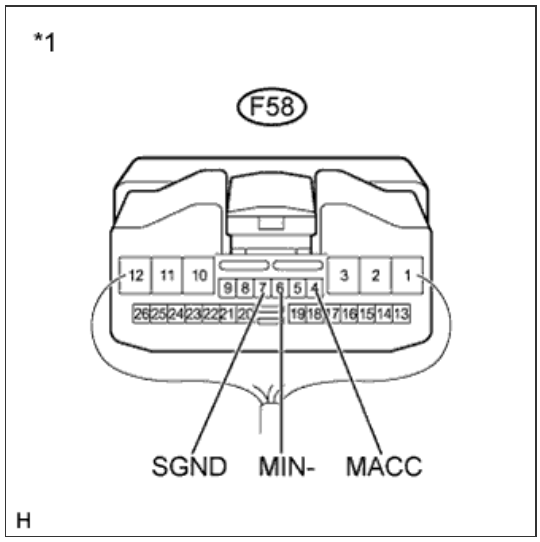
**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-4 (MACC) - Body ground | Engine switch on (ACC) | 4 to 6 V |

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-7 (SGND) - Body ground | Always | Below 1 Ω |
| F58-6 (MIN-) - Body ground | Always | Below 1 Ω |




**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Display and Navigation Module Display) |

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

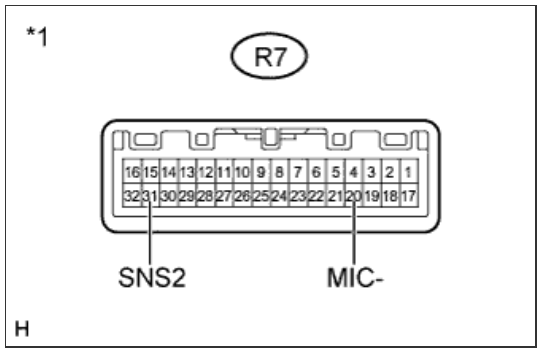
OK

## 3.INSPECT MAP LIGHT ASSEMBLY

a. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| R7-31 (SNS2) - R7-20 (MIC-) | Always | Below 1 Ω |




**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Map Light Assembly) |

NG → Go to step 5

OK

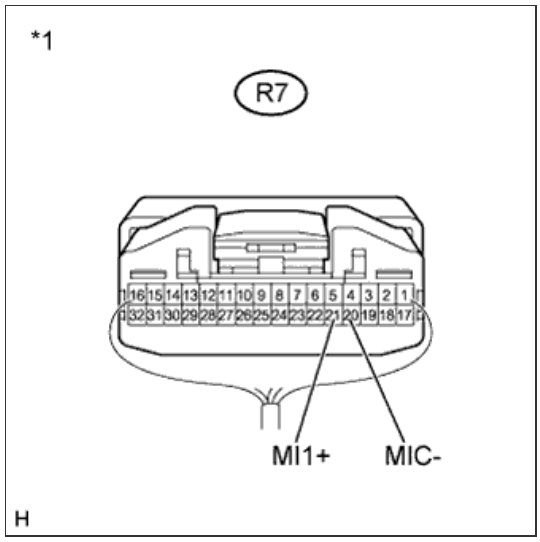
## 4.INSPECT MAP LIGHT ASSEMBLY

a. Reconnect the R7 map light assembly connector.

b. Turn the engine switch on (ACC).

c. Connect an oscilloscope to terminals 21 (MI1+) and 20 (MIC-) of the R7 telephone microphone assembly connector.

d. Check the waveform of the telephone microphone assembly using the oscilloscope.




**Result**

| Result | Proceed to |
|---|---|
| Waveform synchronized with the voice input to the map light assembly is output | A |
| Waveform synchronized with the voice input to the map light assembly is not output | B |

**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Map Light Assembly) |

B → Go to step 5

A → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

## 5.REPLACE TELEPHONE MICROPHONE ASSEMBLY

a. Replace the telephone microphone assembly ( Click here).

b. Check if the same malfunction recurs.

**Result**

| Result | Proceed to |
|---|---|
| Malfunction does not recur (returns to normal) | A |
| Malfunction recurs | B |

B → REPLACE MAP LIGHT ASSEMBLY (Click here)

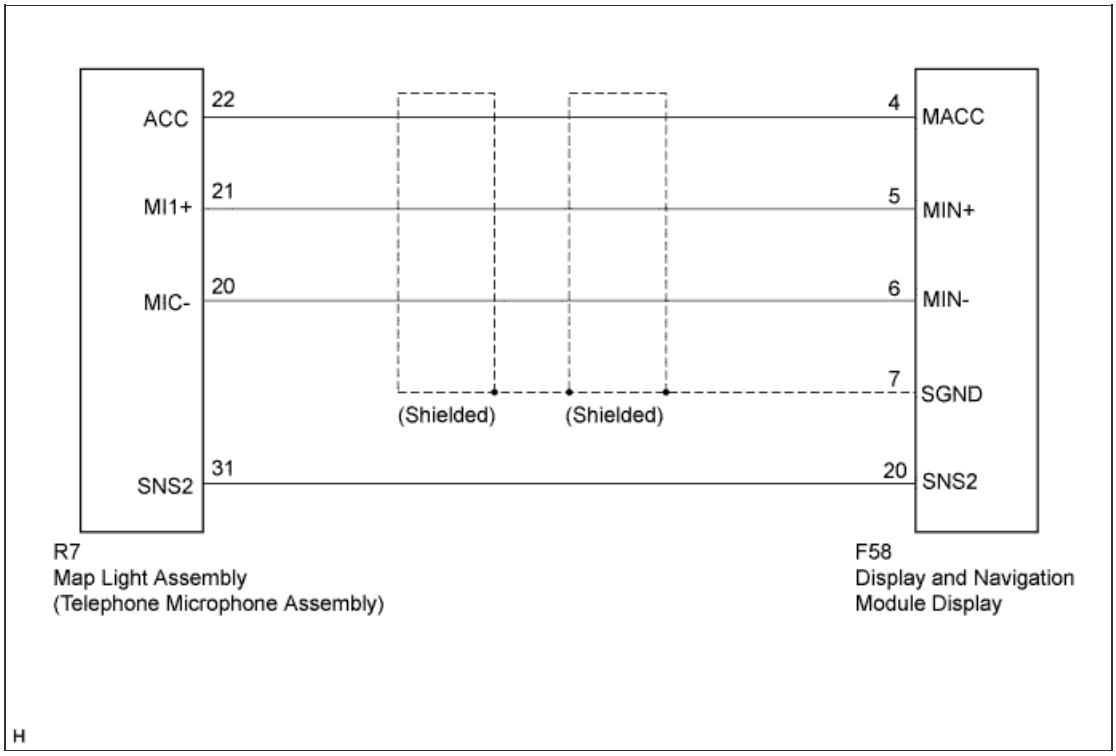
A → END

**for Preparation** Click here

## DESCRIPTION

This circuit sends a microphone signal from the map light assembly (telephone microphone assembly) to the display and navigation module display. It also supplies power from the display and navigation module display to the map light assembly (telephone microphone assembly).

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - MAP LIGHT ASSEMBLY)

a. Disconnect the F58 display and navigation module display connector.

b. Disconnect the R7 map light assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-20 (SNS2) - R7-31 (SNS2) | Always | Below 1 Ω |
| F58-4 (MACC) - R7-22 (ACC) | Always | Below 1 Ω |
| F58-5 (MIN+) - R7-21 (MI1+) | Always | Below 1 Ω |
| F58-6 (MIN-) - R7-20 (MIC-) | Always | Below 1 Ω |
| F58-20 (SNS2) - Body ground | Always | 10 kΩ or higher |
| F58-4 (MACC) - Body ground | Always | 10 kΩ or higher |
| F58-5 (MIN+) - Body ground | Always | 10 kΩ or higher |
| F58-6 (MIN-) - Body ground | Always | 10 kΩ or higher |
| F58-7 (SGND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 2.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

a. Reconnect the F58 display and navigation module display connector.

b. Measure the voltage according to the value(s) in the table below.

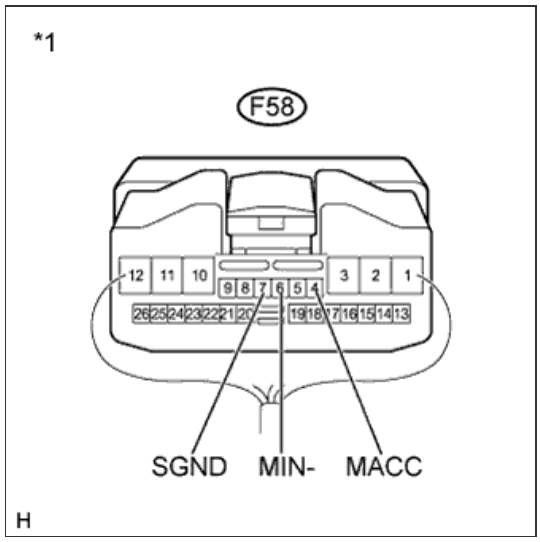
**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-4 (MACC) - Body ground | Engine switch on (ACC) | 4 to 6 V |

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-7 (SGND) - Body ground | Always | Below 1 Ω |
| F58-6 (MIN-) - Body ground | Always | Below 1 Ω |




**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Display and Navigation Module Display) |

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

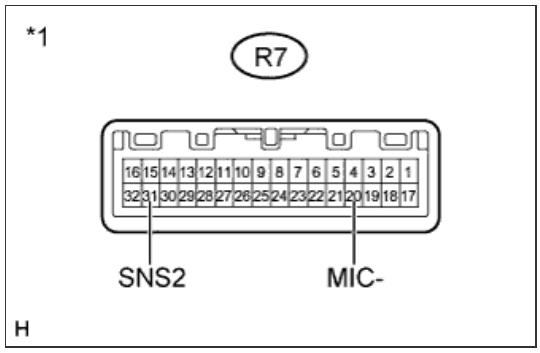
OK

## 3.INSPECT MAP LIGHT ASSEMBLY

a. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| R7-31 (SNS2) - R7-20 (MIC-) | Always | Below 1 Ω |




**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Map Light Assembly) |

NG → Go to step 5

OK

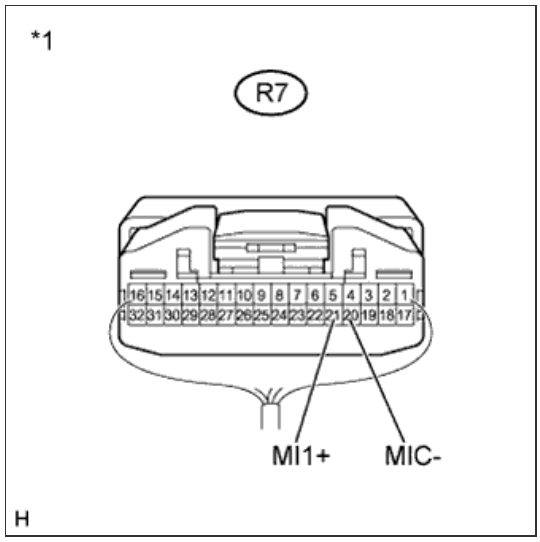
## 4.INSPECT MAP LIGHT ASSEMBLY

a. Reconnect the R7 map light assembly connector.

b. Turn the engine switch on (ACC).

c. Connect an oscilloscope to terminals 21 (MI1+) and 20 (MIC-) of the R7 telephone microphone assembly connector.

d. Check the waveform of the telephone microphone assembly using the oscilloscope.




**Result**

| Result | Proceed to |
|---|---|
| Waveform synchronized with the voice input to the map light assembly is output | A |
| Waveform synchronized with the voice input to the map light assembly is not output | B |

**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Map Light Assembly) |

B → Go to step 5

A → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

## 5.REPLACE TELEPHONE MICROPHONE ASSEMBLY

a. Replace the telephone microphone assembly ( Click here).

b. Check if the same malfunction recurs.

**Result**

| Result | Proceed to |
|---|---|
| Malfunction does not recur (returns to normal) | A |
| Malfunction recurs | B |

B → REPLACE MAP LIGHT ASSEMBLY (Click here)

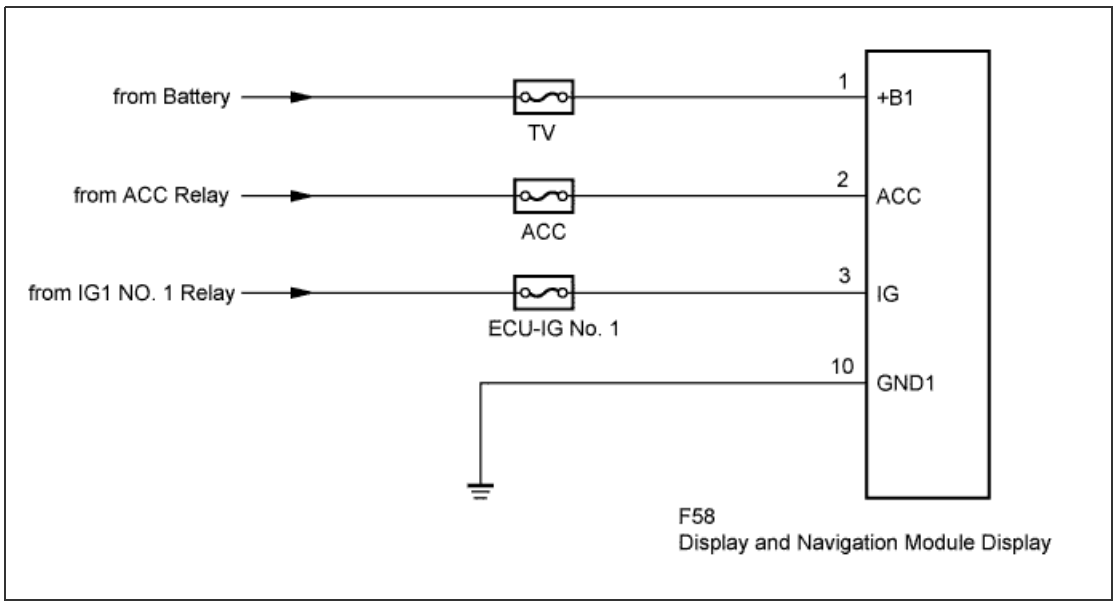
A → END

**for Preparation** Click here

## DESCRIPTION

This is the power source circuit to operate the display and navigation module display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY POWER SOURCE)

a. Disconnect the F58 display and navigation module display connector.

b. Measure the resistance according to the value(s) in the table below.

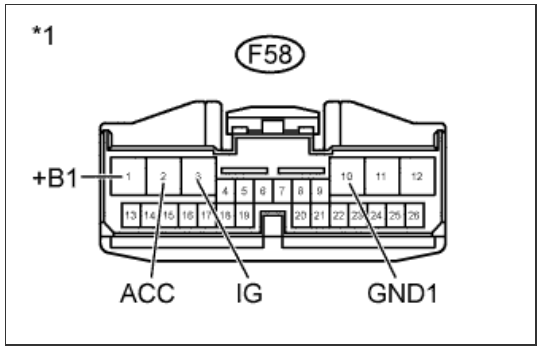
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-10 (GND1) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-1 (+B1) - F58-10 (GND1) | Always | 11 to 14 V |
| F58-2 (ACC) - F58-10 (GND1) | Engine switch on (ACC) | 11 to 14 V |
| F58-3 (IG) - F58-10 (GND1) | Engine switch on (IG) | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Display and Navigation Module Display) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

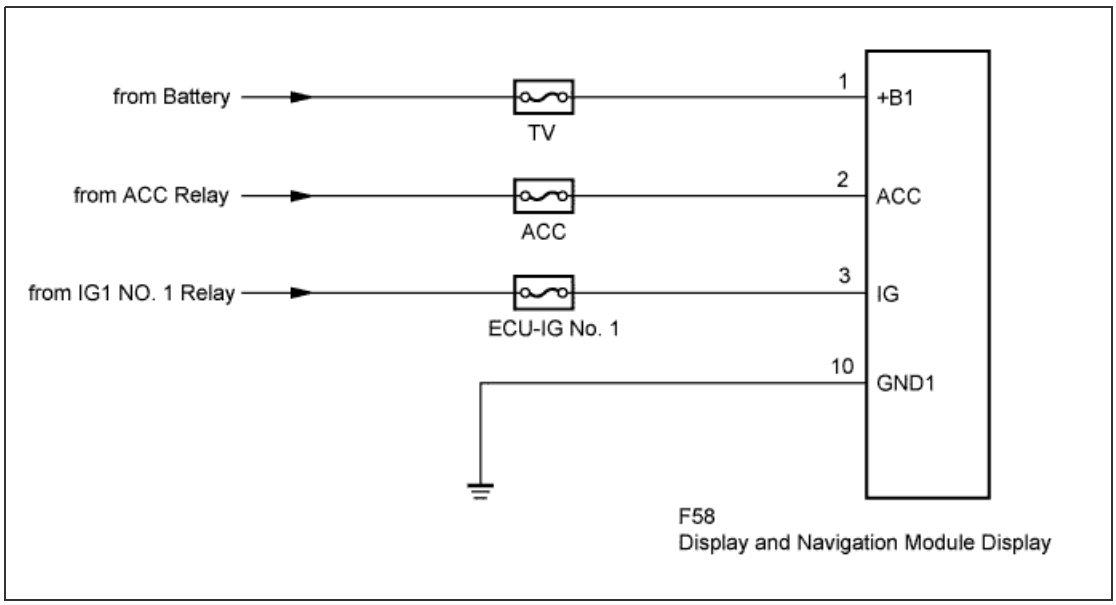
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This is the power source circuit to operate the display and navigation module display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY POWER SOURCE)

a. Disconnect the F58 display and navigation module display connector.

b. Measure the resistance according to the value(s) in the table below.

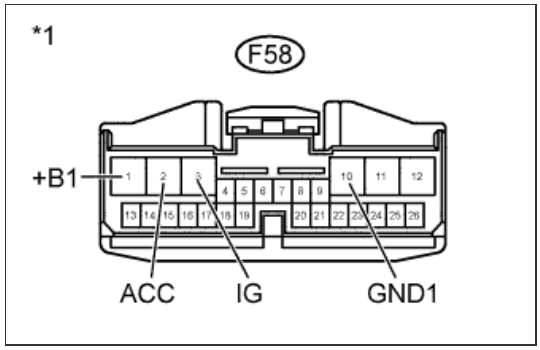
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-10 (GND1) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-1 (+B1) - F58-10 (GND1) | Always | 11 to 14 V |
| F58-2 (ACC) - F58-10 (GND1) | Engine switch on (ACC) | 11 to 14 V |
| F58-3 (IG) - F58-10 (GND1) | Engine switch on (IG) | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Display and Navigation Module Display) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## 1.PRECAUTION FOR DISCONNECTING CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

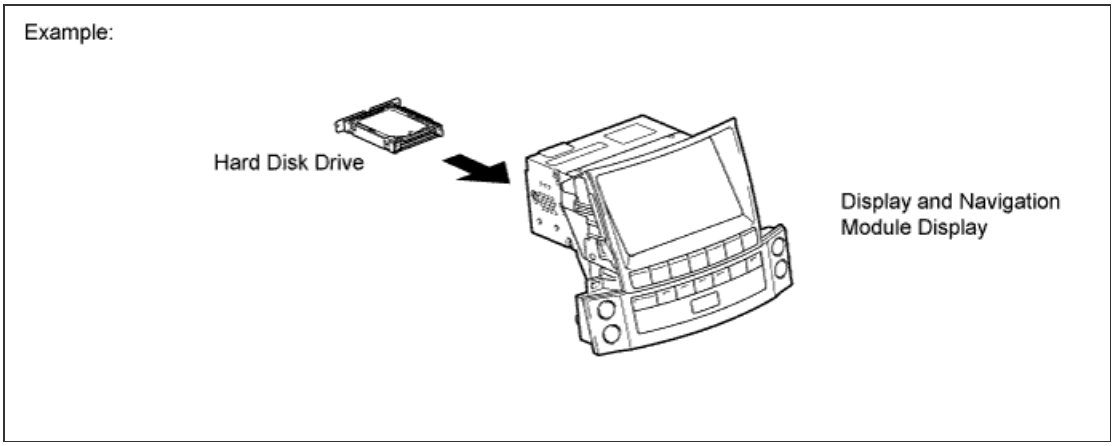
After the engine switch is turned off, the display and navigation module display (HDD navigation system) records various types of memory and settings. As a result, after turning the engine switch off, make sure to wait for the time specified in the following table before disconnecting the cable from the negative (-) battery terminal.

**Waiting Time before Disconnecting Cable from Negative (-) Battery Terminal**

| Specification | Waiting Time |
|---|---|
| w/o Telematics transceiver | 60 sec. |
| w/ Telematics transceiver | 120 sec. |

## 2.PRECAUTION FOR DISPLAY AND NAVIGATION MODULE DISPLAY

a. An HDD is built into the display and navigation module display to store map data etc. which will be used for the navigation system. Therefore, care must be taken for the following points when handling:




i. When it is necessary to replace the display and navigation module display, be sure to replace it with a new one.

**NOTICE:**

If a used display and navigation module display is installed as a replacement part, the customer's HDD will not be recognized.

ii. Do not apply any vibration or shock to the display and navigation module display.

**NOTICE:**

- **Do not drop or subject the display and navigation module display to severe impacts.**
- **Do not use the display and navigation module display if it has been dropped or subjected to a severe impact.**
- **Do not store the display and navigation module display without the HDD installed. (Only remove the HDD from the display and navigation module display when the replacement display and navigation module display or HDD is ready.)**

iii. Do not remove the display and navigation module display if there is a risk that condensation may occur.

**NOTICE:**

If the temperature of the display and navigation module display changes rapidly, condensation may occur inside the unit. This may cause a malfunction of the HDD.

Therefore, when the display and navigation module display is removed from the instrument panel, it needs to be kept inside the vehicle or in an environment with an equivalent temperature and humidity.

iv. Take measures to prevent static electricity.

**NOTICE:**

Touching the terminals of a connector can cause static electricity to be transmitted to the internal circuits. This may cause a malfunction of the HDD.

v. Keep the display and navigation module display away from magnets or magnetized items.

**NOTICE:**

Keep the display and navigation module display away from speakers, motors, magnetized tools and other magnetic items.

vi. The display and navigation module display functions as the G-BOOK device, it also holds the G-BOOK ID.

**NOTICE:**

When replacing the display and navigation module display, perform vehicle contract setting ( Click here).

## 3.PRECAUTIONS FOR HARD DISK DRIVE (HDD)

a. The map data for the navigation system is stored on the Hard Disk Drive (HDD). Make sure to follow the following instructions when replacing the HDD:

**NOTICE:**

Data recorded by the customer may be stored on the HDD (w/ Sound Library Function). This data will be lost when the HDD is replaced. Make sure to warn the customer that their data will be lost obtain their consent prior to replacing the HDD.

i. The HDD must only be replaced with a new one. Do not attempt to install a used HDD from another vehicle.

**NOTICE:**

The display and navigation module display can recognize only a new HDD.

ii. Do not touch the HDD cover.

**NOTICE:**

When removing or installing the HDD, only hold it by the areas shown in the illustration.

iii. Do not apply any vibration or shock to the HDD.

**NOTICE:**

- **Do not drop or allow anything to strike the HDD.**
- **Never use an HDD that has been dropped or struck.**
- **Do not store a HDD by itself if it has been removed from the display and navigation module display. (Only remove the HDD from the display and navigation module display when the replacement display and navigation module display or HDD is ready.)**

iv. Do not remove the HDD if there is a risk that condensation may occur.

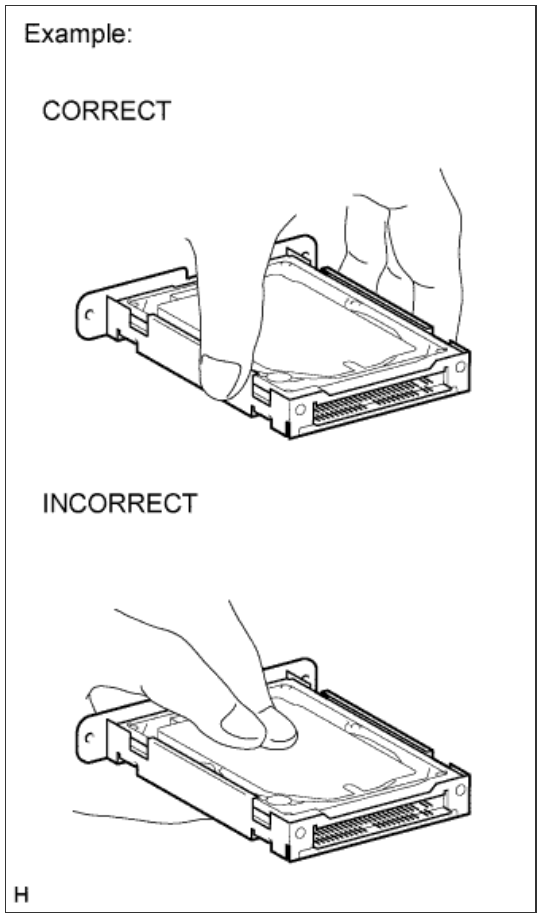
**NOTICE:**

If the temperature of the HDD changes rapidly, condensation may occur inside the unit. This may cause a malfunction of the HDD. Therefore, when the display and navigation module display is removed from the instrument panel, it needs to be kept inside the vehicle or in an environment with an equivalent temperature and humidity.

v. Take measures to prevent static electricity.

**NOTICE:**

Touching the terminals of a connector can cause static electricity to be transmitted to the internal circuits. This may cause a malfunction of the HDD.



vi. Keep the HDD away from magnets or magnetized items.

**NOTICE:**

Keep the HDD away from speakers, motors, magnetized tools and other magnetic items.

vii. Inspection after HDD replacement.

**NOTICE:**

Make sure to perform Check Hard Disk Drive in Operation Check to confirm that there are no HDD abnormalities after removal or installation (Click here).

**for Preparation** Click here

## 1.PRECAUTION FOR DISCONNECTING CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

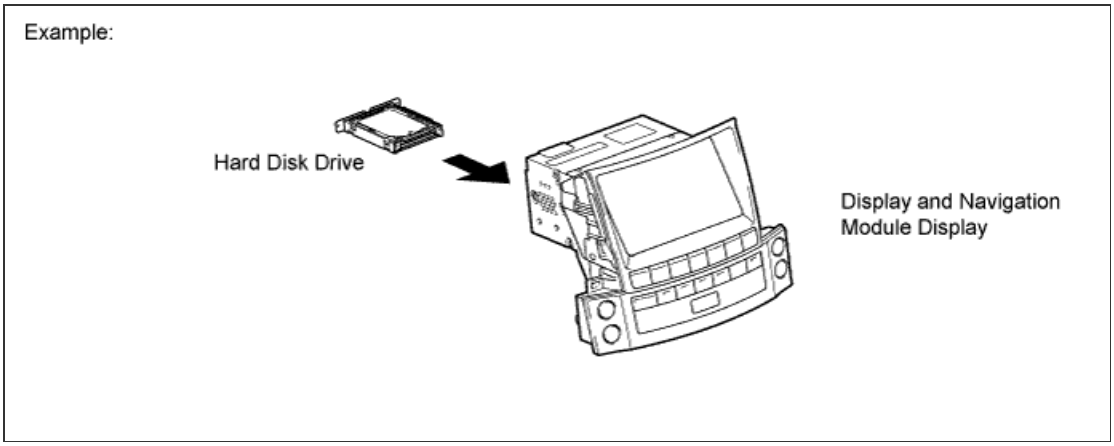
After the engine switch is turned off, the display and navigation module display (HDD navigation system) records various types of memory and settings. As a result, after turning the engine switch off, make sure to wait for the time specified in the following table before disconnecting the cable from the negative (-) battery terminal.

**Waiting Time before Disconnecting Cable from Negative (-) Battery Terminal**

| Specification | Waiting Time |
|---|---|
| w/o Telematics transceiver | 60 sec. |
| w/ Telematics transceiver | 120 sec. |

## 2.PRECAUTION FOR DISPLAY AND NAVIGATION MODULE DISPLAY

a. An HDD is built into the display and navigation module display to store map data etc. which will be used for the navigation system. Therefore, care must be taken for the following points when handling:




i. When it is necessary to replace the display and navigation module display, be sure to replace it with a new one.

**NOTICE:**

If a used display and navigation module display is installed as a replacement part, the customer's HDD will not be recognized.

ii. Do not apply any vibration or shock to the display and navigation module display.

**NOTICE:**

- **Do not drop or subject the display and navigation module display to severe impacts.**
- **Do not use the display and navigation module display if it has been dropped or subjected to a severe impact.**
- **Do not store the display and navigation module display without the HDD installed. (Only remove the HDD from the display and navigation module display when the replacement display and navigation module display or HDD is ready.)**

iii. Do not remove the display and navigation module display if there is a risk that condensation may occur.

**NOTICE:**

If the temperature of the display and navigation module display changes rapidly, condensation may occur inside the unit. This may cause a malfunction of the HDD.

Therefore, when the display and navigation module display is removed from the instrument panel, it needs to be kept inside the vehicle or in an environment with an equivalent temperature and humidity.

iv. Take measures to prevent static electricity.

**NOTICE:**

Touching the terminals of a connector can cause static electricity to be transmitted to the internal circuits. This may cause a malfunction of the HDD.

v. Keep the display and navigation module display away from magnets or magnetized items.

**NOTICE:**

Keep the display and navigation module display away from speakers, motors, magnetized tools and other magnetic items.

vi. The display and navigation module display functions as the G-BOOK device, it also holds the G-BOOK ID.

**NOTICE:**

When replacing the display and navigation module display, perform vehicle contract setting ( Click here).

## 3.PRECAUTIONS FOR HARD DISK DRIVE (HDD)

a. The map data for the navigation system is stored on the Hard Disk Drive (HDD). Make sure to follow the following instructions when replacing the HDD:

**NOTICE:**

Data recorded by the customer may be stored on the HDD (w/ Sound Library Function). This data will be lost when the HDD is replaced. Make sure to warn the customer that their data will be lost obtain their consent prior to replacing the HDD.

i. The HDD must only be replaced with a new one. Do not attempt to install a used HDD from another vehicle.

**NOTICE:**

The display and navigation module display can recognize only a new HDD.

ii. Do not touch the HDD cover.

**NOTICE:**

When removing or installing the HDD, only hold it by the areas shown in the illustration.

iii. Do not apply any vibration or shock to the HDD.

**NOTICE:**

- **Do not drop or allow anything to strike the HDD.**
- **Never use an HDD that has been dropped or struck.**
- **Do not store a HDD by itself if it has been removed from the display and navigation module display. (Only remove the HDD from the display and navigation module display when the replacement display and navigation module display or HDD is ready.)**

iv. Do not remove the HDD if there is a risk that condensation may occur.

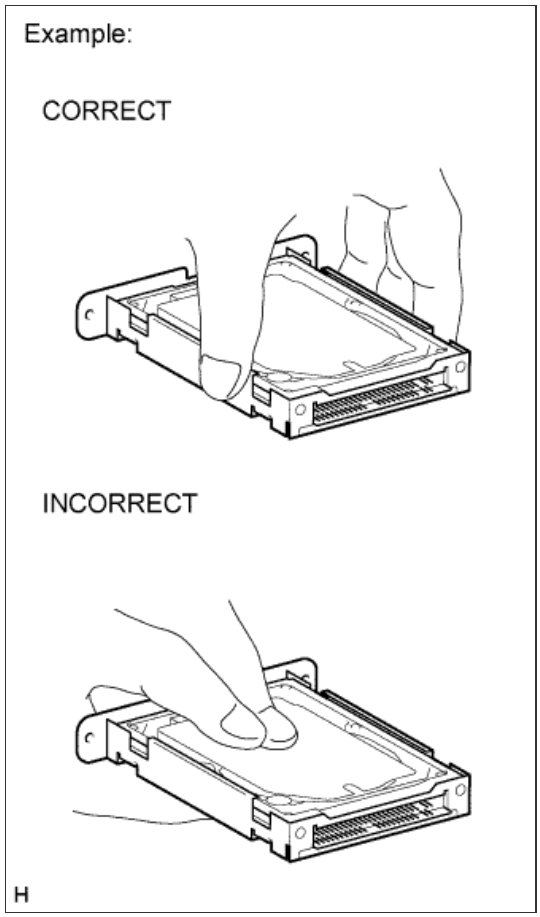
**NOTICE:**

If the temperature of the HDD changes rapidly, condensation may occur inside the unit. This may cause a malfunction of the HDD. Therefore, when the display and navigation module display is removed from the instrument panel, it needs to be kept inside the vehicle or in an environment with an equivalent temperature and humidity.

v. Take measures to prevent static electricity.

**NOTICE:**

Touching the terminals of a connector can cause static electricity to be transmitted to the internal circuits. This may cause a malfunction of the HDD.



vi. Keep the HDD away from magnets or magnetized items.

**NOTICE:**

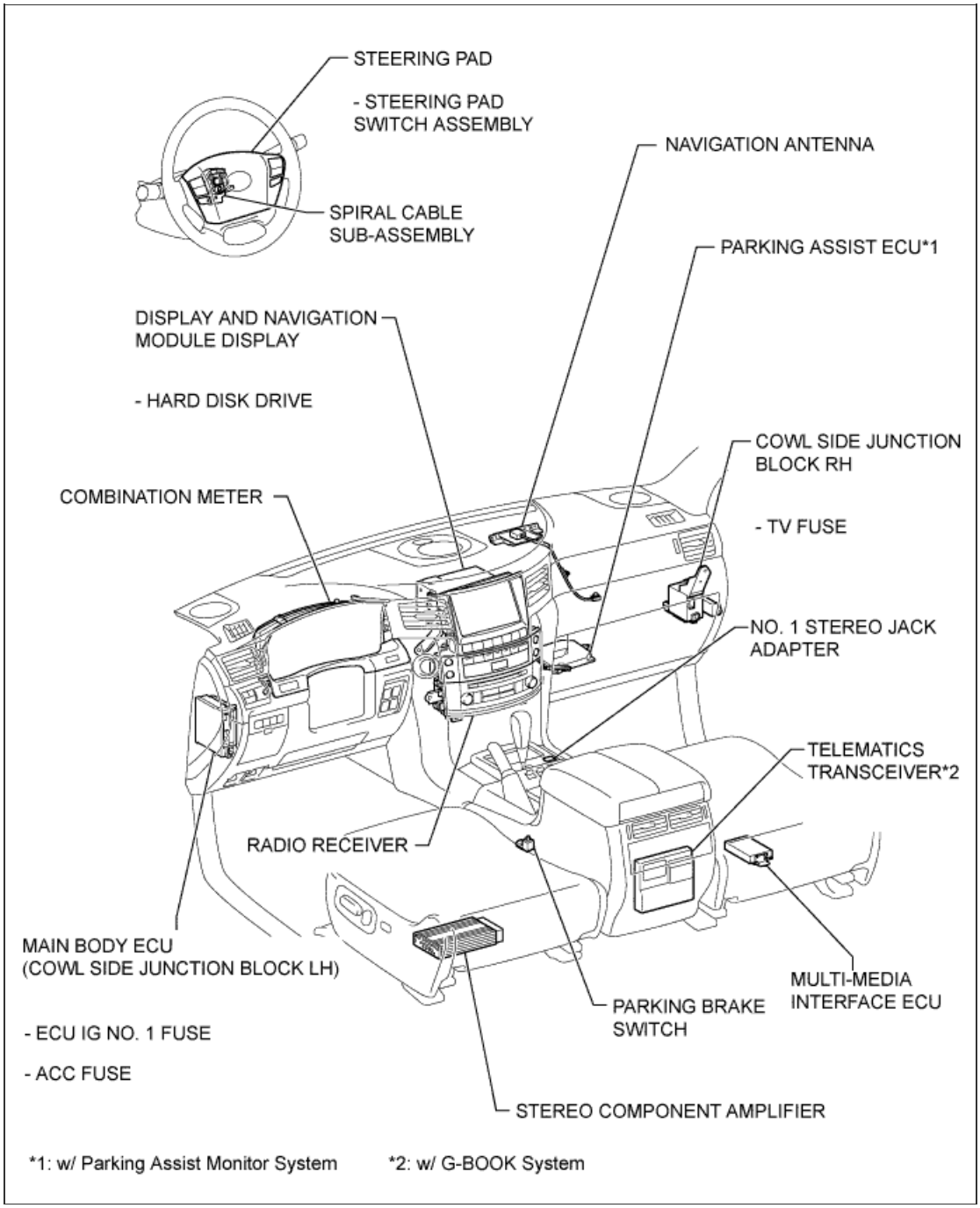
Keep the HDD away from speakers, motors, magnetized tools and other magnetic items.

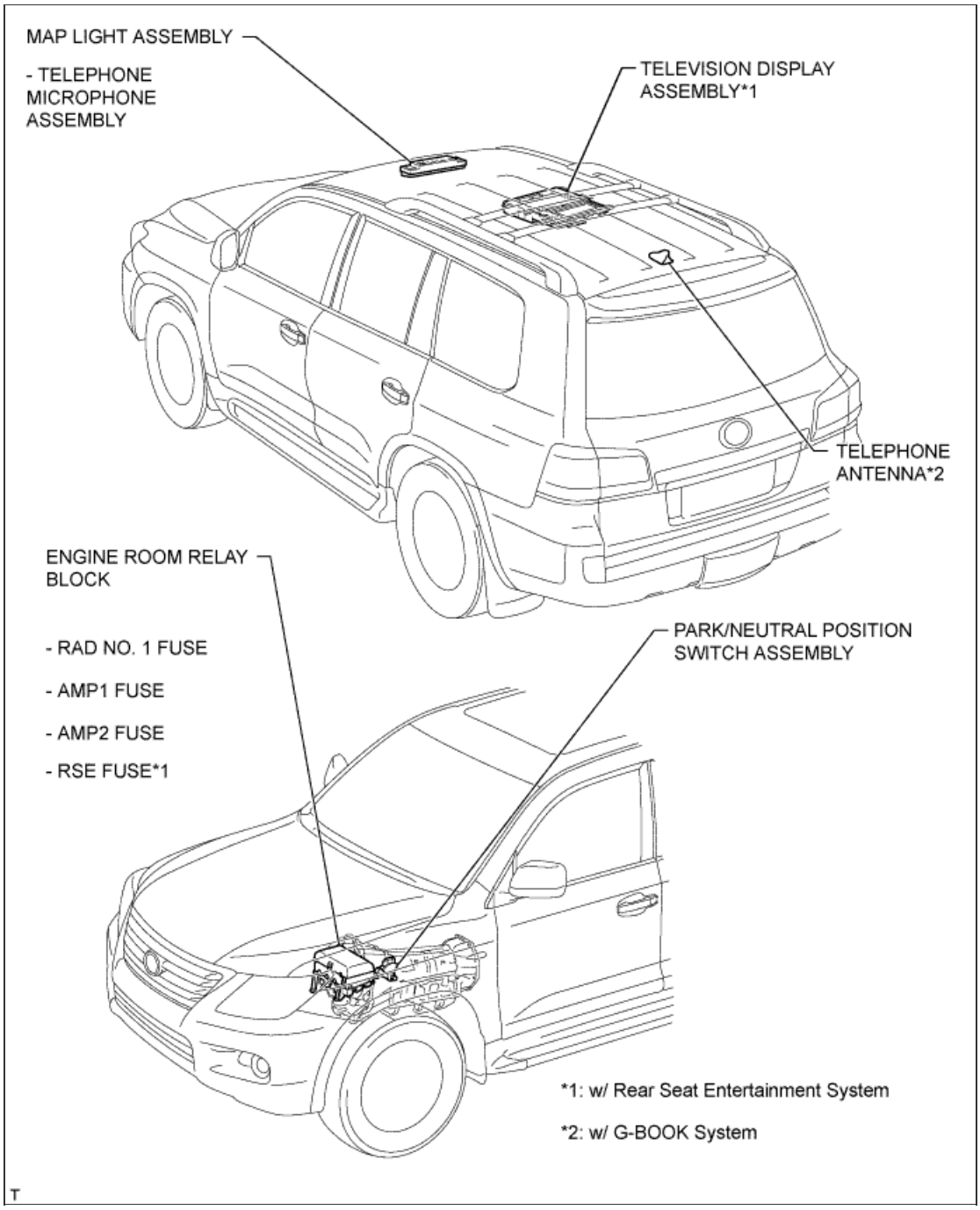
vii. Inspection after HDD replacement.

**NOTICE:**

Make sure to perform Check Hard Disk Drive in Operation Check to confirm that there are no HDD abnormalities after removal or installation (Click here).

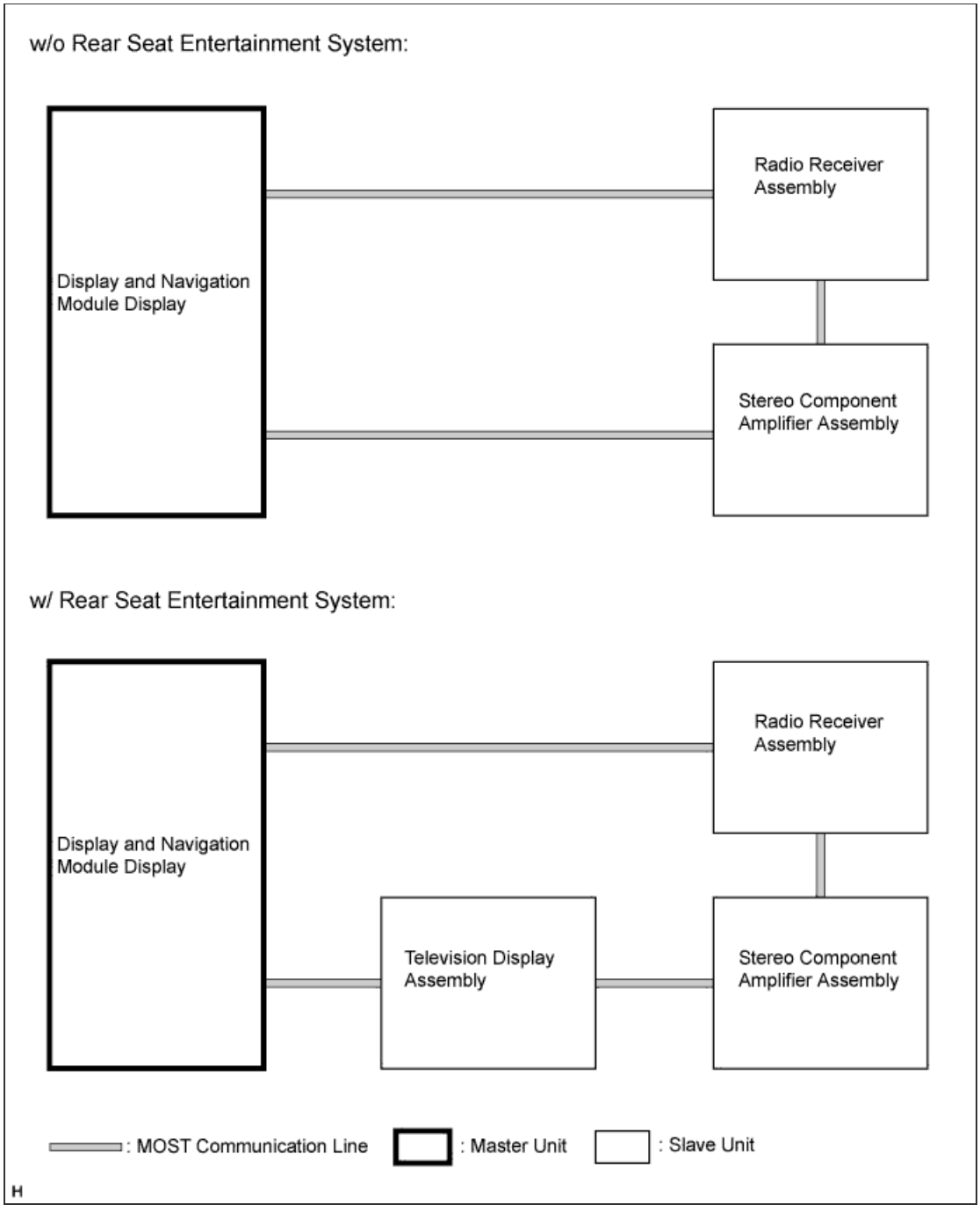
**for Preparation** Click here



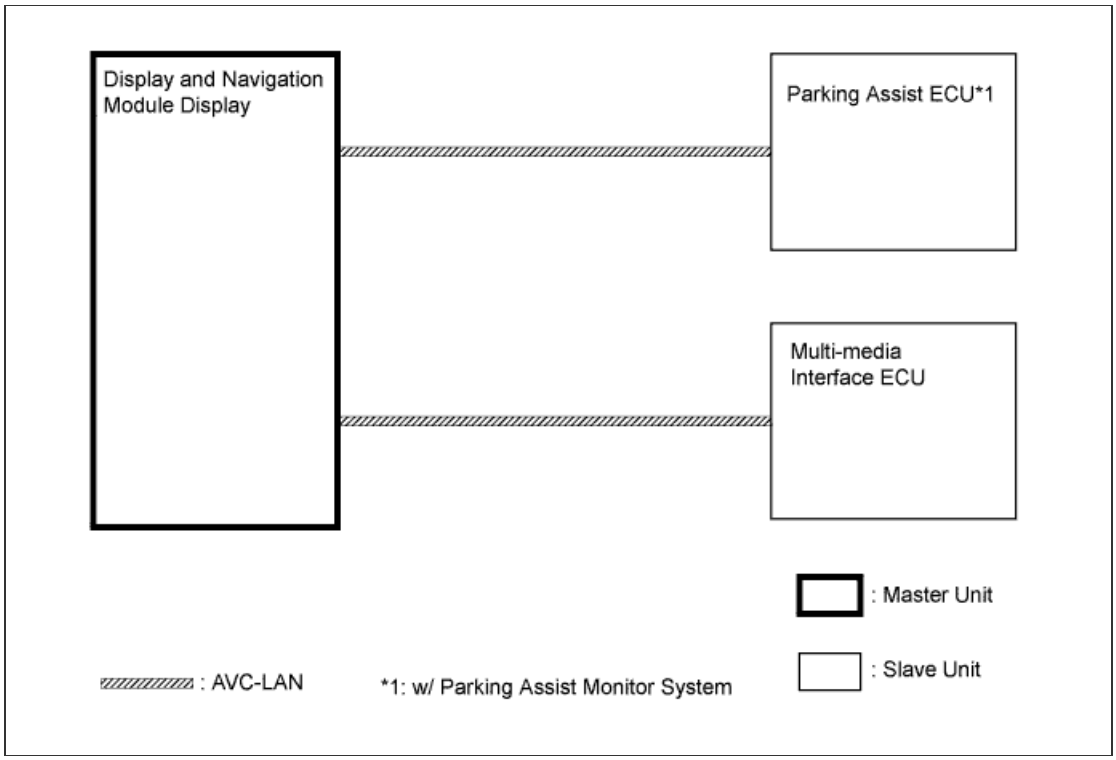

MAP LIGHT ASSEMBLY
- TELEPHONE MICROPHONE ASSEMBLY
TELEVISION DISPLAY ASSEMBLY*1
TELEPHONE ANTENNA*2
ENGINE ROOM RELAY BLOCK
- RAD NO. 1 FUSE
- AMP1 FUSE
- AMP2 FUSE
- RSE FUSE*1
PARK/NEUTRAL POSITION SWITCH ASSEMBLY
*1: w/ Rear Seat Entertainment System
*2: w/ G-BOOK System
T

**for Preparation** Click here

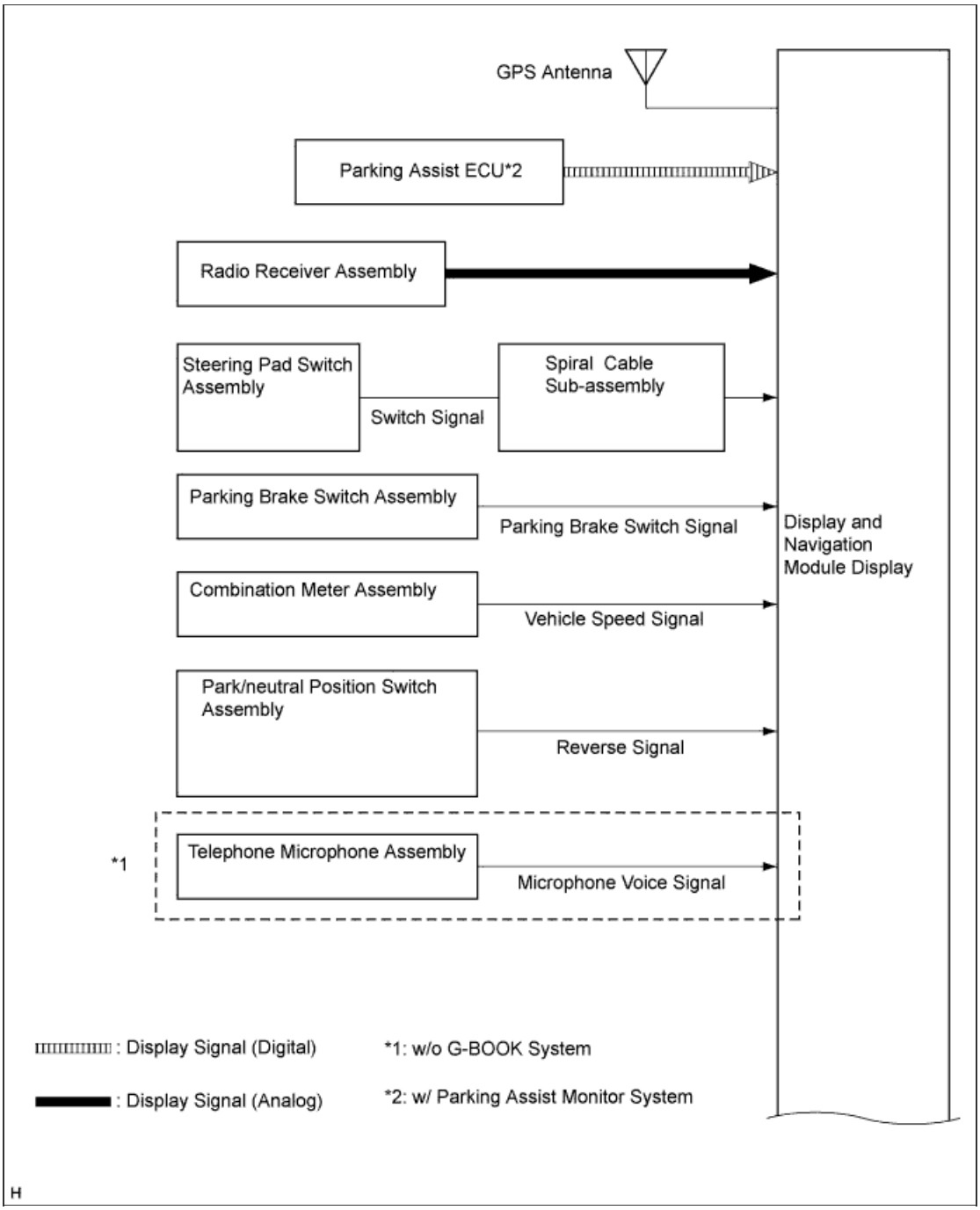
## MOST NETWORK COMMUNICATION LINE



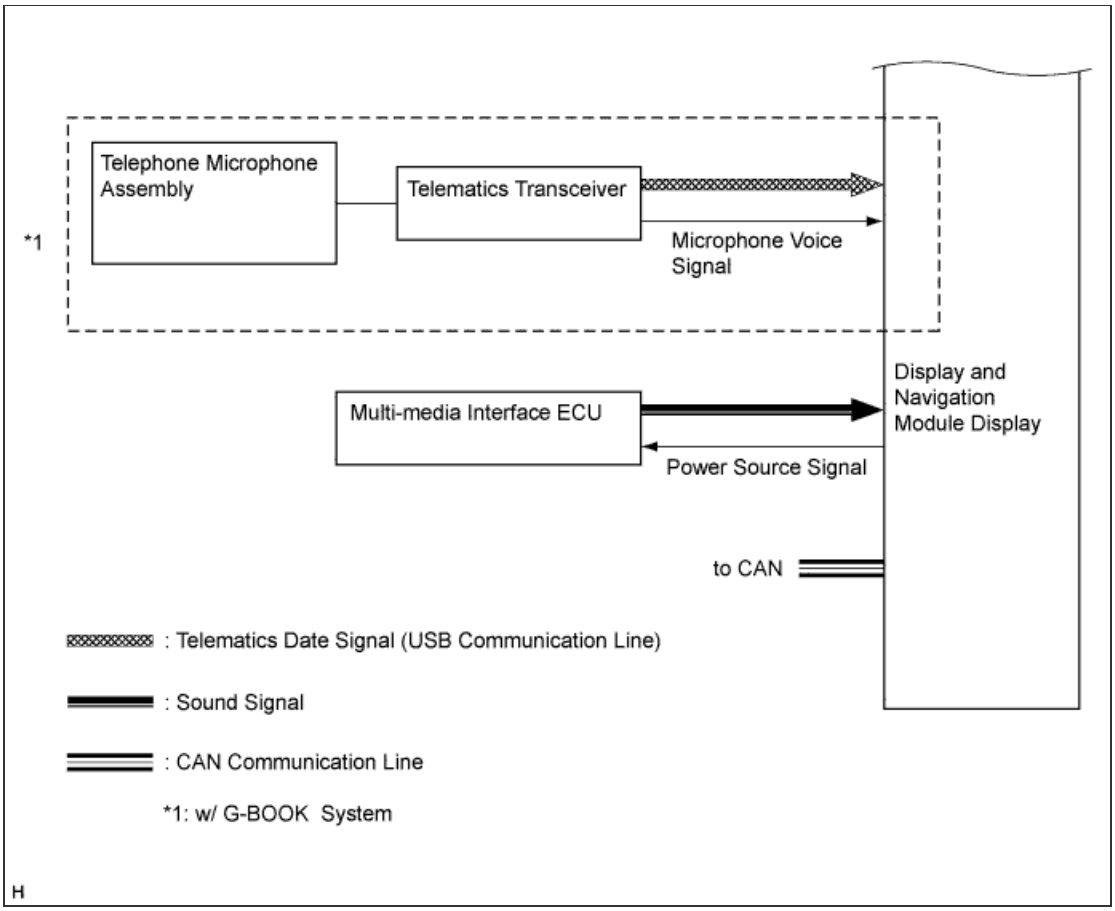

## AVC-LAN COMMUNICATION LINE


Display and Navigation Module Display
Parking Assist ECU*1
Multi-media Interface ECU
: Master Unit
: Slave Unit
: AVC-LAN
*1: w/ Parking Assist Monitor System

## OTHER


GPS Antenna
Parking Assist ECU*2
Radio Receiver Assembly
Steering Pad Switch Assembly
Switch Signal
Spiral Cable Sub-assembly
Parking Brake Switch Assembly
Parking Brake Switch Signal
Display and Navigation Module Display
Combination Meter Assembly
Vehicle Speed Signal
Park/neutral Position Switch Assembly
Reverse Signal
*1
Telephone Microphone Assembly
Microphone Voice Signal
: Display Signal (Digital)
: Display Signal (Analog)
*1: w/o G-BOOK System
*2: w/ Parking Assist Monitor System

H

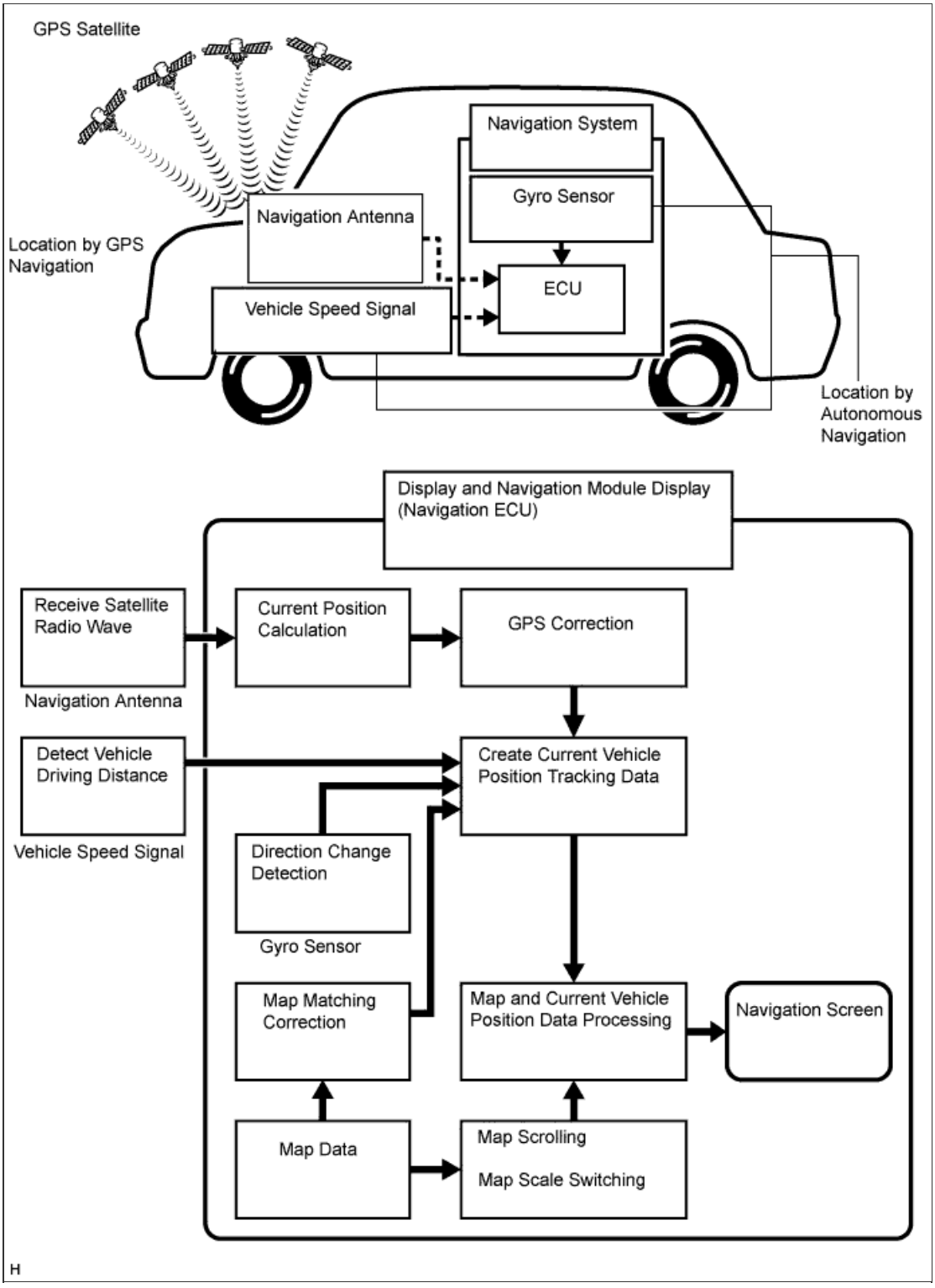

*1
Telephone Microphone Assembly
Telematics Transceiver
Microphone Voice Signal
Display and Navigation Module Display
Multi-media Interface ECU
Power Source Signal
to CAN
: Telematics Date Signal (USB Communication Line)
: Sound Signal
: CAN Communication Line
*1: w/ G-BOOK System

H

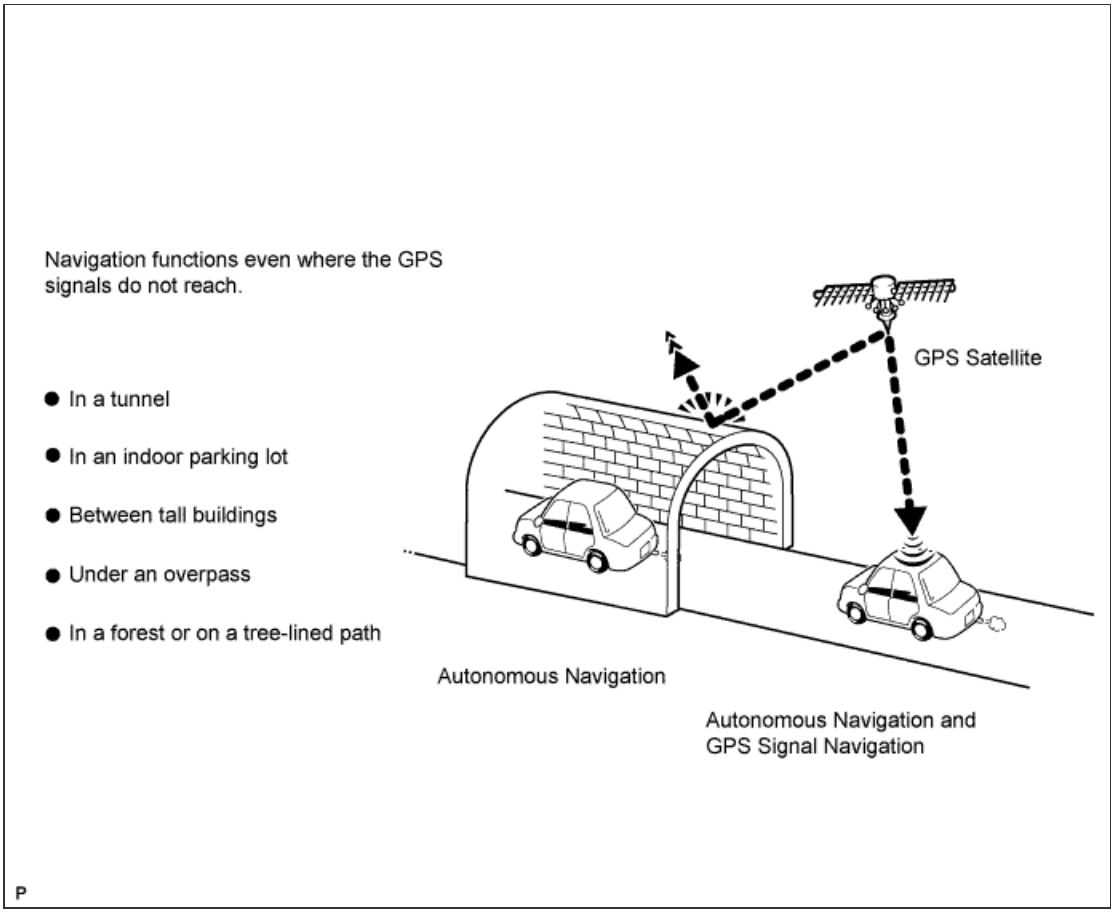
**for Preparation** Click here

## NAVIGATION SYSTEM OUTLINE

a. Vehicle position tracking methods
It is essential that the navigation system correctly tracks the current vehicle position and displays it on the map. There are 2 methods to track the current vehicle position: autonomous (dead reckoning) and GPS* (satellite) navigation. Both navigation methods are used in conjunction with each other.
*GPS (Global Positioning System)



| Operation | Description |
|---|---|
| Vehicle Position Calculation | The display and navigation module display calculates the current vehicle position (direction and current position) using the direction deviation signal from the gyro sensor and running distance signal from the vehicle speed sensor and creates the driving route. |
| Map Display Processing | The display and navigation module display processes the vehicle position data, vehicle running track and map data from the hard disk drive. |
| Map Matching | The map data from the hard disk drive is compared to the vehicle position and running track data. Then, the vehicle position is matched with the nearest road. |
| GPS Correction | The vehicle position is matched to the position measured by the GPS. Then, the GPS measurement position data is compared with the vehicle position and running track data. If the position is very different, the GPS measurement position is used. |
| Distance Correction | The running distance signal from the vehicle speed sensor includes error caused by tire wear and slippage between the tires and road surface. Distance correction is performed to account for this. The display and navigation module display automatically offsets the running distance signal to make up for the difference between the distance signal and distance data of the map. The offset is automatically updated. |




**HINT:**

The combination of autonomous and GPS navigation makes it possible to display the vehicle position even when the vehicle is in places where the GPS cannot receive a signal. When only autonomous navigation is used, however, the mapping accuracy may slightly decrease.

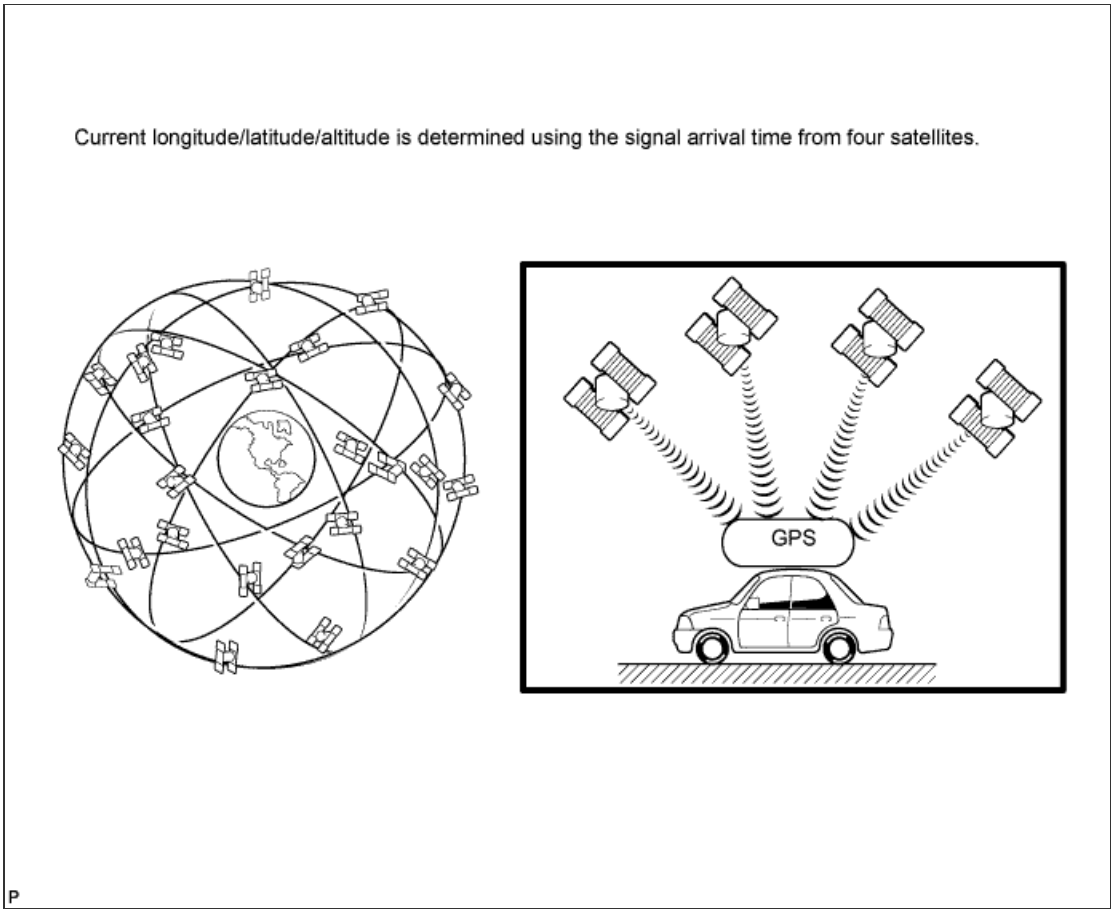
b. Autonomous navigation
This method determines the relative vehicle position based on the running track determined by the gyro located in the display and navigation module display and the vehicle speed sensor signal.

i. Gyro sensor
Used to calculate the direction by detecting angular velocity. It is located in the display and navigation module display.

ii. Vehicle speed sensor signal

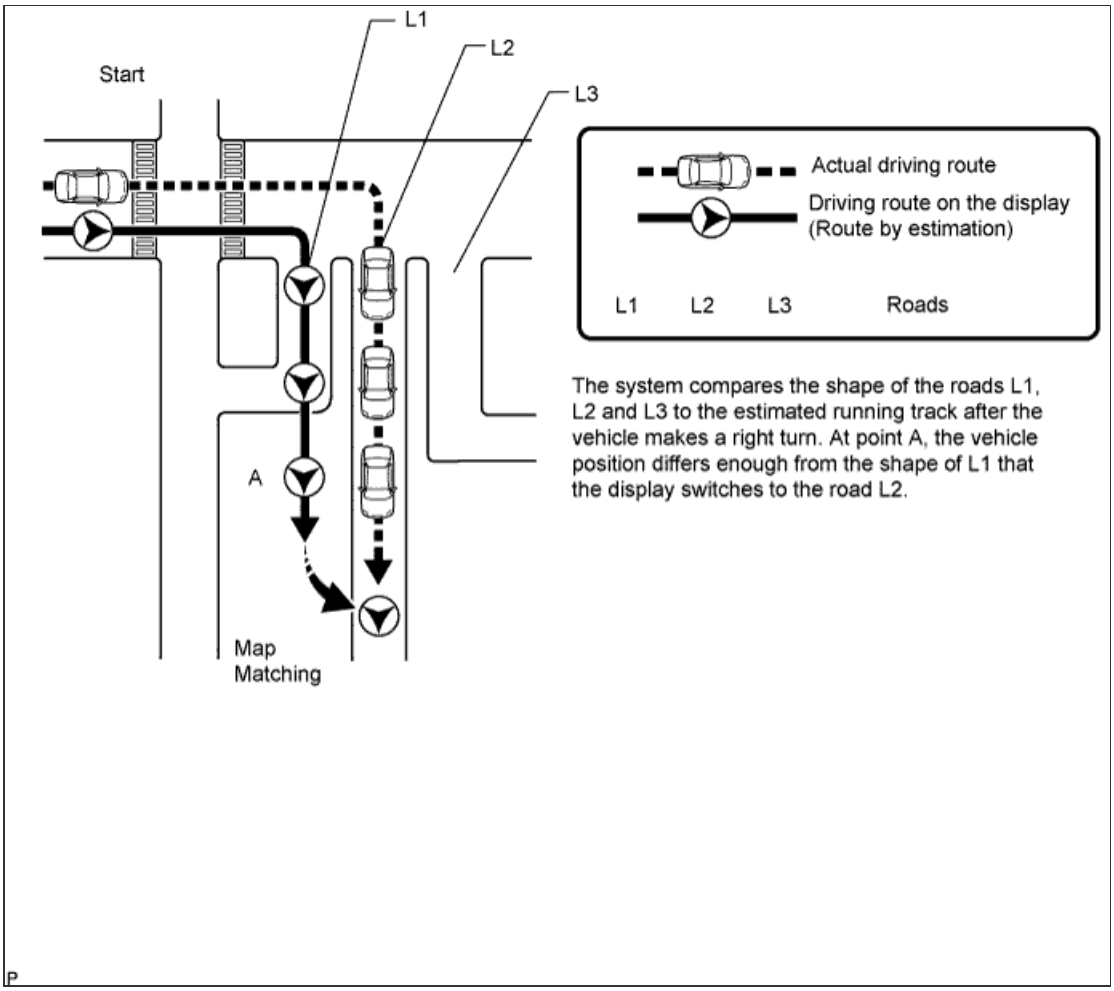
Used to calculate the vehicle running distance.

c. GPS* navigation (Satellite navigation)
This method detects the absolute vehicle position using radio waves from GPS satellites.
*GPS satellites were launched by the U.S. Department of Defense for military purposes.

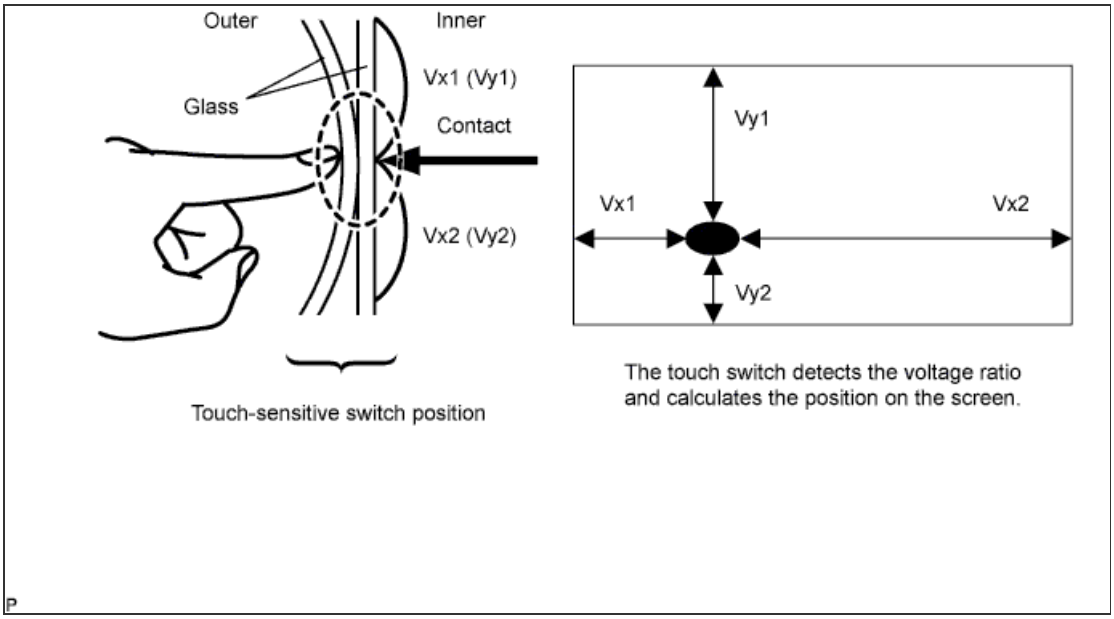



| Number of Satellites | Measurement | Description |
|---|---|---|
| 2 or less | Measurement is impossible | Vehicle position cannot be obtained because the number of satellites is not enough. |
| 3 | 2-dimensional measurement is possible | Vehicle position is obtained based on the current longitude and latitude. (This is less precise than 3-dimensional measurement.) |
| 4 | 3-dimensional measurement is possible | Vehicle position is obtained based on the current longitude, latitude and altitude. |

d. Map matching
The current driving route is calculated by autonomous navigation (according to the gyro sensor and vehicle speed sensor) and GPS navigation. This information is then compared with possible road shapes from the map data in the hard disk drive and the vehicle position is set onto the most appropriate road.




e. Touch switch
Touch switches are touch-sensitive (interactive) switches operated by touching the screen. When a switch is pressed, the outer glass bends in to contact the inner glass at the pressed position. By doing this, the voltage ratio is measured and the pressed position is detected.




## DVD (DIGITAL VERSATILE DISC) PLAYER OUTLINE

a. The DVD player can only play DVD videos, DVD audio and video CDs that have any of the following marks:




i. Precaution for use of discs

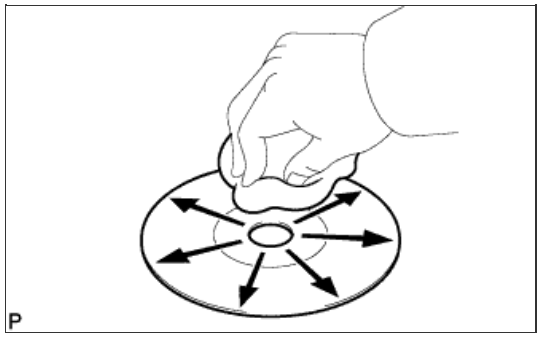
**NOTICE:**

- **SECAM color television standard discs cannot be played (PAL and NTSC discs can be played).**
- **Keep the discs away from dirt. Be careful not to damage the discs or leave fingerprints on them.**
- **Hold discs by the outer edge and center hole with the label side up.**
- **Leaving the disc exposed halfway out of the slot for a long time after pressing the disc eject button may cause deformation of the disc, making the disc unusable.**
- **Do not use odd-shaped CDs because these may cause player malfunctions.**
- **Do not use discs whose recording portion is transparent or translucent because they may not be inserted, ejected or played normally.**
- **DualDiscs that combine DVD recorded material on one side with CD digital audio material on the other cannot be played.**

b. Cleaning

**NOTICE:**

Do not use a lens cleaner because it may cause a malfunction in the pickup portion of the player.




i. If dirt is on the disc surface, wipe it clean with a soft dry cloth such as an eyeglass cleaner for plastic lenses from the inside to the outside in a radial direction.

**NOTICE:**

- **Pressing on the disc by hand or rubbing the disc with a hard cloth may scratch the disc surface.**
- **Use of solvent such as a record spray, antistatic agent, alcohol, benzine and thinner or a chemical cloth may cause damage to the disc, making the disc unusable.**

## "Bluetooth" OUTLINE

a. "Bluetooth" is a trademark owned by Bluetooth SIG. Inc.

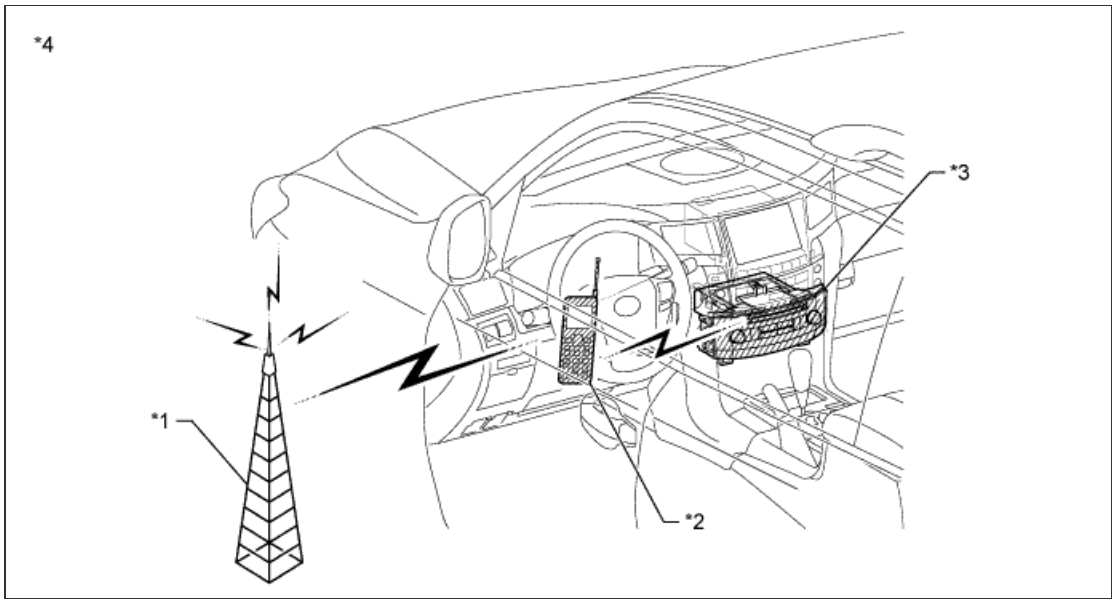
b. "Bluetooth" is a new wireless connection technology that uses the 2.4 GHz frequency band.

**HINT:**

The communication performance of "Bluetooth" may vary depending on obstructions or radio wave conditions between communication devices, electromagnetic radiation, communication device sensitivity or antenna capacity.

c. Hands-free function

i. The "Bluetooth" built-in radio receiver assembly and a "Bluetooth" compatible cellular phone*1 can be connected using a "Bluetooth" wireless connection. This enables use of the hands-free function on the cellular phone even the phone may be in a pocket or bag. For this reason, it is not necessary to use a connector or cable to connect the cellular phone.
*1: Some versions of "Bluetooth" compatible cellular phones may not function.




**Text in Illustration**

| | | | |
|---|---|---|---|
| *1 | Cellular Tower | *2 | Cellular Phone ("Bluetooth type") |
| *3 | Radio Receiver Assembly (Built-in "Bluetooth" receiver antenna) | *4 | Example: |

## RDS-TMC function outline (for Europe)

a. This system has a function which allows the reception of traffic information from RDS-TMC (Radio Data System Traffic Message Channel) stations based on FM-multiple broadcasting. It assists the driver to avoid areas with traffic congestion. It also helps to improve traffic flow and road safety.

b. The radio receiver receives RDS-TMC signals and then transmits these signals to the display and navigation module display.

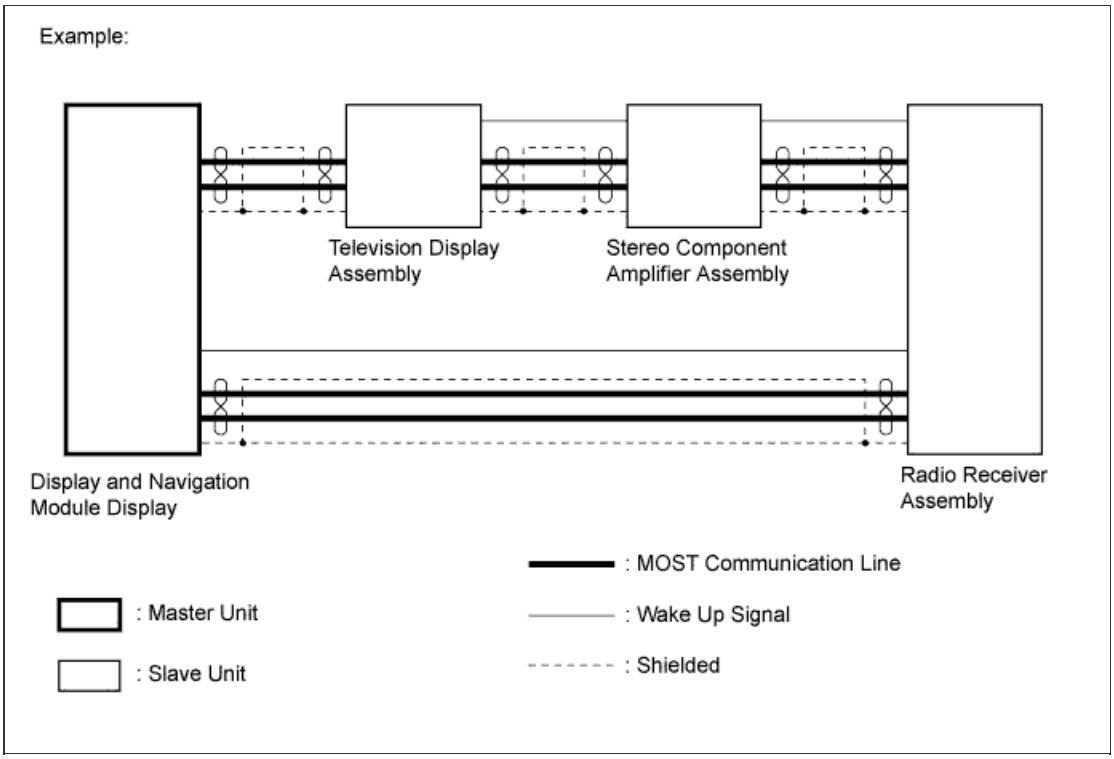
## RTIC FUNCTION OUTLINE (BROADCAST IN CHINA ONLY)

a. This system has a function which allows the reception of traffic information from Radio Data System Traffic Message Channel Real-time Traffic Information of China (RTIC) stations based on FM-multiple broadcasting. It assists the driver to avoid areas with traffic congestion. It also helps to improve traffic flow and road safety.

b. The radio receiver receives RTIC signals and then transmits these signals to the display and navigation module display.

## COMMUNICATION SYSTEM

a. MOST Network Outline




i. Navigation system components communicate with each other via the MOST.

ii. The MOST network uses a shielded twisted pair of wires for its communication lines.

iii. The master unit of the MOST is the navigation ECU (display and navigation module display).

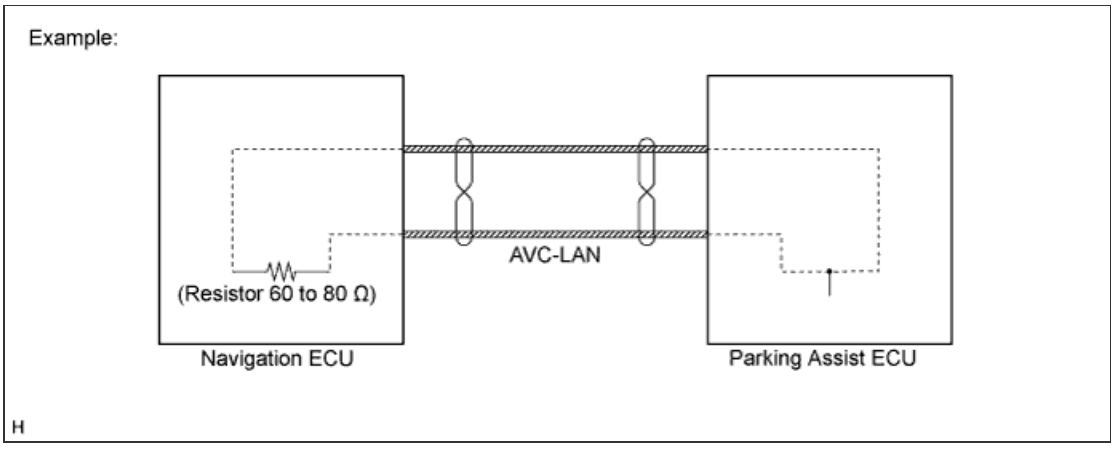
iv. MOST communication lines connect each slave unit centering around the master unit to form a MOST network ring.

v. The master unit sends a wake-up signal to activate each slave unit connected to the MOST network.

**HINT:**

If a short or open circuit occurs in the MOST circuit, communication will be interrupted and the system will not operate normally.

b. AVC-LAN Outline




i. Components of the navigation system communicate with each other via the AVC-LAN.

ii. The AVC-LAN uses a twisted pair of wires for its communication lines.

iii. The master unit of the AVC-LAN is the navigation ECU (display and navigation module display).

**HINT:**

- **The display and navigation module display has enough resistance (60 to 80 Ω) necessary for communication.**
- **If a short or open circuit occurs in the AVC-LAN circuit, communication is interrupted and the system will not operate normally.**

## DIAGNOSTIC FUNCTION OUTLINE

a. The navigation system has a diagnostic function (the result will be displayed on the master unit or the intelligent tester).

## DIAGNOSIS DISPLAY DETAILED DESCRIPTION

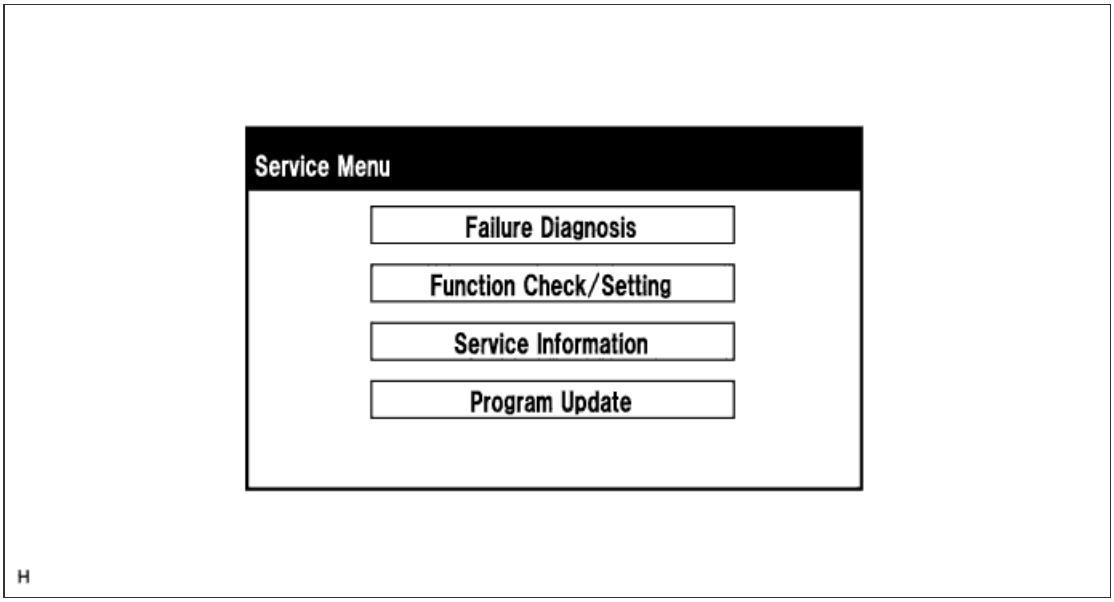
**HINT:**

- **This section contains a detailed description of displays in diagnostic mode.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Service Menu Screen

**HINT:**

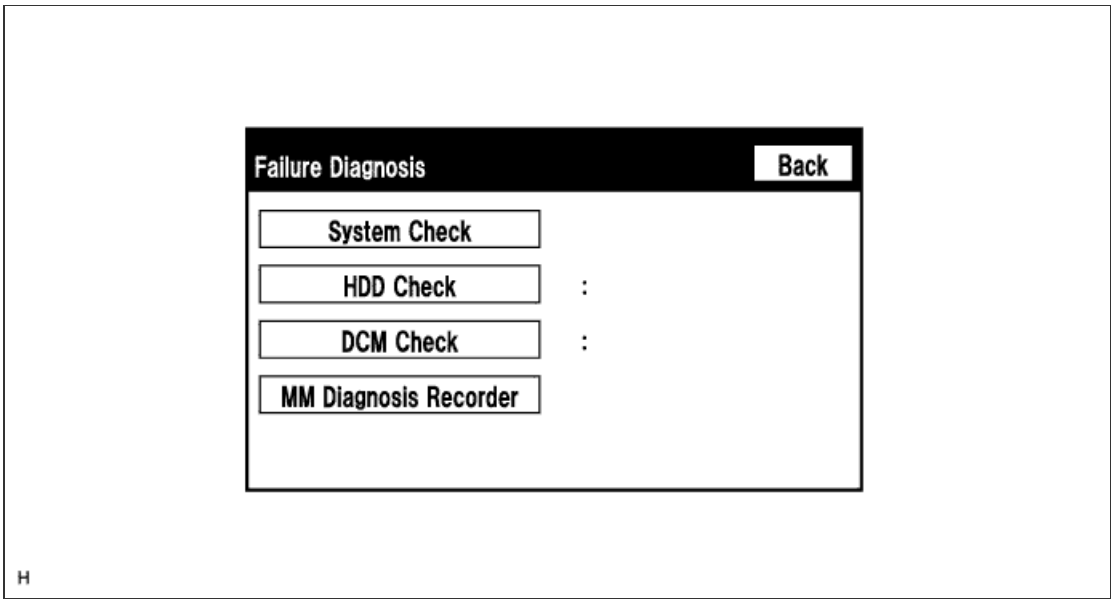
Each item is grayed out or not displayed based on the device settings.



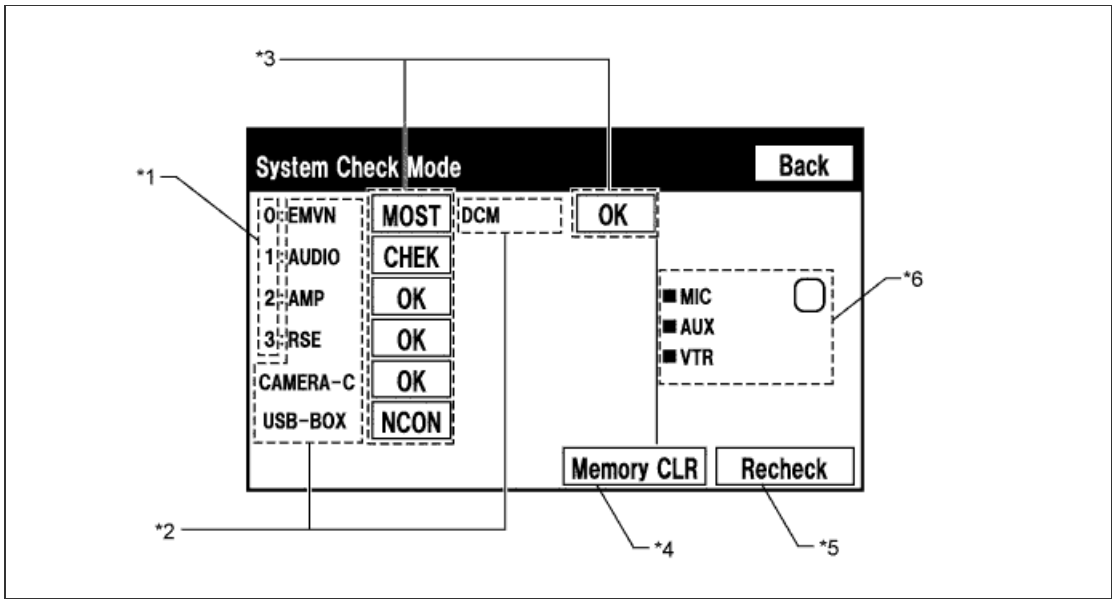

b. Failure Diagnosis Screen

**HINT:**

Each item is grayed out or not displayed based on the device settings.




i. System Check Mode Screen




*1: Node position number for devices connected to the MOST network.

**HINT:**

MOST node position numbers are provided for devices connected to the MOST network.

*2: Device Name List No. 1

**HINT:**

- **Device Name List No. 1 displays some of the devices that make up the navigation system.**
- **The names of the components from Device Name List No. 1 are shown in the following table.**

| Name | Component | Connection Method |
|---|---|---|
| EMVN | Display and navigation module display | - |
| AUDIO | Radio receiver assembly | Communication line for MOST network |
| AMP | Stereo component amplifier assembly | Communication line for MOST network |
| RSE | Television display assembly | Communication line for MOST network |
| CAMERA-C | Parking assist ECU | Communication line for AVC-LAN |

| | | |
|---|---|---|
| USB-BOX | Multi-media interface ECU | Communication line for AVC-LAN |
| DCM | Telematics transceiver | USB communication line |

*3: Check Result

**HINT:**

- **Result codes for all devices are displayed.**
- **When "MOST" is displayed for the result, press "MODE" on the steering pad switch assembly to display the "MOST Line Check" screen.**
- **Changing to the "MOST Line Check" screen is possible only when "MOST" is displayed for the result.**

| Result | Meaning | Action |
|---|---|---|
| OK | The device does not respond with a DTC. | - |
| MOST | MOST communication error | Perform "MOST Line Check" to check the connection of each device on the MOST network. |
| EXCH | The device responds with a "replace"-type DTC. | Look up the DTC in "Unit Check Mode" and replace the device. |
| CHEK | The device responds with a "check"-type DTC. | Look up the DTC in "Unit Check Mode". |
| NCON | The device was previously present, but does not respond in diagnostic mode. | - Check power supply wire harness of the device.<br>- Check the AVC-LAN, MOST network or USB communication line for the device. |
| NRES | The device responds in diagnostic mode, but gives no DTC information. | - Check power supply wire harness of the device.<br>- Check the AVC-LAN, MOST network or USB communication line for the device. |

*4: Memory Clear

**HINT:**

- **Present and history DTCs and registered connected device names are cleared.**
- **Press the "Memory CLR" switch for 3 seconds.**

*5: Recheck

**HINT:**

- **A system check will be performed again after the memory is cleared.**
- **The "Recheck" switch will dim during a system check.**

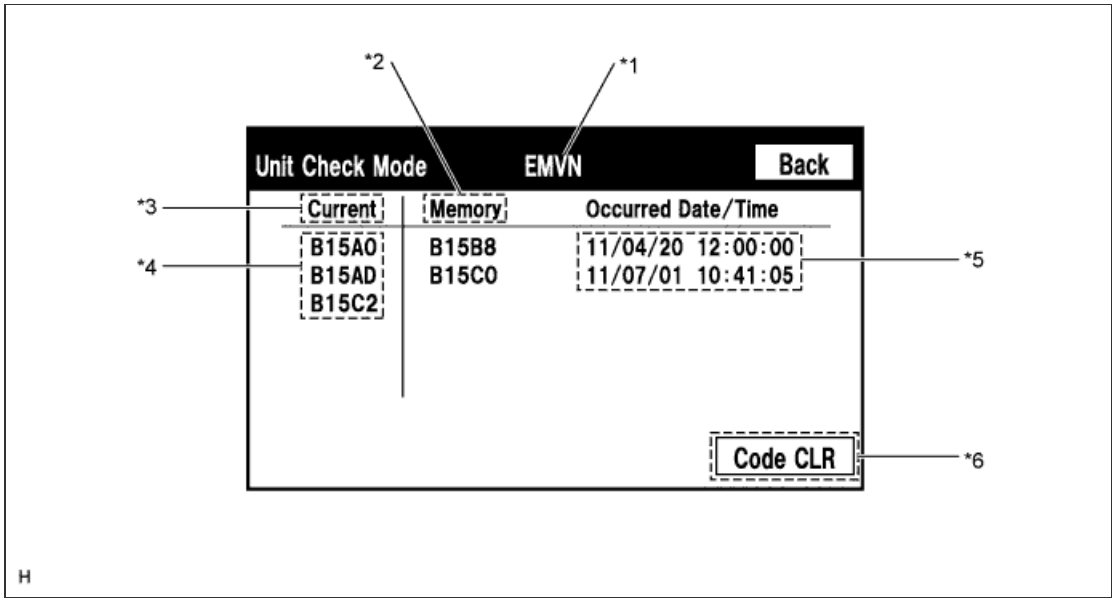
*6: Device Name List No. 2

**HINT:**

- **Device Name List No. 2 displays some of the devices that make up the navigation system.**
- **The names of the components from Device Name List No. 2 are shown in the following table.**

| Name | Component | Connection Method |
|---|---|---|
| MIC | Telephone microphone assembly | Vehicle wire harness |
| AUX | No. 1 stereo jack adapter | Vehicle wire harness |
| VTR | Video (video adapter) terminal | Vehicle wire harness |

ii. Unit Check Mode Screen



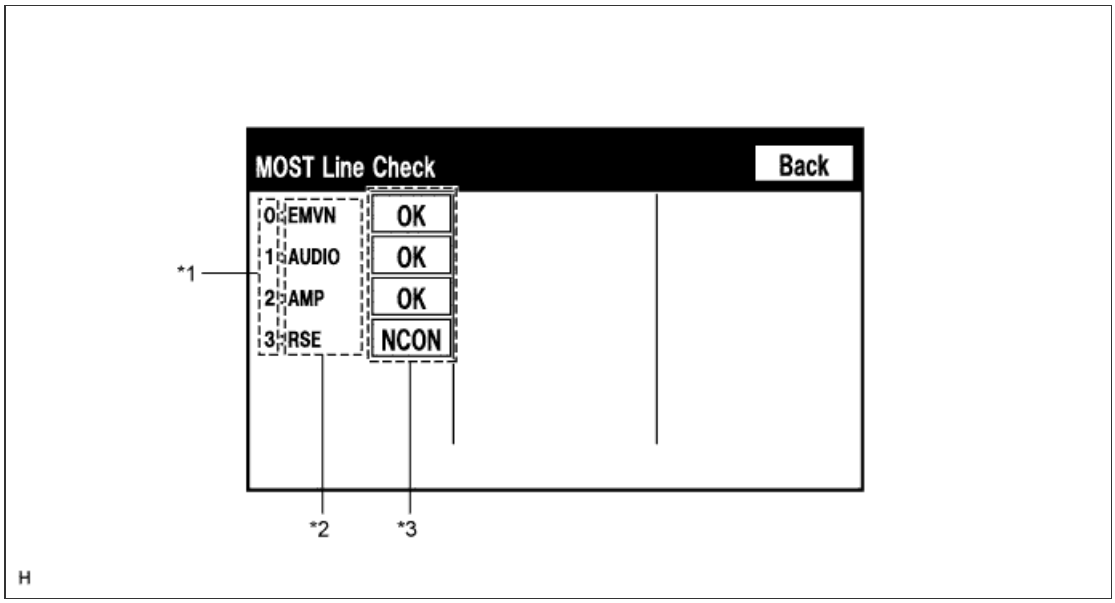

**Screen Description**

| Display | Content |
|---|---|
| *1: Device name | Target device |
| *2: History DTC | Diagnostic memory results and stored DTCs are displayed. |
| *3: Present DTC | DTCs output in the service check are displayed. |
| *4: DTC | DTC (Diagnostic Trouble Code) |
| *5: Timestamp | The time and date of history DTCs are displayed. (The year is displayed in 2-digit format.) |
| *6: Diagnosis clear switch | Selecting this switch for 3 seconds clears the diagnostic memory data of the target device. (Both response to diagnostic system check result and the displayed data are cleared.) |

iii. MOST Line Check Screen

**HINT:**

- **The inspection will be performed at the time the screen changes from "System Check Mode" to "MOST Line Check".**
- **The master unit checks the connection of each device on the MOST network.**




*1: Node position number for devices connected to the MOST network.

*2: Device Name List

**HINT:**

- **Device Name List displays some of the devices that make up the navigation system.**
- **The names of the components from Device Name List are shown in the following table.**

| Name | Component |
|---|---|
| EMVN | Display and navigation module display |
| AUDIO | Radio receiver assembly |
| AMP | Stereo component amplifier assembly |
| RSE | Television display assembly |

*3: Check Result

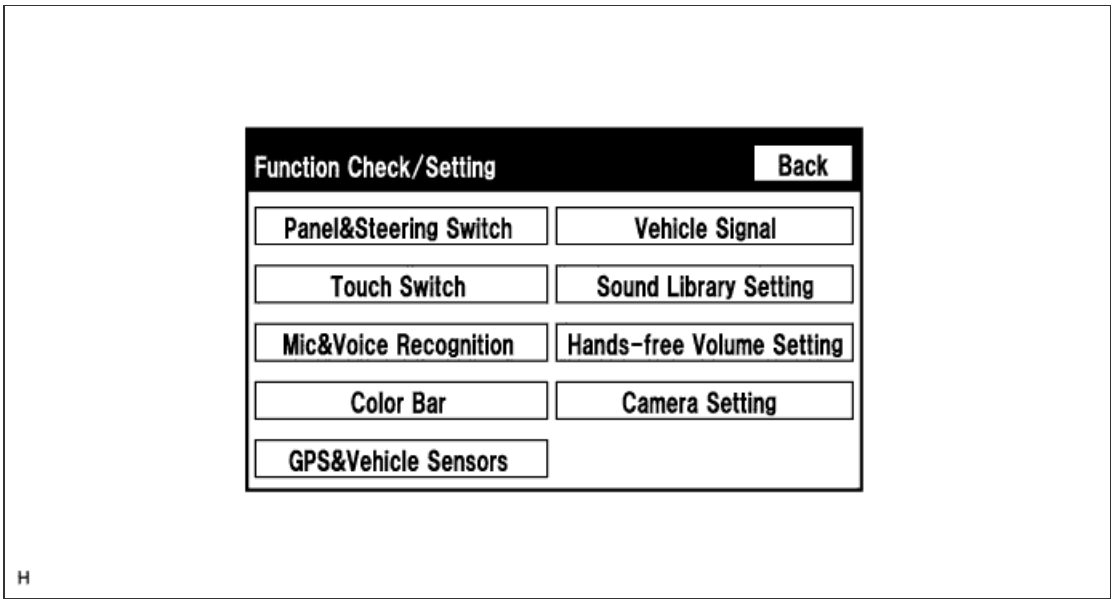
**HINT:**

- **The master unit displays the check result on the screen based on the response information from each slave unit.**
- **Result codes for all devices are displayed.**

| Result | Meaning |
|---|---|
| OK | There was a response for the connection check during the MOST line check. |
| NCON | There was no response for the connection check during the MOST line check. |

- **The device name and result will not be displayed if there is no system registration record and no response for the connection check during the MOST line check even if the device is connected to the MOST network.**

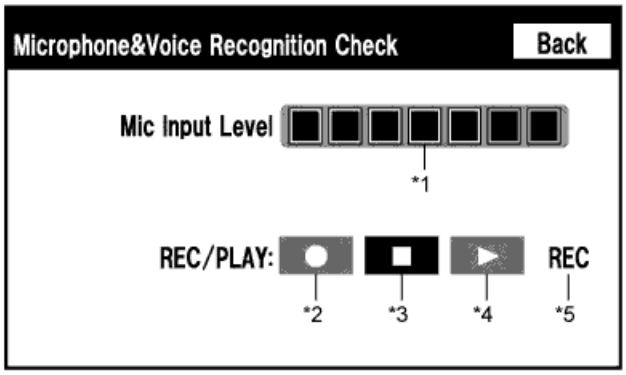
c. Function Check/Setting Screen




**HINT:**

Each item is grayed out or not displayed based on the device settings.

i. Microphone & Voice Recognition Check Screen




H

**Screen Description**

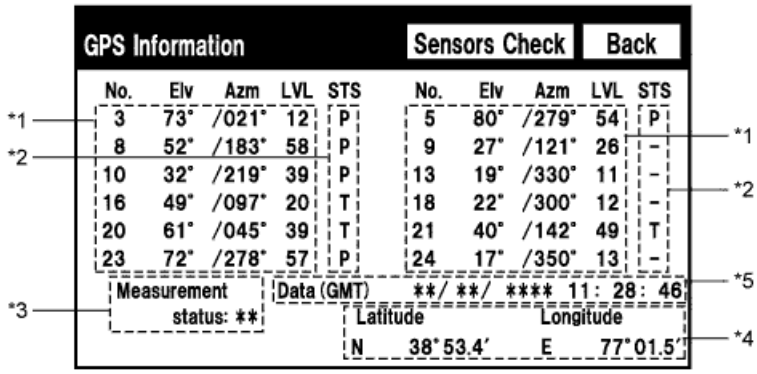
| Display | Content |
|---|---|
| *1: Microphone input level meter | Monitors the microphone input level every 0.1 sec. and displays the results in 8 different levels. |
| *2: Recording switch | Starts recording. |
| *3: Stop switch | Stops recording and playing. |
| *4: Play switch | Plays the recorded voice. |
| *5: Recording indicator | Comes on while recording. |

**HINT:**

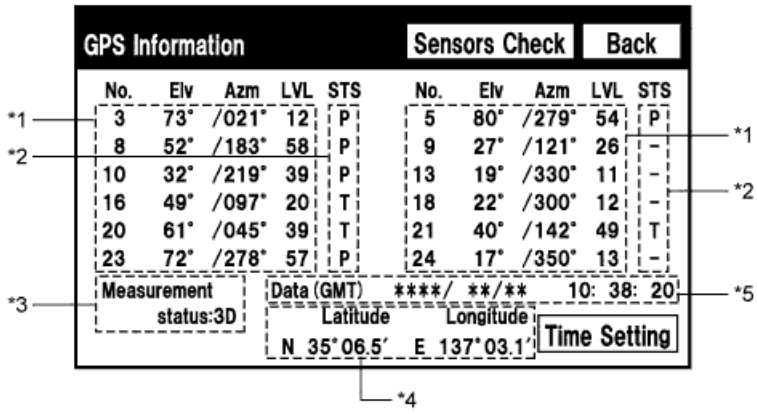
- **The microphone is active at all times when this screen is displayed.**
- **While recording or playing, the switches other than the stop switch cannot be selected.**
- **When no recording is present, the play switch cannot be selected.**
- **Recording will stop after 5 seconds or when the stop switch is selected.**

ii. GPS Information Screen

w/o G-BOOK System:




w/ G-BOOK System:




H

*1: Satellite information
Information from a maximum of 12 satellites is displayed on the screen. This information includes the target GPS satellite number, elevation angle, direction and signal level.
*2: Receiving condition

| Display | Content |
|---|---|
| T | The system is receiving a GPS signal, but is not using it for location. |
| P | The system is using the GPS signal for location. |
| - | The system cannot receive a GPS signal. |

*3: Measurement information

### Screen Description

| Display | Content |
|---|---|
| 2D | 2-dimensional location method is being used. |
| 3D | 3-dimensional location method is being used. |
| NG | Location data cannot be used. |
| Error | Reception error has occurred. |
| - | Any other state. |

*4: Position information

### Screen Description

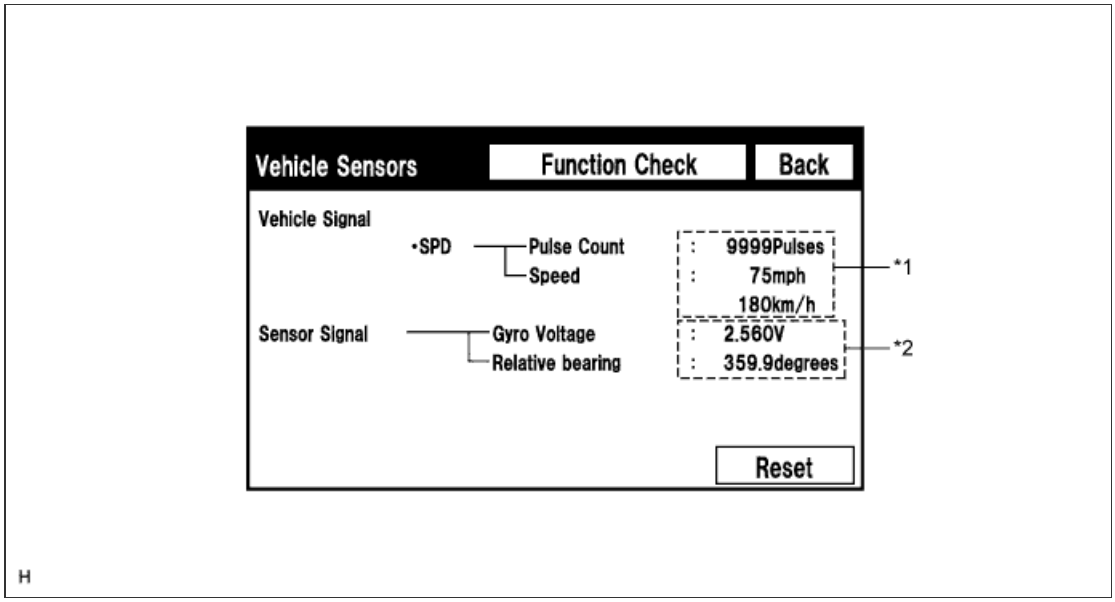
| Display | Content |
|---|---|
| Position | Latitude and longitude information on the current position is displayed. |

*5: Date information

**Screen Description**

| Display | Content |
|---|---|
| Date (w/o G-BOOK system) | The date/time information obtained from GPS signal is displayed in Greenwich Mean Time (GMT). |
| Date (w/ G-BOOK system) | The date/time information obtained from GPS signal is displayed in Chinese Standard Time (CST). |

iii. Vehicle Sensors Screen




**Vehicle Signal**

| Display | Content |
|---|---|
| *1: SPD | SPD signal condition is displayed. |

**Sensor Signal**

| Display | Content |
|---|---|
| *2: Gyro sensor | Gyro sensor output condition is displayed. |

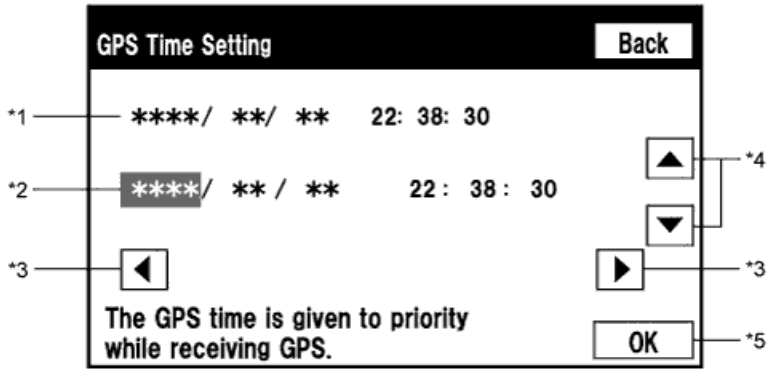
**HINT:**

Signals are updated once per second only when vehicle sensor signals are changed.

iv. GPS Time Setting Screen (w/ G-BOOK system)

**HINT:**

Time setting is possible only when GPS signals are not received. When the navigation system is receiving GPS signals, priority is given to displaying the time and date received via GPS.

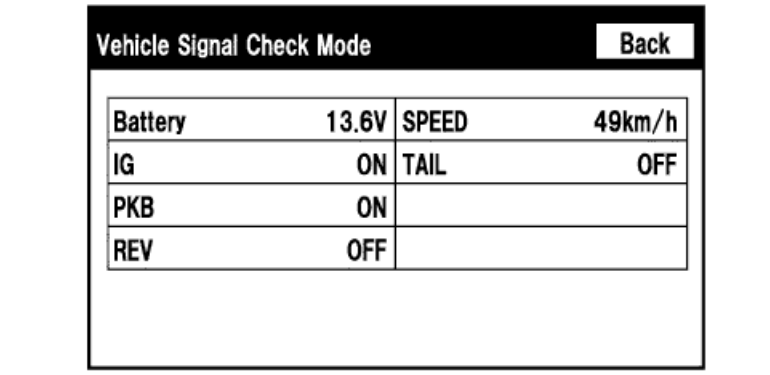



H

**Screen Description**

| Display | Content |
|---|---|
| *1: Time display | Displays the time in the device. |
| *2: Time setting screen | Setting is possible only when GPS signals are not received. |
| *3: Cursor movement switch | Moves the cursor on the time setting screen to the right and left. |
| *4: Adjustment switch | Adjusts values of items selected by the cursor. |
| *5: OK switch | Selecting this switch after setting the time updates the time in the device (only when GPS signals are not received). |

v. Vehicle Signal Check Mode Screen




H

**Screen Description**

| Display | Content |
|---|---|
| Battery | Battery voltage is displayed. |
| IG | Engine switch ON/OFF state is displayed. |
| PKB | Parking brake ON/OFF state is displayed. |
| REV | Reverse signal ON/OFF state is displayed. |
| SPEED | Vehicle speed is displayed in km/h. |
| TAIL | TAIL signal (Light control switch) ON/OFF state is displayed. |

**HINT:**

- **Only items sending vehicle signals will be displayed.**
- **This screen is updated once per second when input signals to the vehicle are changed.**

**for Preparation** Click here

**HINT:**

- **Use the following procedure to troubleshoot the navigation system.**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

NEXT

## 2.INSPECT BATTERY VOLTAGE

a. Measure the battery voltage with the engine switch off.

**Standard Voltage:**
**11 to 14 V**

If the voltage is below 11 V, recharge or replace the battery before proceeding to the next step.

NEXT

## 3.DIAGNOSTIC QUESTIONING AND SYMPTOM CONFIRMATION

a. Ask the customer about symptoms and confirm malfunctions.

**Result**

| Result | Proceed to |
|---|---|
| Other symptoms. | A |
| The screen displays nothing. | B |

B. → Go to step 6

A

## 4.OPERATION CHECK

a. Refer to Check System Normal Condition ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| Symptom is not normal operation. | A |
| Symptom is normal operation. | B |

B. → SYMPTOM IS NORMAL OPERATION

A

## 5.CHECK CAN COMMUNICATION SYSTEM*

a. Check for DTC output (Click here).

**Result**

| Result | Proceed to |
|---|---|
| CAN DTC is not output. | A |

| | |
|---|---|
| CAN DTC is output. | B |

B. GO TO CAN COMMUNICATION SYSTEM (Click here)

A

## 6.CHECK FOR DTC*

a. Refer to DTC Check/Clear (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is output. | A |
| DTC is not output. | B |

**HINT:**

If more information is needed, perform a check using the "System Check Mode" screen after checking for DTCs using the intelligent tester.

B. Go to step 10

A

## 7.DTC CLEAR*

a. Refer to DTC Check/Clear (Click here).

**HINT:**

The present DTCs may not indicate actual malfunctions depending on the vehicle operating conditions.

NEXT

## 8.RECHECK FOR DTC*

a. Refer to DTC Check/Clear (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is output. | A |
| DTC is not output. | B |

**HINT:**

- **Even if the malfunction symptom is not confirmed, check for DTCs. This is because the system stores history DTCs.**
- **If more information is needed, perform a recheck using the "System Check Mode" screen after rechecking for DTCs using the intelligent tester.**
- **Check the DTCs and inspect the area that the code indicates.**

B. Go to step 10

A

## 9.DIAGNOSTIC TROUBLE CODE CHART

a. Find the output code in Diagnostic Trouble Code Chart ( Click here).

**NOTICE:**

- **The navigation system outputs DTCs for the following systems.**
- **When DTCs other than those in Diagnostic Trouble Code Chart for the navigation system are output, refer to Diagnostic Trouble Code Chart for the system.**
- **Audio and visual system (w/ navigation system) ( Click here)**

- Rear seat entertainment system (w/ rear seat entertainment system) ( Click here).
- G-BOOK system (w/ G-BOOK system) (Click here).
- Parking assist monitor system (w/ Parking assist monitor system) ( Click here).
- Wide view front monitor system (w/ Wide view front monitor system) ( Click here).
- Side monitor system (w/ Side monitor system) (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTCs for the navigation system are output. | A |
| DTCs for the audio and visual system (w/ navigation system) are output. | B |
| Parking assist monitor system (w/ Parking assist monitor system) | C |
| DTCs for the G-BOOK system (w/ G-BOOK system) are output. | D |
| Parking assist monitor system (w/ Parking assist monitor system) | E |
| Wide view front monitor system (w/ Wide view front monitor system) | F |
| Side monitor system (w/ Side monitor system) | G |

| | |
|---|---|
| A. | Go to step 13 |
| B. | GO TO AUDIO AND VISUAL SYSTEM (w/ Navigation System) ( Click here) |
| C. | GO TO REAR SEAT ENTERTAINMENT SYSTEM (Click here) |
| D. | GO TO G-BOOK SYSTEM (Click here) |
| E. | GO TO PARKING ASSIST MONITOR SYSTEM (Click here) |
| F. | GO TO WIDE VIEW FRONT MONITOR SYSTEM (Click here) |
| G. | GO TO SIDE MONITOR SYSTEM (Click here) |

## 10.CHECK HARD DISK DRIVE

a. Enter the "Failure Diagnosis" screen. Refer to Check Hard Disk Drive in Operation Check ( Click here).

**OK:**
**"OK" is displayed.**

| | |
|---|---|
| NG. | REPLACE HARD DISK DRIVE (Click here) |

OK

## 11.PROBLEM SYMPTOMS TABLE

a. Refer to Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in Problem Symptoms Table. | A |
| Fault is listed in Problem Symptoms Table. | B |

**HINT:**

If the symptom does not recur and no DTC is output, perform the symptom reproduction method ( Click here).

| | |
|---|---|
| B. | Go to step 13 |

A

### 12.CHECK ECU TERMINAL ARRANGEMENT BASED ON MALFUNCTION SYMPTOM

a. Refer to Terminals of ECU (Click here).

NEXT

### 13.CHECK CIRCUIT

a. Adjust, repair or replace as necessary.

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) (Click here).

NEXT

### 14.RECHECK FOR DIAGNOSTIC TROUBLE CODE

**HINT:**

After clearing DTCs, recheck for DTCs.

NEXT

### 15.PERFORM CONFIRMATION TEST

NEXT

### END

**for Preparation** Click here

**HINT:**

- **Use the following procedure to troubleshoot the navigation system.**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

NEXT

## 2.INSPECT BATTERY VOLTAGE

a. Measure the battery voltage with the engine switch off.

**Standard Voltage:**
**11 to 14 V**

If the voltage is below 11 V, recharge or replace the battery before proceeding to the next step.

NEXT

## 3.DIAGNOSTIC QUESTIONING AND SYMPTOM CONFIRMATION

a. Ask the customer about symptoms and confirm malfunctions.

**Result**

| Result | Proceed to |
|---|---|
| Other symptoms. | A |
| The screen displays nothing. | B |

B. → Go to step 6

A

## 4.OPERATION CHECK

a. Refer to Check System Normal Condition ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| Symptom is not normal operation. | A |
| Symptom is normal operation. | B |

B. → SYMPTOM IS NORMAL OPERATION

A

## 5.CHECK CAN COMMUNICATION SYSTEM*

a. Check for DTC output (Click here).

**Result**

| Result | Proceed to |
|---|---|
| CAN DTC is not output. | A |

| | |
|---|---|
| CAN DTC is output. | B |

B. GO TO CAN COMMUNICATION SYSTEM (Click here)

A

## 6.CHECK FOR DTC*

a. Refer to DTC Check/Clear (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is output. | A |
| DTC is not output. | B |

**HINT:**

If more information is needed, perform a check using the "System Check Mode" screen after checking for DTCs using the intelligent tester.

B. Go to step 10

A

## 7.DTC CLEAR*

a. Refer to DTC Check/Clear (Click here).

**HINT:**

The present DTCs may not indicate actual malfunctions depending on the vehicle operating conditions.

NEXT

## 8.RECHECK FOR DTC*

a. Refer to DTC Check/Clear (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is output. | A |
| DTC is not output. | B |

**HINT:**

- **Even if the malfunction symptom is not confirmed, check for DTCs. This is because the system stores history DTCs.**
- **If more information is needed, perform a recheck using the "System Check Mode" screen after rechecking for DTCs using the intelligent tester.**
- **Check the DTCs and inspect the area that the code indicates.**

B. Go to step 10

A

## 9.DIAGNOSTIC TROUBLE CODE CHART

a. Find the output code in Diagnostic Trouble Code Chart ( Click here).

**NOTICE:**

- **The navigation system outputs DTCs for the following systems.**
- **When DTCs other than those in Diagnostic Trouble Code Chart for the navigation system are output, refer to Diagnostic Trouble Code Chart for the system.**
- **Audio and visual system (w/ navigation system) ( Click here)**

- Rear seat entertainment system (w/ rear seat entertainment system) ( Click here).
- G-BOOK system (w/ G-BOOK system) (Click here).
- Parking assist monitor system (w/ Parking assist monitor system) ( Click here).
- Wide view front monitor system (w/ Wide view front monitor system) ( Click here).
- Side monitor system (w/ Side monitor system) (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTCs for the navigation system are output. | A |
| DTCs for the audio and visual system (w/ navigation system) are output. | B |
| Parking assist monitor system (w/ Parking assist monitor system) | C |
| DTCs for the G-BOOK system (w/ G-BOOK system) are output. | D |
| Parking assist monitor system (w/ Parking assist monitor system) | E |
| Wide view front monitor system (w/ Wide view front monitor system) | F |
| Side monitor system (w/ Side monitor system) | G |

| | |
|---|---|
| A. | Go to step 13 |
| B. | GO TO AUDIO AND VISUAL SYSTEM (w/ Navigation System) ( Click here) |
| C. | GO TO REAR SEAT ENTERTAINMENT SYSTEM (Click here) |
| D. | GO TO G-BOOK SYSTEM (Click here) |
| E. | GO TO PARKING ASSIST MONITOR SYSTEM (Click here) |
| F. | GO TO WIDE VIEW FRONT MONITOR SYSTEM (Click here) |
| G. | GO TO SIDE MONITOR SYSTEM (Click here) |

## 10.CHECK HARD DISK DRIVE

a. Enter the "Failure Diagnosis" screen. Refer to Check Hard Disk Drive in Operation Check ( Click here).

**OK:**
**"OK" is displayed.**

| | |
|---|---|
| NG. | REPLACE HARD DISK DRIVE (Click here) |

OK

## 11.PROBLEM SYMPTOMS TABLE

a. Refer to Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in Problem Symptoms Table. | A |
| Fault is listed in Problem Symptoms Table. | B |

**HINT:**

If the symptom does not recur and no DTC is output, perform the symptom reproduction method ( Click here).

| | |
|---|---|
| B. | Go to step 13 |

A

### 12.CHECK ECU TERMINAL ARRANGEMENT BASED ON MALFUNCTION SYMPTOM

a. Refer to Terminals of ECU (Click here).

NEXT

### 13.CHECK CIRCUIT

a. Adjust, repair or replace as necessary.

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) (Click here).

NEXT

### 14.RECHECK FOR DIAGNOSTIC TROUBLE CODE

**HINT:**

After clearing DTCs, recheck for DTCs.

NEXT

### 15.PERFORM CONFIRMATION TEST

NEXT

### END

**for Preparation** Click here

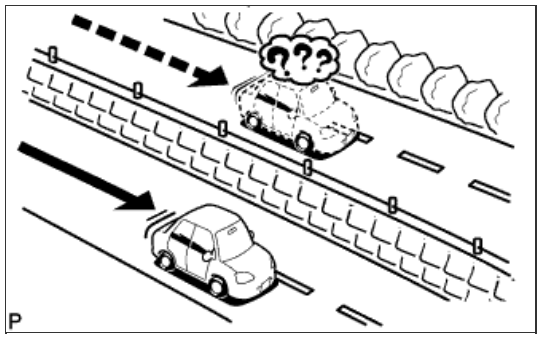
## CHECK SYSTEM NORMAL CONDITION

a. If the symptom is applicable to any of the following, it is intended behavior, and not a malfunction.

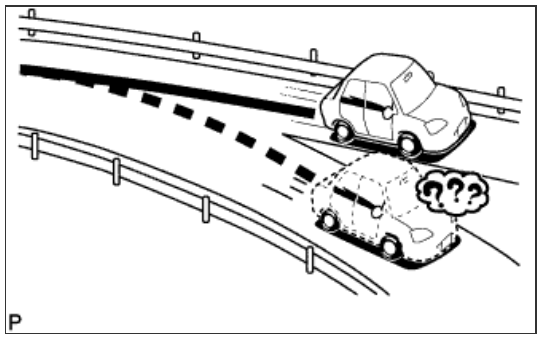
| Symptom | Answer |
|---|---|
| A longer route than expected is chosen. | Depending on the road conditions, the display and navigation module display may determine that a longer route is quicker. |
| Even when distance priority is high, the shortest route is not shown. | Some routes may not be advised due to safety concerns. |
| When the vehicle is put into motion immediately after the engine starts, the navigation system deviates from the current position. | If the vehicle starts before the navigation system activates, the system may not react. |
| When running on certain types of roads, especially new roads, the vehicle position deviates from the current position. | When the vehicle is driving on new roads not available on the map data from the hard disk drive, the system attempts to match it to another nearby road, causing the position mark to deviate. |

b. The following symptoms are not malfunctions, but are caused by errors inherent in the GPS, gyro sensor, speed sensor or display and navigation module display.

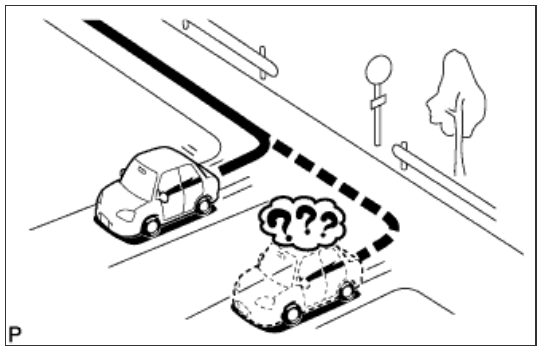
i. The current position mark may be displayed on a nearby parallel road.




ii. Immediately after a fork in the road, the current vehicle position mark may be displayed on the wrong road.

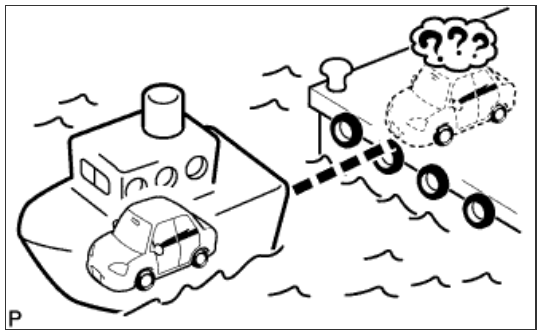



iii. When the vehicle turns right or left at an intersection, the current vehicle position mark may be displayed on a nearby parallel road.

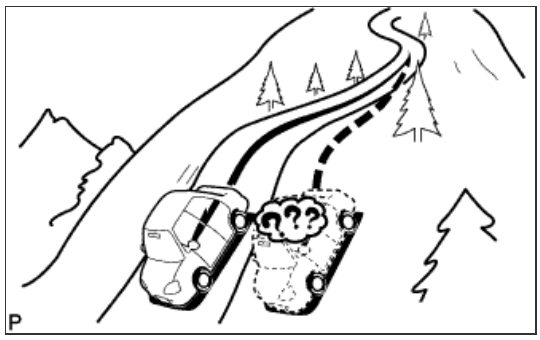



iv. When the vehicle is carried, such as on a ferry, and the vehicle itself is not running, the current vehicle position mark may be displayed in the position where the vehicle was until a measurement can be performed

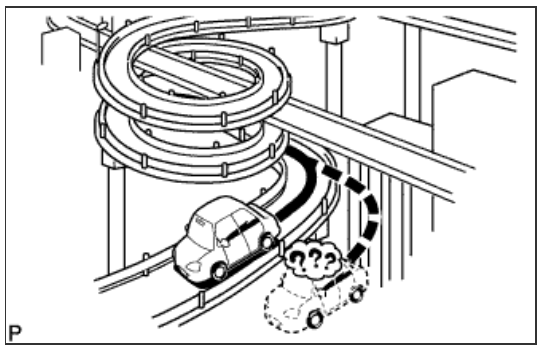
by GPS.



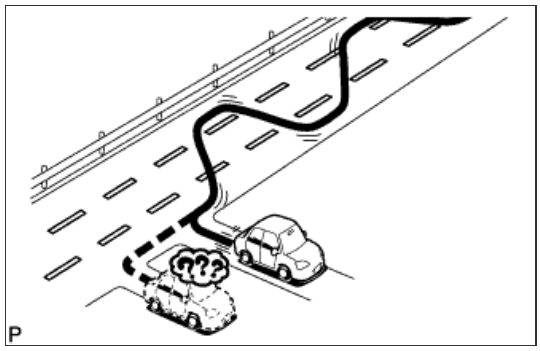

v. When the vehicle travels on a steep hill, the current vehicle position mark may deviate from the correct position.



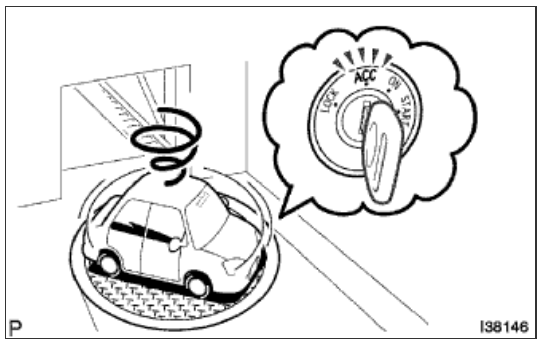

vi. When the vehicle makes a continuous turn (e.g. 360, 720, 1080 degrees), the current vehicle position mark may deviate from the correct position.




vii. When the vehicle moves erratically, such as constant lane changes, the current vehicle position mark may deviate from the correct position.




viii. When the engine switch is turned on (ACC or IG) on a turntable before parking, the current vehicle position mark may not indicate the correct direction. The same will occur when the vehicle comes out of the parking garage.



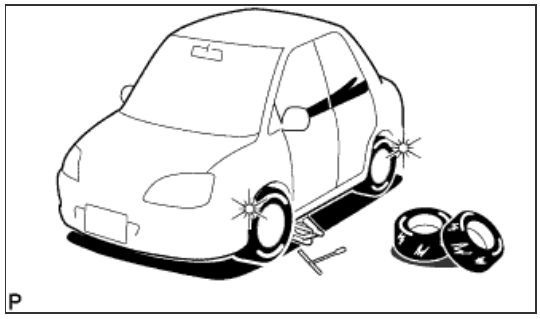

ix. When the vehicle travels on a snowy road or a mountain path with the chains installed or using a spare tire, the current vehicle position mark may deviate from the correct position.




x. When the tires are changed, the current vehicle position mark may deviate from the correct position.

**HINT:**

- **A change in tire diameter may cause a speed sensor error.**
- **Performing "tire change" in calibration mode will allow the system to correct the current vehicle position faster.**



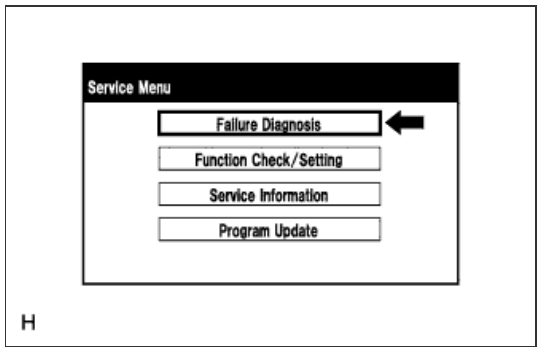

## CHECK HARD DISK DRIVE

**HINT:**

- **Check the hard disk drive (HDD) built into the display and navigation module display.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Failure Diagnosis" from the "Service Menu" screen.



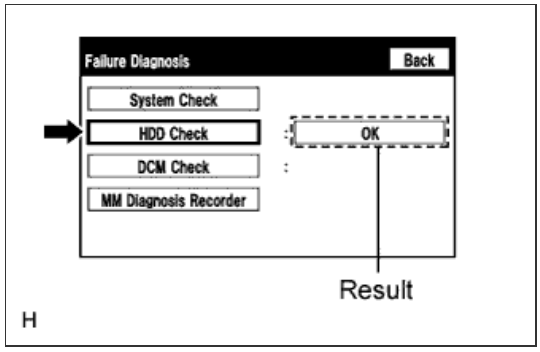

c. Hard disk drive check

i. Select "HDD Check" to start the HDD check.

ii. Check that the result is displayed when the HDD check is completed.

**Screen Description**

| Result | Description |
|---|---|
| Checking | While the check is in progress |
| OK | Hard disk drive is normal |
| NG | Hard disk drive is malfunctioning |




**HINT:**

- **After selecting "HDD Check", it may take a while until the result is displayed.**
- **Replace the display and navigation module display when NG is displayed.**

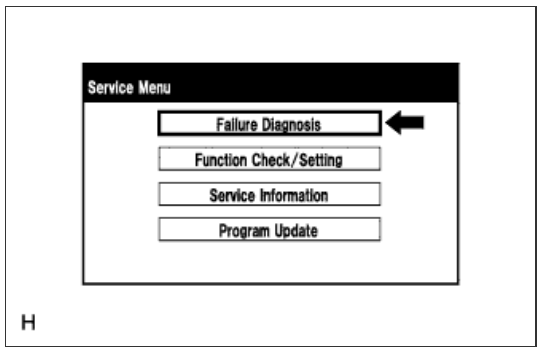
## CHECK TELEMATICS TRANSCEIVER (w/ G-BOOK SYSTEM)

**HINT:**

- **Communication between the telematics transceiver and G-BOOK center is checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

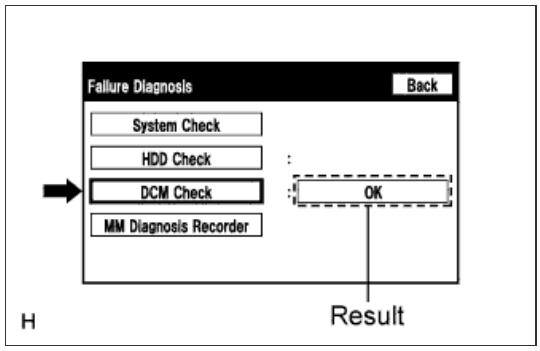
b. Select "Failure Diagnosis" from the "Service Menu" screen.




c. Telematics transceiver check

i. Select "DCM Check" to start the telematics transceiver communication condition check.

ii. Check that the result is displayed when the DCM check completes.




**Screen Description**

| Result | Description |
|---|---|
| wait | While the check is in progress |
| OK | Telematics transceiver communication condition is normal |
| NO ANT | Telephone antenna is not connected |
| PLL NG | PLL is unlocked |
| OFF LINE | Service contract is not valid |
| No Service | Out of communication service area |
| RESTRICTION | Restriction of outgoing signal |
| NO CARRIER | RLP link is not established |
| ERROR | High priority service is activated |
| TIME OUT | Check time out |

**HINT:**

- **Telematics transceiver check is performed for a maximum of 40 seconds after "DCM Check" is selected.**
- **Check the G-BOOK system when "DCM Check" cannot be performed or the check result is not "OK" ( Click here).**

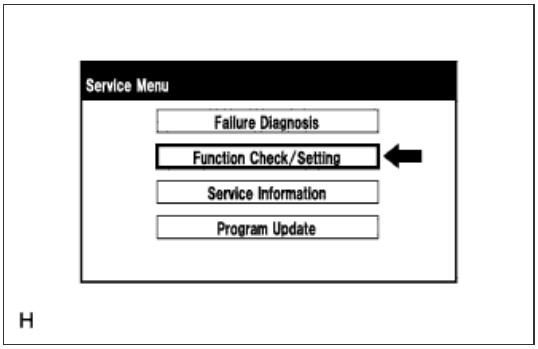
## CHECK PANEL & STEERING SWITCH

**HINT:**

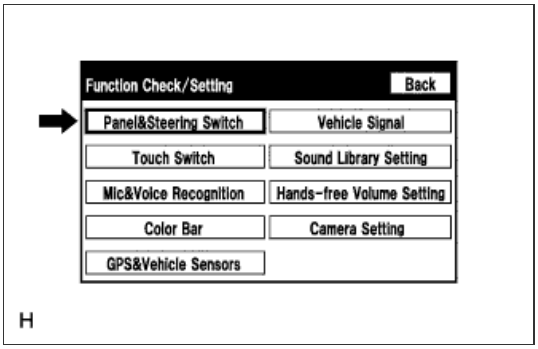
- **The display and navigation module display panel switches, radio receiver assembly panel switches and steering switch are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.

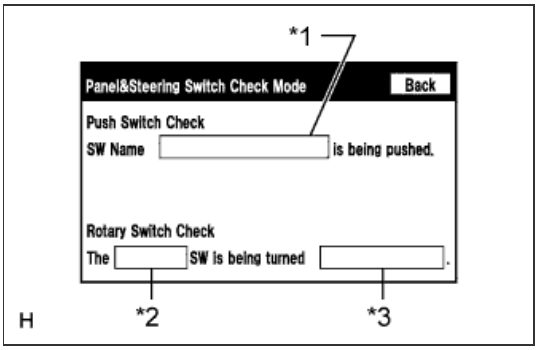



c. Select "Panel & Steering Switch" from the "Function Check/Setting" screen.




d. Panel & Steering Switch Check Mode

i. Operate each switch and check that the switch names and condition are correctly displayed.




**Screen Description**

| Display | Content |
|---|---|
| *1: Push switch name | • Name of the pressed switch is displayed.<br>• If more than one switch is pressed, "MULTIPLE" will be displayed. |
| *2: Rotary switch name | Name of the rotary switch is displayed. |
| *3: Rotary switch direction | Direction of the rotary switch is displayed. |

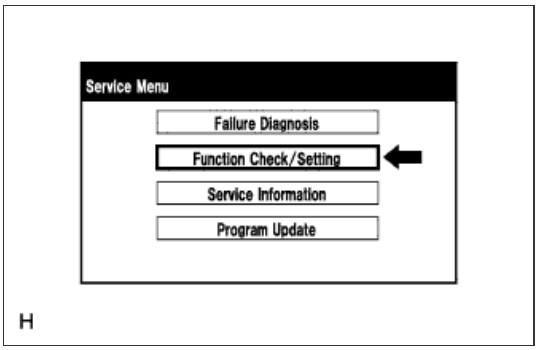
## CHECK TOUCH SWITCH

**HINT:**

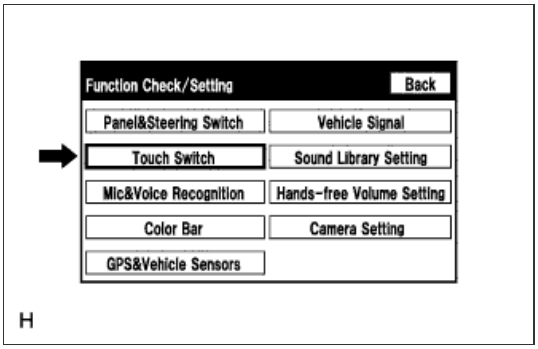
- **The touch switches on the screen are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "Touch Switch" from the "Function Check/Setting" screen.

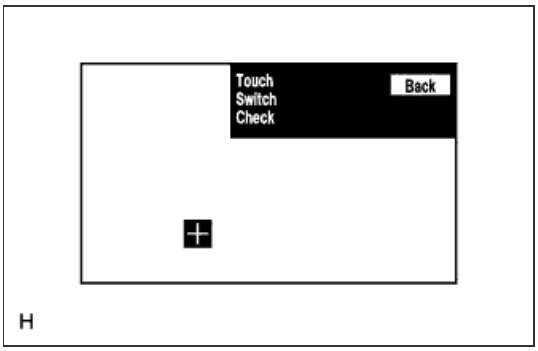



d. Touch Switch Check

i. Touch the display anywhere in the open area to perform the check when the "Touch Switch Check" screen is displayed.

**HINT:**

- **A "+" mark is displayed where the display is touched.**
- **The "+" mark remains on the display even after the finger is removed.**



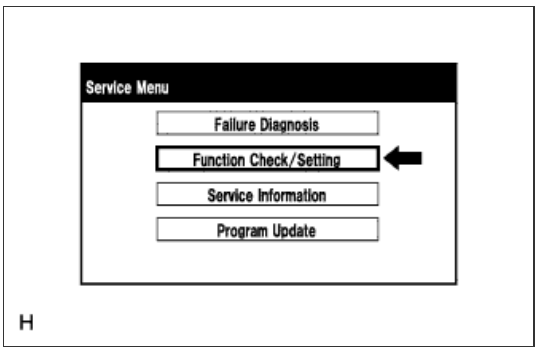

## CHECK MIC & VOICE RECOGNITION

**HINT:**

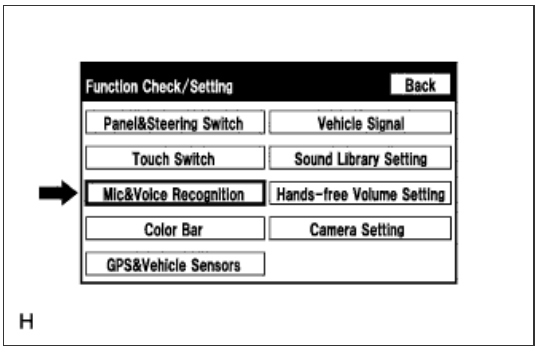
- **The microphone and microphone input level are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "Mic & Voice Recognition" from the "Function Check/Setting" screen.




d. Microphone & Voice Recognition Check

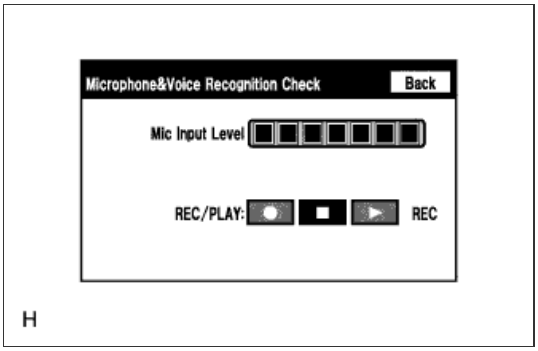
i. When speaking into the microphone, check that the microphone input level meter changes according to the input level.

ii. Push the recording switch and perform voice recording.

iii. Check that the recording indicator remains on while recording and that the recording can be played normally.

**HINT:**

- **For details of this function, refer to Diagnosis Display Detailed Description in System Description (Click here).**
- **This function is controlled by the display and navigation module display (built-in navigation ECU).**



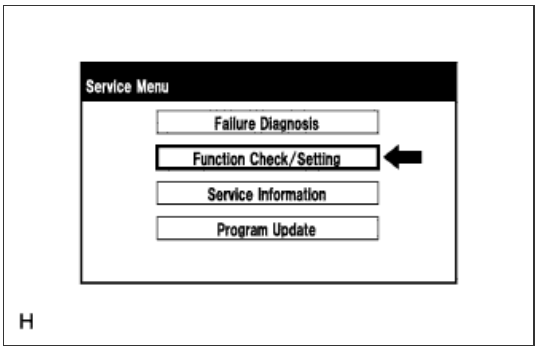

## CHECK COLOR BAR

**HINT:**

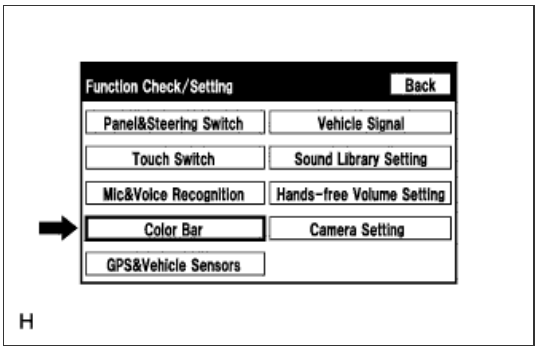
- **The display color on the screen is checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "Color Bar" from the "Function Check/Setting" screen.



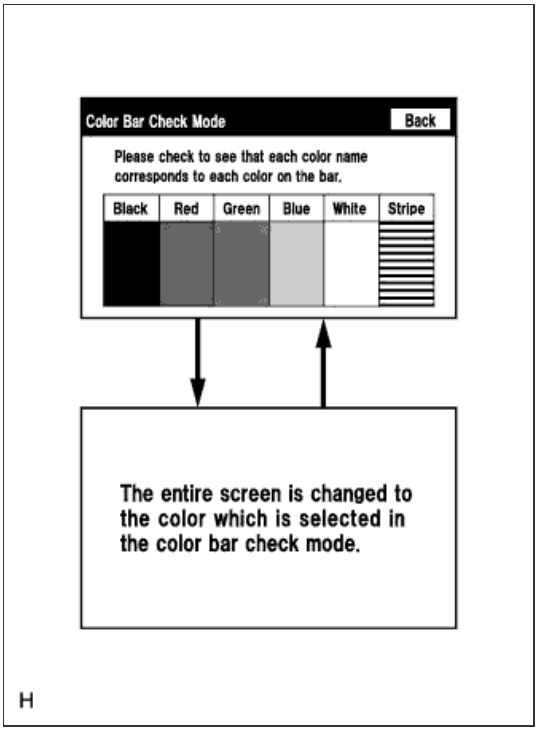

d. Color Bar Check Mode

i. Select a color bar from the "Color Bar Check Mode" screen.

ii. Check the display color.

**HINT:**

- **The entire screen turns to the color or stripe selected.**
- **Touching the display will return to the "Color Bar Check" screen.**



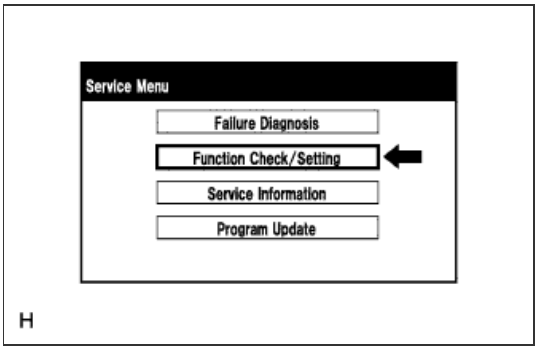

## CHECK GPS & VEHICLE SENSORS

**HINT:**

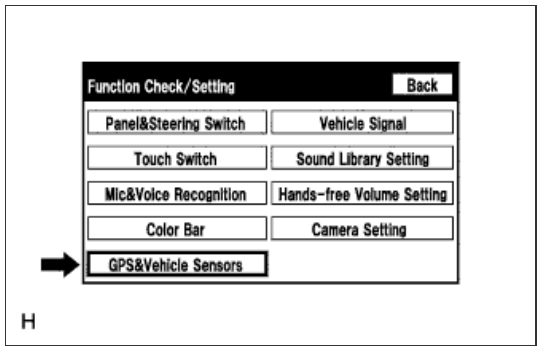
- **GPS information, vehicle signals and sensor signals are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "GPS & Vehicle Sensors" from the "Function Check/Setting" screen.



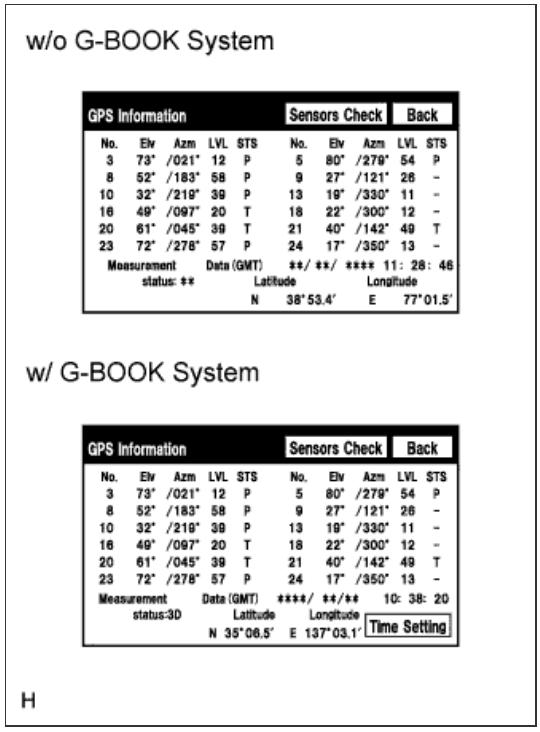

d. GPS Information

i. When "GPS Information screen" is displayed, check the GPS conditions.

**HINT:**

- **This screen is updated once per second when input signals to the vehicle are changed.**
- **For details of this function, refer to Diagnosis Display Detailed Description in System Description (Click here).**

e. Select "Sensors Check" from the "GPS information" screen.

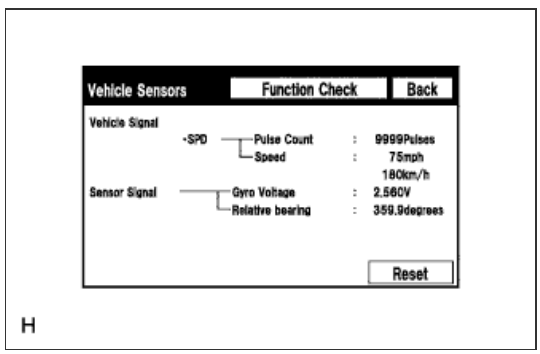



f. Vehicle Sensors

i. Check all the signals and sensors when vehicle signal information is displayed.

**HINT:**

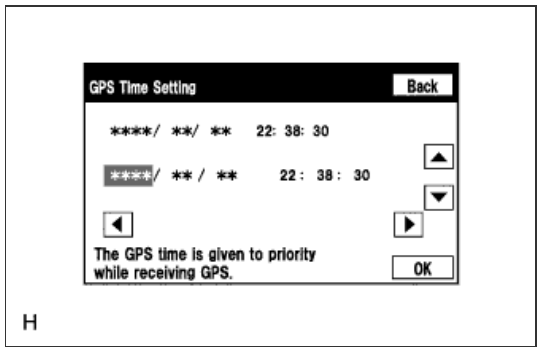
- **This screen is updated once per second when input signals to the vehicle are changed.**
- **This screen displays vehicle signals input to the display and navigation module display (built-in navigation ECU).**
- **For details of this function, refer to Diagnosis Display Detailed Description in System Description (Click here).**




g. Select "GPS Time Setting" from the "GPS & Vehicle Sensors" screen (w/ G-BOOK system).

h. GPS Time Setting (w/ G-BOOK system)

i. When the GPS signals cannot be received, the time in the device can be adjusted.




**HINT:**

- **The G-BOOK system cannot be used in areas where GPS signals cannot be received. As a result, when using the G-BOOK system in areas such as indoors, set the GPS time from the GPS time setting screen.**
- **Time setting is possible only when GPS signals are not received. When the navigation system is receiving GPS signals, priority is given to displaying the time and date received via GPS.**
- **For details of this function, refer to Diagnosis Display Detailed Description in System Description (Click here).**

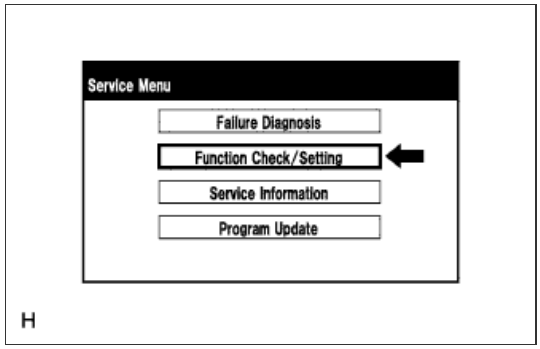
## CHECK VEHICLE SIGNAL

**HINT:**

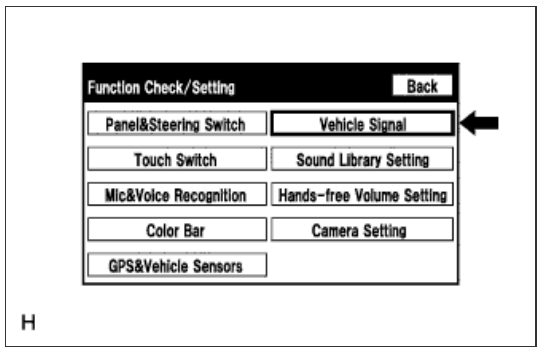
- **Vehicle signals received by the display and navigation module display are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "Vehicle Signal" from the "Function Check/Setting" screen.




d. Vehicle Signal Check Mode

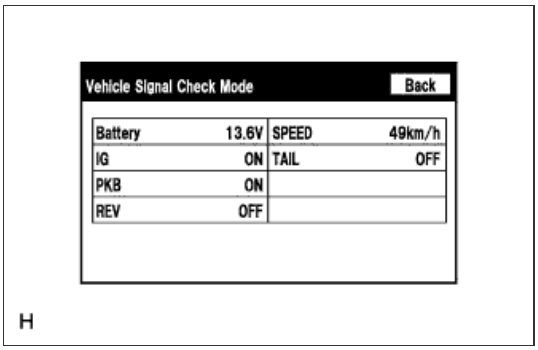
i. When the "Vehicle Signal Check Mode" screen is displayed, check all the vehicle signal conditions.

**HINT:**

- **Only conditions having inputs are displayed.**
- **This screen displays vehicle signals input to the display and navigation module display (built-in**

navigation ECU).

- For details of this function, refer to Diagnosis Display Detailed Description in System Description (Click here).



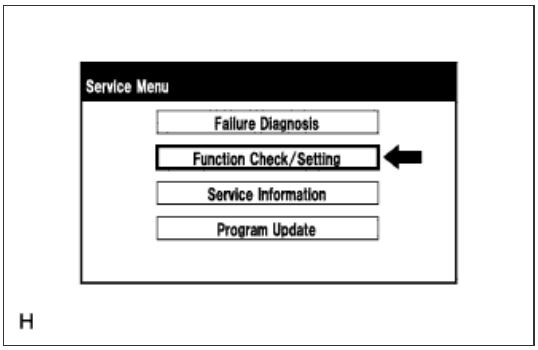

## CHECK SOUND LIBRARY SETTING (w/ SOUND LIBRARY)

**HINT:**

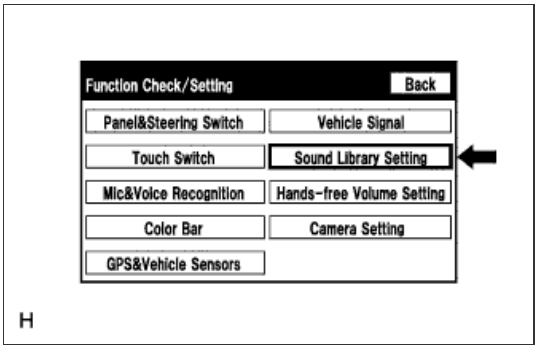
- It is possible to turn the sound library function on and off and check the operation of the sound library function.
- Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.



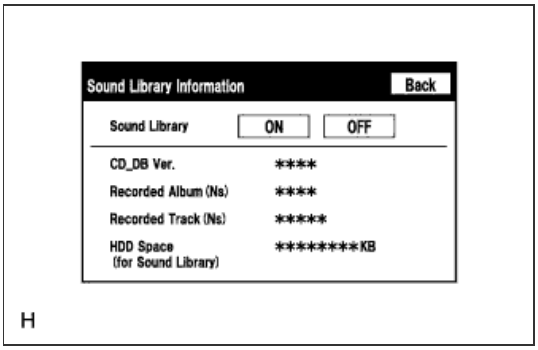

c. Select "Sound Library Setting" from the "Function Check/Setting" screen.




d. Sound Library Information

**HINT:**

Refer to the audio and visual system (w/ navigation system) for further information (Click here).




## CHECK HANDS-FREE VOLUME SETTING

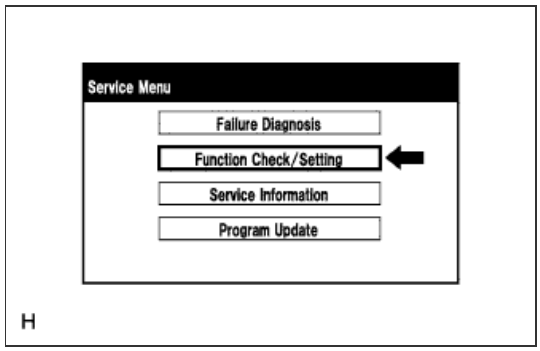
**HINT:**

- The hands-free volume of a "Bluetooth" compatible phone can be adjusted using the following procedure.
- Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed

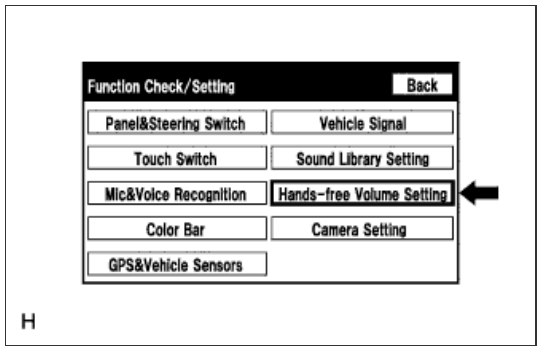
**areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.

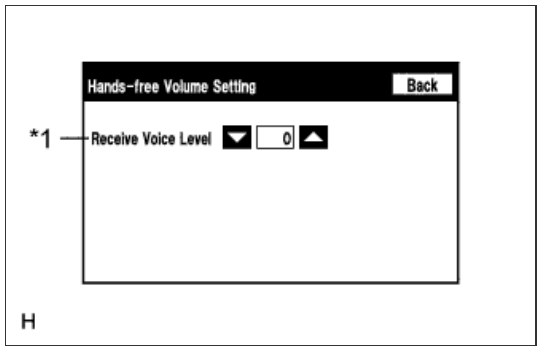



c. Select "Hands-free Volume Setting" from the "Function Check/Setting" screen.




d. Hands-free Volume Setting

i. Check the hands-free volume level.




**Screen Description**

| Display | Content |
|---|---|
| *1: Receive voice level adjustment | Setting possible for the voice level received from "Bluetooth" compatible phones. |

**NOTICE:**

Sound quality may deteriorate when the receive voice level is changed more than necessary. For this reason, check that the receive voice quality is still acceptable after changing this setting.

## CHECK CAMERA SETTING (w/ Parking Assist Monitor System)

a. Refer to the parking assist monitor system for further information ( Click here).

## CHECK CAMERA SETTING (w/ Side Monitor System)

a. Refer to the side monitor system for further information ( Click here).

**CHECK CAMERA SETTING (w/ Wide View Front Monitor System)**

a. Refer to the wide view front monitor system for further information ( Click here).

**for Preparation** Click here

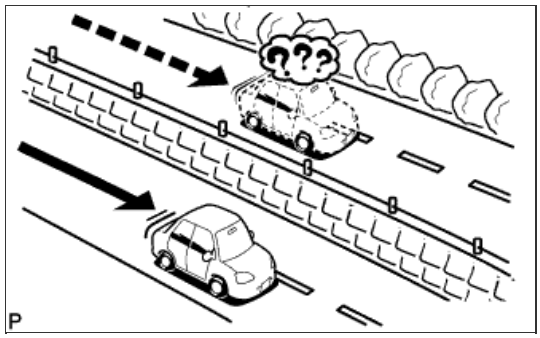
## CHECK SYSTEM NORMAL CONDITION

a. If the symptom is applicable to any of the following, it is intended behavior, and not a malfunction.

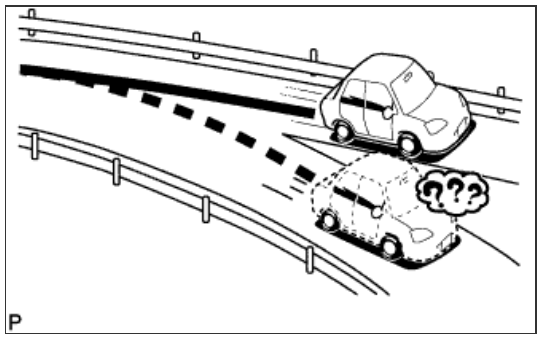
| Symptom | Answer |
|---|---|
| A longer route than expected is chosen. | Depending on the road conditions, the display and navigation module display may determine that a longer route is quicker. |
| Even when distance priority is high, the shortest route is not shown. | Some routes may not be advised due to safety concerns. |
| When the vehicle is put into motion immediately after the engine starts, the navigation system deviates from the current position. | If the vehicle starts before the navigation system activates, the system may not react. |
| When running on certain types of roads, especially new roads, the vehicle position deviates from the current position. | When the vehicle is driving on new roads not available on the map data from the hard disk drive, the system attempts to match it to another nearby road, causing the position mark to deviate. |

b. The following symptoms are not malfunctions, but are caused by errors inherent in the GPS, gyro sensor, speed sensor or display and navigation module display.

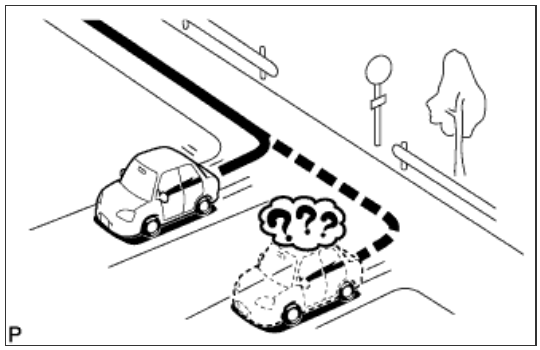
i. The current position mark may be displayed on a nearby parallel road.




ii. Immediately after a fork in the road, the current vehicle position mark may be displayed on the wrong road.

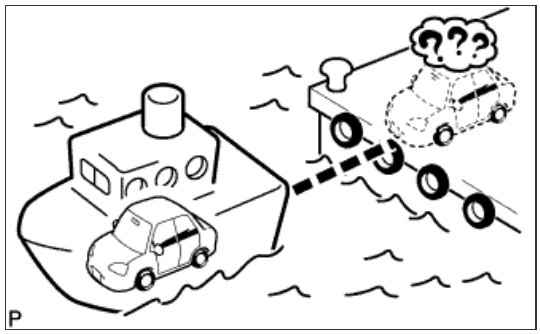



iii. When the vehicle turns right or left at an intersection, the current vehicle position mark may be displayed on a nearby parallel road.

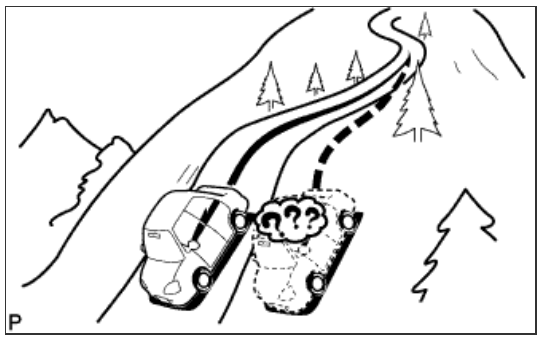



iv. When the vehicle is carried, such as on a ferry, and the vehicle itself is not running, the current vehicle position mark may be displayed in the position where the vehicle was until a measurement can be performed

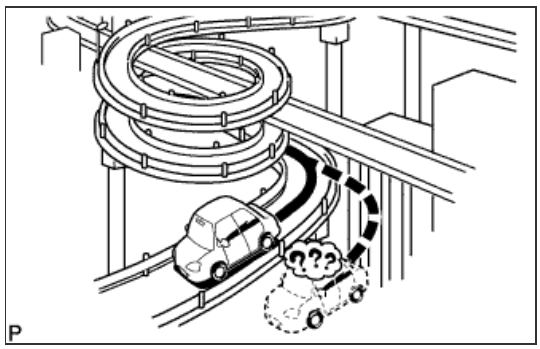
by GPS.



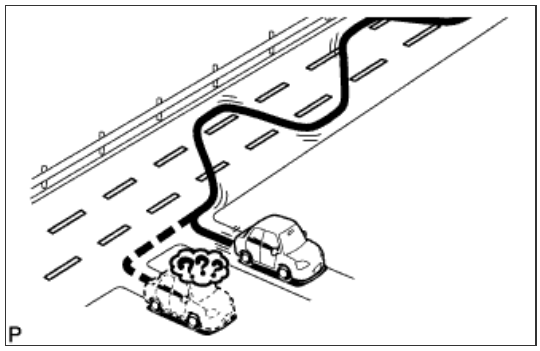

v. When the vehicle travels on a steep hill, the current vehicle position mark may deviate from the correct position.



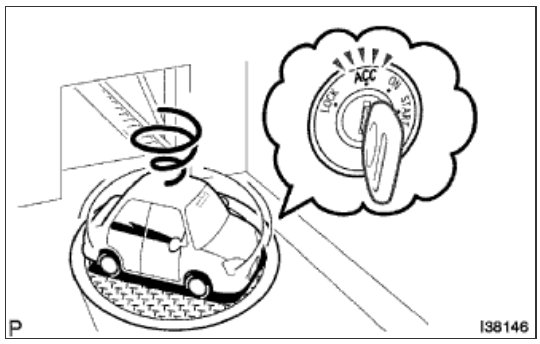

vi. When the vehicle makes a continuous turn (e.g. 360, 720, 1080 degrees), the current vehicle position mark may deviate from the correct position.




vii. When the vehicle moves erratically, such as constant lane changes, the current vehicle position mark may deviate from the correct position.




viii. When the engine switch is turned on (ACC or IG) on a turntable before parking, the current vehicle position mark may not indicate the correct direction. The same will occur when the vehicle comes out of the parking garage.



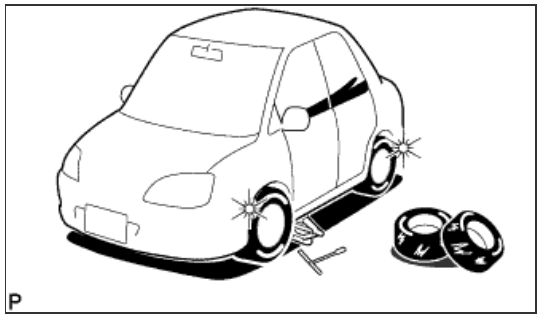

ix. When the vehicle travels on a snowy road or a mountain path with the chains installed or using a spare tire, the current vehicle position mark may deviate from the correct position.




x. When the tires are changed, the current vehicle position mark may deviate from the correct position.

**HINT:**

- **A change in tire diameter may cause a speed sensor error.**
- **Performing "tire change" in calibration mode will allow the system to correct the current vehicle position faster.**



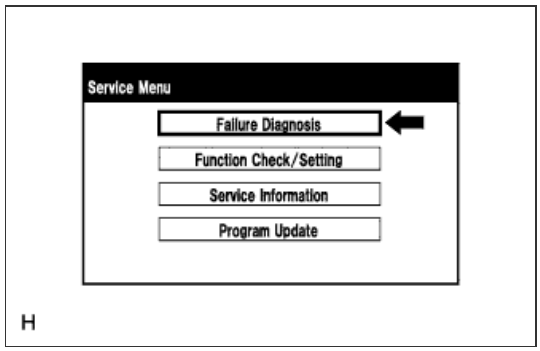

## CHECK HARD DISK DRIVE

**HINT:**

- **Check the hard disk drive (HDD) built into the display and navigation module display.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Failure Diagnosis" from the "Service Menu" screen.



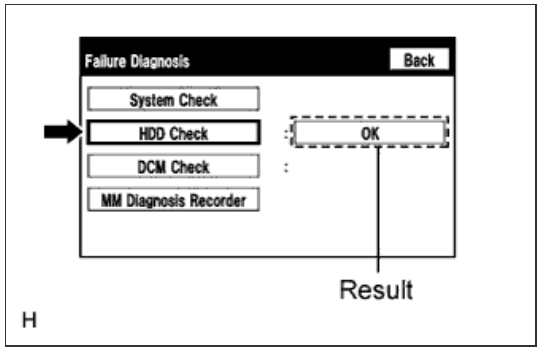

c. Hard disk drive check

i. Select "HDD Check" to start the HDD check.

ii. Check that the result is displayed when the HDD check is completed.

**Screen Description**

| Result | Description |
|---|---|
| Checking | While the check is in progress |
| OK | Hard disk drive is normal |
| NG | Hard disk drive is malfunctioning |




**HINT:**

- **After selecting "HDD Check", it may take a while until the result is displayed.**
- **Replace the display and navigation module display when NG is displayed.**

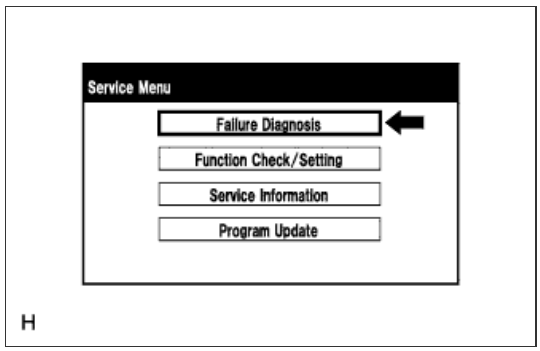
## CHECK TELEMATICS TRANSCEIVER (w/ G-BOOK SYSTEM)

**HINT:**

- **Communication between the telematics transceiver and G-BOOK center is checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

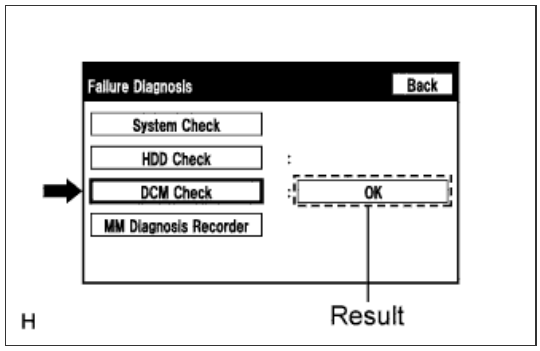
b. Select "Failure Diagnosis" from the "Service Menu" screen.




c. Telematics transceiver check

i. Select "DCM Check" to start the telematics transceiver communication condition check.

ii. Check that the result is displayed when the DCM check completes.




**Screen Description**

| Result | Description |
|---|---|
| wait | While the check is in progress |
| OK | Telematics transceiver communication condition is normal |
| NO ANT | Telephone antenna is not connected |
| PLL NG | PLL is unlocked |
| OFF LINE | Service contract is not valid |
| No Service | Out of communication service area |
| RESTRICTION | Restriction of outgoing signal |
| NO CARRIER | RLP link is not established |
| ERROR | High priority service is activated |
| TIME OUT | Check time out |

**HINT:**

- **Telematics transceiver check is performed for a maximum of 40 seconds after "DCM Check" is selected.**
- **Check the G-BOOK system when "DCM Check" cannot be performed or the check result is not "OK" ( Click here).**

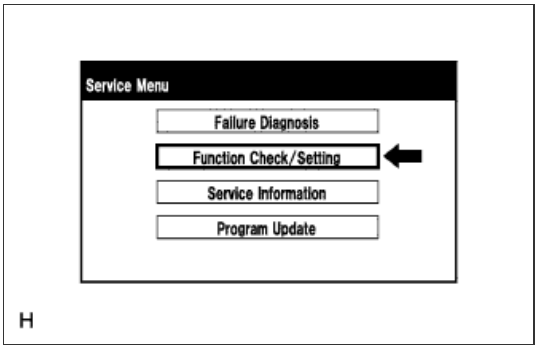
## CHECK PANEL & STEERING SWITCH

**HINT:**

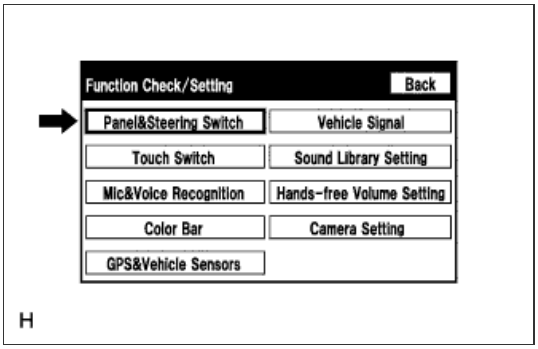
- **The display and navigation module display panel switches, radio receiver assembly panel switches and steering switch are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.

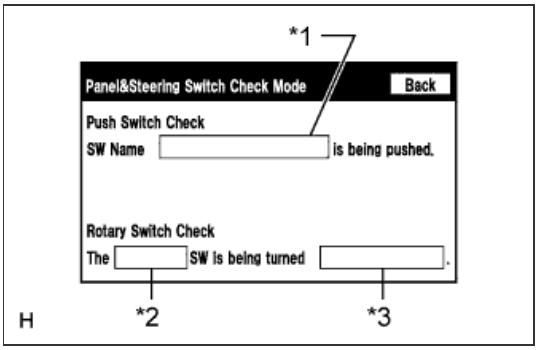



c. Select "Panel & Steering Switch" from the "Function Check/Setting" screen.




d. Panel & Steering Switch Check Mode

i. Operate each switch and check that the switch names and condition are correctly displayed.




**Screen Description**

| Display | Content |
|---|---|
| *1: Push switch name | • Name of the pressed switch is displayed.<br>• If more than one switch is pressed, "MULTIPLE" will be displayed. |
| *2: Rotary switch name | Name of the rotary switch is displayed. |
| *3: Rotary switch direction | Direction of the rotary switch is displayed. |

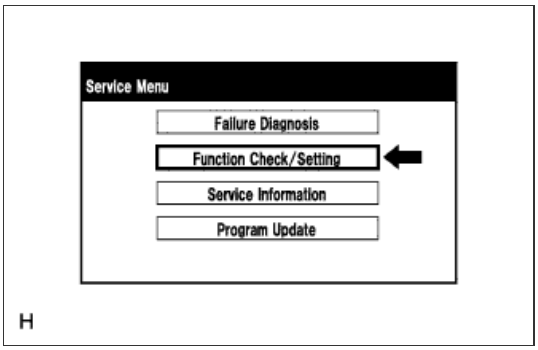
## CHECK TOUCH SWITCH

**HINT:**

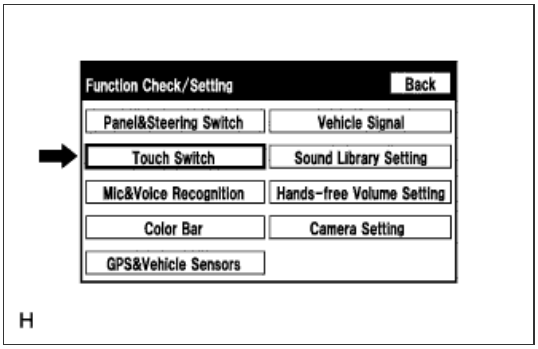
- **The touch switches on the screen are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "Touch Switch" from the "Function Check/Setting" screen.

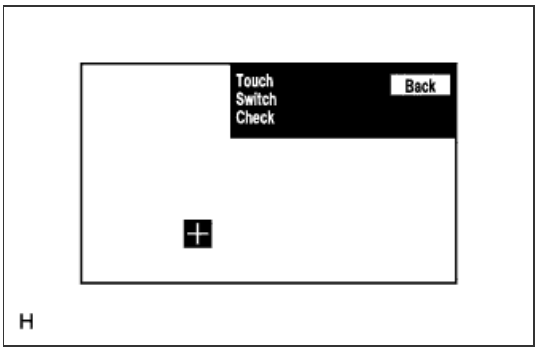



d. Touch Switch Check

i. Touch the display anywhere in the open area to perform the check when the "Touch Switch Check" screen is displayed.

**HINT:**

- **A "+" mark is displayed where the display is touched.**
- **The "+" mark remains on the display even after the finger is removed.**



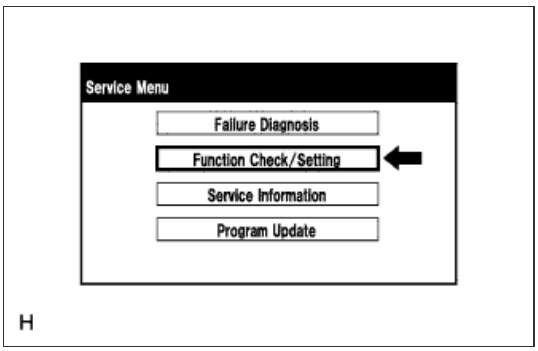

## CHECK MIC & VOICE RECOGNITION

**HINT:**

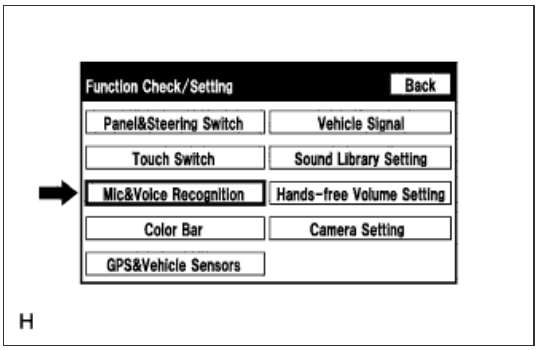
- **The microphone and microphone input level are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "Mic & Voice Recognition" from the "Function Check/Setting" screen.




d. Microphone & Voice Recognition Check

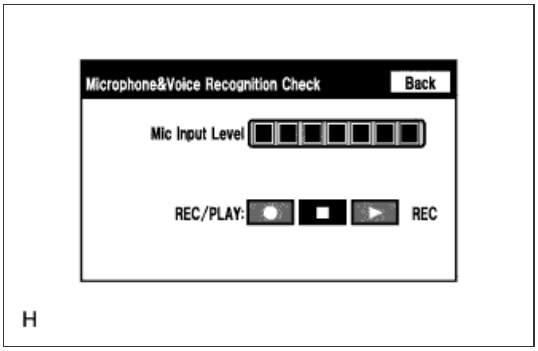
i. When speaking into the microphone, check that the microphone input level meter changes according to the input level.

ii. Push the recording switch and perform voice recording.

iii. Check that the recording indicator remains on while recording and that the recording can be played normally.

**HINT:**

- **For details of this function, refer to Diagnosis Display Detailed Description in System Description (Click here).**
- **This function is controlled by the display and navigation module display (built-in navigation ECU).**



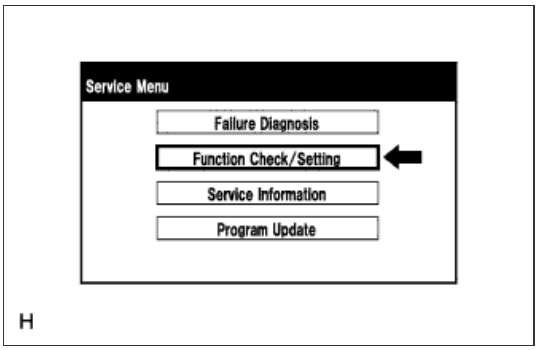

## CHECK COLOR BAR

**HINT:**

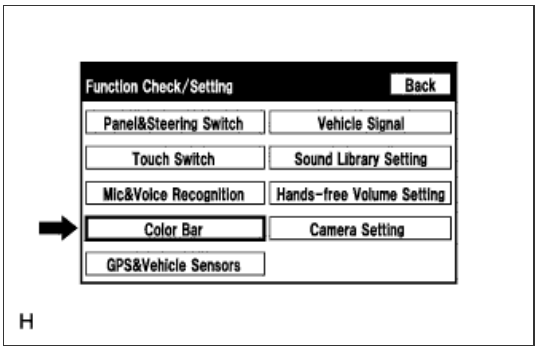
- **The display color on the screen is checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "Color Bar" from the "Function Check/Setting" screen.



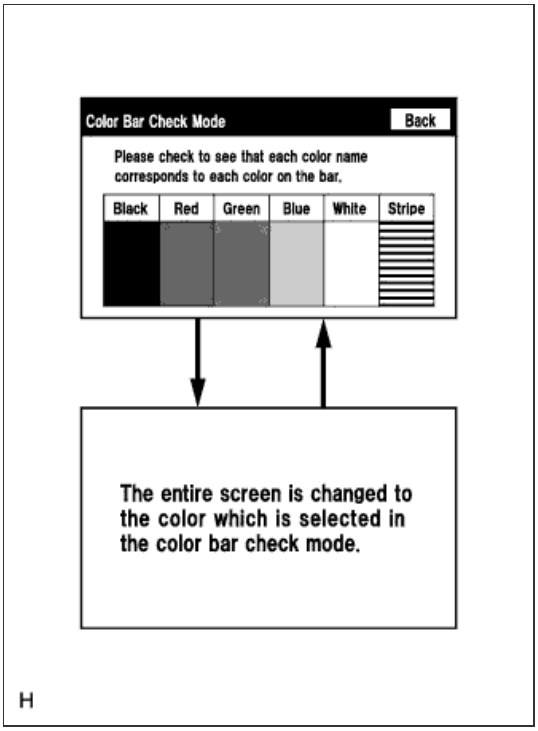

d. Color Bar Check Mode

i. Select a color bar from the "Color Bar Check Mode" screen.

ii. Check the display color.

**HINT:**

- **The entire screen turns to the color or stripe selected.**
- **Touching the display will return to the "Color Bar Check" screen.**



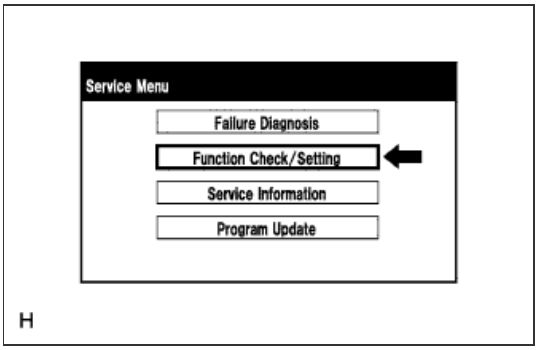

## CHECK GPS & VEHICLE SENSORS

**HINT:**

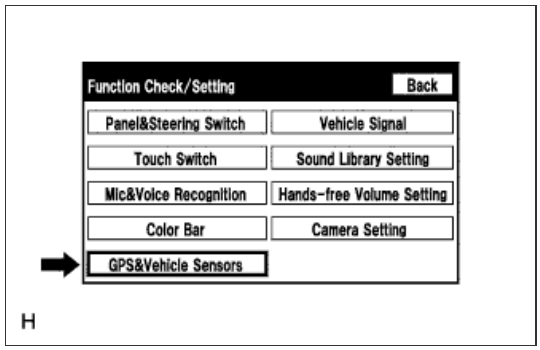
- **GPS information, vehicle signals and sensor signals are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "GPS & Vehicle Sensors" from the "Function Check/Setting" screen.



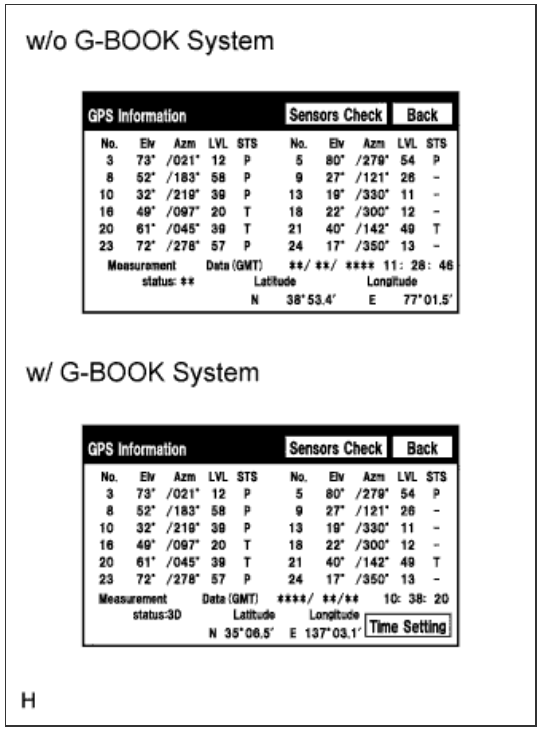

d. GPS Information

i. When "GPS Information screen" is displayed, check the GPS conditions.

**HINT:**

- **This screen is updated once per second when input signals to the vehicle are changed.**
- **For details of this function, refer to Diagnosis Display Detailed Description in System Description (Click here).**

e. Select "Sensors Check" from the "GPS information" screen.

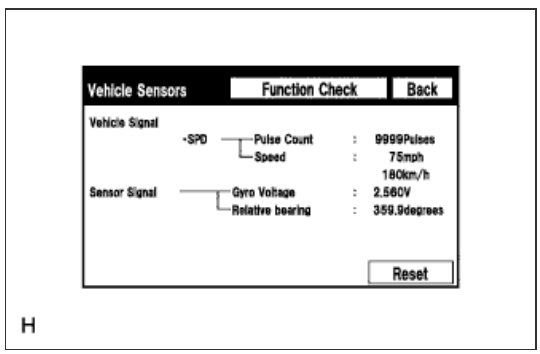



f. Vehicle Sensors

i. Check all the signals and sensors when vehicle signal information is displayed.

**HINT:**

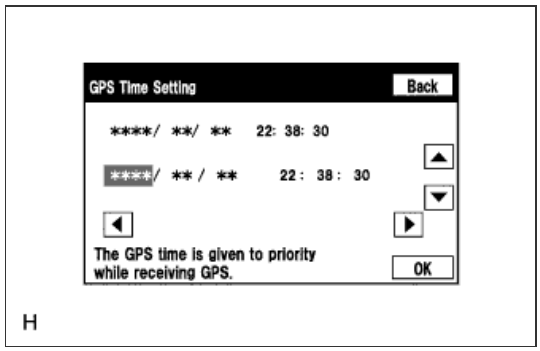
- **This screen is updated once per second when input signals to the vehicle are changed.**
- **This screen displays vehicle signals input to the display and navigation module display (built-in navigation ECU).**
- **For details of this function, refer to Diagnosis Display Detailed Description in System Description (Click here).**




g. Select "GPS Time Setting" from the "GPS & Vehicle Sensors" screen (w/ G-BOOK system).

h. GPS Time Setting (w/ G-BOOK system)

i. When the GPS signals cannot be received, the time in the device can be adjusted.




**HINT:**

- **The G-BOOK system cannot be used in areas where GPS signals cannot be received. As a result, when using the G-BOOK system in areas such as indoors, set the GPS time from the GPS time setting screen.**
- **Time setting is possible only when GPS signals are not received. When the navigation system is receiving GPS signals, priority is given to displaying the time and date received via GPS.**
- **For details of this function, refer to Diagnosis Display Detailed Description in System Description (Click here).**

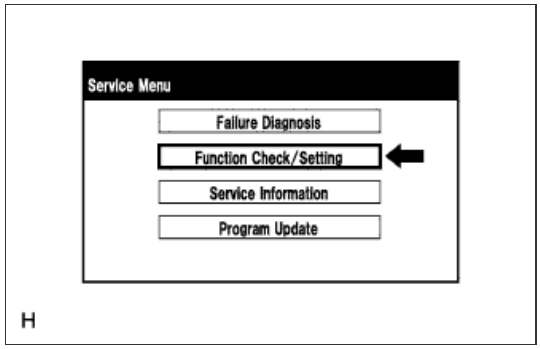
## CHECK VEHICLE SIGNAL

**HINT:**

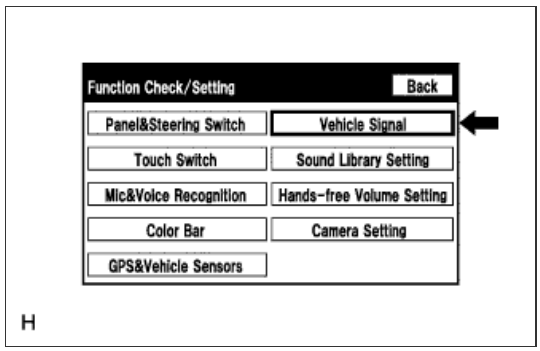
- **Vehicle signals received by the display and navigation module display are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "Vehicle Signal" from the "Function Check/Setting" screen.




d. Vehicle Signal Check Mode

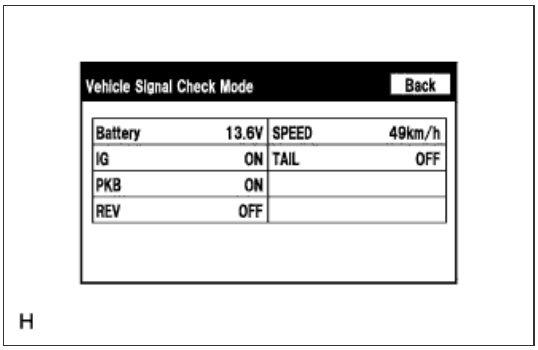
i. When the "Vehicle Signal Check Mode" screen is displayed, check all the vehicle signal conditions.

**HINT:**

- **Only conditions having inputs are displayed.**
- **This screen displays vehicle signals input to the display and navigation module display (built-in**

navigation ECU).

- For details of this function, refer to Diagnosis Display Detailed Description in System Description (Click here).



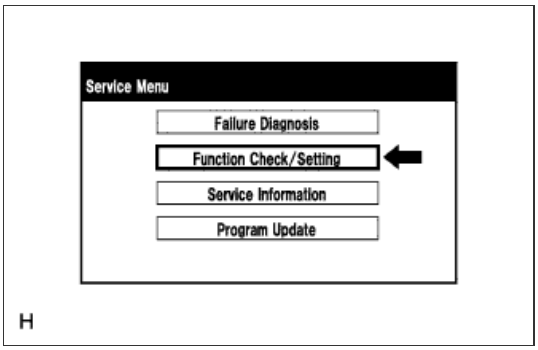

## CHECK SOUND LIBRARY SETTING (w/ SOUND LIBRARY)

**HINT:**

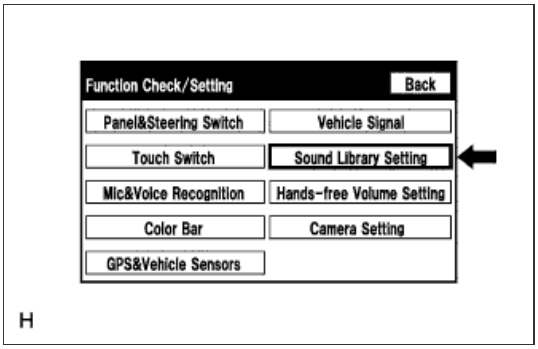
- It is possible to turn the sound library function on and off and check the operation of the sound library function.
- Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.



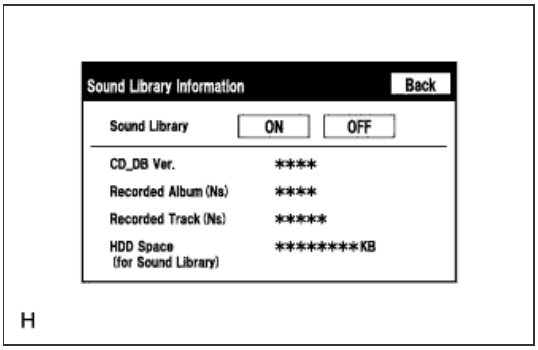

c. Select "Sound Library Setting" from the "Function Check/Setting" screen.




d. Sound Library Information

**HINT:**

Refer to the audio and visual system (w/ navigation system) for further information (Click here).




## CHECK HANDS-FREE VOLUME SETTING

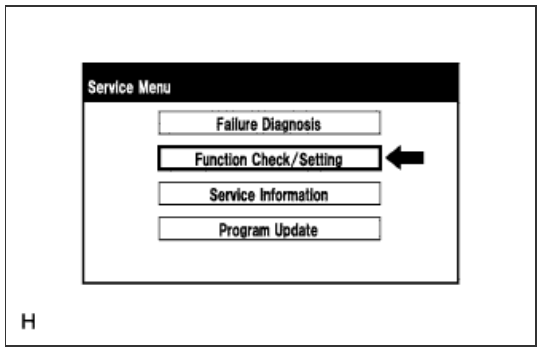
**HINT:**

- The hands-free volume of a "Bluetooth" compatible phone can be adjusted using the following procedure.
- Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed

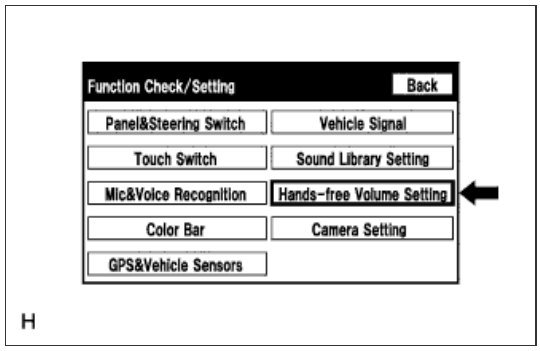
**areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.

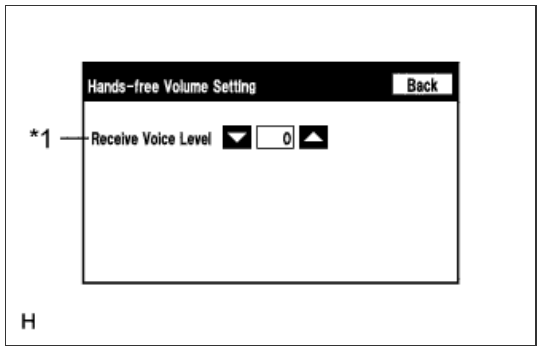



c. Select "Hands-free Volume Setting" from the "Function Check/Setting" screen.




d. Hands-free Volume Setting

i. Check the hands-free volume level.




**Screen Description**

| Display | Content |
|---|---|
| *1: Receive voice level adjustment | Setting possible for the voice level received from "Bluetooth" compatible phones. |

**NOTICE:**

Sound quality may deteriorate when the receive voice level is changed more than necessary. For this reason, check that the receive voice quality is still acceptable after changing this setting.

## CHECK CAMERA SETTING (w/ Parking Assist Monitor System)

a. Refer to the parking assist monitor system for further information ( Click here).

## CHECK CAMERA SETTING (w/ Side Monitor System)

a. Refer to the side monitor system for further information ( Click here).

**CHECK CAMERA SETTING (w/ Wide View Front Monitor System)**

a. Refer to the wide view front monitor system for further information ( Click here).

**for Preparation** Click here

**HINT:**

- **Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**
- **Inspect the fuses and relays related to this system before inspecting the suspected areas below.**

### Display Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Black screen (No image appears on navigation/audio screen.) | Proceed to "Black Screen" | Click here |
| | Hard Disk Drive | Click here |
| | Proceed to "Navigation ECU Power Source Circuit" | Click here |
| | Display and navigation module display | Click here |
| Illumination for panel switch does not come on with tail switch on. | Proceed to "Illumination for Panel Switch does not Come on with Tail Switch ON" | Click here |
| | Proceed to "Illumination Circuit" | Click here |
| | Display and navigation module display | Click here |
| Display does not dim (does not change to night screen) with tail switch on. | Proceed to "Display does not Dim when Light Control Switch is Turned ON" | Click here |
| | Display and navigation module display | Click here |
| Panel switches do not function. | Proceed to "Panel Switches do not Function" | Click here |
| | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Display and navigation module display | Click here |
| Touch panel switch does not function. | Proceed to "Touch Panel Switch does not Function" | Click here |
| | Display and navigation module display | Click here |
| Screen is distorted. | Proceed to "Navigation ECU Power Source Circuit" | Click here |
| | Display and navigation module display | Click here |
| Screen flicker or color distortion | Proceed to "Screen Flicker or Color Distortion" | Click here |
| | Display and navigation module display | Click here |
| DVD image cannot be displayed on multi-display. (Parking brake is on.) | Proceed to "DVD Image Signal Circuit between Radio Receiver and Navigation ECU" | Click here |
| | Proceed to "Parking Brake Switch Circuit" | Click here |
| | Radio receiver assembly | Click here |
| | Display and navigation module display | Click here |
| Navigation function switches can be operated while vehicle is running. | Display and navigation module display | Click here |

### Navigation Function

| | | See |
|---|---|---|

| Symptom | Suspected Area | page |
|---|---|---|
| Vehicle position mark deviates. | Proceed to "Vehicle Position Mark Deviates Greatly" | Click here |
| | Navigation antenna assembly | Click here |
| | Display and navigation module display | Click here |
| Cursor or map rotates when vehicle is stopped. | Proceed to "Cursor or Map Rotates when Vehicle Stopped" | Click here |
| | Display and navigation module display | Click here |
| Vehicle position mark is not updated. | Proceed to "Vehicle Position Mark is not Updated" | Click here |
| | Display and navigation module display | Click here |
| GPS mark is not displayed. | Proceed to "GPS Mark is not Displayed" | Click here |
| | Navigation antenna assembly | Click here |
| | Display and navigation module display | Click here |
| Voice guidance does not function. | Proceed to "Voice Guidance does not Function" | Click here |
| | Proceed to "Speaker Circuit" | Click here |
| | Display and navigation module display | Click here |
| | Radio receiver assembly | Click here |
| | Stereo component amplifier assembly | Click here |
| Map display is incomplete. | Hard disk drive | Click here |
| | Display and navigation module display | Click here |
| Route cannot be calculated. | Proceed to "Route cannot be Calculated" | Click here |
| | Display and navigation module display | Click here |
| Navigation ECU cannot record memory point registration or each item setting. | Hard disk drive | Click here |
| | Display and navigation module display | Click here |
| A message indicating to wait for a while because of low temperature is displayed. | Start engine and increase cabin temperature (near navigation ECU) | - |
| | Proceed to Operation Check "Check Hard Disk Drive" | Click here |
| | Display and navigation module display | Click here |
| A message is displayed because map data cannot be read, and current position screen is not displayed. | If message appears only when driving on rough roads, check if message disappears when vehicle is stopped. | - |
| | Hard disk drive | Click here |
| | Display and navigation module display | Click here |
| Map screen turns white or blue. (GPS receiving status is displayed normally, and switches and own vehicle position mark are also displayed normally.) | Change map scale to smallest (a scale that shows a large area) | - |
| | Hard disk drive | Click here |
| | Display and navigation module display | Click here |
| Voice menu screen is not displayed. | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Display and navigation module display | Click here |

| | | |
|---|---|---|
| Voice recognition is difficult. | Proceed to "Voice Recognition Difficulty" | Click here |
| | Proceed to "Microphone Circuit between Microphone and Navigation ECU" | Click here |
| | Display and navigation module display | Click here |
| Voice is not recognized. | Proceed to "Voice is not Recognized" | Click here |
| | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Proceed to "Microphone Circuit between Microphone and Navigation ECU" | Click here |
| | Display and navigation module display | Click here |
| Reverse signal does not change in vehicle signal check mode. | Proceed to "Reverse Signal Circuit" | Click here |
| | Display and navigation module display | Click here |
| "MIC" is not displayed on system check mode screen. | Proceed to "Microphone Circuit between Microphone and Navigation ECU" | Click here |
| | Display and navigation module display | Click here |
| "AUX" is not displayed on system check mode screen. | Proceed to "Sound Signal Circuit between Radio Receiver and Stereo Jack Adapter" | Click here |
| | Radio receiver assembly | Click here |
| | Display and navigation module display | Click here |

### Steering Pad Switch Function

| Symptom | Suspected Area | See page |
|---|---|---|
| System cannot be operated by steering pad switch. | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Display and navigation module display | Click here |
| Illumination for steering pad switch does not come on with tail switch on. | Proceed to "Illumination Circuit" | Click here |
| | Display and navigation module display | Click here |

### "Bluetooth" Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Cellular phone registration failure, phone directory transfer failure | Proceed to "Cellular Phone Registration Failure, Phone Directory Transfer Failure" | Click here |
| Cellular phone cannot send/receive. | Proceed to "Cellular Phone cannot Send/Receive" | Click here |
| | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Radio receiver assembly | Click here |
| | Display and navigation module display | Click here |
| Cellular phone cannot call in a certain place. | Proceed to "Cannot Call in a Certain Place" | Click here |
| Other caller's voice cannot be heard, is too quiet, or distorted. | Proceed to "The Other Caller's Voice cannot be Heard, is too Quiet, or Distorted" | Click here |
| | Radio receiver assembly | Click here |
| | Display and navigation module display | Click here |
| | Stereo component amplifier assembly | Click here |
| Other caller cannot hear your voice, or your voice is too quiet or distorted. | Proceed to "The Other Caller cannot Hear Your Voice, or Your Voice is too Quiet or Distorted" | Click here |
| | Proceed to "Microphone Circuit between Microphone and Navigation ECU" | Click here |
| | Radio receiver assembly | Click |

| | | |
|---|---|---|
| | | here |
| | Display and navigation module display | Click here |

**for Preparation** Click here

**HINT:**

- **Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**
- **Inspect the fuses and relays related to this system before inspecting the suspected areas below.**

### Display Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Black screen (No image appears on navigation/audio screen.) | Proceed to "Black Screen" | Click here |
| | Hard Disk Drive | Click here |
| | Proceed to "Navigation ECU Power Source Circuit" | Click here |
| | Display and navigation module display | Click here |
| Illumination for panel switch does not come on with tail switch on. | Proceed to "Illumination for Panel Switch does not Come on with Tail Switch ON" | Click here |
| | Proceed to "Illumination Circuit" | Click here |
| | Display and navigation module display | Click here |
| Display does not dim (does not change to night screen) with tail switch on. | Proceed to "Display does not Dim when Light Control Switch is Turned ON" | Click here |
| | Display and navigation module display | Click here |
| Panel switches do not function. | Proceed to "Panel Switches do not Function" | Click here |
| | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Display and navigation module display | Click here |
| Touch panel switch does not function. | Proceed to "Touch Panel Switch does not Function" | Click here |
| | Display and navigation module display | Click here |
| Screen is distorted. | Proceed to "Navigation ECU Power Source Circuit" | Click here |
| | Display and navigation module display | Click here |
| Screen flicker or color distortion | Proceed to "Screen Flicker or Color Distortion" | Click here |
| | Display and navigation module display | Click here |
| DVD image cannot be displayed on multi-display. (Parking brake is on.) | Proceed to "DVD Image Signal Circuit between Radio Receiver and Navigation ECU" | Click here |
| | Proceed to "Parking Brake Switch Circuit" | Click here |
| | Radio receiver assembly | Click here |
| | Display and navigation module display | Click here |
| Navigation function switches can be operated while vehicle is running. | Display and navigation module display | Click here |

### Navigation Function

| | | See |
|---|---|---|

| Symptom | Suspected Area | page |
|---|---|---|
| Vehicle position mark deviates. | Proceed to "Vehicle Position Mark Deviates Greatly" | Click here |
| | Navigation antenna assembly | Click here |
| | Display and navigation module display | Click here |
| Cursor or map rotates when vehicle is stopped. | Proceed to "Cursor or Map Rotates when Vehicle Stopped" | Click here |
| | Display and navigation module display | Click here |
| Vehicle position mark is not updated. | Proceed to "Vehicle Position Mark is not Updated" | Click here |
| | Display and navigation module display | Click here |
| GPS mark is not displayed. | Proceed to "GPS Mark is not Displayed" | Click here |
| | Navigation antenna assembly | Click here |
| | Display and navigation module display | Click here |
| Voice guidance does not function. | Proceed to "Voice Guidance does not Function" | Click here |
| | Proceed to "Speaker Circuit" | Click here |
| | Display and navigation module display | Click here |
| | Radio receiver assembly | Click here |
| | Stereo component amplifier assembly | Click here |
| Map display is incomplete. | Hard disk drive | Click here |
| | Display and navigation module display | Click here |
| Route cannot be calculated. | Proceed to "Route cannot be Calculated" | Click here |
| | Display and navigation module display | Click here |
| Navigation ECU cannot record memory point registration or each item setting. | Hard disk drive | Click here |
| | Display and navigation module display | Click here |
| A message indicating to wait for a while because of low temperature is displayed. | Start engine and increase cabin temperature (near navigation ECU) | - |
| | Proceed to Operation Check "Check Hard Disk Drive" | Click here |
| | Display and navigation module display | Click here |
| A message is displayed because map data cannot be read, and current position screen is not displayed. | If message appears only when driving on rough roads, check if message disappears when vehicle is stopped. | - |
| | Hard disk drive | Click here |
| | Display and navigation module display | Click here |
| Map screen turns white or blue. (GPS receiving status is displayed normally, and switches and own vehicle position mark are also displayed normally.) | Change map scale to smallest (a scale that shows a large area) | - |
| | Hard disk drive | Click here |
| | Display and navigation module display | Click here |
| Voice menu screen is not displayed. | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Display and navigation module display | Click here |

| | | |
|---|---|---|
| Voice recognition is difficult. | Proceed to "Voice Recognition Difficulty" | Click here |
| | Proceed to "Microphone Circuit between Microphone and Navigation ECU" | Click here |
| | Display and navigation module display | Click here |
| Voice is not recognized. | Proceed to "Voice is not Recognized" | Click here |
| | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Proceed to "Microphone Circuit between Microphone and Navigation ECU" | Click here |
| | Display and navigation module display | Click here |
| Reverse signal does not change in vehicle signal check mode. | Proceed to "Reverse Signal Circuit" | Click here |
| | Display and navigation module display | Click here |
| "MIC" is not displayed on system check mode screen. | Proceed to "Microphone Circuit between Microphone and Navigation ECU" | Click here |
| | Display and navigation module display | Click here |
| "AUX" is not displayed on system check mode screen. | Proceed to "Sound Signal Circuit between Radio Receiver and Stereo Jack Adapter" | Click here |
| | Radio receiver assembly | Click here |
| | Display and navigation module display | Click here |

### Steering Pad Switch Function

| Symptom | Suspected Area | See page |
|---|---|---|
| System cannot be operated by steering pad switch. | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Display and navigation module display | Click here |
| Illumination for steering pad switch does not come on with tail switch on. | Proceed to "Illumination Circuit" | Click here |
| | Display and navigation module display | Click here |

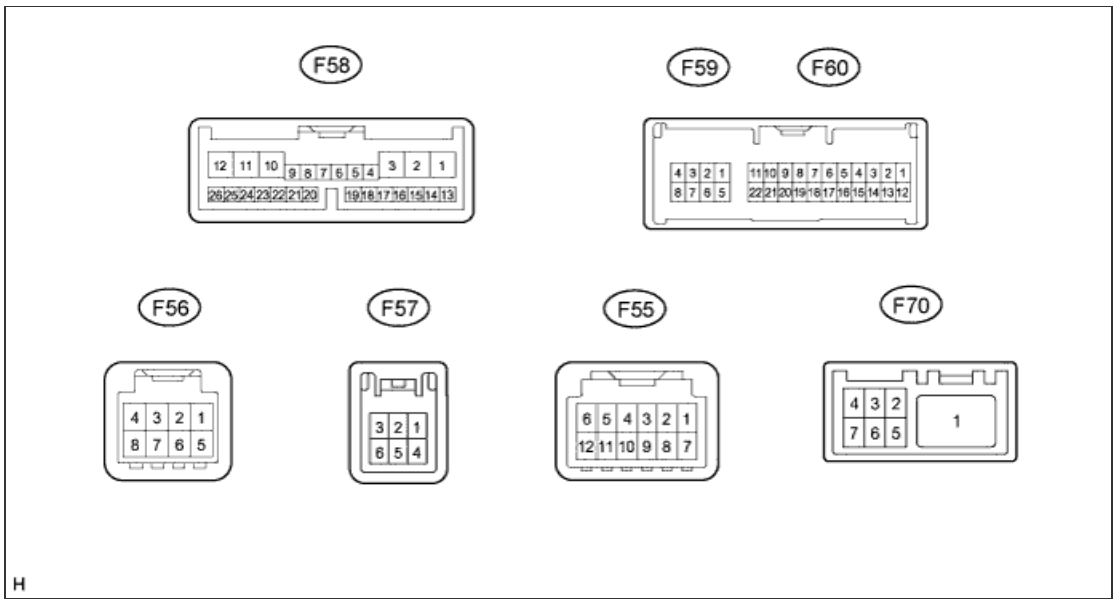
### "Bluetooth" Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Cellular phone registration failure, phone directory transfer failure | Proceed to "Cellular Phone Registration Failure, Phone Directory Transfer Failure" | Click here |
| Cellular phone cannot send/receive. | Proceed to "Cellular Phone cannot Send/Receive" | Click here |
| | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Radio receiver assembly | Click here |
| | Display and navigation module display | Click here |
| Cellular phone cannot call in a certain place. | Proceed to "Cannot Call in a Certain Place" | Click here |
| Other caller's voice cannot be heard, is too quiet, or distorted. | Proceed to "The Other Caller's Voice cannot be Heard, is too Quiet, or Distorted" | Click here |
| | Radio receiver assembly | Click here |
| | Display and navigation module display | Click here |
| | Stereo component amplifier assembly | Click here |
| Other caller cannot hear your voice, or your voice is too quiet or distorted. | Proceed to "The Other Caller cannot Hear Your Voice, or Your Voice is too Quiet or Distorted" | Click here |
| | Proceed to "Microphone Circuit between Microphone and Navigation ECU" | Click here |
| | Radio receiver assembly | Click |

| | | |
|---|---|---|
| | | here |
| | Display and navigation module display | Click here |

**for Preparation** Click here

## DISPLAY AND NAVIGATION MODULE DISPLAY




| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F58-1 (+B1) - F58-10 (GND1) | R - W-B | Battery | Engine switch off | 11 to 14 V |
| F58-2 (ACC) - F58-10 (GND1) | GR - W-B | Accessory (ON) | Engine switch on (ACC) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F58-3 (IG) - F58-10 (GND1) | G - W-B | Power source (IG) | Engine switch on (IG) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F58-4 (MACC) - F58-10 (GND1) | W - W-B*2 | Telephone microphone assembly power supply | Engine switch off → on (IG) | Below 1 V → 5 V |
| F58-5 (MIN+) - F58-10 (GND1) | B - W-B | Microphone voice signal | See "Microphone & Voice Recognition Check" in Operation Check (Click here) | - |
| F58-6 (MIN-) - Body ground | R - Body ground | Microphone voice signal | See "Microphone & Voice Recognition Check" in Operation Check (Click here) | - |
| F58-7 (SGND) - F58-10 (GND1) | Shield - W-B | Shield ground | Always | Below 1 V |
| F58-9 (TC) - F58-10 (GND1) | V - W-B | Diagnosis ON signal | Engine switch on (IG) | 9 to 14 V |
| F58-10 (GND1) - Body ground | W-B - Body ground | Ground | Always | Below 1 V |
| F58-12 (ILL+) - F58-10 (GND1) | G - W-B | Illumination signal | Engine switch on (IG)<br>Light control switch off → tail or on | Below 1 V → 11 to 14 V |
| F58-16 (REV) - F58-10 (GND1) | L - W-B | Reverse signal | See "Vehicle Signal Check Mode" in Operation Check (Click here) | - |
| F58-17 (PKB) - F58-10 (GND1) | Y - W-B | Parking brake signal | See "Vehicle Signal Check Mode" in Operation Check (Click here) | - |
| F58-18 (SPD) - F58-10 (GND1) | V - W-B | Speed signal from combination meter assembly | See "Vehicle Signal Check Mode" in Operation Check (Click here) | - |
| F58-20 (SNS2) - F58-10 (GND1) | GR - W-B | Microphone connection detection signal | Always | Below 0.1 V |
| F58-21 (CANH) | P | CAN communication signal | - | - |
| F58-22 (CANL) | B | CAN communication signal | - | - |
| F58-23 (SWG) - Body ground | W - Body ground | Steering pad switch signal | Always | Below 1 V |

| | | | | |
|---|---|---|---|---|
| F58-24 (SW2) - F58-23 (SWG) | P - W | Steering pad switch signal | No switch pushed → MODE switch pushed → ON HOOK switch pushed → OFF HOOK switch pushed → VOICE switch pushed | 4.44 to 5.43 V → 0.45 to 0.65 V → 1.19 to 1.49 V → 2.09 to 2.54 V → 3.2 to 3.88 V |
| F58-25 (SW1) - F58-23 (SWG) | L - W | Steering pad switch signal | No switch is pushed → SEEK+ switch pushed → SEEK- switch pushed → VOL+ switch pushed → VOL- switch pushed | 4.44 to 5.43 V → 0.45 to 0.65 V → 1.19 to 1.49 V → 2.09 to 2.54 V → 3.2 to 3.88 V |
| F55-7 (GND) - F58-10 (GND1) | B - W-B | Ground | Always | Below 1 V |
| F55-9 (TX2+) | W | AVC-LAN communication signal | - | - |
| F55-10 (TX2-) | L | AVC-LAN communication signal | - | - |
| F55-11 (ACC) - F58-10 (GND1) | GR - W-B | Accessory (ON) | Engine switch on (ACC) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F55-12 (+B) - F58-10 (GND1) | R - W-B | Battery | Engine switch off | 11 to 14 V |
| F56-1 (AGND) - Body ground | Shield - Body ground | Shield ground | Always | Below 1 V |
| F56-3 (VAR+) - F56-7 (VA-) | W - R | Sound signal (Right) | USB audio device playing (When stereo jack adapter used) | A waveform synchronized with sounds is output. |
| F56-4 (VAL+) - F56-7 (VA-) | B - R | Sound signal (Left) | USB audio device playing (When stereo jack adapter used) | A waveform synchronized with sounds is output. |
| F56-7 (VA-) - F58-10 (GND1) | R - W-B | Sound signal ground | Always | Below 1 V |
| F57-1 (HILL) - F58-10 (GND1) | W - W-B | Illumination signal | Engine switch on (IG) Light control switch off → tail or on (Light intensity is not max. or min.) | Below 1 V → Pulse generation |
| F59-1 (MI+) | W | MOST communication signal | - | - |
| F59-2 (SLDI) - F58-10 (GND1) | BR - W-B | MOST communication signal | Always | Below 1 V |
| F59-3 (MO+) | B | MOST communication signal | - | - |
| F59-5 (MI-) | B | MOST communication signal | - | - |
| F59-6 (SLDO) - Body ground | BR - Body ground | Shield ground | Always | Below 1 V |
| F59-7 (MO-) | W | MOST communication signal | - | - |
| F59-8 (WUO) - F58-10 (GND1) | R - W-B | MOST communication signal | Engine switch on (ACC) | 4.5 V or higher |
| | | | Engine switch off | Below 1 V |
| F60-1 (TX1+) - Body ground*5 | W | AVC-LAN communication signal | - | - |
| F60-2 (TX1-) - Body ground*5 | L | AVC-LAN communication signal | - | - |
| F60-4 (NTSO) - F58-10 (GND1)*4 | B - W-B | Display signal | DVD is played on the display and navigation module display | A waveform synchronized with display signals is output. 1) (Refer to waveform |
| F60-5 (V+) - F58-10 (GND1)*3 | R - W-B | Television camera image signal | Engine switch on (IG) Shift lever in R Under normal conditions | Pulse generation (Refer to waveform 2) |
| | | | Engine switch on (IG) Shift lever in R Camera lens covered, blacking out screen | Pulse generation (Refer to waveform 3) |
| F60-6 (CA+) - F58-10 (GND1)*3 | B - W-B | Television camera power supply | Engine switch on (IG) Shift lever in R | 5.5 to 7 V |
| F60-9 (VV+) - F58-10 (GND1) | W - W-B | Display signal | DVD is played on the display and navigation module display | A waveform synchronized with display signals is output.4) (Refer to waveform |
| F60-14 (SGND) - F58-10 (GND1)*4 | W - W-B | Ground | Always | Below 1 V |
| F60-15 (SLD2) - F58-10 (GND1)*4 | Shield - Body ground | Shield ground | Always | Below 1 V |

| | | | | |
|---|---|---|---|---|
| F60-16 (V-) - F58-10 (GND1)*3 | W - W-B | Ground | Always | Below 1 V |
| F60-17 (CGND) - Body ground*3 | Shield - Body ground | Shield ground | Always | Below 1 V |
| F60-20 (VV-) - Body ground | B - Body ground | Ground | Always | Below 1 V |
| F70-1 (USB)*1 | B | USB communication line | - | - |
| F70-2 (USBG) - F58-10 (GND1)*1 | W - Body ground | Shield ground | Always | Below 1 V |
| F70-3 (VOT+) - F58-10 (GND1)*1 | B - W-B | Sent voice signal | Calling while using the operator service | A waveform synchronized with the sent voice is output. |
| F70-4 (USBV) - F58-10 (GND1)*1 | W - W-B | Telematics transceiver power supply | Engine switch off → on (ACC) | Below 1 V → 5 V |
| F70-5 (VOT-) - F58-10 (GND1)*1 | B - W-B | Sent voice signal | Calling while using the operator service | A waveform synchronized with the sent voice is output. |
| F70-6 (VOR-) - F58-10 (GND1)*1 | B - W-B | Receive voice signal | Receiving a call while using the operator service | A waveform synchronized with the received voice is output. |
| F70-7 (VOR+) - F58-10 (GND1)*1 | B - W-B | Receive voice signal | Receiving a call while using the operator service | A waveform synchronized with the received voice is output. |

*1: w/ G-BOOK System
*2: w/o G-BOOK System
*3: w/ Rear View Monitor System
*4: w/ Rear Seat Entertainment System
*5: w/ Parking Assist Monitor System

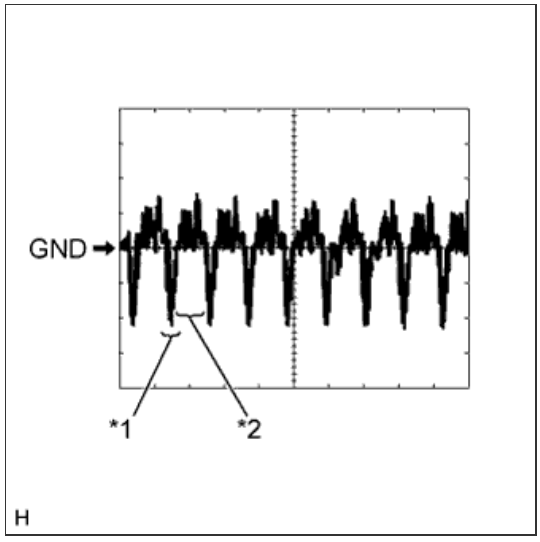
a. Reference (Oscilloscope waveform):

i. Waveform 1

| Item | Content |
|---|---|
| Measurement terminal | F60-4 (NTSO) - F58-10 (GND1) |
| Measurement setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | DVD is played on the display and navigation module display |

**Text in Illustration**

| | |
|---|---|
| *1 | Synchronization Signal |
| *2 | Video Waveform |




**HINT:**

The video waveform changes according to the image output from the display and navigation module display to the television display assembly, but the synchronization signal does not change.

b. Reference (Oscilloscope waveform):

i. Waveform 2 (under normal conditions)

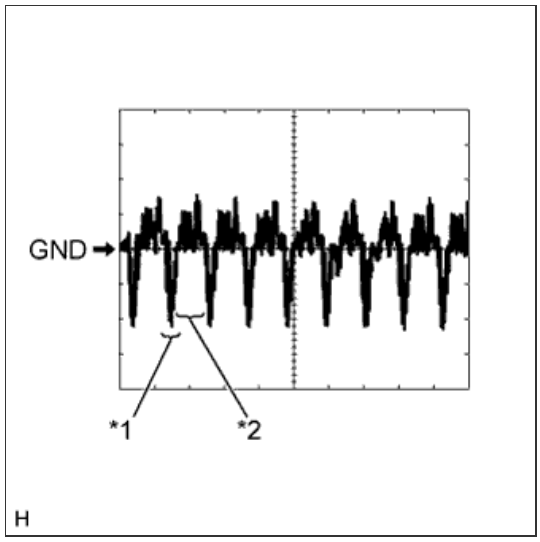
| Item | Content |
|---|---|
| Measurement terminal | F60-5 (V+) - F58-10 (GND1) |
| Measurement setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), shift lever in R |

**Text in Illustration**

| | |
|---|---|
| *1 | Synchronization Signal |
| *2 | Video Waveform |

**HINT:**

The video waveform changes according to the image from the television camera assembly.




c. Reference (Oscilloscope waveform):

i. Waveform 3 (camera lens is covered, blacking out the screen)

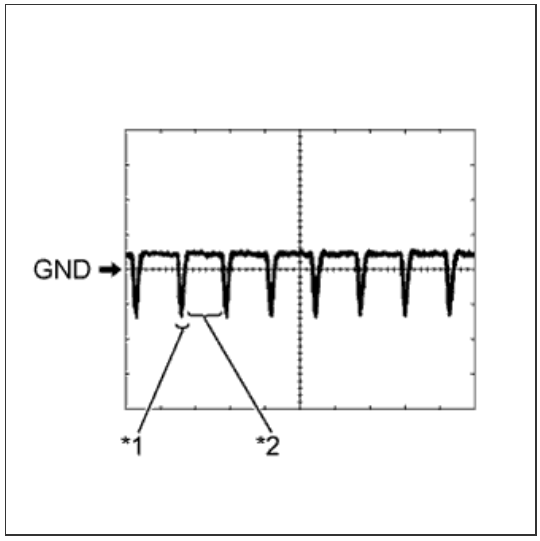
| Item | Content |
|---|---|
| Measurement terminal | F60-5 (V+) - F58-10 (GND1) |
| Measurement setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), shift lever in R |

**Text in Illustration**

| | |
|---|---|
| *1 | Synchronization Signal |
| *2 | Video Waveform |

**HINT:**

The video waveform changes according to the image that the television camera assembly projects.




d. Reference (Oscilloscope waveform):

i. Waveform 4

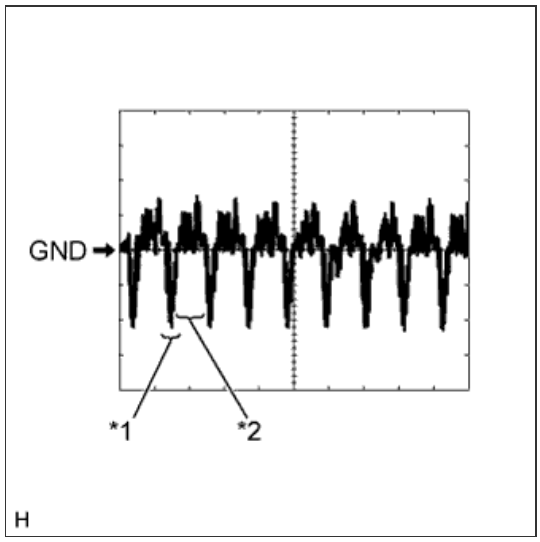
| Item | Content |
|---|---|
| Measurement terminal | F60-9 (VV+) - F58-10 (GND1) |
| Measurement setting | 200 mV/DIV., 10 µs/DIV. |
| Condition | DVD is playing |

**Text in Illustration**

| | |
|---|---|
| *1 | Synchronization Signal |
| *2 | Video Waveform |

**HINT:**

The video waveform changes according to the image input from the radio receiver assembly to the display and navigation module display, but the synchronization signal does not change.




RADIO RECEIVER ASSEMBLY (Click here).

STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here).

TELEVISION DISPLAY ASSEMBLY (w/ Rear Seat Entertainment System) ( Click here).

MULTI-MEDIA INTERFACE ECU (Click here).

TELEMATICS TRANSCEIVER (Click here).

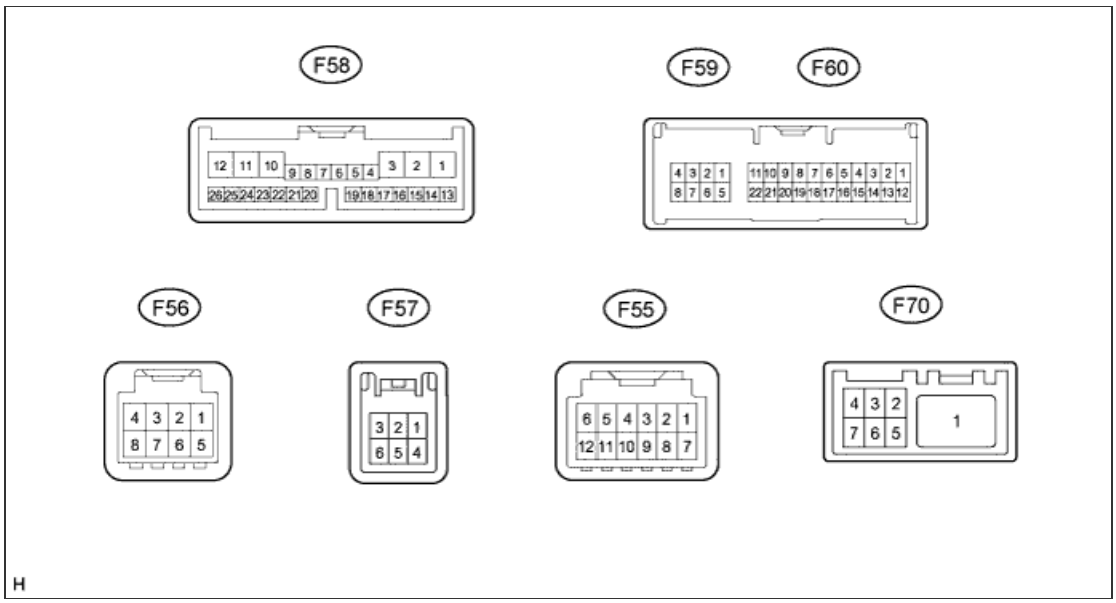
PARKING ASSIST ECU (w/ Parking Assist Monitor System) ( Click here).

PARKING ASSIST ECU (w/ Wide View Front Monitor System) ( Click here).

PARKING ASSIST ECU (w/ Side Monitor System) ( Click here).

**for Preparation** Click here

## DISPLAY AND NAVIGATION MODULE DISPLAY




| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F58-1 (+B1) - F58-10 (GND1) | R - W-B | Battery | Engine switch off | 11 to 14 V |
| F58-2 (ACC) - F58-10 (GND1) | GR - W-B | Accessory (ON) | Engine switch on (ACC) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F58-3 (IG) - F58-10 (GND1) | G - W-B | Power source (IG) | Engine switch on (IG) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F58-4 (MACC) - F58-10 (GND1) | W - W-B*2 | Telephone microphone assembly power supply | Engine switch off → on (IG) | Below 1 V → 5 V |
| F58-5 (MIN+) - F58-10 (GND1) | B - W-B | Microphone voice signal | See "Microphone & Voice Recognition Check" in Operation Check (Click here) | - |
| F58-6 (MIN-) - Body ground | R - Body ground | Microphone voice signal | See "Microphone & Voice Recognition Check" in Operation Check (Click here) | - |
| F58-7 (SGND) - F58-10 (GND1) | Shield - W-B | Shield ground | Always | Below 1 V |
| F58-9 (TC) - F58-10 (GND1) | V - W-B | Diagnosis ON signal | Engine switch on (IG) | 9 to 14 V |
| F58-10 (GND1) - Body ground | W-B - Body ground | Ground | Always | Below 1 V |
| F58-12 (ILL+) - F58-10 (GND1) | G - W-B | Illumination signal | Engine switch on (IG)<br>Light control switch off → tail or on | Below 1 V → 11 to 14 V |
| F58-16 (REV) - F58-10 (GND1) | L - W-B | Reverse signal | See "Vehicle Signal Check Mode" in Operation Check (Click here) | - |
| F58-17 (PKB) - F58-10 (GND1) | Y - W-B | Parking brake signal | See "Vehicle Signal Check Mode" in Operation Check (Click here) | - |
| F58-18 (SPD) - F58-10 (GND1) | V - W-B | Speed signal from combination meter assembly | See "Vehicle Signal Check Mode" in Operation Check (Click here) | - |
| F58-20 (SNS2) - F58-10 (GND1) | GR - W-B | Microphone connection detection signal | Always | Below 0.1 V |
| F58-21 (CANH) | P | CAN communication signal | - | - |
| F58-22 (CANL) | B | CAN communication signal | - | - |
| F58-23 (SWG) - Body ground | W - Body ground | Steering pad switch signal | Always | Below 1 V |

| | | | | |
|---|---|---|---|---|
| F58-24 (SW2) - F58-23 (SWG) | P - W | Steering pad switch signal | No switch pushed → MODE switch pushed → ON HOOK switch pushed → OFF HOOK switch pushed → VOICE switch pushed | 4.44 to 5.43 V → 0.45 to 0.65 V → 1.19 to 1.49 V → 2.09 to 2.54 V → 3.2 to 3.88 V |
| F58-25 (SW1) - F58-23 (SWG) | L - W | Steering pad switch signal | No switch is pushed → SEEK+ switch pushed → SEEK- switch pushed → VOL+ switch pushed → VOL- switch pushed | 4.44 to 5.43 V → 0.45 to 0.65 V → 1.19 to 1.49 V → 2.09 to 2.54 V → 3.2 to 3.88 V |
| F55-7 (GND) - F58-10 (GND1) | B - W-B | Ground | Always | Below 1 V |
| F55-9 (TX2+) | W | AVC-LAN communication signal | - | - |
| F55-10 (TX2-) | L | AVC-LAN communication signal | - | - |
| F55-11 (ACC) - F58-10 (GND1) | GR - W-B | Accessory (ON) | Engine switch on (ACC) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F55-12 (+B) - F58-10 (GND1) | R - W-B | Battery | Engine switch off | 11 to 14 V |
| F56-1 (AGND) - Body ground | Shield - Body ground | Shield ground | Always | Below 1 V |
| F56-3 (VAR+) - F56-7 (VA-) | W - R | Sound signal (Right) | USB audio device playing (When stereo jack adapter used) | A waveform synchronized with sounds is output. |
| F56-4 (VAL+) - F56-7 (VA-) | B - R | Sound signal (Left) | USB audio device playing (When stereo jack adapter used) | A waveform synchronized with sounds is output. |
| F56-7 (VA-) - F58-10 (GND1) | R - W-B | Sound signal ground | Always | Below 1 V |
| F57-1 (HILL) - F58-10 (GND1) | W - W-B | Illumination signal | Engine switch on (IG) Light control switch off → tail or on (Light intensity is not max. or min.) | Below 1 V → Pulse generation |
| F59-1 (MI+) | W | MOST communication signal | - | - |
| F59-2 (SLDI) - F58-10 (GND1) | BR - W-B | MOST communication signal | Always | Below 1 V |
| F59-3 (MO+) | B | MOST communication signal | - | - |
| F59-5 (MI-) | B | MOST communication signal | - | - |
| F59-6 (SLDO) - Body ground | BR - Body ground | Shield ground | Always | Below 1 V |
| F59-7 (MO-) | W | MOST communication signal | - | - |
| F59-8 (WUO) - F58-10 (GND1) | R - W-B | MOST communication signal | Engine switch on (ACC) | 4.5 V or higher |
| | | | Engine switch off | Below 1 V |
| F60-1 (TX1+) - Body ground*5 | W | AVC-LAN communication signal | - | - |
| F60-2 (TX1-) - Body ground*5 | L | AVC-LAN communication signal | - | - |
| F60-4 (NTSO) - F58-10 (GND1)*4 | B - W-B | Display signal | DVD is played on the display and navigation module display | A waveform synchronized with display signals is output. 1) (Refer to waveform |
| F60-5 (V+) - F58-10 (GND1)*3 | R - W-B | Television camera image signal | Engine switch on (IG) Shift lever in R Under normal conditions | Pulse generation (Refer to waveform 2) |
| | | | Engine switch on (IG) Shift lever in R Camera lens covered, blacking out screen | Pulse generation (Refer to waveform 3) |
| F60-6 (CA+) - F58-10 (GND1)*3 | B - W-B | Television camera power supply | Engine switch on (IG) Shift lever in R | 5.5 to 7 V |
| F60-9 (VV+) - F58-10 (GND1) | W - W-B | Display signal | DVD is played on the display and navigation module display | A waveform synchronized with display signals is output.4) (Refer to waveform |
| F60-14 (SGND) - F58-10 (GND1)*4 | W - W-B | Ground | Always | Below 1 V |
| F60-15 (SLD2) - F58-10 (GND1)*4 | Shield - Body ground | Shield ground | Always | Below 1 V |

| | | | | |
|---|---|---|---|---|
| F60-16 (V-) - F58-10 (GND1)*3 | W - W-B | Ground | Always | Below 1 V |
| F60-17 (CGND) - Body ground*3 | Shield - Body ground | Shield ground | Always | Below 1 V |
| F60-20 (VV-) - Body ground | B - Body ground | Ground | Always | Below 1 V |
| F70-1 (USB)*1 | B | USB communication line | - | - |
| F70-2 (USBG) - F58-10 (GND1)*1 | W - Body ground | Shield ground | Always | Below 1 V |
| F70-3 (VOT+) - F58-10 (GND1)*1 | B - W-B | Sent voice signal | Calling while using the operator service | A waveform synchronized with the sent voice is output. |
| F70-4 (USBV) - F58-10 (GND1)*1 | W - W-B | Telematics transceiver power supply | Engine switch off → on (ACC) | Below 1 V → 5 V |
| F70-5 (VOT-) - F58-10 (GND1)*1 | B - W-B | Sent voice signal | Calling while using the operator service | A waveform synchronized with the sent voice is output. |
| F70-6 (VOR-) - F58-10 (GND1)*1 | B - W-B | Receive voice signal | Receiving a call while using the operator service | A waveform synchronized with the received voice is output. |
| F70-7 (VOR+) - F58-10 (GND1)*1 | B - W-B | Receive voice signal | Receiving a call while using the operator service | A waveform synchronized with the received voice is output. |

*1: w/ G-BOOK System
*2: w/o G-BOOK System
*3: w/ Rear View Monitor System
*4: w/ Rear Seat Entertainment System
*5: w/ Parking Assist Monitor System

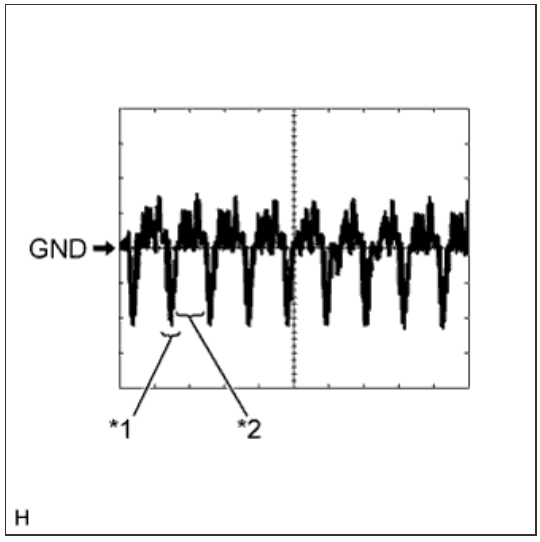
a. Reference (Oscilloscope waveform):

i. Waveform 1

| Item | Content |
|---|---|
| Measurement terminal | F60-4 (NTSO) - F58-10 (GND1) |
| Measurement setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | DVD is played on the display and navigation module display |

**Text in Illustration**

| | |
|---|---|
| *1 | Synchronization Signal |
| *2 | Video Waveform |




**HINT:**

The video waveform changes according to the image output from the display and navigation module display to the television display assembly, but the synchronization signal does not change.

b. Reference (Oscilloscope waveform):

i. Waveform 2 (under normal conditions)

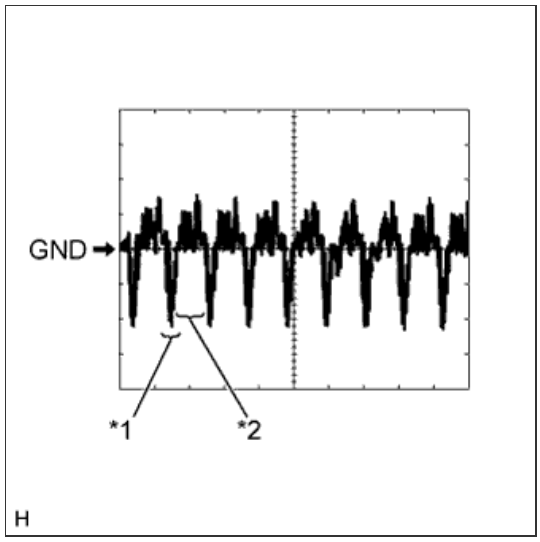
| Item | Content |
|---|---|
| Measurement terminal | F60-5 (V+) - F58-10 (GND1) |
| Measurement setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), shift lever in R |

**Text in Illustration**

| | |
|---|---|
| *1 | Synchronization Signal |
| *2 | Video Waveform |

**HINT:**

The video waveform changes according to the image from the television camera assembly.




c. Reference (Oscilloscope waveform):

i. Waveform 3 (camera lens is covered, blacking out the screen)

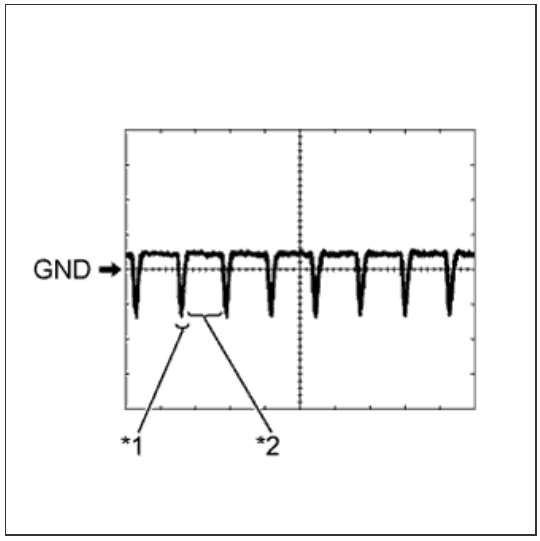
| Item | Content |
|---|---|
| Measurement terminal | F60-5 (V+) - F58-10 (GND1) |
| Measurement setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), shift lever in R |

**Text in Illustration**

| | |
|---|---|
| *1 | Synchronization Signal |
| *2 | Video Waveform |

**HINT:**

The video waveform changes according to the image that the television camera assembly projects.




d. Reference (Oscilloscope waveform):

i. Waveform 4

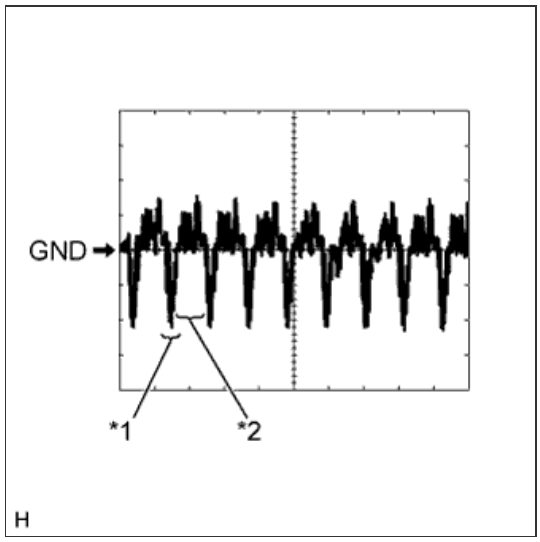
| Item | Content |
|---|---|
| Measurement terminal | F60-9 (VV+) - F58-10 (GND1) |
| Measurement setting | 200 mV/DIV., 10 µs/DIV. |
| Condition | DVD is playing |

**Text in Illustration**

| | |
|---|---|
| *1 | Synchronization Signal |
| *2 | Video Waveform |

**HINT:**

The video waveform changes according to the image input from the radio receiver assembly to the display and navigation module display, but the synchronization signal does not change.




RADIO RECEIVER ASSEMBLY (Click here).

STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here).

TELEVISION DISPLAY ASSEMBLY (w/ Rear Seat Entertainment System) ( Click here).

MULTI-MEDIA INTERFACE ECU (Click here).

TELEMATICS TRANSCEIVER (Click here).

PARKING ASSIST ECU (w/ Parking Assist Monitor System) ( Click here).

PARKING ASSIST ECU (w/ Wide View Front Monitor System) ( Click here).

PARKING ASSIST ECU (w/ Side Monitor System) ( Click here).

**for Preparation** Click here

## CHECK DTC (CHECK USING INTELLIGENT TESTER)

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Body / Navigation System / DTC.

e. Check for DTC(s) and freeze frame data, and then write them down.

f. Check the details of the DTC(s) ( Click here).

**NOTICE:**

The navigation system outputs DTCs for the following system. When DTCs other than those in Diagnostic Trouble Code Chart for the navigation system are output, refer to Diagnostic Trouble Code Chart for the system.

| System | Proceed to |
|---|---|
| Audio and visual system (w/ navigation system) | Click here |
| Rear seat entertainment system (w/ Rear Seat Entertainment) | Click here |
| G-BOOK system (w/ G-BOOK system) | Click here |
| Parking assist monitor system (w/ Parking assist monitor system) | Click here |
| Wide view front monitor system (w/ Wide view front monitor system) | Click here |
| Side monitor system (w/ Side monitor system) | Click here |

## CLEAR DTC (CHECK USING INTELLIGENT TESTER)

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Body Electrical / Navigation System / Trouble Codes.

e. Clear the DTCs.

## START DIAGNOSTIC MODE

**HINT:**

- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**
- **To help find the malfunction when the system cannot change to diagnostic mode, check for DTCs using the intelligent tester.**
- **After the engine switch is turned on (IG), check that the map is displayed before starting diagnostic mode. Otherwise, some items cannot be checked.**

a. There are 2 methods to start diagnostic mode. Start the mode by using either of them.

b. Method 1

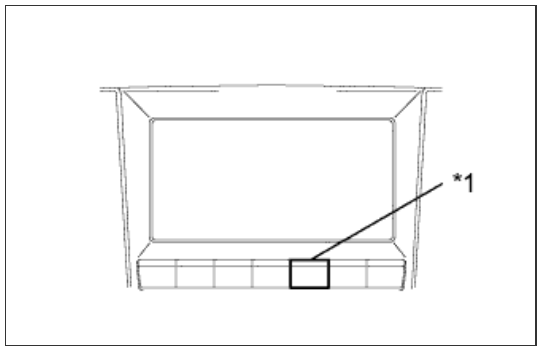
**Text in Illustration**

| | |
|---|---|
| *1 | "INFO TEL" Switch |

i. Start the engine.

ii. While pressing and holding the "INFO TEL" switch, operate the light control switch: off → Turn on → Turn off → Turn on → Turn off → Turn on → Turn off.

iii. Diagnostic mode starts and the "Service Menu" screen will be displayed.



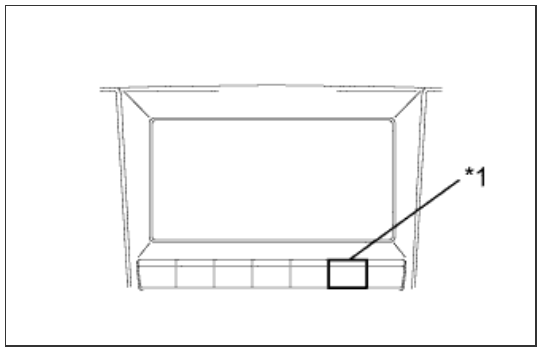

c. Method 2

i. Start the engine.

ii. Press the "DISP" switch.

**Text in Illustration**

| | |
|---|---|
| *1 | "DISP" Switch |

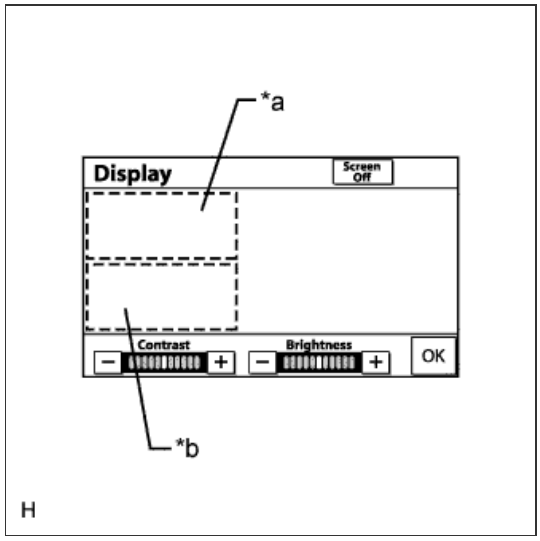



iii. From the display quality adjustment screen, touch the corners of the screen in the following order: Upper left → Lower left → Upper left → Lower left → Upper left → Lower left.

**Text in Illustration**

| | |
|---|---|
| *a | Upper Left |
| *b | Lower Left |

iv. Diagnostic mode starts and the "System Menu" screen will be displayed.

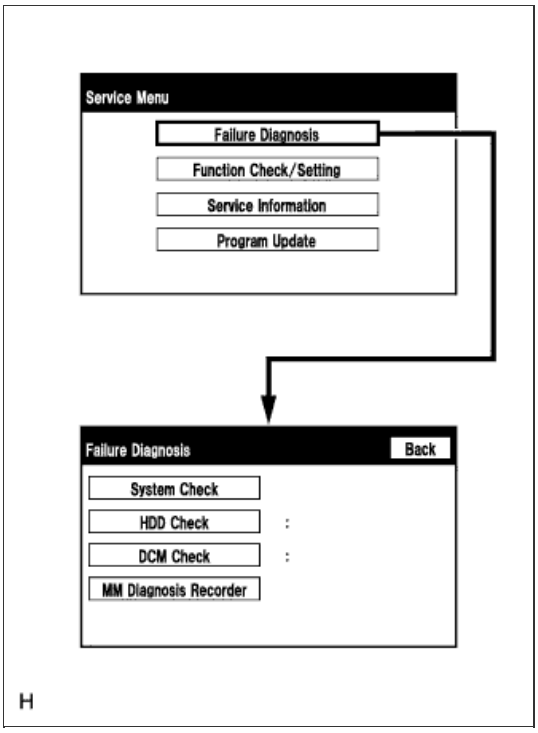



## FINISH DIAGNOSTIC MODE

a. Turn the engine switch off.

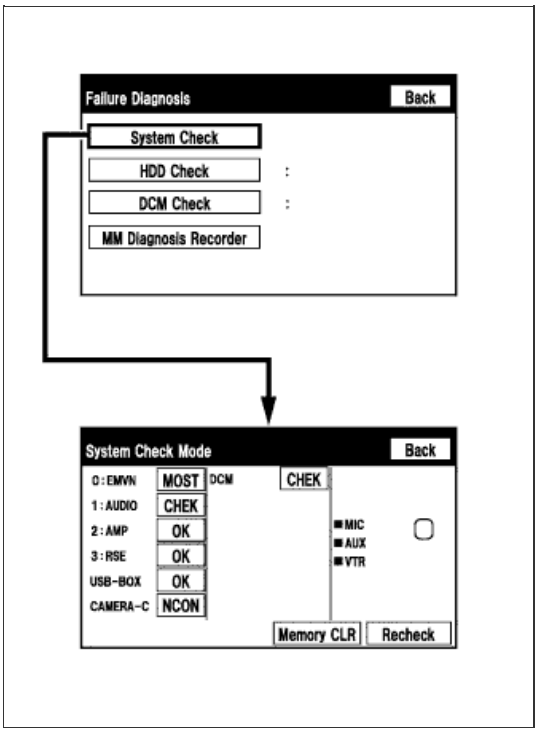
## FAILURE DIAGNOSIS

a. The "Failure Diagnosis" screen is displayed when the "Failure Diagnosis" switch on the "Service Menu" screen is selected.




## SYSTEM CHECK (CHECK USING SYSTEM CHECK MODE SCREEN)

a. The "System Check Mode" screen is displayed when the "System Check" switch on the "Failure Diagnosis" screen is selected.




## CHECK DTC (CHECK USING SYSTEM CHECK MODE SCREEN)

**HINT:**

Refer to Diagnosis Display Detailed Description for further details on the "System Check Mode" screen ( Click here).

a. Read the system check result.

i. When the result is "EXCH" or "CHEK", select the icon which displays the result, and check and record each DTC displayed on the "Unit Check Mode" screen.

**NOTICE:**

A maximum of 6 DTCs can be displayed by the display and navigation module display. When more than 6 DTCs are expected, check DTCs using the intelligent tester.

**HINT:**

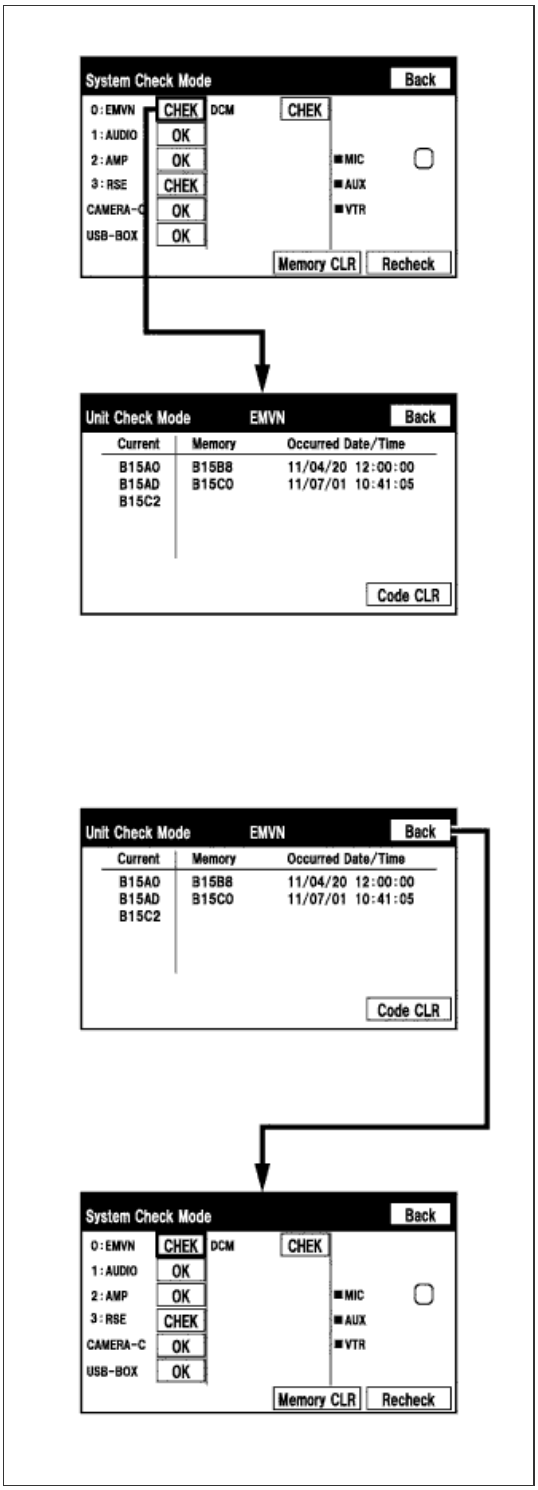
- **Refer to Diagnosis Display Detailed Description for further details on the "System Check Mode" screen (Click here).**
- **When all results are "OK", this means that no DTCs are present.**
- **When "MOST" is displayed for the result, select the "MOST" switch to display the "MOST Line Check" and check the MOST network.**
- **Changing to the "MOST Line Check" screen is possible only when the MOST network is malfunctioning and "MOST" is displayed for the result.**
- **If the MOST network had a malfunction in the past, the DTCs will be displayed in the Memory column.**
- **Refer to Diagnosis Display Detailed Description for further details on the "MOST Line Check" screen (Click here).**
- **When "NCON" is displayed for all devices connected using the AVC-LAN, or when all device names are not displayed, check if there is a short circuit in the AVC-LAN or devices connected to the AVC-LAN. Repair or replace parts as necessary (Click here).**
- **When proceeding to view the results of another device, select the "Back" switch to return to the "System Check Mode" screen. Repeat the above step to view the results of other devices.**

ii. Check the details of the DTC(s) ( Click here).

**NOTICE:**

The navigation system outputs DTCs for the following system. When DTCs other than the codes in Diagnostic Trouble Code Chart for the navigation system are output, refer to Diagnostic Trouble Code Chart for the system.

| System | Proceed to |
|---|---|
| Audio and visual system (w/ navigation system) | Click here |
| Rear seat entertainment system (w/ Rear Seat Entertainment) | Click here |
| G-BOOK system (w/ G-BOOK system) | Click here |
| Parking assist monitor system (w/ Parking assist monitor system) | Click here |
| Wide view front monitor system (w/ Wide view front monitor system) | Click here |
| Side monitor system (w/ Side monitor system) | Click here |




## DTC CLEAR/RECHECK (CLEAR USING SYSTEM CHECK MODE SCREEN)

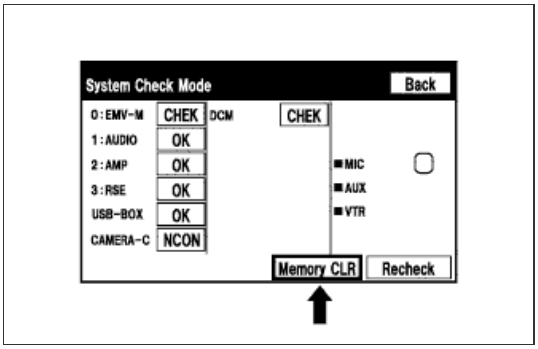
a. Clear DTC

i. Select the "Memory CLR" switch for 3 seconds.

ii. Confirm that the check results are cleared.

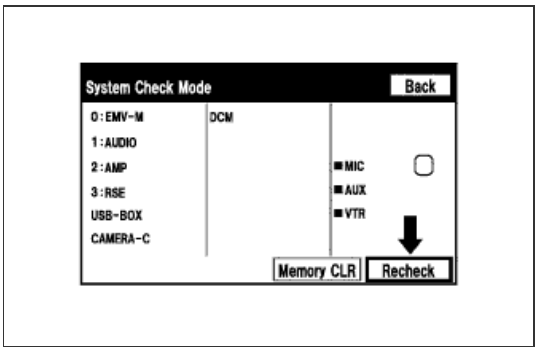
**HINT:**

- **To clear the DTC for a specific device, clear the DTC using the "Unit Check Mode" screen.**
- **When clearing a DTC using the "Unit Check Mode" screen, press the "Code CLR" switch for 3 seconds.**



b. Recheck

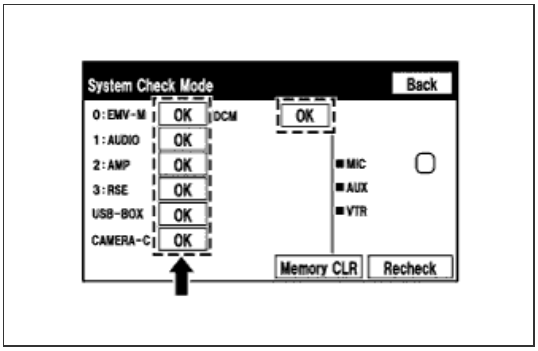
i. Select the "Recheck" switch.




ii. Confirm that all diagnostic codes are "OK" when the check results are displayed. If a code other than "OK" is displayed, troubleshoot again.

**HINT:**

When a DTC was cleared using the "Unit Check Mode" screen, select the "Back" switch to return to the "System Check Mode" screen and perform this operation.



**for Preparation** Click here

## CHECK DTC (CHECK USING INTELLIGENT TESTER)

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Body / Navigation System / DTC.

e. Check for DTC(s) and freeze frame data, and then write them down.

f. Check the details of the DTC(s) ( Click here).

**NOTICE:**

The navigation system outputs DTCs for the following system. When DTCs other than those in Diagnostic Trouble Code Chart for the navigation system are output, refer to Diagnostic Trouble Code Chart for the system.

| System | Proceed to |
|---|---|
| Audio and visual system (w/ navigation system) | Click here |
| Rear seat entertainment system (w/ Rear Seat Entertainment) | Click here |
| G-BOOK system (w/ G-BOOK system) | Click here |
| Parking assist monitor system (w/ Parking assist monitor system) | Click here |
| Wide view front monitor system (w/ Wide view front monitor system) | Click here |
| Side monitor system (w/ Side monitor system) | Click here |

## CLEAR DTC (CHECK USING INTELLIGENT TESTER)

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Body Electrical / Navigation System / Trouble Codes.

e. Clear the DTCs.

## START DIAGNOSTIC MODE

**HINT:**

- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**
- **To help find the malfunction when the system cannot change to diagnostic mode, check for DTCs using the intelligent tester.**
- **After the engine switch is turned on (IG), check that the map is displayed before starting diagnostic mode. Otherwise, some items cannot be checked.**

a. There are 2 methods to start diagnostic mode. Start the mode by using either of them.

b. Method 1

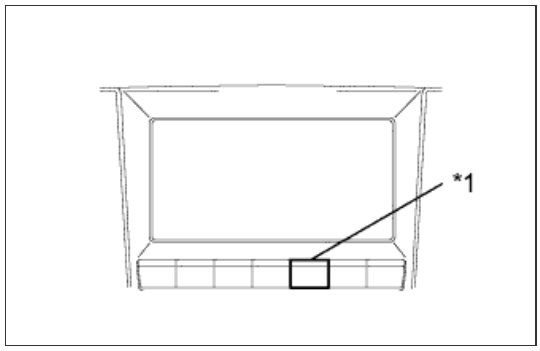
**Text in Illustration**

| | |
|---|---|
| *1 | "INFO TEL" Switch |

i. Start the engine.

ii. While pressing and holding the "INFO TEL" switch, operate the light control switch: off → Turn on → Turn off → Turn on → Turn off → Turn on → Turn off.

iii. Diagnostic mode starts and the "Service Menu" screen will be displayed.



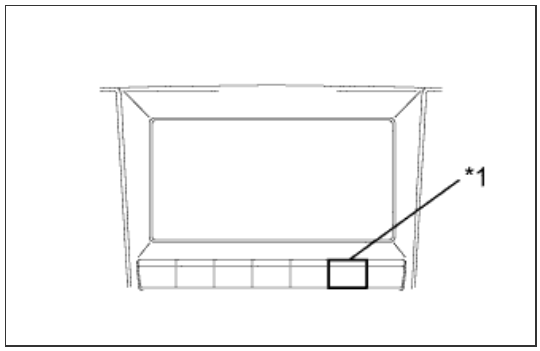

c. Method 2

i. Start the engine.

ii. Press the "DISP" switch.

**Text in Illustration**

| | |
|---|---|
| *1 | "DISP" Switch |

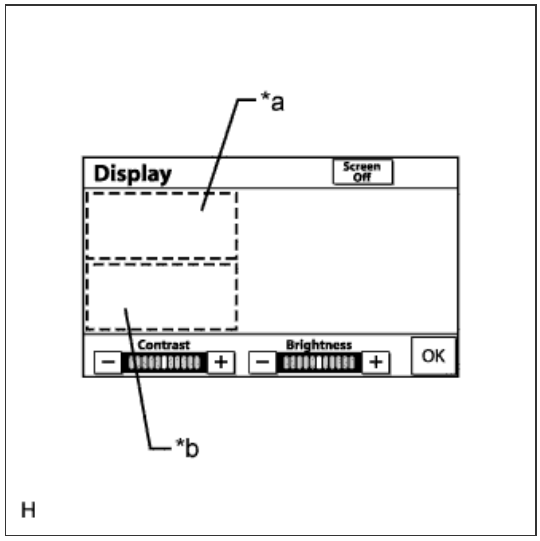



iii. From the display quality adjustment screen, touch the corners of the screen in the following order: Upper left → Lower left → Upper left → Lower left → Upper left → Lower left.

**Text in Illustration**

| | |
|---|---|
| *a | Upper Left |
| *b | Lower Left |

iv. Diagnostic mode starts and the "System Menu" screen will be displayed.

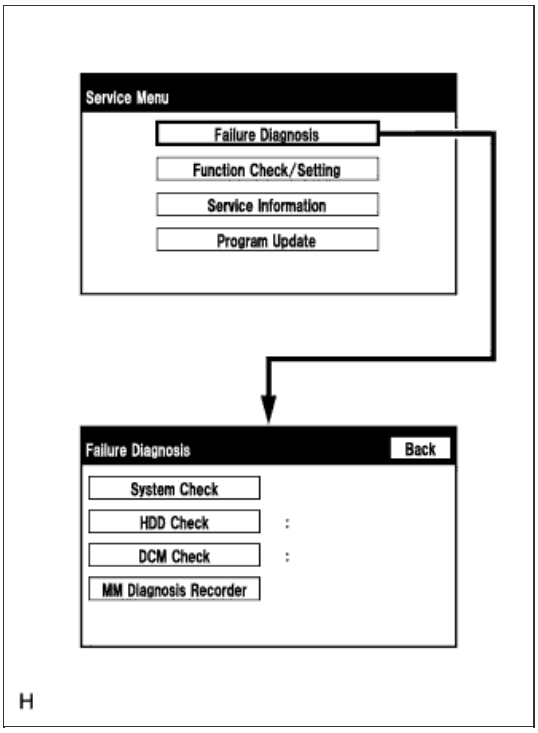



## FINISH DIAGNOSTIC MODE

a. Turn the engine switch off.

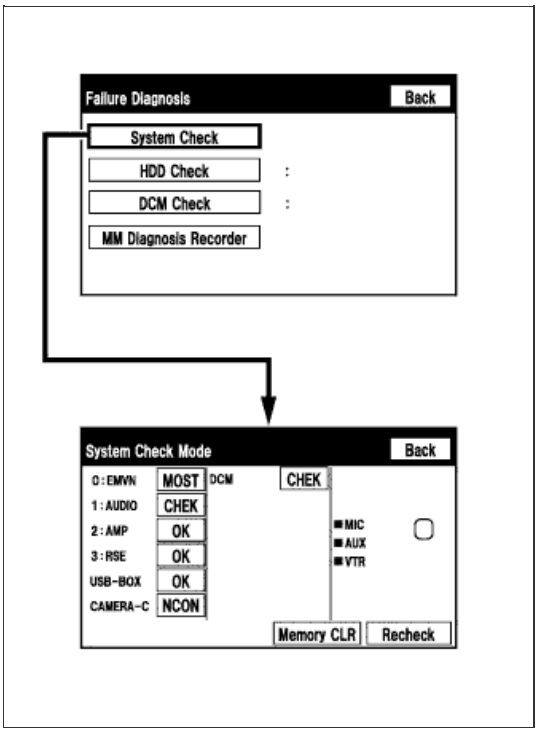
## FAILURE DIAGNOSIS

a. The "Failure Diagnosis" screen is displayed when the "Failure Diagnosis" switch on the "Service Menu" screen is selected.




## SYSTEM CHECK (CHECK USING SYSTEM CHECK MODE SCREEN)

a. The "System Check Mode" screen is displayed when the "System Check" switch on the "Failure Diagnosis" screen is selected.




## CHECK DTC (CHECK USING SYSTEM CHECK MODE SCREEN)

**HINT:**

Refer to Diagnosis Display Detailed Description for further details on the "System Check Mode" screen ( Click here).

a. Read the system check result.

i. When the result is "EXCH" or "CHEK", select the icon which displays the result, and check and record each DTC displayed on the "Unit Check Mode" screen.

**NOTICE:**

A maximum of 6 DTCs can be displayed by the display and navigation module display. When more than 6 DTCs are expected, check DTCs using the intelligent tester.

**HINT:**

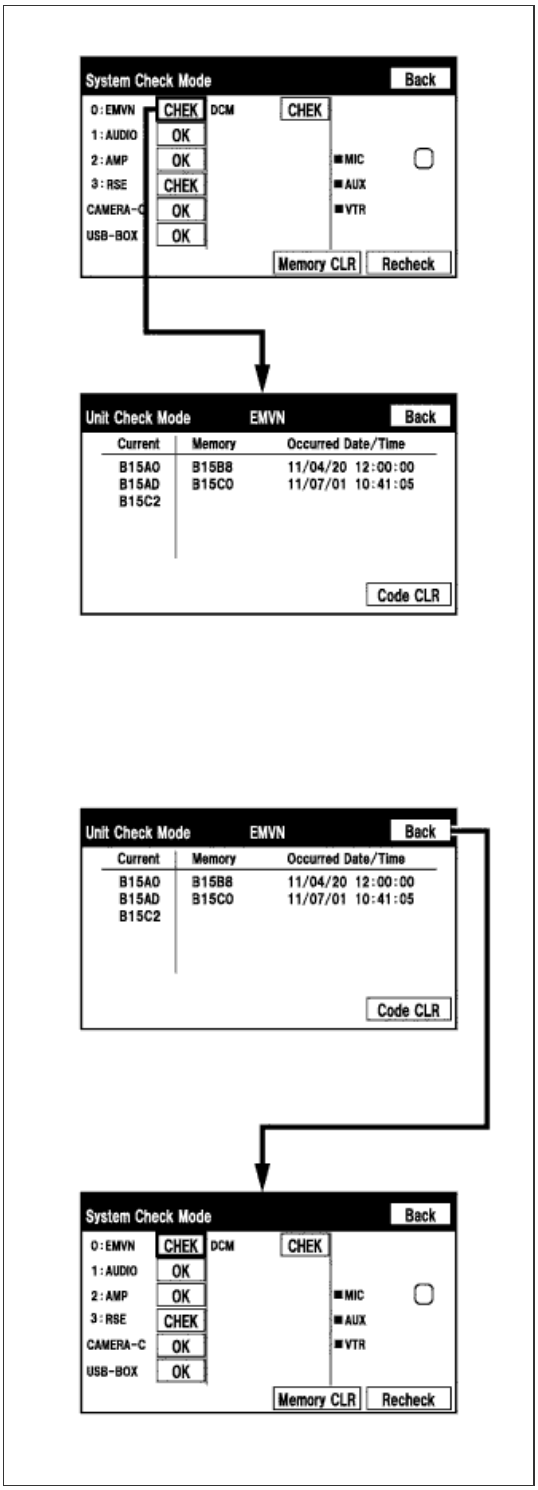
- **Refer to Diagnosis Display Detailed Description for further details on the "System Check Mode" screen (Click here).**
- **When all results are "OK", this means that no DTCs are present.**
- **When "MOST" is displayed for the result, select the "MOST" switch to display the "MOST Line Check" and check the MOST network.**
- **Changing to the "MOST Line Check" screen is possible only when the MOST network is malfunctioning and "MOST" is displayed for the result.**
- **If the MOST network had a malfunction in the past, the DTCs will be displayed in the Memory column.**
- **Refer to Diagnosis Display Detailed Description for further details on the "MOST Line Check" screen (Click here).**
- **When "NCON" is displayed for all devices connected using the AVC-LAN, or when all device names are not displayed, check if there is a short circuit in the AVC-LAN or devices connected to the AVC-LAN. Repair or replace parts as necessary (Click here).**
- **When proceeding to view the results of another device, select the "Back" switch to return to the "System Check Mode" screen. Repeat the above step to view the results of other devices.**

ii. Check the details of the DTC(s) ( Click here).

**NOTICE:**

The navigation system outputs DTCs for the following system. When DTCs other than the codes in Diagnostic Trouble Code Chart for the navigation system are output, refer to Diagnostic Trouble Code Chart for the system.

| System | Proceed to |
|---|---|
| Audio and visual system (w/ navigation system) | Click here |
| Rear seat entertainment system (w/ Rear Seat Entertainment) | Click here |
| G-BOOK system (w/ G-BOOK system) | Click here |
| Parking assist monitor system (w/ Parking assist monitor system) | Click here |
| Wide view front monitor system (w/ Wide view front monitor system) | Click here |
| Side monitor system (w/ Side monitor system) | Click here |




## DTC CLEAR/RECHECK (CLEAR USING SYSTEM CHECK MODE SCREEN)

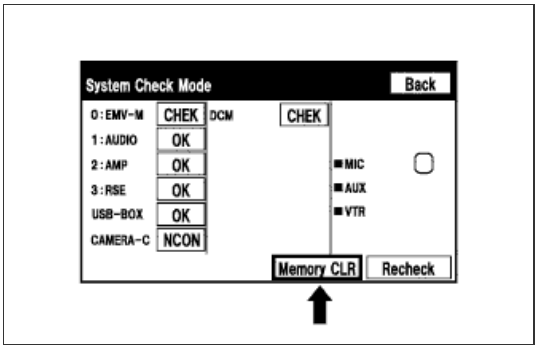
a. Clear DTC

i. Select the "Memory CLR" switch for 3 seconds.

ii. Confirm that the check results are cleared.

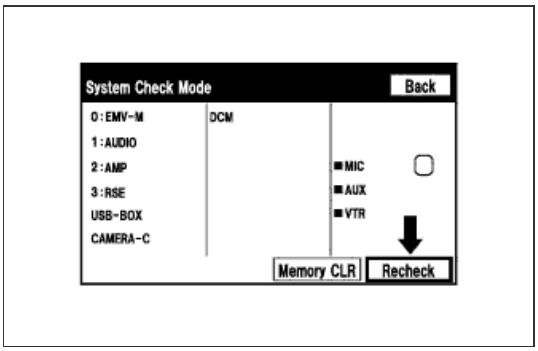
**HINT:**

- **To clear the DTC for a specific device, clear the DTC using the "Unit Check Mode" screen.**
- **When clearing a DTC using the "Unit Check Mode" screen, press the "Code CLR" switch for 3 seconds.**



b. Recheck

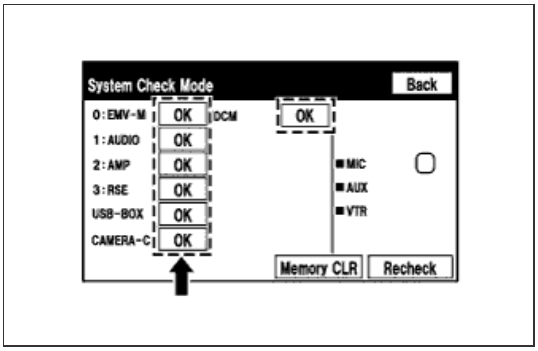
i. Select the "Recheck" switch.




ii. Confirm that all diagnostic codes are "OK" when the check results are displayed. If a code other than "OK" is displayed, troubleshoot again.

**HINT:**

When a DTC was cleared using the "Unit Check Mode" screen, select the "Back" switch to return to the "System Check Mode" screen and perform this operation.



**for Preparation** Click here

### Navigation System

| DTC Code | Detection Item | Trouble Area | See page |
|---|---|---|---|
| B156B | Multi-media Interface ECU Disconnected | - Multi-media interface ECU power source circuit<br>- AVC-LAN circuit between display and navigation module display and multi-media interface ECU<br>- Multi-media interface ECU<br>- Display and navigation module display | Click here |
| B156E | No Response from Multi-media Interface ECU | - Multi-media interface ECU power source circuit<br>- AVC-LAN circuit between display and navigation module display and multi-media interface ECU<br>- Multi-media interface ECU<br>- Display and navigation module display | Click here |
| B1591 | No Response from Audio HU | - Radio receiver assembly power source circuit<br>- MOST circuit between display and navigation module display and radio receiver assembly<br>- MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>- Radio receiver assembly<br>- Display and navigation module display | Click here |
| B1593 | No Response from Stereo Component Amplifier | - Stereo component amplifier assembly power source circuit<br>- MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>- MOST circuit between stereo component amplifier assembly and display and navigation module display (w/o Rear Seat Entertainment System)<br>- MOST circuit between stereo component amplifier assembly and television display assembly (w/ Rear Seat Entertainment System)<br>- Stereo component amplifier assembly<br>- Display and navigation module display | Click here |
| B1595 | No Response from Rear Seat Entertainment System | - Television display assembly power source circuit<br>- MOST circuit between stereo component amplifier assembly and television display assembly<br>- MOST circuit between television display assembly and display and navigation module display<br>- Television display assembly<br>- Display and navigation module display | Click here |
| B15A0 | LAN Master Malfunction | Display and navigation module display | Click here |
| B15AD | Navigation Processor Malfunction | Display and navigation module display | Click here |
| B15B0 | Display Screen Malfunction | Display and navigation module display | Click here |
| B15B8 | Harddisk Malfunction | Hard disk drive | Click here |
| B15C0 | Short in GPS Antenna | - Wire harness<br>- Navigation antenna assembly<br>- Display and navigation module display | Click here |
| B15C1 | Open in GPS Antenna | - Wire harness<br>- Navigation antenna assembly<br>- Display and navigation module display | Click here |
| B15C2 | Speed Signal Malfunction | - Wire harness or connector<br>- Combination meter assembly<br>- Display and navigation module display | Click here |
| B15D0 | MOST Communication Malfunction | MOST Line Check<br>- MOST communication line connector<br>- Wire harness or connector<br>- MOST communication line<br>- Radio receiver assembly<br>- Stereo component amplifier assembly<br>- Television display assembly (w/ Rear Seat Entertainment System)<br>- Display and navigation module display | Click here |
| | | - Radio receiver assembly power source circuit<br>- MOST circuit between display and navigation module display and radio receiver | |

| | | | |
|---|---|---|---|
| B15D1 | Audio HU Disconnected | assembly<br>- MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>- Radio receiver assembly<br>- Display and navigation module display | Click here |
| B15D3 | Stereo Component Amplifier Disconnected | - Stereo component amplifier assembly power source circuit<br>- MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>- MOST circuit between stereo component amplifier assembly and display and navigation module display (w/o Rear Seat Entertainment System)<br>- MOST circuit between stereo component amplifier assembly and television display assembly (w/ Rear Seat Entertainment System)<br>- Stereo component amplifier assembly<br>- Display and navigation module display | Click here |
| B15D5 | Rear Seat Entertainment System Disconnected | - Television display assembly power source circuit<br>- MOST circuit between stereo component amplifier assembly and television display assembly<br>- MOST circuit between television display assembly and display and navigation module display<br>- Television display assembly<br>- Display and navigation module display | Click here |
| B15D8 | Monitor Disconnected | - Parking assist ECU power source circuit<br>- AVC-LAN circuit between display and navigation module display and parking assist ECU<br>- Parking assist ECU<br>- Display and navigation module display | Click here |
| B15E7 | Harddisk Reading/Writing Malfunction(Low Temperature) | Hard disk drive | Click here |
| B15E8 | Harddisk Reading/Writing Malfunction(High Temperature) | Hard disk drive | Click here |
| B15F5 | A/C ECU Vehicle Information Reading/Writing Processor Malfunction | - CAN communication system<br>- Air conditioning system<br>- A/C ECU (air conditioning amplifier assembly)<br>- Display and navigation module display | Click here |
| B15F6 | Main Body ECU Vehicle Information Reading/Writing Process Malfunction | - CAN communication system<br>- Power door lock control system<br>- Wireless door lock control system<br>- Lighting system (for interior)<br>- Lighting system (for exterior)<br>- Front power seat control system (w/ Memory)<br>- Main body ECU<br>- Display and navigation module display | Click here |
| B15F7 | Certification ECU Vehicle Information Reading/Writing Process Malfunction | - CAN communication system<br>- Entry and start system (for Entry Function)<br>- Entry and start system (for Start Function)<br>- Certification ECU (smart key ECU assembly)<br>- Display and navigation module display | Click here |
| U0073 | Control Module Communication Bus Off | CAN communication system | Click here |
| U0155 | Lost Communication with Combination Meter | CAN communication system | Click here |
| U0164 | Lost Communication with A/C ECU | CAN communication system | Click here |
| U1110 | Lost Communication with Clearance Warning ECU | CAN communication system | Click here |

**for Preparation** Click here

### Navigation System

| DTC Code | Detection Item | Trouble Area | See page |
|---|---|---|---|
| B156B | Multi-media Interface ECU Disconnected | - Multi-media interface ECU power source circuit<br>- AVC-LAN circuit between display and navigation module display and multi-media interface ECU<br>- Multi-media interface ECU<br>- Display and navigation module display | Click here |
| B156E | No Response from Multi-media Interface ECU | - Multi-media interface ECU power source circuit<br>- AVC-LAN circuit between display and navigation module display and multi-media interface ECU<br>- Multi-media interface ECU<br>- Display and navigation module display | Click here |
| B1591 | No Response from Audio HU | - Radio receiver assembly power source circuit<br>- MOST circuit between display and navigation module display and radio receiver assembly<br>- MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>- Radio receiver assembly<br>- Display and navigation module display | Click here |
| B1593 | No Response from Stereo Component Amplifier | - Stereo component amplifier assembly power source circuit<br>- MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>- MOST circuit between stereo component amplifier assembly and display and navigation module display (w/o Rear Seat Entertainment System)<br>- MOST circuit between stereo component amplifier assembly and television display assembly (w/ Rear Seat Entertainment System)<br>- Stereo component amplifier assembly<br>- Display and navigation module display | Click here |
| B1595 | No Response from Rear Seat Entertainment System | - Television display assembly power source circuit<br>- MOST circuit between stereo component amplifier assembly and television display assembly<br>- MOST circuit between television display assembly and display and navigation module display<br>- Television display assembly<br>- Display and navigation module display | Click here |
| B15A0 | LAN Master Malfunction | Display and navigation module display | Click here |
| B15AD | Navigation Processor Malfunction | Display and navigation module display | Click here |
| B15B0 | Display Screen Malfunction | Display and navigation module display | Click here |
| B15B8 | Harddisk Malfunction | Hard disk drive | Click here |
| B15C0 | Short in GPS Antenna | - Wire harness<br>- Navigation antenna assembly<br>- Display and navigation module display | Click here |
| B15C1 | Open in GPS Antenna | - Wire harness<br>- Navigation antenna assembly<br>- Display and navigation module display | Click here |
| B15C2 | Speed Signal Malfunction | - Wire harness or connector<br>- Combination meter assembly<br>- Display and navigation module display | Click here |
| B15D0 | MOST Communication Malfunction | - MOST Line Check<br>- MOST communication line connector<br>- Wire harness or connector<br>- MOST communication line<br>- Radio receiver assembly<br>- Stereo component amplifier assembly<br>- Television display assembly (w/ Rear Seat Entertainment System)<br>- Display and navigation module display | Click here |
| | | - Radio receiver assembly power source circuit<br>- MOST circuit between display and navigation module display and radio receiver | |

| | | | |
|---|---|---|---|
| B15D1 | Audio HU Disconnected | assembly<br>- MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>- Radio receiver assembly<br>- Display and navigation module display | Click here |
| B15D3 | Stereo Component Amplifier Disconnected | - Stereo component amplifier assembly power source circuit<br>- MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>- MOST circuit between stereo component amplifier assembly and display and navigation module display (w/o Rear Seat Entertainment System)<br>- MOST circuit between stereo component amplifier assembly and television display assembly (w/ Rear Seat Entertainment System)<br>- Stereo component amplifier assembly<br>- Display and navigation module display | Click here |
| B15D5 | Rear Seat Entertainment System Disconnected | - Television display assembly power source circuit<br>- MOST circuit between stereo component amplifier assembly and television display assembly<br>- MOST circuit between television display assembly and display and navigation module display<br>- Television display assembly<br>- Display and navigation module display | Click here |
| B15D8 | Monitor Disconnected | - Parking assist ECU power source circuit<br>- AVC-LAN circuit between display and navigation module display and parking assist ECU<br>- Parking assist ECU<br>- Display and navigation module display | Click here |
| B15E7 | Harddisk Reading/Writing Malfunction(Low Temperature) | Hard disk drive | Click here |
| B15E8 | Harddisk Reading/Writing Malfunction(High Temperature) | Hard disk drive | Click here |
| B15F5 | A/C ECU Vehicle Information Reading/Writing Processor Malfunction | - CAN communication system<br>- Air conditioning system<br>- A/C ECU (air conditioning amplifier assembly)<br>- Display and navigation module display | Click here |
| B15F6 | Main Body ECU Vehicle Information Reading/Writing Process Malfunction | - CAN communication system<br>- Power door lock control system<br>- Wireless door lock control system<br>- Lighting system (for interior)<br>- Lighting system (for exterior)<br>- Front power seat control system (w/ Memory)<br>- Main body ECU<br>- Display and navigation module display | Click here |
| B15F7 | Certification ECU Vehicle Information Reading/Writing Process Malfunction | - CAN communication system<br>- Entry and start system (for Entry Function)<br>- Entry and start system (for Start Function)<br>- Certification ECU (smart key ECU assembly)<br>- Display and navigation module display | Click here |
| U0073 | Control Module Communication Bus Off | CAN communication system | Click here |
| U0155 | Lost Communication with Combination Meter | CAN communication system | Click here |
| U0164 | Lost Communication with A/C ECU | CAN communication system | Click here |
| U1110 | Lost Communication with Clearance Warning ECU | CAN communication system | Click here |

## DTC B156E No Response from Multi-media Interface ECU

## DTC B156B Multi-media Interface ECU Disconnected

**for Preparation** Click here

### DESCRIPTION

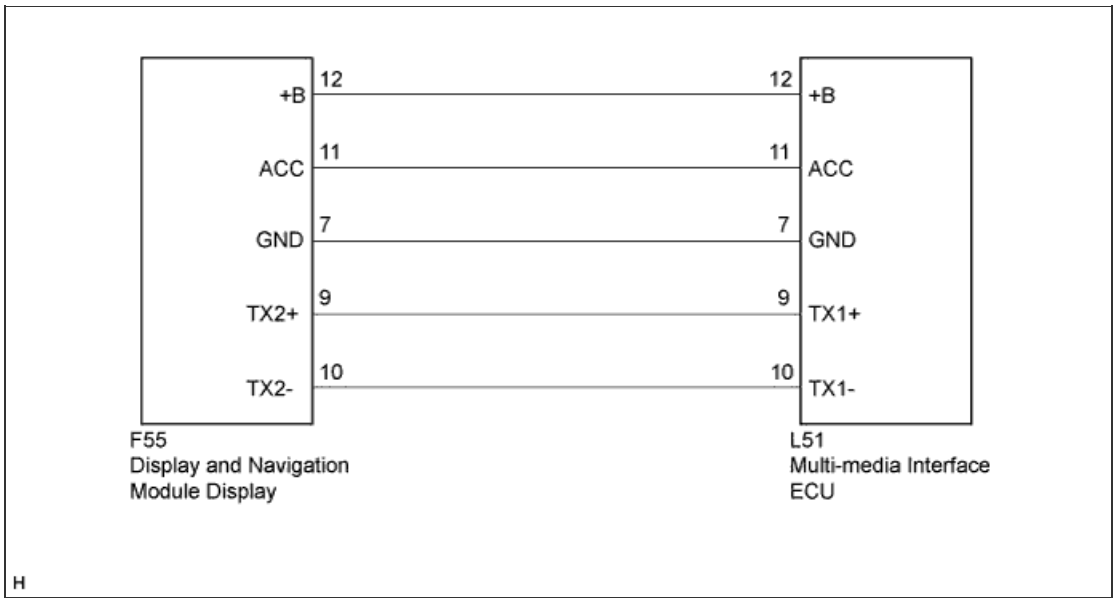
The display and navigation module display and multi-media interface ECU are connected by the AVC-LAN communication line.
When an AVC-LAN communication error occurs between the display and navigation module display and multi-media interface ECU, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B156E | No response to the diagnostic memory request from the master unit. | • Multi-media interface ECU power source circuit<br>• AVC-LAN circuit between display and navigation module display and multi-media interface ECU<br>• Multi-media interface ECU<br>• Display and navigation module display |
| B156B*1 | A device that is listed in the AVC-LAN connected device record of the master unit is missing. | |

**HINT:**

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

#### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated | |

| | |
|---|---|
| wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect AVC-LAN communication.**
- **This DTC may be stored when an AVC-LAN communication error occurs due to electrical noise.**

**B** → Go to step 3

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

**NG** → Go to step 4

**OK**

**END**

## 4.CHECK HARNESS AND CONNECTOR (INTERFACE ECU - NAVIGATION MODULE)

a. Disconnect the L51 multi-media interface ECU connector.

b. Disconnect the F55 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-12 (+B) - F55-12 (+B) | Always | Below 1 Ω |
| L51-11 (ACC) - F55-11 (ACC) | Always | Below 1 Ω |
| L51-7 (GND) - F55-7 (GND) | Always | Below 1 Ω |
| L51-9 (TX1+) - F55-9 (TX2+) | Always | Below 1 Ω |
| L51-10 (TX1-) - F55-10 (TX2-) | Always | Below 1 Ω |
| L51-12 (+B) - Body ground | Always | 10 kΩ or higher |
| L51-11 (ACC) - Body ground | Always | 10 kΩ or higher |
| L51-7 (GND) - Body ground | Always | 10 kΩ or higher |
| L51-9 (TX1+) - Body ground | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| L51-10 (TX1-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU POWER SOURCE)

a. Disconnect the L51 multi-media interface ECU connector.

b. Measure the resistance according to the value(s) in the table below.

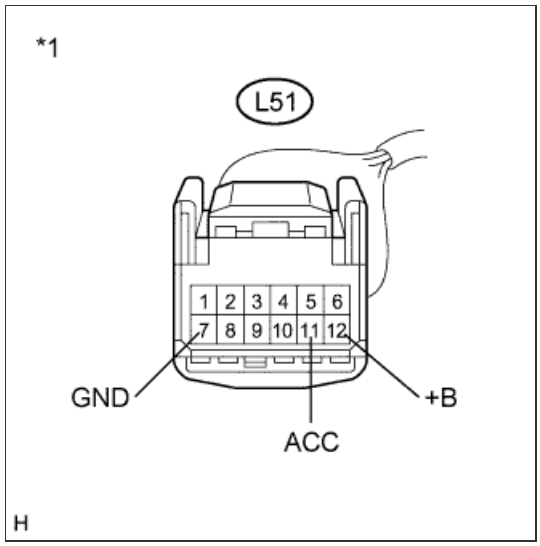
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-7 (GND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| L51-12 (+B) - L51-7 (GND) | Always | 11 to 14 V |
| L51-11 (ACC) - L51-7 (GND) | Engine switch on (ACC) | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Multi-media Interface ECU) |

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

## 6.REPLACE MULTI-MEDIA INTERFACE ECU

a. Replace the multi-media interface ECU (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

END

## DTC B15C0 Short in GPS Antenna

## DTC B15C1 Open in GPS Antenna

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the navigation antenna assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15C0 | Navigation antenna error | • Wire harness<br>• Navigation antenna assembly<br>• Display and navigation module display |
| B15C1 | Error of the power source to the navigation antenna assembly | |

### INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

**1.CHECK CONNECTION OF ANTENNA CABLE**

a. Check if the navigation antenna cable is securely connected to the display and navigation module display.

**OK:**
**Navigation antenna cable is securely connected.**

NG → **SECURELY CONNECT NAVIGATION ANTENNA CABLE**

OK

**2.REPLACE NAVIGATION ANTENNA ASSEMBLY**

a. Replace the navigation antenna assembly with a known good one and check if the same problem occurs again ( Click here).

i. Clear the DTCs (Click here).

ii. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK

**END**

## DTC B156E No Response from Multi-media Interface ECU

## DTC B156B Multi-media Interface ECU Disconnected

**for Preparation** Click here

### DESCRIPTION

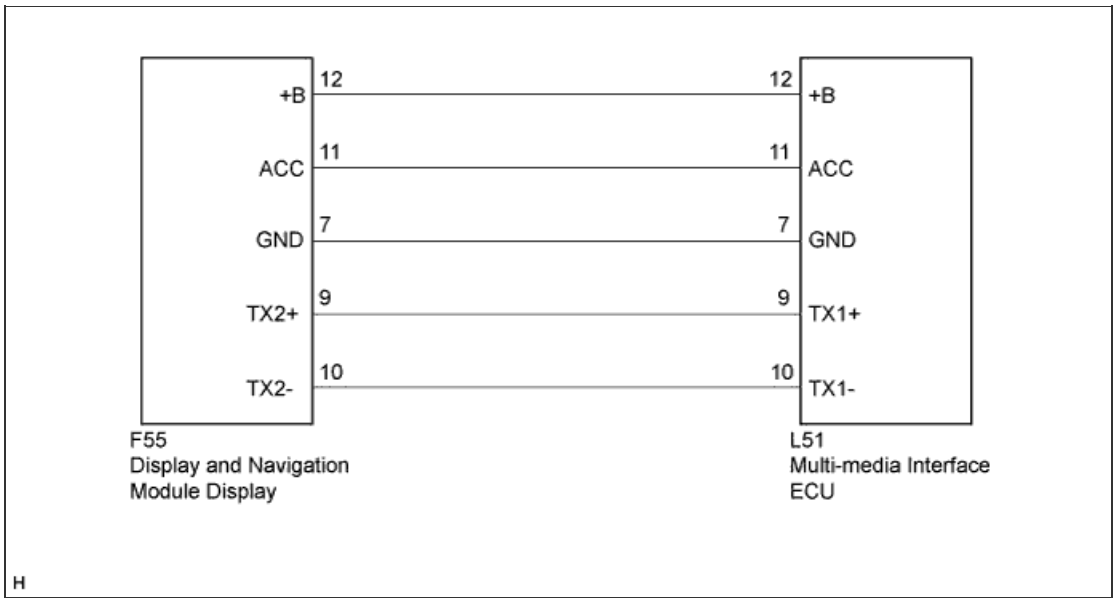
The display and navigation module display and multi-media interface ECU are connected by the AVC-LAN communication line.
When an AVC-LAN communication error occurs between the display and navigation module display and multi-media interface ECU, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B156E | No response to the diagnostic memory request from the master unit. | • Multi-media interface ECU power source circuit<br>• AVC-LAN circuit between display and navigation module display and multi-media interface ECU<br>• Multi-media interface ECU<br>• Display and navigation module display |
| B156B*1 | A device that is listed in the AVC-LAN connected device record of the master unit is missing. | |

**HINT:**

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

#### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated | |

| | |
|---|---|
| wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect AVC-LAN communication.**
- **This DTC may be stored when an AVC-LAN communication error occurs due to electrical noise.**

**B** → Go to step 3

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

**NG** → Go to step 4

**OK**

**END**

## 4.CHECK HARNESS AND CONNECTOR (INTERFACE ECU - NAVIGATION MODULE)

a. Disconnect the L51 multi-media interface ECU connector.

b. Disconnect the F55 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-12 (+B) - F55-12 (+B) | Always | Below 1 Ω |
| L51-11 (ACC) - F55-11 (ACC) | Always | Below 1 Ω |
| L51-7 (GND) - F55-7 (GND) | Always | Below 1 Ω |
| L51-9 (TX1+) - F55-9 (TX2+) | Always | Below 1 Ω |
| L51-10 (TX1-) - F55-10 (TX2-) | Always | Below 1 Ω |
| L51-12 (+B) - Body ground | Always | 10 kΩ or higher |
| L51-11 (ACC) - Body ground | Always | 10 kΩ or higher |
| L51-7 (GND) - Body ground | Always | 10 kΩ or higher |
| L51-9 (TX1+) - Body ground | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| L51-10 (TX1-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU POWER SOURCE)

a. Disconnect the L51 multi-media interface ECU connector.

b. Measure the resistance according to the value(s) in the table below.

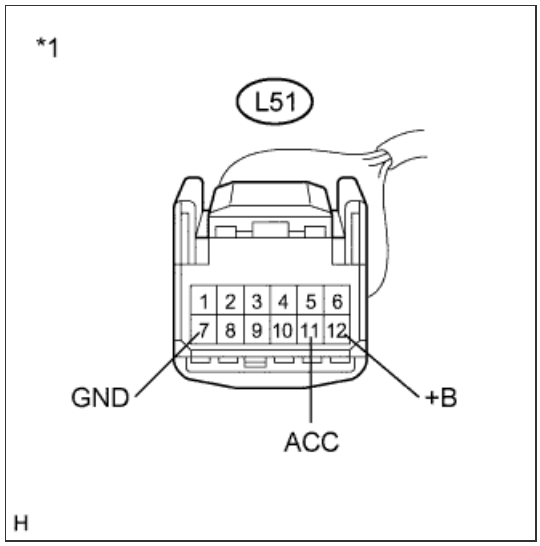
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-7 (GND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| L51-12 (+B) - L51-7 (GND) | Always | 11 to 14 V |
| L51-11 (ACC) - L51-7 (GND) | Engine switch on (ACC) | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Multi-media Interface ECU) |

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

## 6.REPLACE MULTI-MEDIA INTERFACE ECU

a. Replace the multi-media interface ECU (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

END

## DTC B15C0 Short in GPS Antenna

## DTC B15C1 Open in GPS Antenna

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the navigation antenna assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15C0 | Navigation antenna error | • Wire harness<br>• Navigation antenna assembly<br>• Display and navigation module display |
| B15C1 | Error of the power source to the navigation antenna assembly | |

### INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

**1.CHECK CONNECTION OF ANTENNA CABLE**

a. Check if the navigation antenna cable is securely connected to the display and navigation module display.

**OK:**
**Navigation antenna cable is securely connected.**

NG → **SECURELY CONNECT NAVIGATION ANTENNA CABLE**

OK

**2.REPLACE NAVIGATION ANTENNA ASSEMBLY**

a. Replace the navigation antenna assembly with a known good one and check if the same problem occurs again ( Click here).

i. Clear the DTCs (Click here).

ii. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK

**END**

## DTC B156E No Response from Multi-media Interface ECU

## DTC B156B Multi-media Interface ECU Disconnected

**for Preparation** Click here

### DESCRIPTION

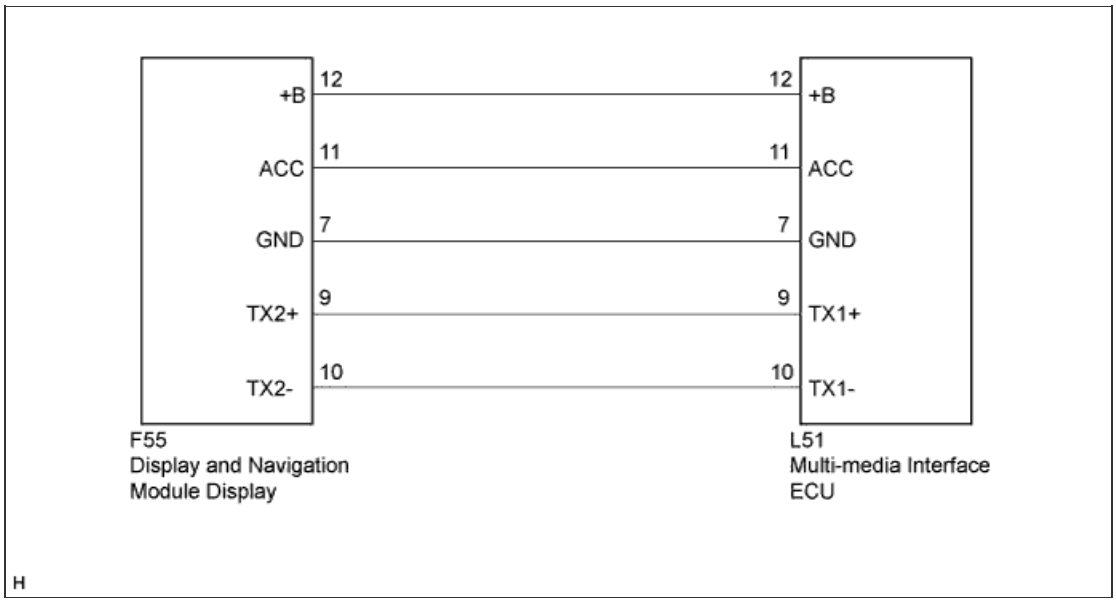
The display and navigation module display and multi-media interface ECU are connected by the AVC-LAN communication line.
When an AVC-LAN communication error occurs between the display and navigation module display and multi-media interface ECU, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B156E | No response to the diagnostic memory request from the master unit. | • Multi-media interface ECU power source circuit<br>• AVC-LAN circuit between display and navigation module display and multi-media interface ECU<br>• Multi-media interface ECU<br>• Display and navigation module display |
| B156B*1 | A device that is listed in the AVC-LAN connected device record of the master unit is missing. | |

**HINT:**

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

#### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated | |

| | |
|---|---|
| wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect AVC-LAN communication.**
- **This DTC may be stored when an AVC-LAN communication error occurs due to electrical noise.**

**B** → Go to step 3

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

**NG** → Go to step 4

**OK**

**END**

## 4.CHECK HARNESS AND CONNECTOR (INTERFACE ECU - NAVIGATION MODULE)

a. Disconnect the L51 multi-media interface ECU connector.

b. Disconnect the F55 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-12 (+B) - F55-12 (+B) | Always | Below 1 Ω |
| L51-11 (ACC) - F55-11 (ACC) | Always | Below 1 Ω |
| L51-7 (GND) - F55-7 (GND) | Always | Below 1 Ω |
| L51-9 (TX1+) - F55-9 (TX2+) | Always | Below 1 Ω |
| L51-10 (TX1-) - F55-10 (TX2-) | Always | Below 1 Ω |
| L51-12 (+B) - Body ground | Always | 10 kΩ or higher |
| L51-11 (ACC) - Body ground | Always | 10 kΩ or higher |
| L51-7 (GND) - Body ground | Always | 10 kΩ or higher |
| L51-9 (TX1+) - Body ground | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| L51-10 (TX1-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU POWER SOURCE)

a. Disconnect the L51 multi-media interface ECU connector.

b. Measure the resistance according to the value(s) in the table below.

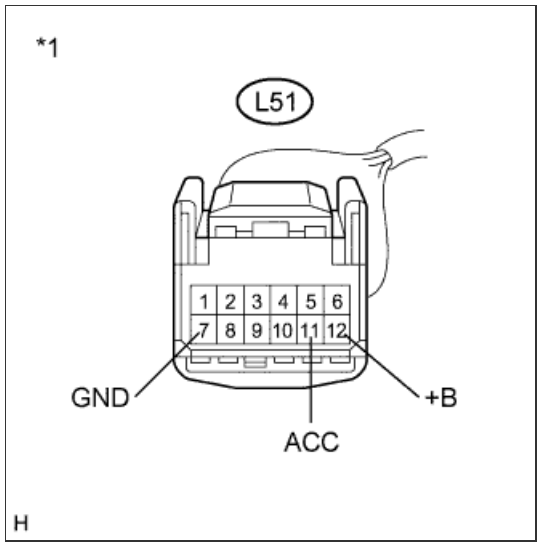
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-7 (GND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| L51-12 (+B) - L51-7 (GND) | Always | 11 to 14 V |
| L51-11 (ACC) - L51-7 (GND) | Engine switch on (ACC) | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Multi-media Interface ECU) |

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

## 6.REPLACE MULTI-MEDIA INTERFACE ECU

a. Replace the multi-media interface ECU (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

END

## DTC B15C0 Short in GPS Antenna

## DTC B15C1 Open in GPS Antenna

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the navigation antenna assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15C0 | Navigation antenna error | • Wire harness<br>• Navigation antenna assembly<br>• Display and navigation module display |
| B15C1 | Error of the power source to the navigation antenna assembly | |

### INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

**1.CHECK CONNECTION OF ANTENNA CABLE**

a. Check if the navigation antenna cable is securely connected to the display and navigation module display.

**OK:**
**Navigation antenna cable is securely connected.**

NG → **SECURELY CONNECT NAVIGATION ANTENNA CABLE**

OK

**2.REPLACE NAVIGATION ANTENNA ASSEMBLY**

a. Replace the navigation antenna assembly with a known good one and check if the same problem occurs again ( Click here).

i. Clear the DTCs (Click here).

ii. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK

**END**

## DTC B156E No Response from Multi-media Interface ECU

## DTC B156B Multi-media Interface ECU Disconnected

**for Preparation** Click here

### DESCRIPTION

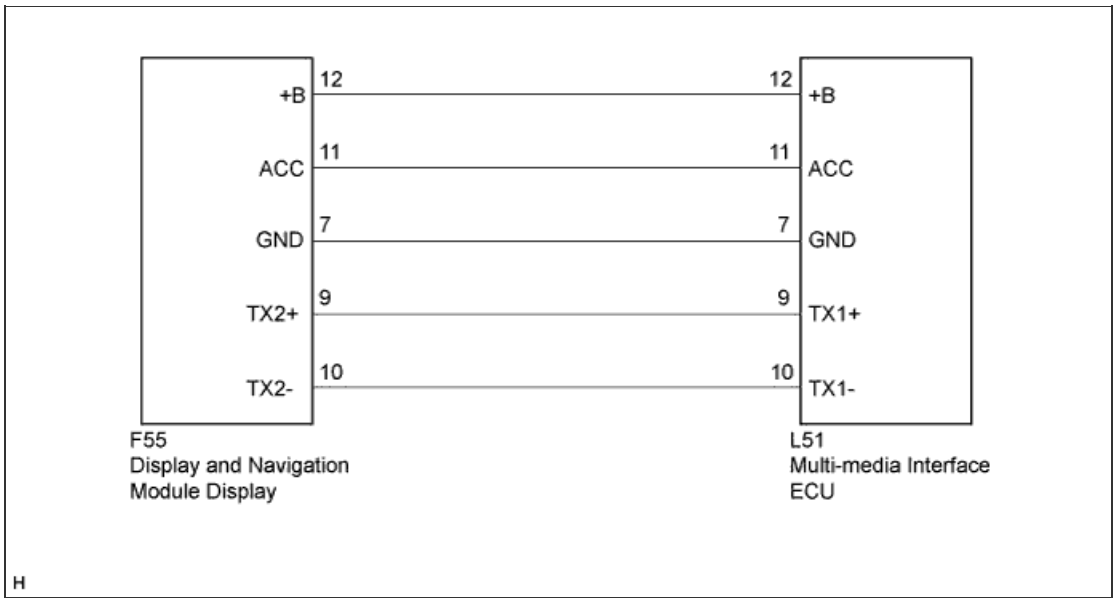
The display and navigation module display and multi-media interface ECU are connected by the AVC-LAN communication line.
When an AVC-LAN communication error occurs between the display and navigation module display and multi-media interface ECU, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B156E | No response to the diagnostic memory request from the master unit. | • Multi-media interface ECU power source circuit<br>• AVC-LAN circuit between display and navigation module display and multi-media interface ECU<br>• Multi-media interface ECU<br>• Display and navigation module display |
| B156B*1 | A device that is listed in the AVC-LAN connected device record of the master unit is missing. | |

**HINT:**

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

#### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated | |

| | |
|---|---|
| wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect AVC-LAN communication.**
- **This DTC may be stored when an AVC-LAN communication error occurs due to electrical noise.**

**B** → Go to step 3

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

**NG** → Go to step 4

**OK**

**END**

## 4.CHECK HARNESS AND CONNECTOR (INTERFACE ECU - NAVIGATION MODULE)

a. Disconnect the L51 multi-media interface ECU connector.

b. Disconnect the F55 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-12 (+B) - F55-12 (+B) | Always | Below 1 Ω |
| L51-11 (ACC) - F55-11 (ACC) | Always | Below 1 Ω |
| L51-7 (GND) - F55-7 (GND) | Always | Below 1 Ω |
| L51-9 (TX1+) - F55-9 (TX2+) | Always | Below 1 Ω |
| L51-10 (TX1-) - F55-10 (TX2-) | Always | Below 1 Ω |
| L51-12 (+B) - Body ground | Always | 10 kΩ or higher |
| L51-11 (ACC) - Body ground | Always | 10 kΩ or higher |
| L51-7 (GND) - Body ground | Always | 10 kΩ or higher |
| L51-9 (TX1+) - Body ground | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| L51-10 (TX1-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU POWER SOURCE)

a. Disconnect the L51 multi-media interface ECU connector.

b. Measure the resistance according to the value(s) in the table below.

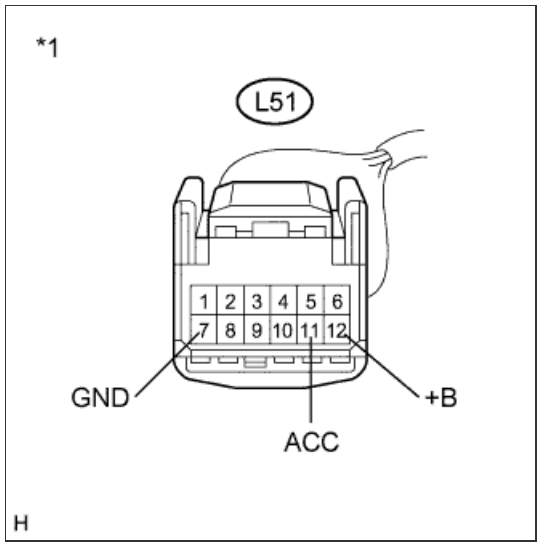
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-7 (GND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| L51-12 (+B) - L51-7 (GND) | Always | 11 to 14 V |
| L51-11 (ACC) - L51-7 (GND) | Engine switch on (ACC) | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Multi-media Interface ECU) |

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

## 6.REPLACE MULTI-MEDIA INTERFACE ECU

a. Replace the multi-media interface ECU (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

END

## DTC B15C2 Speed Signal Malfunction

**for Preparation** Click here

### DESCRIPTION

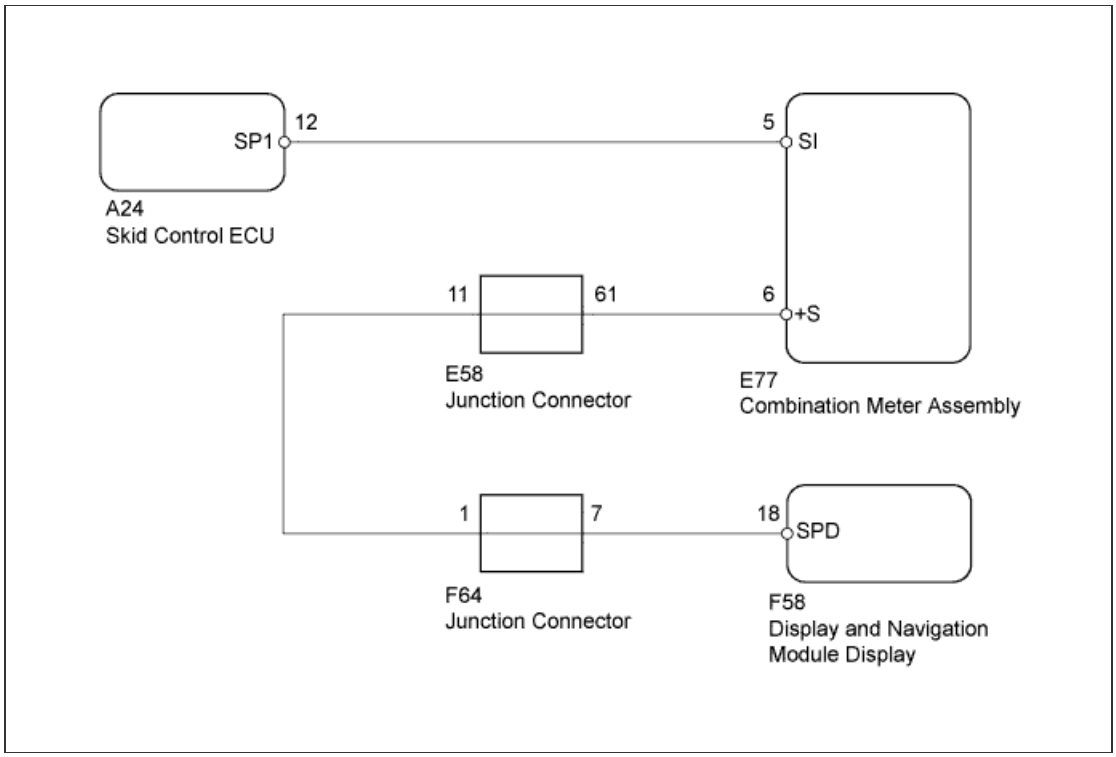
The display and navigation module display receives a vehicle speed signal from the combination meter assembly and information from the navigation antenna, and then adjusts vehicle position.
The display and navigation module display stores this DTC when the difference between the speed information that the navigation antenna receives and the SPD pulse received from the combination meter assembly becomes large.

**HINT:**

- **A voltage of 12 V or 5 V is output from each ECU and then input to the combination meter assembly. The signal is changed to a pulse signal at the transistor in the combination meter assembly. Each ECU controls the respective systems based on the pulse signal.**
- **If a short occurs in any of the ECUs or in the wire harness connected to an ECU, all systems in the diagram below will not operate normally.**

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15C2 | A difference between the GPS speed and SPD pulse is detected | • Wire harness or connector<br>• Combination meter assembly<br>• Display and navigation module display |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

**1.CHECK VEHICLE SENSOR (OPERATION CHECK)**

a. Enter the "Vehicle Sensors" screen. Refer to Check GPS & Vehicle Sensors in Operation Check (Click here).

b. While driving the vehicle, compare the "SPD" indicator to the reading on the

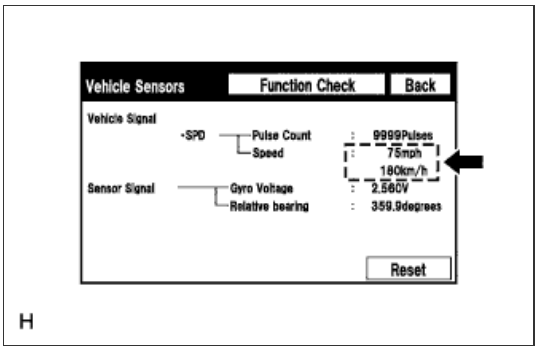
speedometer. Check if these readings are almost equal.

**HINT:**

The meter ECU receives the vehicle speed signal from the skid control ECU via the direct line. Therefore, perform the following inspection referring to values on the Data List of the skid control ECU because it is the source of the vehicle speed signal.

**OK:**

**Vehicle speed displayed on the "Vehicle Sensors" screen is almost the same as the actual vehicle speed measured using the intelligent tester (Click here).**




NG → Go to step 2

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

## 2.INSPECT COMBINATION METER ASSEMBLY (OUTPUT WAVEFORM)

a. Check the input waveform.

i. Remove the combination meter assembly with the connector(s) still connected.

ii. Connect an oscilloscope to terminal E77-6 (+S) and body ground.

iii. Turn the engine switch on (IG).

iv. Turn the wheel slowly.

v. Check the signal waveform according to the condition(s) in the table below.

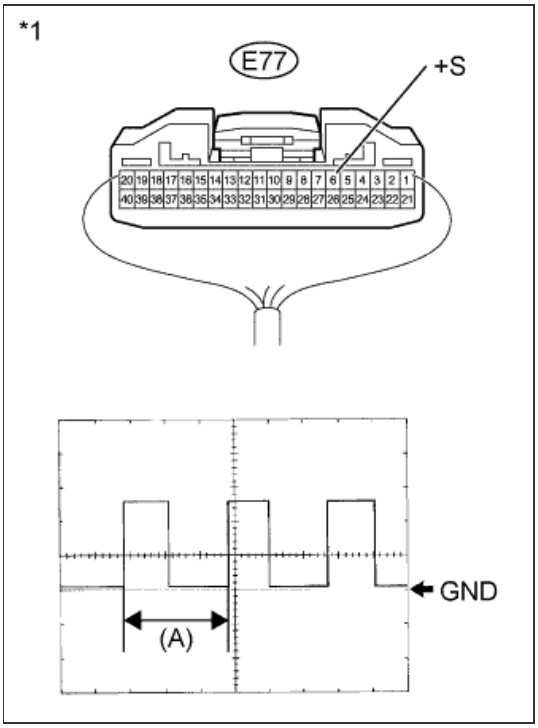
| Item | Condition |
|---|---|
| Measurement terminal | E77-6 (+S) - Body ground |
| Tool setting | 5 V/DIV., 20 ms./DIV. |
| Vehicle condition | Driving at approx. 20 km/h (12 mph) |

**OK:**

**The waveform is displayed as shown in the illustration.**

**HINT:**

When the system is functioning normally, one wheel revolution generates 4 pulses. As the vehicle speed increases, the width indicated by (A) in the illustration narrows.




**Text in Illustration**

| | |
|---|---|
| *1 | Rear view of wire harness connector (to Combination meter assembly) |

NG → GO TO METER / GAUGE SYSTEM (Click here)

OK

## 3.CHECK HARNESS AND CONNECTOR (NAVIGATION MODULE - COMBINATION METER)

a. Disconnect the F58 display and navigation module display connector.

b. Disconnect the E77 combination meter assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-18 (SPD) - E77-6 (+S) | Always | Below 1 Ω |
| F58-18 (SPD) - | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

## DTC B1591 No Response from Audio HU

## DTC B15D1 Audio HU Disconnected

**for Preparation** Click here

### DESCRIPTION

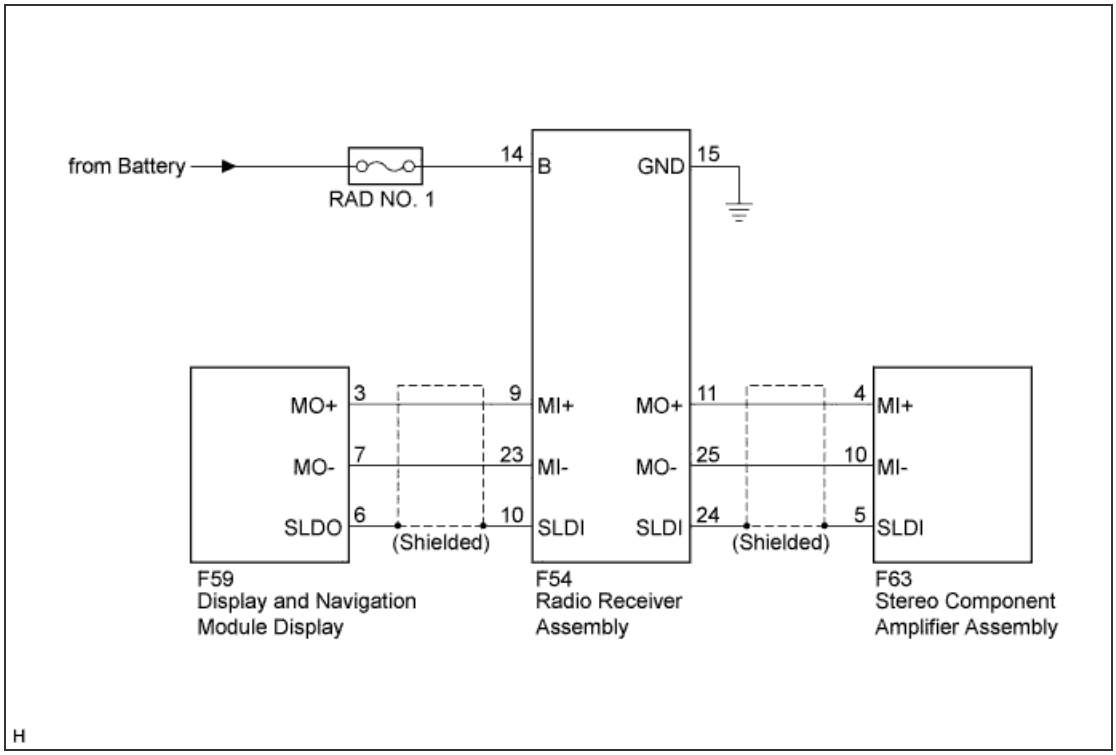
The display and navigation module display and radio receiver assembly are connected by the MOST communication line.
When a MOST communication error occurs between the display and navigation module display and radio receiver assembly, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1591 | No response to the diagnostic memory request from the master unit. | • Radio receiver assembly power source circuit<br>• MOST circuit between display and navigation module display and radio receiver assembly<br>• MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>• Radio receiver assembly<br>• Display and navigation module display |
| B15D1 | A device that is listed in the MOST network connected device record of the master unit is missing. | |

**HINT:**

For the MOST network, the display and navigation module display is the master unit.

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**
- **When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) (Click here).**

#### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when a MOST communication error occurs due to electrical noise.**

**B** → Go to step 3

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

**NG** → Go to step 4

**OK**

**END**

## 4.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY POWER SOURCE)

a. Disconnect the F54 radio receiver assembly connector.

b. Measure the resistance according to the value(s) in the table below.

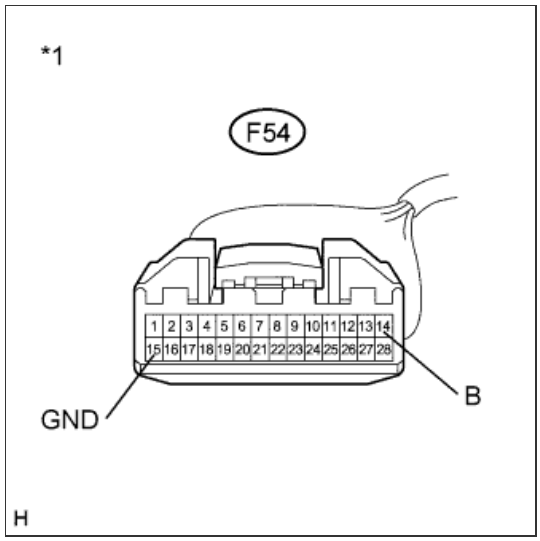
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-15 (GND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F54-14 (B) - F54-15 (GND) | Engine switch off | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| | Front view of wire harness connector |

| | |
|---|---|
| *1 | (to Radio Receiver Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - NAVIGATION MODULE)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-9 (MI+) - F59-3 (MO+) | Always | Below 1 Ω |
| F54-23 (MI-) - F59-7 (MO-) | Always | Below 1 Ω |
| F54-10 (SLDI) - F59-6 (SLDO) | Always | Below 1 Ω |
| F54-9 (MI+) - Body ground | Always | 10 kΩ or higher |
| F54-23 (MI-) - Body ground | Always | 10 kΩ or higher |
| F54-10 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 6.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - AMPLIFIER)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-11 (MO+) - F63-4 (MI+) | Always | Below 1 Ω |
| F54-25 (MO-) - F63-10 (MI-) | Always | Below 1 Ω |
| F54-24 (SLDI) - F63-5 (SLDI) | Always | Below 1 Ω |
| F54-11 (MO+) - Body ground | Always | 10 kΩ or higher |
| F54-25 (MO-) - Body ground | Always | 10 kΩ or higher |
| F54-24 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 7.REPLACE RADIO RECEIVER ASSEMBLY

a. Replace the radio receiver assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

**NG** → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

**OK**

**END**

## DTC B15C2 Speed Signal Malfunction

**for Preparation** Click here

### DESCRIPTION

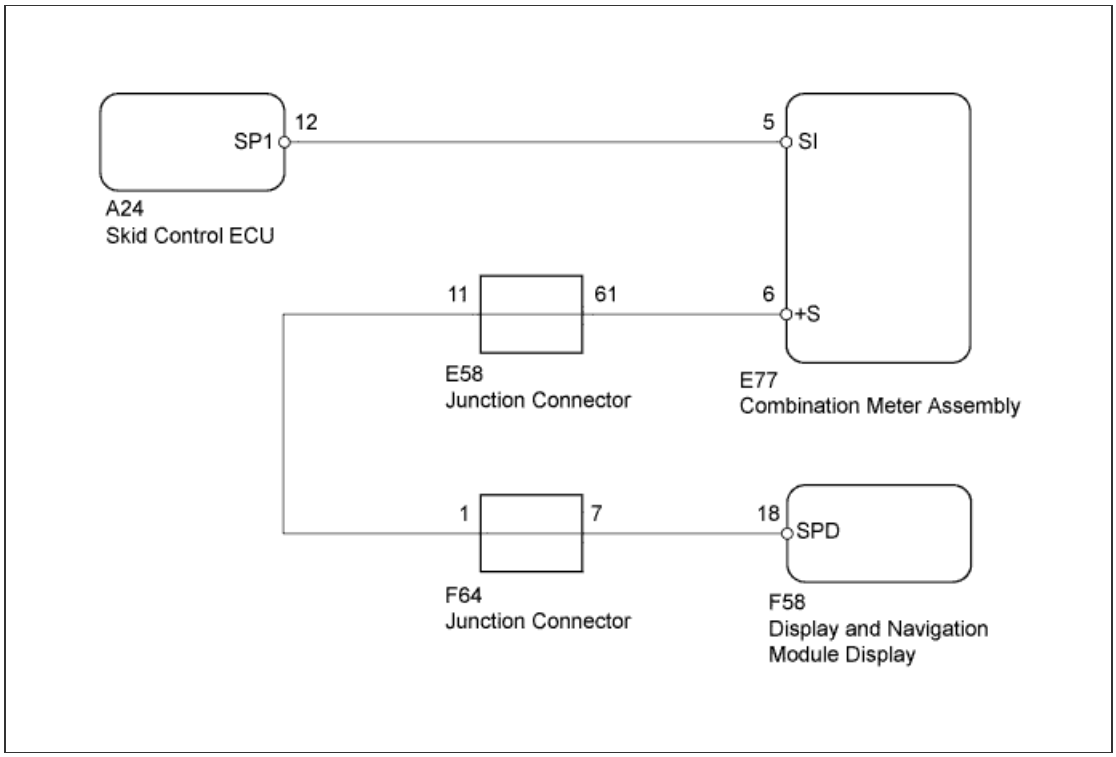
The display and navigation module display receives a vehicle speed signal from the combination meter assembly and information from the navigation antenna, and then adjusts vehicle position.
The display and navigation module display stores this DTC when the difference between the speed information that the navigation antenna receives and the SPD pulse received from the combination meter assembly becomes large.

**HINT:**

- **A voltage of 12 V or 5 V is output from each ECU and then input to the combination meter assembly. The signal is changed to a pulse signal at the transistor in the combination meter assembly. Each ECU controls the respective systems based on the pulse signal.**
- **If a short occurs in any of the ECUs or in the wire harness connected to an ECU, all systems in the diagram below will not operate normally.**

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15C2 | A difference between the GPS speed and SPD pulse is detected | • Wire harness or connector<br>• Combination meter assembly<br>• Display and navigation module display |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

**1.CHECK VEHICLE SENSOR (OPERATION CHECK)**

a. Enter the "Vehicle Sensors" screen. Refer to Check GPS & Vehicle Sensors in Operation Check (Click here).

b. While driving the vehicle, compare the "SPD" indicator to the reading on the

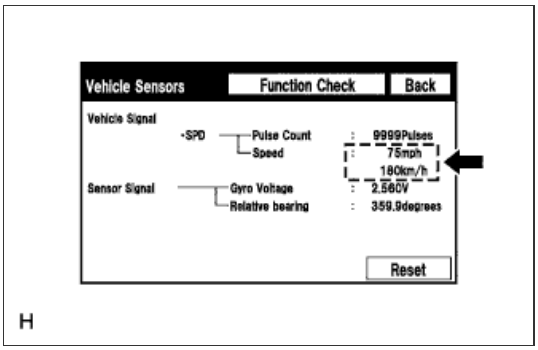
speedometer. Check if these readings are almost equal.

**HINT:**

The meter ECU receives the vehicle speed signal from the skid control ECU via the direct line. Therefore, perform the following inspection referring to values on the Data List of the skid control ECU because it is the source of the vehicle speed signal.

**OK:**

**Vehicle speed displayed on the "Vehicle Sensors" screen is almost the same as the actual vehicle speed measured using the intelligent tester (Click here).**




NG → Go to step 2

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

## 2.INSPECT COMBINATION METER ASSEMBLY (OUTPUT WAVEFORM)

a. Check the input waveform.

i. Remove the combination meter assembly with the connector(s) still connected.

ii. Connect an oscilloscope to terminal E77-6 (+S) and body ground.

iii. Turn the engine switch on (IG).

iv. Turn the wheel slowly.

v. Check the signal waveform according to the condition(s) in the table below.

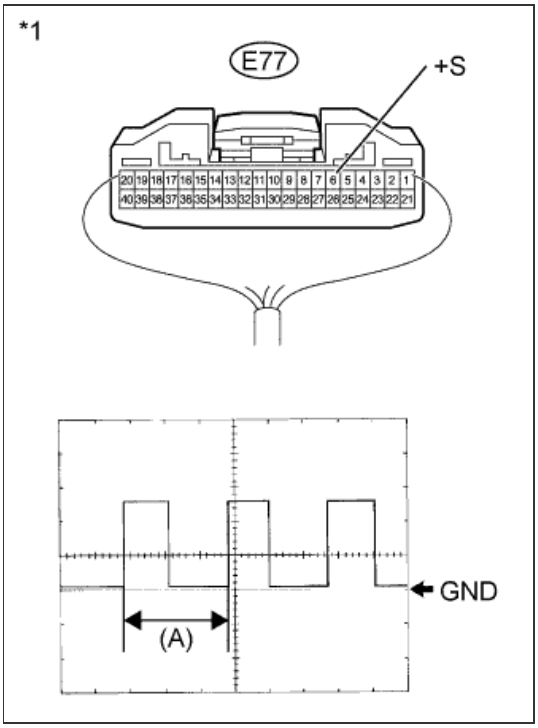
| Item | Condition |
|---|---|
| Measurement terminal | E77-6 (+S) - Body ground |
| Tool setting | 5 V/DIV., 20 ms./DIV. |
| Vehicle condition | Driving at approx. 20 km/h (12 mph) |

**OK:**

**The waveform is displayed as shown in the illustration.**

**HINT:**

When the system is functioning normally, one wheel revolution generates 4 pulses. As the vehicle speed increases, the width indicated by (A) in the illustration narrows.




**Text in Illustration**

| | |
|---|---|
| *1 | Rear view of wire harness connector (to Combination meter assembly) |

NG → GO TO METER / GAUGE SYSTEM (Click here)

OK

## 3.CHECK HARNESS AND CONNECTOR (NAVIGATION MODULE - COMBINATION METER)

a. Disconnect the F58 display and navigation module display connector.

b. Disconnect the E77 combination meter assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-18 (SPD) - E77-6 (+S) | Always | Below 1 Ω |
| F58-18 (SPD) - | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| Body ground | | |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

## DTC B1591 No Response from Audio HU

## DTC B15D1 Audio HU Disconnected

**for Preparation** Click here

### DESCRIPTION

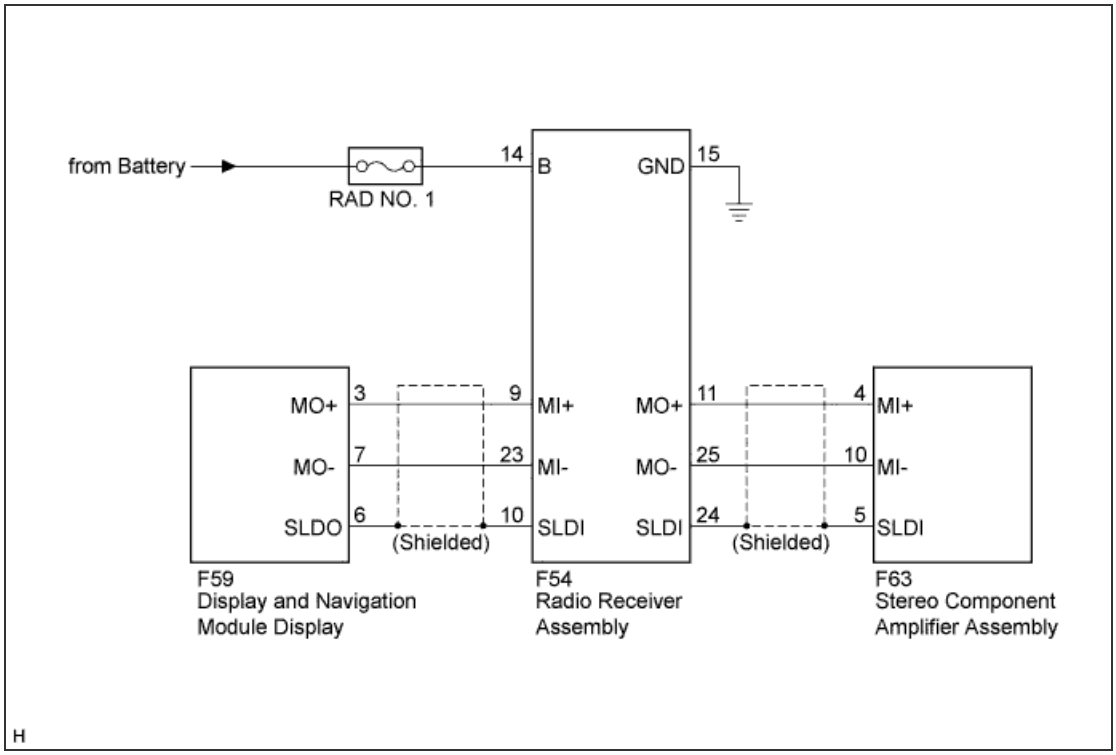
The display and navigation module display and radio receiver assembly are connected by the MOST communication line.
When a MOST communication error occurs between the display and navigation module display and radio receiver assembly, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1591 | No response to the diagnostic memory request from the master unit. | • Radio receiver assembly power source circuit<br>• MOST circuit between display and navigation module display and radio receiver assembly<br>• MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>• Radio receiver assembly<br>• Display and navigation module display |
| B15D1 | A device that is listed in the MOST network connected device record of the master unit is missing. | |

**HINT:**

For the MOST network, the display and navigation module display is the master unit.

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**
- **When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) (Click here).**

#### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when a MOST communication error occurs due to electrical noise.**

**B** → Go to step 3

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

**NG** → Go to step 4

**OK**

**END**

## 4.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY POWER SOURCE)

a. Disconnect the F54 radio receiver assembly connector.

b. Measure the resistance according to the value(s) in the table below.

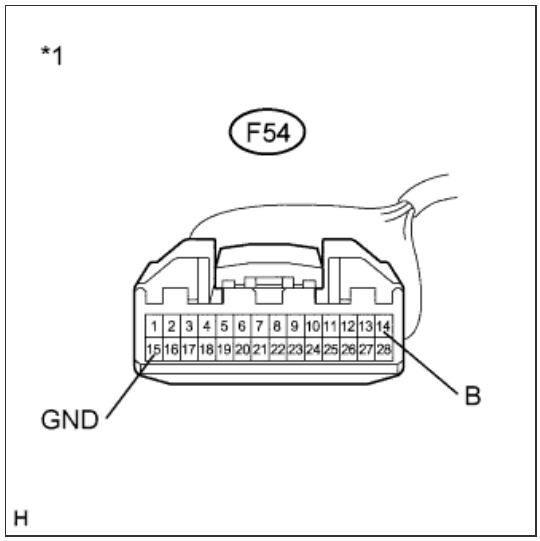
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-15 (GND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F54-14 (B) - F54-15 (GND) | Engine switch off | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| | Front view of wire harness connector |

| | |
|---|---|
| *1 | (to Radio Receiver Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - NAVIGATION MODULE)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-9 (MI+) - F59-3 (MO+) | Always | Below 1 Ω |
| F54-23 (MI-) - F59-7 (MO-) | Always | Below 1 Ω |
| F54-10 (SLDI) - F59-6 (SLDO) | Always | Below 1 Ω |
| F54-9 (MI+) - Body ground | Always | 10 kΩ or higher |
| F54-23 (MI-) - Body ground | Always | 10 kΩ or higher |
| F54-10 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 6.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - AMPLIFIER)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-11 (MO+) - F63-4 (MI+) | Always | Below 1 Ω |
| F54-25 (MO-) - F63-10 (MI-) | Always | Below 1 Ω |
| F54-24 (SLDI) - F63-5 (SLDI) | Always | Below 1 Ω |
| F54-11 (MO+) - Body ground | Always | 10 kΩ or higher |
| F54-25 (MO-) - Body ground | Always | 10 kΩ or higher |
| F54-24 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 7.REPLACE RADIO RECEIVER ASSEMBLY

a. Replace the radio receiver assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

**NG** → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

**OK**

**END**

# DTC B15D0 MOST Communication Malfunction

**for Preparation** Click here

## DESCRIPTION

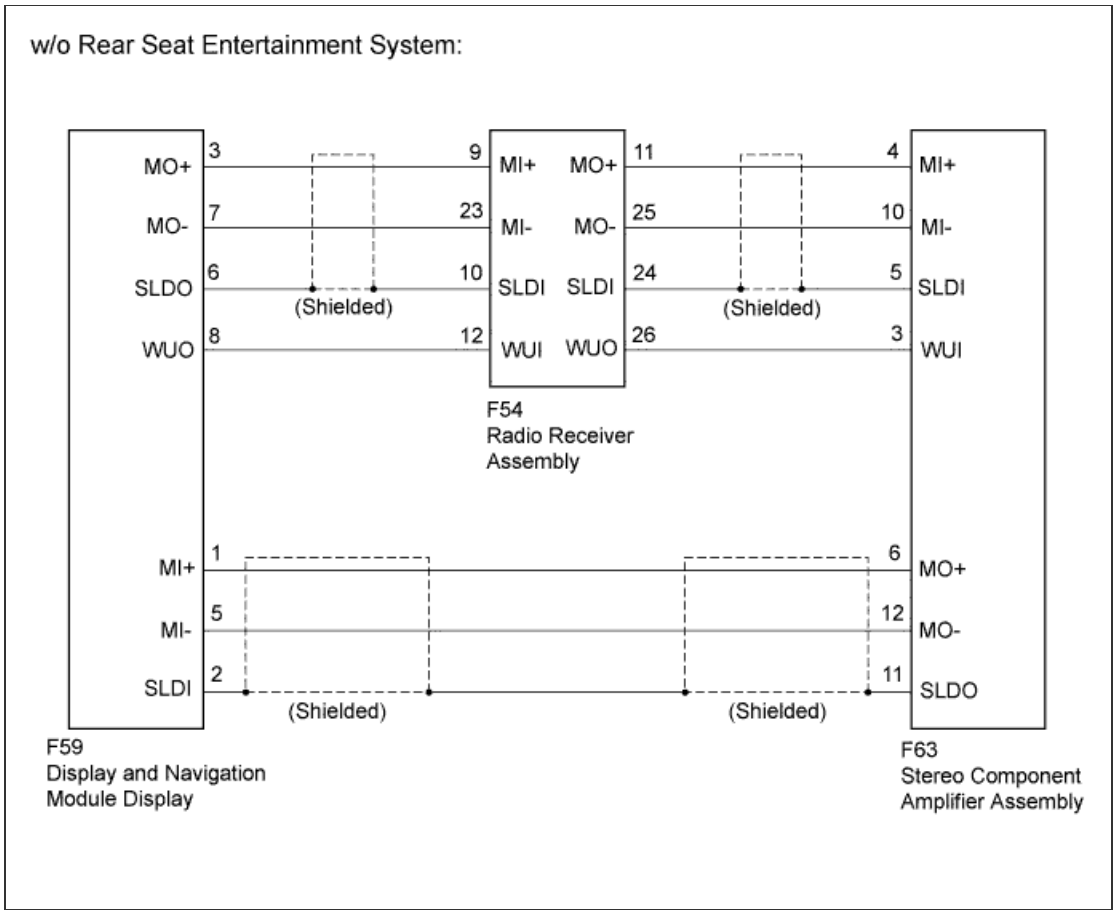
This DTC is stored when the MOST network cannot be established after the master unit is activated.

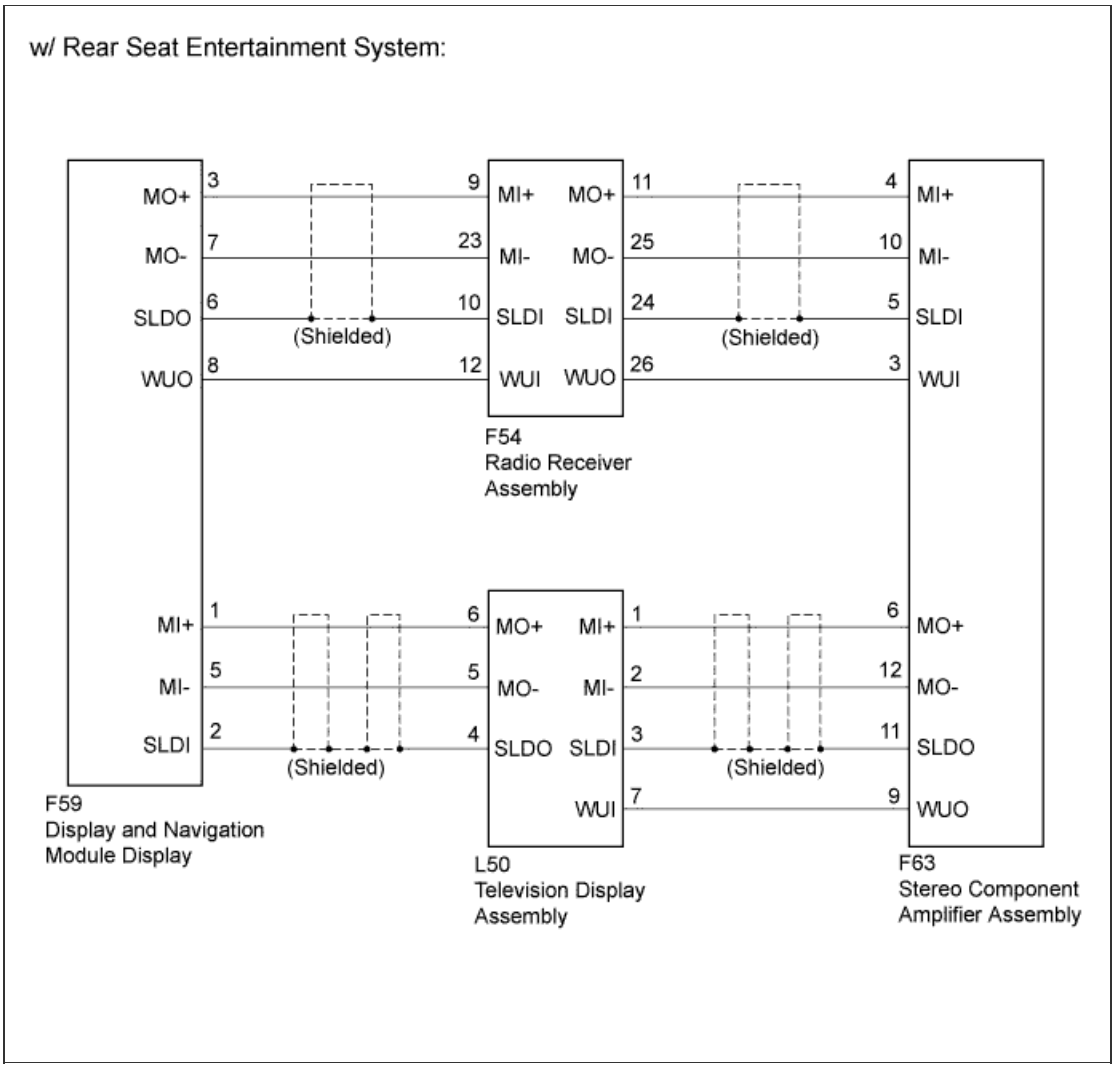
| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15D0 | MOST network cannot be established. | • MOST line check<br>• MOST communication line connector<br>• Wire harness or connector<br>• MOST communication line<br>• Radio receiver assembly<br>• Stereo component amplifier assembly<br>• Television display assembly (w/ Rear Seat Entertainment System)<br>• Display and navigation module display |

**HINT:**

- **For the MOST network, the display and navigation module display is the master unit.**
- **Errors may occur in MOST communication between devices due to problems such as electrical noise.**

## WIRING DIAGRAM






## INSPECTION PROCEDURE

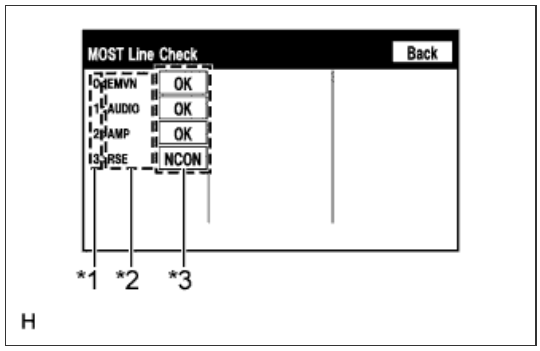
**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

### 1.PERFORM MOST LINE CHECK

a. Display the "MOST Line Check" screen ( Click here).

b. Check the result on the "MOST Line Check" screen.




**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "AUDIO". | A |
| "NCON" is displayed for "AMP". | B |
| "NCON" is displayed for "RSE" (w/ rear seat entertainment system). | C |
| "OK" is displayed for all items. | D |

**HINT:**

- **When "NCON" is displayed for more than 1 item, proceed to the step for the device that has the smallest node position number.**
- **The "MOST Line Check" screen can be displayed only when DTC B15D0 is stored.**

**Text in Illustration**

| | |
|---|---|
| *1 | Node position number for devices that use MOST communication |
| *2 | Device name |
| | |

| | |
|---|---|
| *3 | Result |

| | |
|---|---|
| B | Go to step 5 |
| C | Go to step 8 |
| D | Go to step 11 |

A

## 2.CHECK MOST COMMUNICATION CONNECTOR

a. Check MOST communication line connector.

i. Check if a MOST communication line connector between the display and navigation module display and radio receiver assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "AUDIO". | A |
| The screen cannot be changed to the "MOST Line Check" screen. | B |

**HINT:**

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

| | |
|---|---|
| B | END |

A

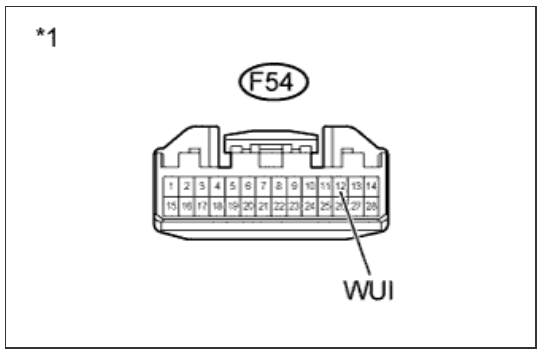
## 3.CHECK HARNESS AND CONNECTOR (WAKE UP SIGNAL)

a. Disconnect the F54 radio receiver assembly connector.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F54-12 (WUI) - Body ground | Engine switch on (ACC) | 4.5 V or higher |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Radio Receiver Assembly) |

| | |
|---|---|
| NG | Go to step 4 |

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

## 4.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-12 (WUI) - F59-8 (WUO) | Always | Below 1 Ω |
| F54-12 (WUI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

## 5.CHECK MOST COMMUNICATION CONNECTOR

a. Check MOST communication line connector.

i. Check if a MOST communication line connector between the radio receiver assembly and stereo component amplifier assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "AMP". | A |
| The screen cannot be changed to the "MOST Line Check" screen. | B |

**HINT:**

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

B → END

A

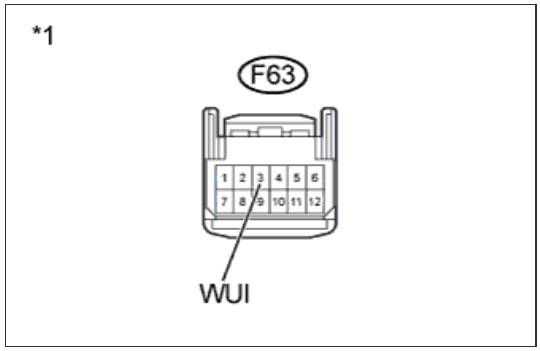
## 6.CHECK HARNESS AND CONNECTOR (WAKE UP SIGNAL)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F63-3 (WUI) - Body ground | Engine switch on (ACC) | 4.5 V or higher |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |

NG → Go to step 7

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 7.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - RADIO RECEIVER)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-3 (WUI) - F54-26 (WUO) | Always | Below 1 Ω |
| F63-3 (WUI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK →

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

## 8.CHECK MOST COMMUNICATION CONNECTOR

a. Check MOST communication line connector.

i. Check if a MOST communication line connector between the stereo component amplifier assembly and television display assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "RSE". | A |
| The screen cannot be changed to the "MOST Line Check" screen. | B |

**HINT:**

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

B → END

A →

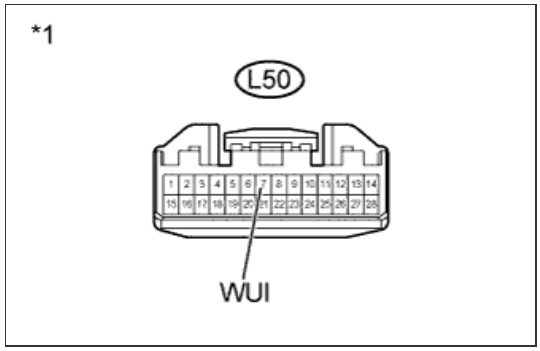
## 9.CHECK HARNESS AND CONNECTOR (WAKE UP SIGNAL)

a. Disconnect the L50 television display assembly connector.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| L50-7 (WUI) - Body ground | Engine switch on (ACC) | 4.5 V or higher |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Television Display Assembly) |

NG → Go to step 10

OK →

REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

## 10.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - STEREO COMPONENT AMPLIFIER)

a. Disconnect the L50 television display assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-7 (WUI) - F63-9 (WUO) | Always | Below 1 Ω |
| L50-7 (WUI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 11.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - RADIO RECEIVER)

a. Disconnect the F59 display and navigation module display connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F59-3 (MO+) - F54-9 (MI+) | Always | Below 1 Ω |
| F59-7 (MO-) - F54-23 (MI-) | Always | Below 1 Ω |
| F59-6 (SLDO) - F54-10 (SLDI) | Always | Below 1 Ω |
| F59-3 (MO+) - Body ground | Always | 10 kΩ or higher |
| F59-7 (MO-) - Body ground | Always | 10 kΩ or higher |
| F59-6 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 12.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - STEREO COMPONENT AMPLIFIER)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-11 (MO+) - F63-4 (MI+) | Always | Below 1 Ω |
| F54-25 (MO-) - F63-10 (MI-) | Always | Below 1 Ω |
| F54-24 (SLDI) - F63-5 (SLDI) | Always | Below 1 Ω |
| F54-11 (MO+) - Body ground | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| F54-25 (MO-) - Body ground | Always | 10 kΩ or higher |
| F54-24 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 13.CONFIRM MODEL

a. Choose the model to be inspected.

**Result**

| Result | Proceed to |
|---|---|
| w/o Rear Seat Entertainment System | A |
| w/ Rear Seat Entertainment System | B |

B → Go to step 16

A

## 14.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 15.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

USE SIMULATION METHOD TO CHECK (Click here)

16.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - TELEVISION DISPLAY)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the L50 television display assembly.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - L50-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - L50-2 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - L50-3 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

17.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the L50 television display assembly.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| L50-5 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| L50-4 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| L50-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| L50-5 (MO-) - Body ground | Always | 10 kΩ or higher |
| L50-4 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

18.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**

No DTCs are output.

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

USE SIMULATION METHOD TO CHECK (Click here)

## DTC B1591 No Response from Audio HU

## DTC B15D1 Audio HU Disconnected

**for Preparation** Click here

### DESCRIPTION

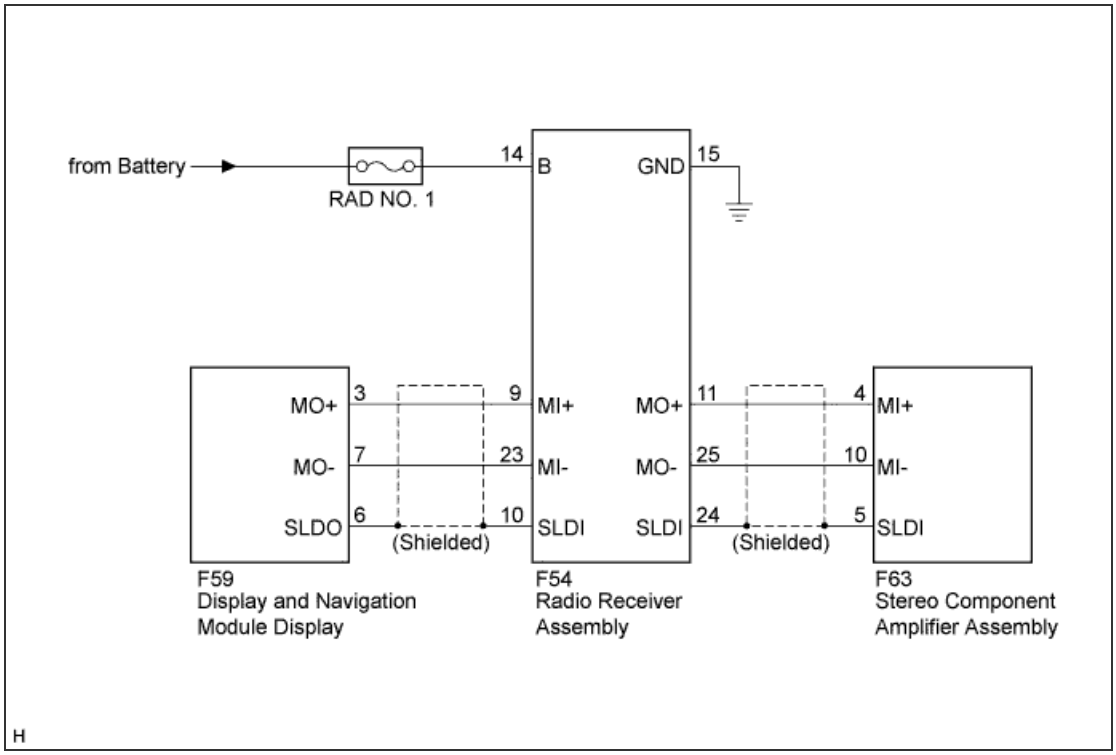
The display and navigation module display and radio receiver assembly are connected by the MOST communication line.
When a MOST communication error occurs between the display and navigation module display and radio receiver assembly, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1591 | No response to the diagnostic memory request from the master unit. | • Radio receiver assembly power source circuit<br>• MOST circuit between display and navigation module display and radio receiver assembly<br>• MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>• Radio receiver assembly<br>• Display and navigation module display |
| B15D1 | A device that is listed in the MOST network connected device record of the master unit is missing. | |

**HINT:**

For the MOST network, the display and navigation module display is the master unit.

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**
- **When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) (Click here).**

#### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when a MOST communication error occurs due to electrical noise.**

**B** → Go to step 3

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

**NG** → Go to step 4

**OK**

**END**

## 4.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY POWER SOURCE)

a. Disconnect the F54 radio receiver assembly connector.

b. Measure the resistance according to the value(s) in the table below.

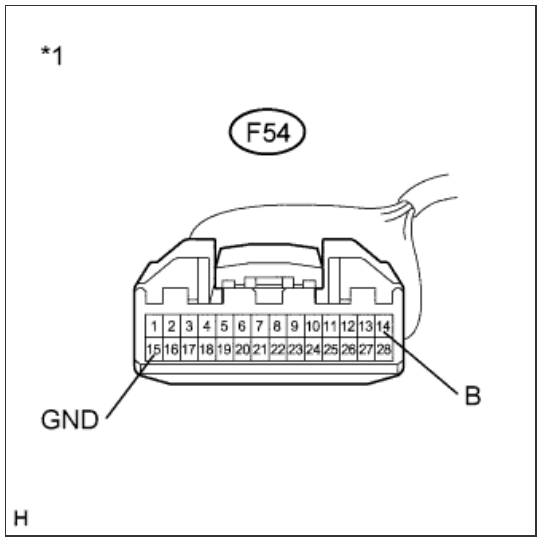
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-15 (GND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F54-14 (B) - F54-15 (GND) | Engine switch off | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| | Front view of wire harness connector |

| | |
|---|---|
| *1 | (to Radio Receiver Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - NAVIGATION MODULE)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-9 (MI+) - F59-3 (MO+) | Always | Below 1 Ω |
| F54-23 (MI-) - F59-7 (MO-) | Always | Below 1 Ω |
| F54-10 (SLDI) - F59-6 (SLDO) | Always | Below 1 Ω |
| F54-9 (MI+) - Body ground | Always | 10 kΩ or higher |
| F54-23 (MI-) - Body ground | Always | 10 kΩ or higher |
| F54-10 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 6.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - AMPLIFIER)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-11 (MO+) - F63-4 (MI+) | Always | Below 1 Ω |
| F54-25 (MO-) - F63-10 (MI-) | Always | Below 1 Ω |
| F54-24 (SLDI) - F63-5 (SLDI) | Always | Below 1 Ω |
| F54-11 (MO+) - Body ground | Always | 10 kΩ or higher |
| F54-25 (MO-) - Body ground | Always | 10 kΩ or higher |
| F54-24 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 7.REPLACE RADIO RECEIVER ASSEMBLY

a. Replace the radio receiver assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

**NG** → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

**OK**

**END**

# DTC B15D0 MOST Communication Malfunction

**for Preparation** Click here

## DESCRIPTION

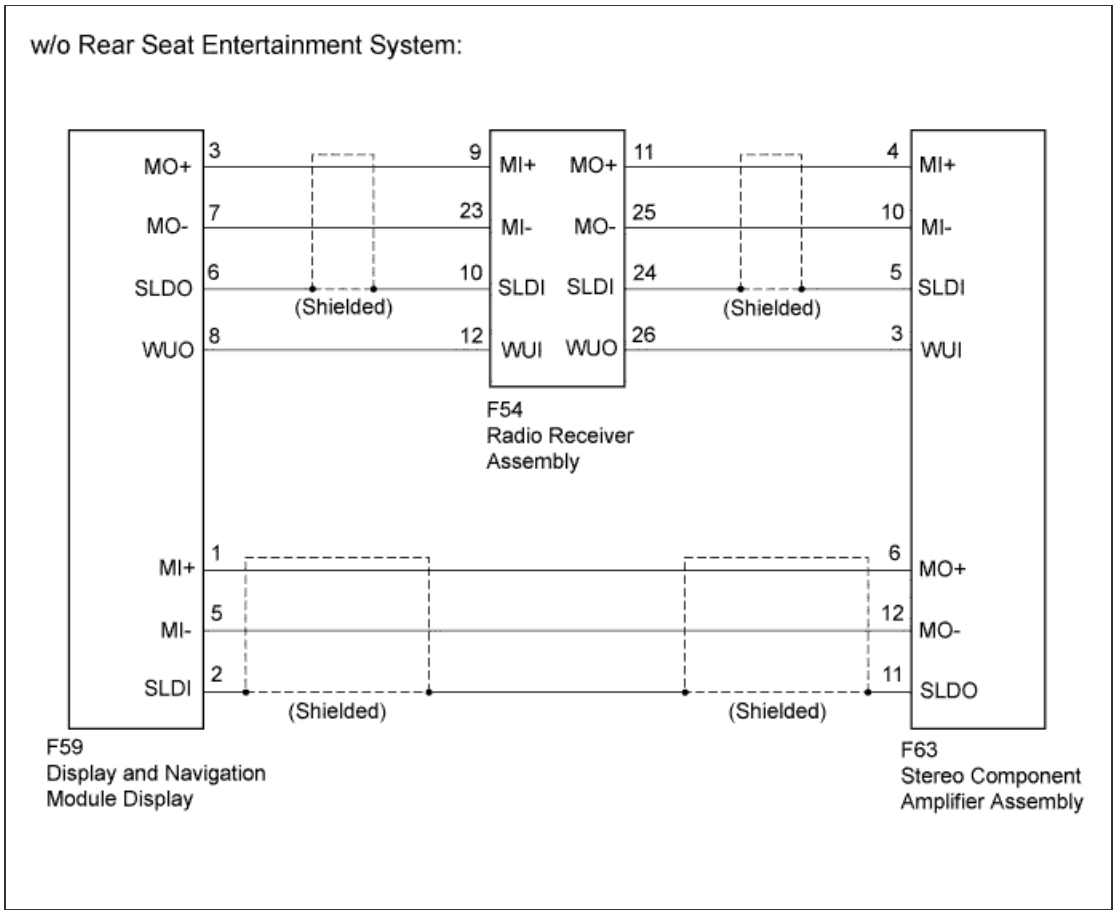
This DTC is stored when the MOST network cannot be established after the master unit is activated.

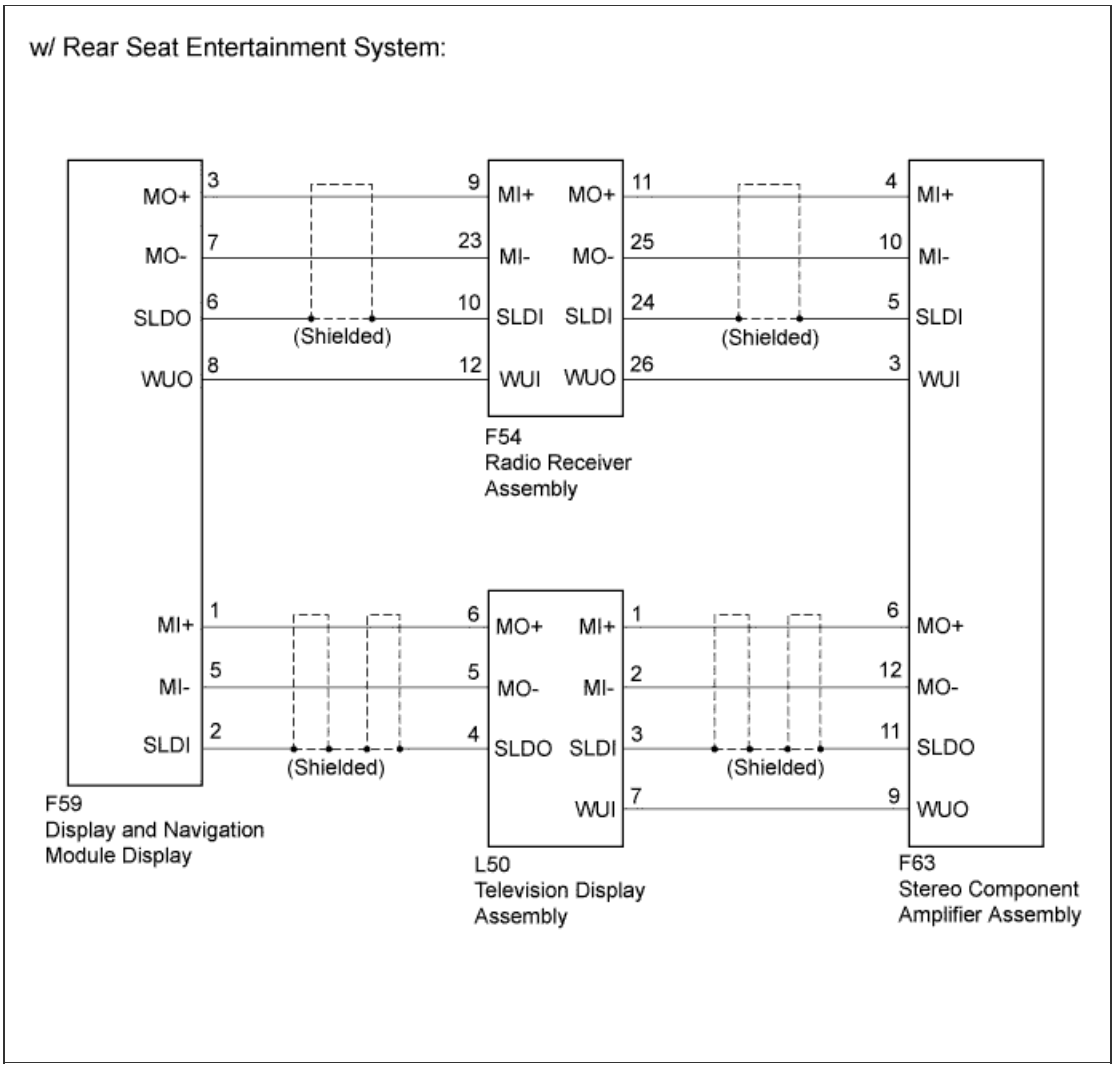
| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15D0 | MOST network cannot be established. | • MOST line check<br>• MOST communication line connector<br>• Wire harness or connector<br>• MOST communication line<br>• Radio receiver assembly<br>• Stereo component amplifier assembly<br>• Television display assembly (w/ Rear Seat Entertainment System)<br>• Display and navigation module display |

**HINT:**

- **For the MOST network, the display and navigation module display is the master unit.**
- **Errors may occur in MOST communication between devices due to problems such as electrical noise.**

## WIRING DIAGRAM






## INSPECTION PROCEDURE

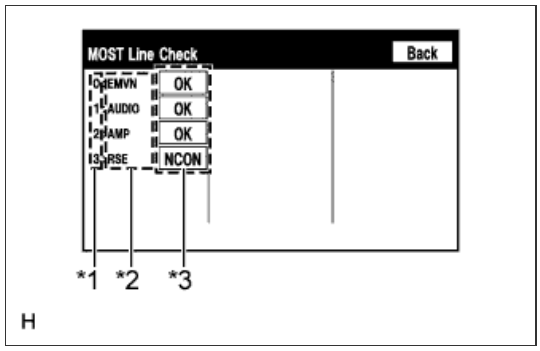
**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

### 1.PERFORM MOST LINE CHECK

a. Display the "MOST Line Check" screen ( Click here).

b. Check the result on the "MOST Line Check" screen.




**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "AUDIO". | A |
| "NCON" is displayed for "AMP". | B |
| "NCON" is displayed for "RSE" (w/ rear seat entertainment system). | C |
| "OK" is displayed for all items. | D |

**HINT:**

- **When "NCON" is displayed for more than 1 item, proceed to the step for the device that has the smallest node position number.**
- **The "MOST Line Check" screen can be displayed only when DTC B15D0 is stored.**

**Text in Illustration**

| | |
|---|---|
| *1 | Node position number for devices that use MOST communication |
| *2 | Device name |
| | |

| | |
|---|---|
| *3 | Result |

| | |
|---|---|
| B | Go to step 5 |
| C | Go to step 8 |
| D | Go to step 11 |

A

## 2.CHECK MOST COMMUNICATION CONNECTOR

a. Check MOST communication line connector.

i. Check if a MOST communication line connector between the display and navigation module display and radio receiver assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "AUDIO". | A |
| The screen cannot be changed to the "MOST Line Check" screen. | B |

**HINT:**

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

| | |
|---|---|
| B | END |

A

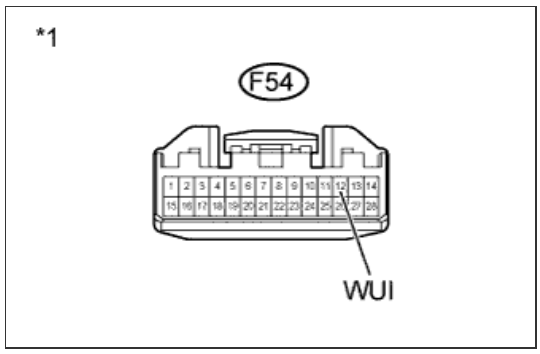
## 3.CHECK HARNESS AND CONNECTOR (WAKE UP SIGNAL)

a. Disconnect the F54 radio receiver assembly connector.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F54-12 (WUI) - Body ground | Engine switch on (ACC) | 4.5 V or higher |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Radio Receiver Assembly) |

| | |
|---|---|
| NG | Go to step 4 |

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

## 4.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-12 (WUI) - F59-8 (WUO) | Always | Below 1 Ω |
| F54-12 (WUI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

## 5.CHECK MOST COMMUNICATION CONNECTOR

a. Check MOST communication line connector.

i. Check if a MOST communication line connector between the radio receiver assembly and stereo component amplifier assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "AMP". | A |
| The screen cannot be changed to the "MOST Line Check" screen. | B |

**HINT:**

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

B → END

A

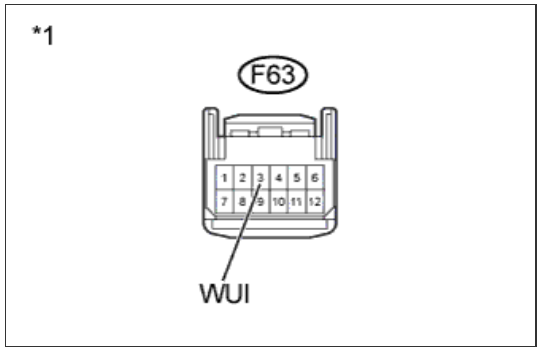
## 6.CHECK HARNESS AND CONNECTOR (WAKE UP SIGNAL)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F63-3 (WUI) - Body ground | Engine switch on (ACC) | 4.5 V or higher |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |

NG → Go to step 7

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 7.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - RADIO RECEIVER)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-3 (WUI) - F54-26 (WUO) | Always | Below 1 Ω |
| F63-3 (WUI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK →

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

## 8.CHECK MOST COMMUNICATION CONNECTOR

a. Check MOST communication line connector.

i. Check if a MOST communication line connector between the stereo component amplifier assembly and television display assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "RSE". | A |
| The screen cannot be changed to the "MOST Line Check" screen. | B |

**HINT:**

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

B → END

A →

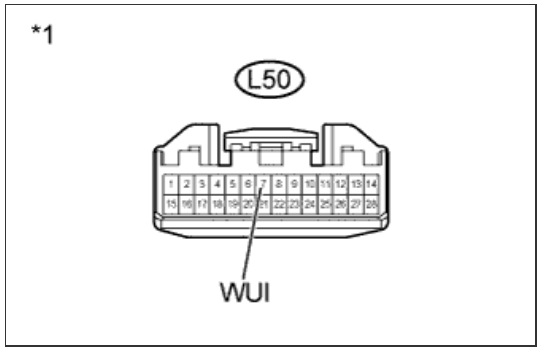
## 9.CHECK HARNESS AND CONNECTOR (WAKE UP SIGNAL)

a. Disconnect the L50 television display assembly connector.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| L50-7 (WUI) - Body ground | Engine switch on (ACC) | 4.5 V or higher |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Television Display Assembly) |

NG → Go to step 10

OK →

REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

## 10.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - STEREO COMPONENT AMPLIFIER)

a. Disconnect the L50 television display assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-7 (WUI) - F63-9 (WUO) | Always | Below 1 Ω |
| L50-7 (WUI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 11.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - RADIO RECEIVER)

a. Disconnect the F59 display and navigation module display connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F59-3 (MO+) - F54-9 (MI+) | Always | Below 1 Ω |
| F59-7 (MO-) - F54-23 (MI-) | Always | Below 1 Ω |
| F59-6 (SLDO) - F54-10 (SLDI) | Always | Below 1 Ω |
| F59-3 (MO+) - Body ground | Always | 10 kΩ or higher |
| F59-7 (MO-) - Body ground | Always | 10 kΩ or higher |
| F59-6 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 12.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - STEREO COMPONENT AMPLIFIER)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-11 (MO+) - F63-4 (MI+) | Always | Below 1 Ω |
| F54-25 (MO-) - F63-10 (MI-) | Always | Below 1 Ω |
| F54-24 (SLDI) - F63-5 (SLDI) | Always | Below 1 Ω |
| F54-11 (MO+) - Body ground | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| F54-25 (MO-) - Body ground | Always | 10 kΩ or higher |
| F54-24 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 13.CONFIRM MODEL

a. Choose the model to be inspected.

**Result**

| Result | Proceed to |
|---|---|
| w/o Rear Seat Entertainment System | A |
| w/ Rear Seat Entertainment System | B |

B → Go to step 16

A

## 14.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 15.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

USE SIMULATION METHOD TO CHECK (Click here)

16.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - TELEVISION DISPLAY)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the L50 television display assembly.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - L50-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - L50-2 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - L50-3 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

17.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the L50 television display assembly.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| L50-5 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| L50-4 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| L50-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| L50-5 (MO-) - Body ground | Always | 10 kΩ or higher |
| L50-4 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

18.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**

No DTCs are output.

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

USE SIMULATION METHOD TO CHECK (Click here)

## DTC B1591 No Response from Audio HU

## DTC B15D1 Audio HU Disconnected

**for Preparation** Click here

### DESCRIPTION

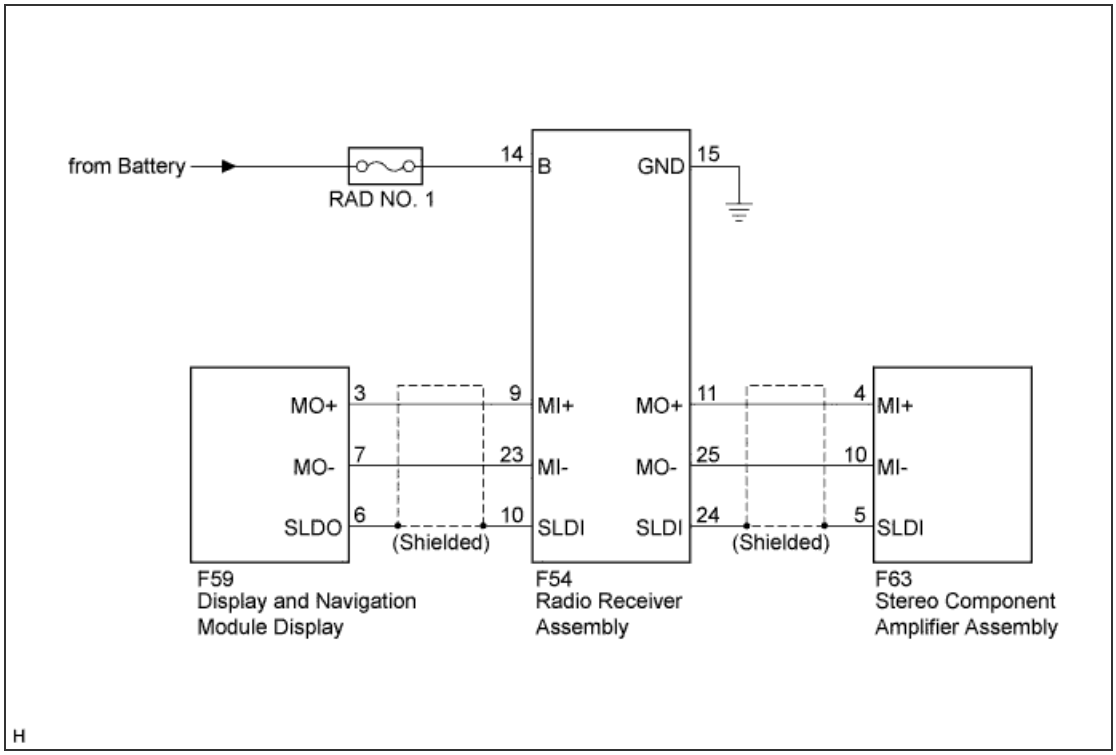
The display and navigation module display and radio receiver assembly are connected by the MOST communication line.
When a MOST communication error occurs between the display and navigation module display and radio receiver assembly, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1591 | No response to the diagnostic memory request from the master unit. | • Radio receiver assembly power source circuit<br>• MOST circuit between display and navigation module display and radio receiver assembly<br>• MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>• Radio receiver assembly<br>• Display and navigation module display |
| B15D1 | A device that is listed in the MOST network connected device record of the master unit is missing. | |

**HINT:**

For the MOST network, the display and navigation module display is the master unit.

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**
- **When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) (Click here).**

#### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when a MOST communication error occurs due to electrical noise.**

**B** → Go to step 3

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

**NG** → Go to step 4

**OK**

**END**

## 4.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY POWER SOURCE)

a. Disconnect the F54 radio receiver assembly connector.

b. Measure the resistance according to the value(s) in the table below.

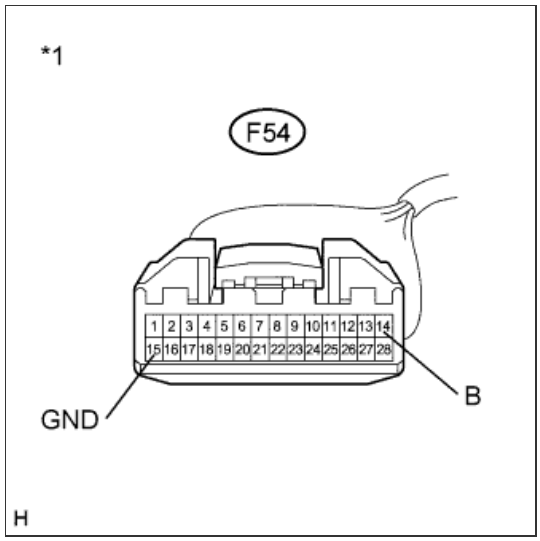
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-15 (GND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F54-14 (B) - F54-15 (GND) | Engine switch off | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| | Front view of wire harness connector |

| | |
|---|---|
| *1 | (to Radio Receiver Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - NAVIGATION MODULE)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-9 (MI+) - F59-3 (MO+) | Always | Below 1 Ω |
| F54-23 (MI-) - F59-7 (MO-) | Always | Below 1 Ω |
| F54-10 (SLDI) - F59-6 (SLDO) | Always | Below 1 Ω |
| F54-9 (MI+) - Body ground | Always | 10 kΩ or higher |
| F54-23 (MI-) - Body ground | Always | 10 kΩ or higher |
| F54-10 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 6.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - AMPLIFIER)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-11 (MO+) - F63-4 (MI+) | Always | Below 1 Ω |
| F54-25 (MO-) - F63-10 (MI-) | Always | Below 1 Ω |
| F54-24 (SLDI) - F63-5 (SLDI) | Always | Below 1 Ω |
| F54-11 (MO+) - Body ground | Always | 10 kΩ or higher |
| F54-25 (MO-) - Body ground | Always | 10 kΩ or higher |
| F54-24 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 7.REPLACE RADIO RECEIVER ASSEMBLY

a. Replace the radio receiver assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

**NG** → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

**OK**

**END**

## DTC B15D8 Monitor Disconnected

**for Preparation** Click here

### DESCRIPTION

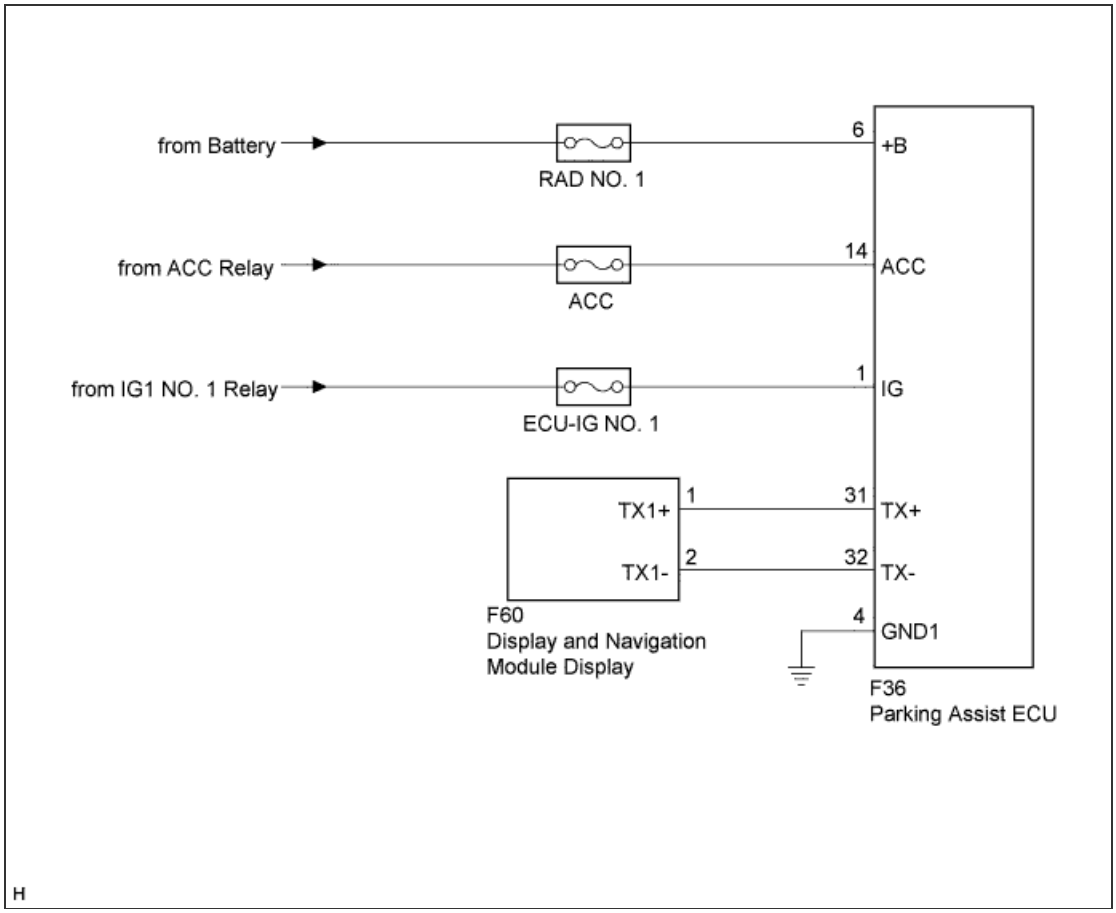
The display and navigation module display and parking assist ECU are connected by the AVC-LAN communication line.
When an AVC-LAN communication error occurs between the display and navigation module display and parking assist ECU, this DTC will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15D8 | A device that is listed in the AVC-LAN connected device record of the master unit is missing. | • Parking assist ECU power source circuit<br>• AVC-LAN circuit between display and navigation module display and parking assist ECU<br>• Parking assist ECU<br>• Display and navigation module display |

**HINT:**

The display and navigation module display is the master unit.

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

- **When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) (Click here).**
- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**

**1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)**

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect AVC-LAN communication.**
- **This DTC may be stored when an AVC-LAN communication error occurs due to electrical noise.**

**B** → Go to step 3

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTC (Click here).

b. Recheck for DTC and check if the same DTC is output again.

**OK:**
**No DTC is output.**

**NG** → Go to step 4

**OK**

## END

## 4.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU POWER SOURCE)

a. Disconnect the F36 parking assist ECU connector.

b. Measure the resistance according to the value(s) in the table below.

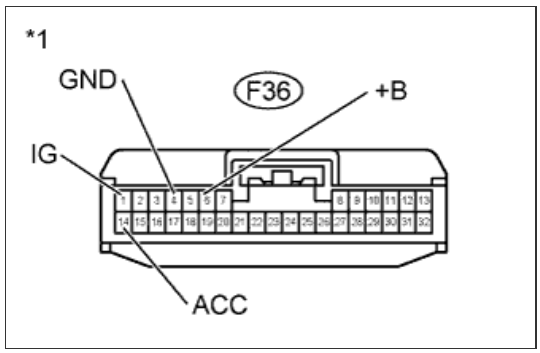
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F36-4 (GND1) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F36-6 (+B) - F36-4 (GND1) | Always | 11 to 14 V |
| F36-1 (IG) - F36-4 (GND1) | Engine switch on (IG) | 11 to 14 V |



| | | |
|---|---|---|
| F36-14 (ACC) - F36-4 (GND1) | Engine switch on (ACC) | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Parking Assist ECU) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**5.CHECK HARNESS AND CONNECTOR (ASSIST ECU - NAVIGATION MODULE)**

a. Disconnect the F36 parking assist ECU connector.

b. Disconnect the F60 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F36-31 (TX+) - F60-1 (TX1+) | Always | Below 1 Ω |
| F36-32 (TX-) - F60-2 (TX1-) | Always | Below 1 Ω |
| F36-31 (TX+) - Body ground | Always | 10 kΩ or higher |
| F36-32 (TX-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**6.REPLACE PARKING ASSIST ECU**

a. Replace the parking assist ECU (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTC and check if the same DTC is output again.

**OK:**
**No DTC is output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**END**

## DTC B1593 No Response from Stereo Component Amplifier

## DTC B15D3 Stereo Component Amplifier Disconnected

**for Preparation** Click here

### DESCRIPTION

The display and navigation module display and stereo component amplifier assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and stereo component amplifier assembly, these DTCs will be stored.

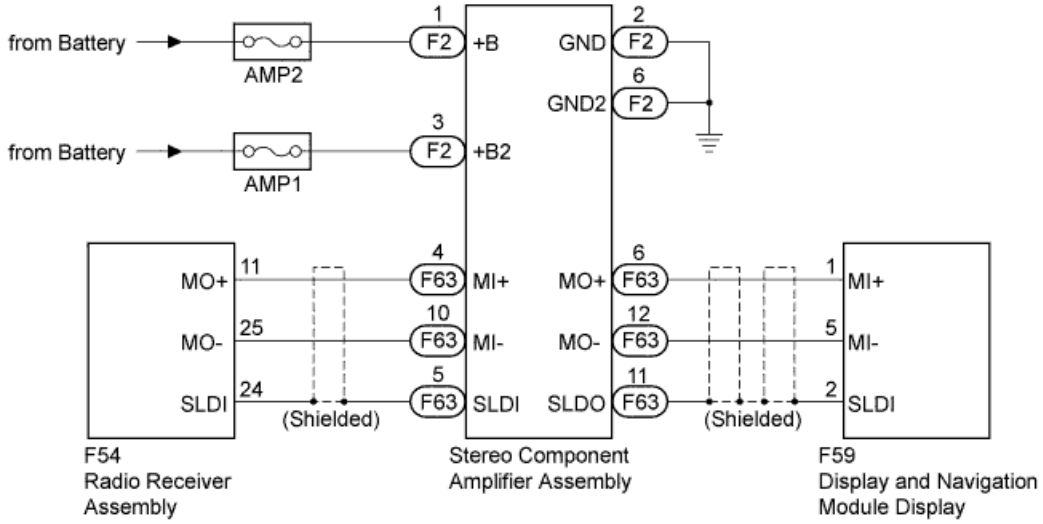
| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1593 | No response to the diagnostic memory request from the master unit. | • Stereo component amplifier assembly power source circuit<br>• MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>• MOST circuit between stereo component amplifier assembly and display and navigation module display (w/o Rear Seat Entertainment System)<br>• MOST circuit between stereo component amplifier assembly and television display assembly (w/ Rear Seat Entertainment System)<br>• Stereo component amplifier assembly<br>• Display and navigation module display |
| B15D3 | A device that is listed in the MOST network connected device record of the master unit is missing. | |

**HINT:**

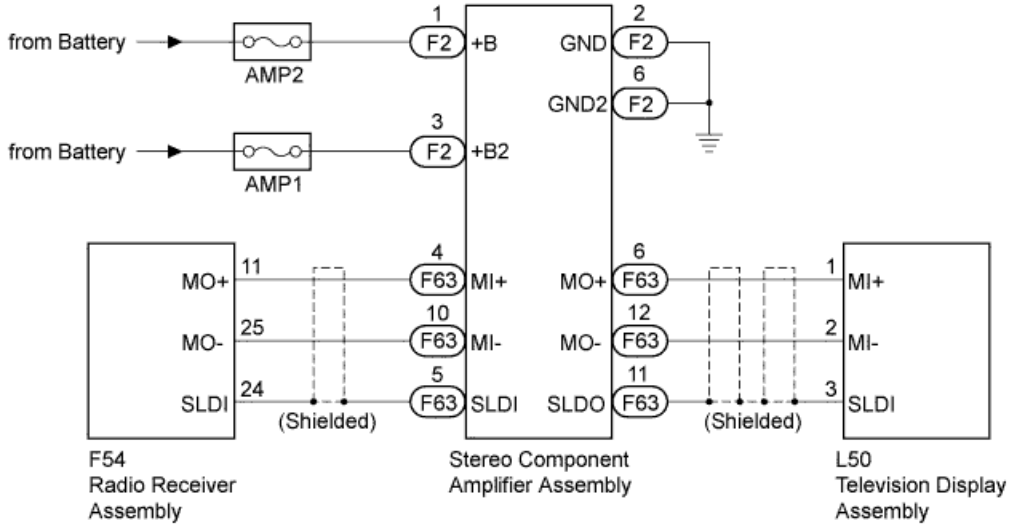
For the MOST network, the display and navigation module display is the master unit.

### WIRING DIAGRAM

w/o Rear Seat Entertainment System:




w/ Rear Seat Entertainment System:




H

## INSPECTION PROCEDURE

**NOTICE:**

- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**
- **When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) (Click here).**

### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may**

affect MOST communication.

- This DTC may be stored when an MOST communication error occurs due to electrical noise.

B → Go to step 3

A

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**

**No DTCs are output.**

NG → Go to step 4

OK

END

## 4.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY POWER SOURCE)

a. Disconnect the F2 stereo component amplifier assembly connector.

b. Measure the resistance according to the value(s) in the table below.

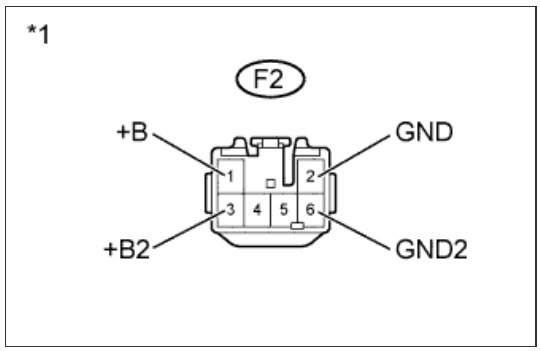
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-2 (GND) - Body ground | Always | Below 1 Ω |
| F2-6 (GND2) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-1 (+B) - F2-2 (GND) | Always | 11 to 14 V |
| F2-3 (+B2) - F2-2 (GND) | Always | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - RADIO RECEIVER)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-4 (MI+) - F54-11 (MO+) | Always | Below 1 Ω |
| F63-10 (MI-) - F54-25 (MO-) | Always | Below 1 Ω |
| F63-5 (SLDI) - F54-24 (SLDI) | Always | Below 1 Ω |
| F63-4 (MI+) - Body ground | Always | 10 kΩ or higher |
| F63-10 (MI-) - Body ground | Always | 10 kΩ or higher |
| F63-5 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 6.CONFIRM MODEL

a. Choose the model to be inspected.

**Result**

| Model | Proceed to |
|---|---|
| w/o Rear Seat Entertainment System | A |
| w/ Rear Seat Entertainment System | B |

B → Go to step 9

A

## 7.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - DISPLAY AND NAVIGATION MODULE)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**8.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Replace the stereo component amplifier assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**END**

**9.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - TELEVISION DISPLAY)**

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the L50 television display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - L50-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - L50-2 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - L50-3 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**10.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Replace the stereo component amplifier assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)


OK
END

## DTC B15D8 Monitor Disconnected

**for Preparation** Click here

### DESCRIPTION

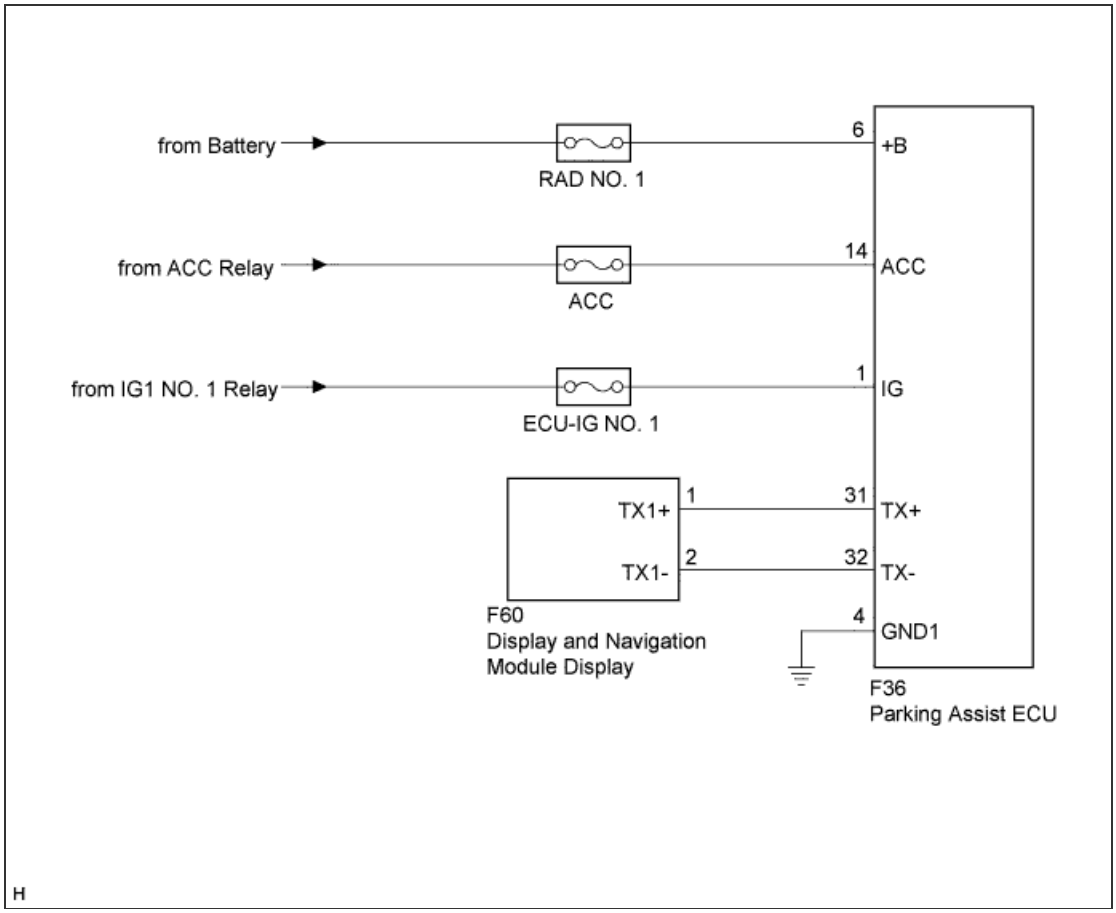
The display and navigation module display and parking assist ECU are connected by the AVC-LAN communication line.
When an AVC-LAN communication error occurs between the display and navigation module display and parking assist ECU, this DTC will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15D8 | A device that is listed in the AVC-LAN connected device record of the master unit is missing. | • Parking assist ECU power source circuit<br>• AVC-LAN circuit between display and navigation module display and parking assist ECU<br>• Parking assist ECU<br>• Display and navigation module display |

**HINT:**

The display and navigation module display is the master unit.

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

- **When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) (Click here).**
- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**

**1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)**

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect AVC-LAN communication.**
- **This DTC may be stored when an AVC-LAN communication error occurs due to electrical noise.**

**B** → Go to step 3

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTC (Click here).

b. Recheck for DTC and check if the same DTC is output again.

**OK:**
**No DTC is output.**

**NG** → Go to step 4

**OK**

## END

## 4.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU POWER SOURCE)

a. Disconnect the F36 parking assist ECU connector.

b. Measure the resistance according to the value(s) in the table below.

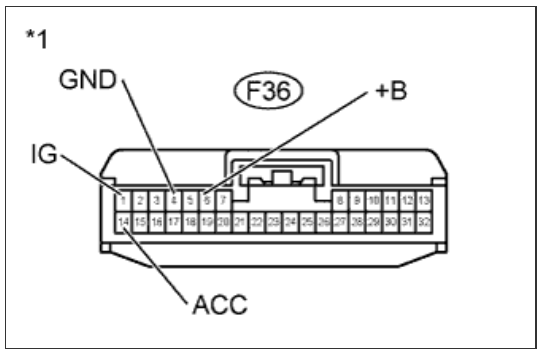
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F36-4 (GND1) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F36-6 (+B) - F36-4 (GND1) | Always | 11 to 14 V |
| F36-1 (IG) - F36-4 (GND1) | Engine switch on (IG) | 11 to 14 V |



| | | |
|---|---|---|
| F36-14 (ACC) - F36-4 (GND1) | Engine switch on (ACC) | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Parking Assist ECU) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**5.CHECK HARNESS AND CONNECTOR (ASSIST ECU - NAVIGATION MODULE)**

a. Disconnect the F36 parking assist ECU connector.

b. Disconnect the F60 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F36-31 (TX+) - F60-1 (TX1+) | Always | Below 1 Ω |
| F36-32 (TX-) - F60-2 (TX1-) | Always | Below 1 Ω |
| F36-31 (TX+) - Body ground | Always | 10 kΩ or higher |
| F36-32 (TX-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**6.REPLACE PARKING ASSIST ECU**

a. Replace the parking assist ECU (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTC and check if the same DTC is output again.

**OK:**
**No DTC is output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**END**

## DTC B1593 No Response from Stereo Component Amplifier

## DTC B15D3 Stereo Component Amplifier Disconnected

**for Preparation** Click here

### DESCRIPTION

The display and navigation module display and stereo component amplifier assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and stereo component amplifier assembly, these DTCs will be stored.

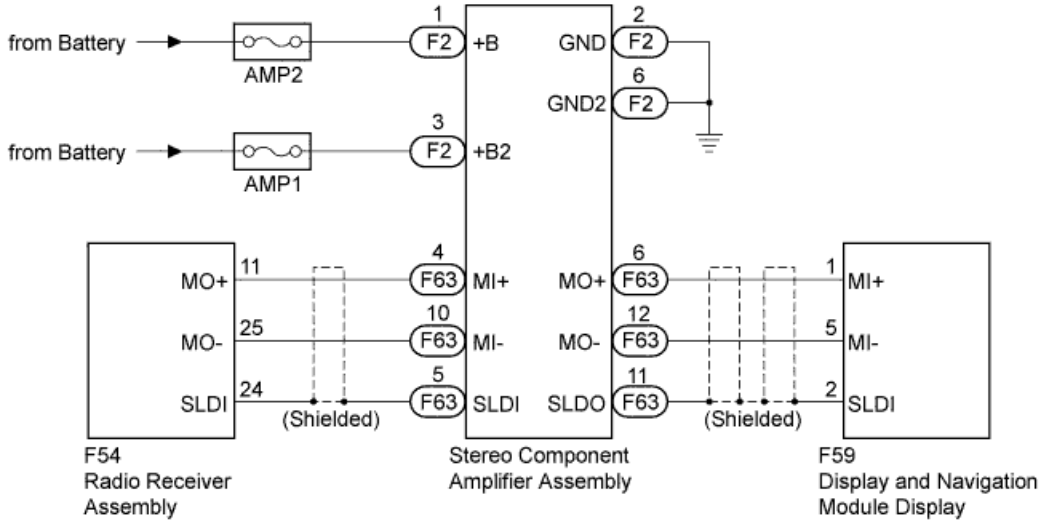
| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1593 | No response to the diagnostic memory request from the master unit. | • Stereo component amplifier assembly power source circuit<br>• MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>• MOST circuit between stereo component amplifier assembly and display and navigation module display (w/o Rear Seat Entertainment System)<br>• MOST circuit between stereo component amplifier assembly and television display assembly (w/ Rear Seat Entertainment System)<br>• Stereo component amplifier assembly<br>• Display and navigation module display |
| B15D3 | A device that is listed in the MOST network connected device record of the master unit is missing. | |

**HINT:**

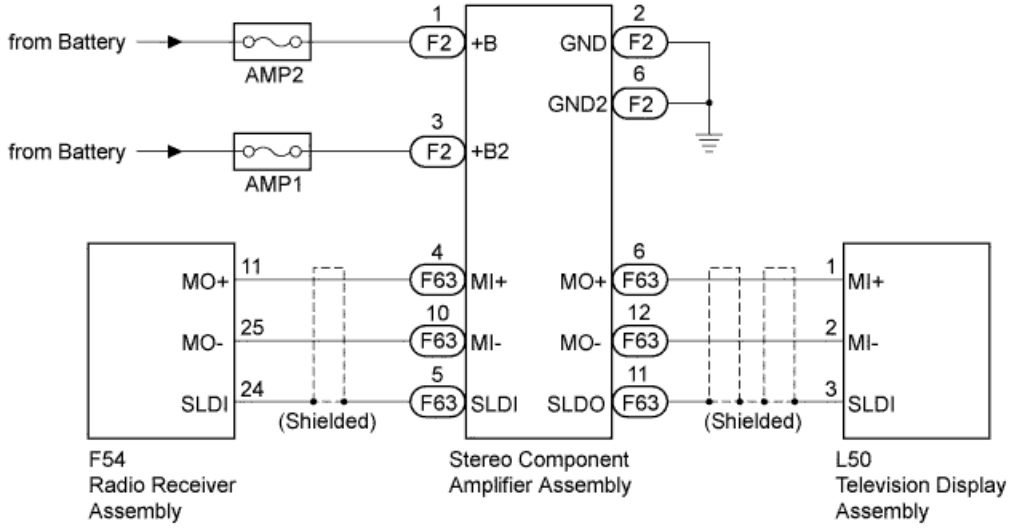
For the MOST network, the display and navigation module display is the master unit.

### WIRING DIAGRAM

w/o Rear Seat Entertainment System:




w/ Rear Seat Entertainment System:




H

## INSPECTION PROCEDURE

**NOTICE:**

- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**
- **When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) (Click here).**

### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may**

affect MOST communication.

- This DTC may be stored when an MOST communication error occurs due to electrical noise.

B → Go to step 3

A

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**

**No DTCs are output.**

NG → Go to step 4

OK

END

## 4.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY POWER SOURCE)

a. Disconnect the F2 stereo component amplifier assembly connector.

b. Measure the resistance according to the value(s) in the table below.

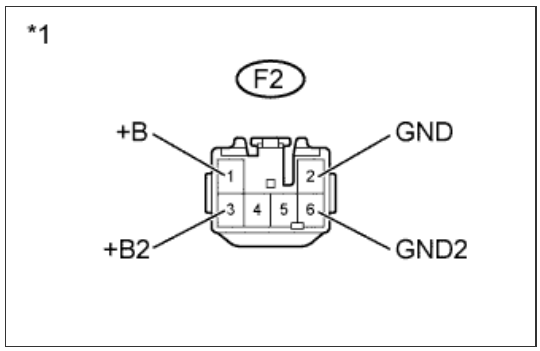
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-2 (GND) - Body ground | Always | Below 1 Ω |
| F2-6 (GND2) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-1 (+B) - F2-2 (GND) | Always | 11 to 14 V |
| F2-3 (+B2) - F2-2 (GND) | Always | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - RADIO RECEIVER)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-4 (MI+) - F54-11 (MO+) | Always | Below 1 Ω |
| F63-10 (MI-) - F54-25 (MO-) | Always | Below 1 Ω |
| F63-5 (SLDI) - F54-24 (SLDI) | Always | Below 1 Ω |
| F63-4 (MI+) - Body ground | Always | 10 kΩ or higher |
| F63-10 (MI-) - Body ground | Always | 10 kΩ or higher |
| F63-5 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 6.CONFIRM MODEL

a. Choose the model to be inspected.

**Result**

| Model | Proceed to |
|---|---|
| w/o Rear Seat Entertainment System | A |
| w/ Rear Seat Entertainment System | B |

B → Go to step 9

A

## 7.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - DISPLAY AND NAVIGATION MODULE)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**8.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Replace the stereo component amplifier assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**END**

**9.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - TELEVISION DISPLAY)**

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the L50 television display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - L50-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - L50-2 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - L50-3 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**10.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Replace the stereo component amplifier assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)


OK
END

## DTC B15E7 Harddisk Reading/Writing Malfunction(Low Temperature)

## DTC B15E8 Harddisk Reading/Writing Malfunction(High Temperature)

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when the temperature is higher or lower than the operation range of the hard disk drive built into the display and navigation module display, and hard disk drive read/write errors occur more than a specified number of times.

**HINT:**

The hard drive disk may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15E7 | Hard disk drive read/write error at low temperature. | Hard Disk Drive |
| B15E8 | Hard disk drive read/write error at high temperature. | |

### INSPECTION PROCEDURE

**1.CHECK CABIN**

Move the vehicle to an area that is at room temperature and allow the cabin temperature to adjust to between -20°C (-4°F) and 65°C (149°F).

**HINT:**

- **The hard disk drive may not operate normally at very high or low temperatures.**
- **Perform the DTC check at room temperature.**

**NEXT**

**2.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

**NG** → **REPLACE HARD DISK DRIVE (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC B1593 No Response from Stereo Component Amplifier

## DTC B15D3 Stereo Component Amplifier Disconnected

**for Preparation** Click here

### DESCRIPTION

The display and navigation module display and stereo component amplifier assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and stereo component amplifier assembly, these DTCs will be stored.

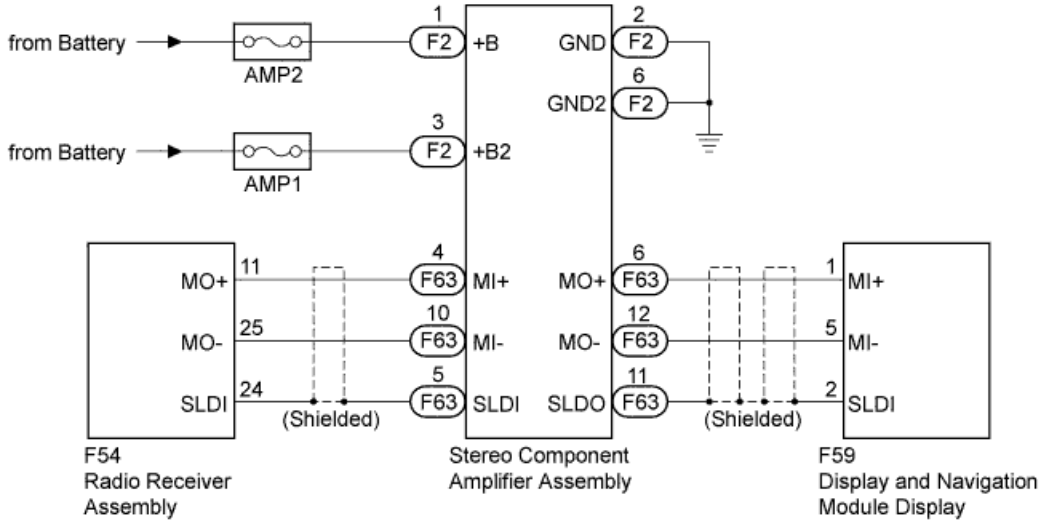
| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1593 | No response to the diagnostic memory request from the master unit. | • Stereo component amplifier assembly power source circuit<br>• MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>• MOST circuit between stereo component amplifier assembly and display and navigation module display (w/o Rear Seat Entertainment System)<br>• MOST circuit between stereo component amplifier assembly and television display assembly (w/ Rear Seat Entertainment System)<br>• Stereo component amplifier assembly<br>• Display and navigation module display |
| B15D3 | A device that is listed in the MOST network connected device record of the master unit is missing. | |

**HINT:**

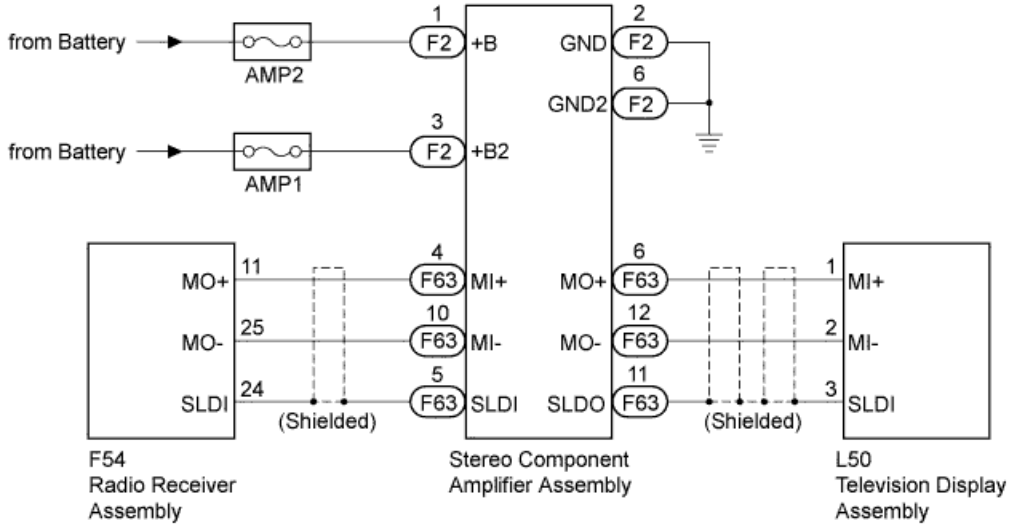
For the MOST network, the display and navigation module display is the master unit.

### WIRING DIAGRAM

w/o Rear Seat Entertainment System:




w/ Rear Seat Entertainment System:




H

## INSPECTION PROCEDURE

**NOTICE:**

- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**
- **When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) (Click here).**

### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may**

affect MOST communication.

- This DTC may be stored when an MOST communication error occurs due to electrical noise.

B → Go to step 3

A

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**

**No DTCs are output.**

NG → Go to step 4

OK

END

## 4.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY POWER SOURCE)

a. Disconnect the F2 stereo component amplifier assembly connector.

b. Measure the resistance according to the value(s) in the table below.

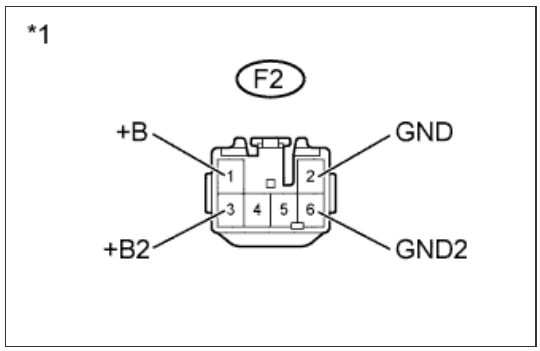
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-2 (GND) - Body ground | Always | Below 1 Ω |
| F2-6 (GND2) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-1 (+B) - F2-2 (GND) | Always | 11 to 14 V |
| F2-3 (+B2) - F2-2 (GND) | Always | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - RADIO RECEIVER)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-4 (MI+) - F54-11 (MO+) | Always | Below 1 Ω |
| F63-10 (MI-) - F54-25 (MO-) | Always | Below 1 Ω |
| F63-5 (SLDI) - F54-24 (SLDI) | Always | Below 1 Ω |
| F63-4 (MI+) - Body ground | Always | 10 kΩ or higher |
| F63-10 (MI-) - Body ground | Always | 10 kΩ or higher |
| F63-5 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 6.CONFIRM MODEL

a. Choose the model to be inspected.

**Result**

| Model | Proceed to |
|---|---|
| w/o Rear Seat Entertainment System | A |
| w/ Rear Seat Entertainment System | B |

B → Go to step 9

A

## 7.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - DISPLAY AND NAVIGATION MODULE)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**8.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Replace the stereo component amplifier assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**END**

**9.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - TELEVISION DISPLAY)**

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the L50 television display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - L50-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - L50-2 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - L50-3 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**10.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Replace the stereo component amplifier assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)


OK
END

## DTC B15E7 Harddisk Reading/Writing Malfunction(Low Temperature)

## DTC B15E8 Harddisk Reading/Writing Malfunction(High Temperature)

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when the temperature is higher or lower than the operation range of the hard disk drive built into the display and navigation module display, and hard disk drive read/write errors occur more than a specified number of times.

**HINT:**

The hard drive disk may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15E7 | Hard disk drive read/write error at low temperature. | Hard Disk Drive |
| B15E8 | Hard disk drive read/write error at high temperature. | |

### INSPECTION PROCEDURE

**1.CHECK CABIN**

Move the vehicle to an area that is at room temperature and allow the cabin temperature to adjust to between -20°C (-4°F) and 65°C (149°F).

**HINT:**

- **The hard disk drive may not operate normally at very high or low temperatures.**
- **Perform the DTC check at room temperature.**

**NEXT**

**2.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

**NG** → **REPLACE HARD DISK DRIVE (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC B1593 No Response from Stereo Component Amplifier

## DTC B15D3 Stereo Component Amplifier Disconnected

**for Preparation** Click here

### DESCRIPTION

The display and navigation module display and stereo component amplifier assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and stereo component amplifier assembly, these DTCs will be stored.

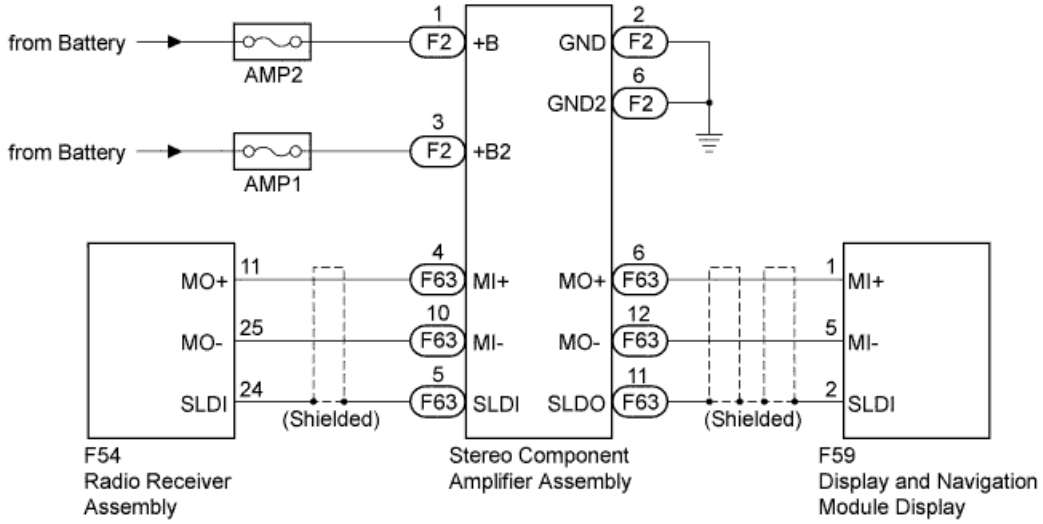
| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1593 | No response to the diagnostic memory request from the master unit. | • Stereo component amplifier assembly power source circuit<br>• MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>• MOST circuit between stereo component amplifier assembly and display and navigation module display (w/o Rear Seat Entertainment System)<br>• MOST circuit between stereo component amplifier assembly and television display assembly (w/ Rear Seat Entertainment System)<br>• Stereo component amplifier assembly<br>• Display and navigation module display |
| B15D3 | A device that is listed in the MOST network connected device record of the master unit is missing. | |

**HINT:**

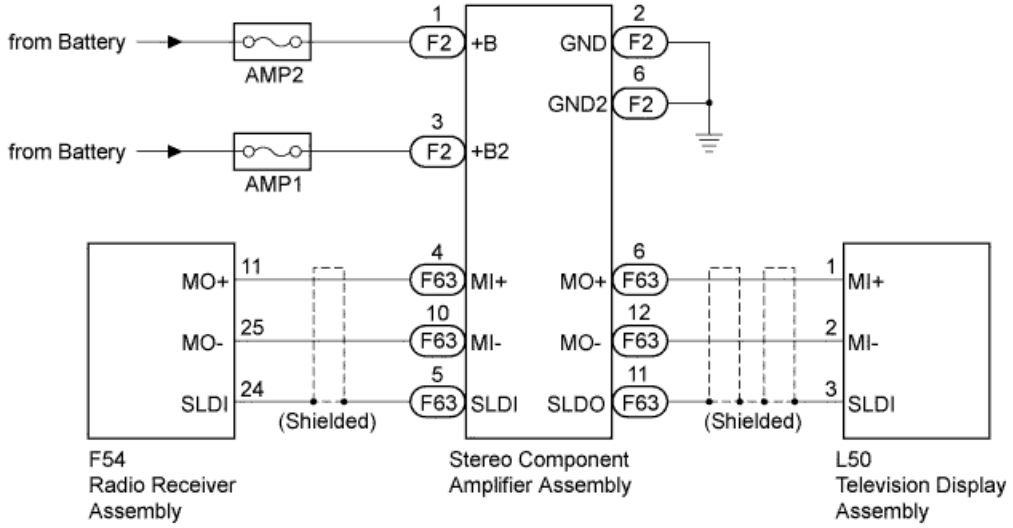
For the MOST network, the display and navigation module display is the master unit.

### WIRING DIAGRAM

w/o Rear Seat Entertainment System:




w/ Rear Seat Entertainment System:




H

## INSPECTION PROCEDURE

**NOTICE:**

- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**
- **When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) (Click here).**

### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may**

affect MOST communication.

- This DTC may be stored when an MOST communication error occurs due to electrical noise.

B → Go to step 3

A

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**

**No DTCs are output.**

NG → Go to step 4

OK

END

## 4.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY POWER SOURCE)

a. Disconnect the F2 stereo component amplifier assembly connector.

b. Measure the resistance according to the value(s) in the table below.

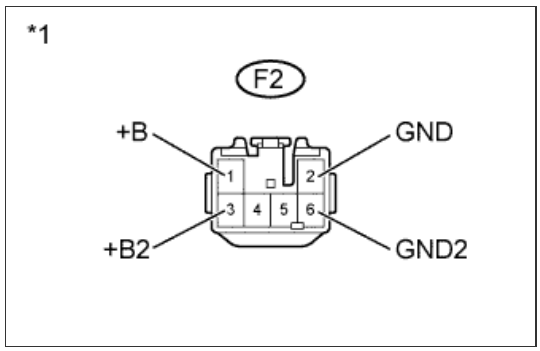
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-2 (GND) - Body ground | Always | Below 1 Ω |
| F2-6 (GND2) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-1 (+B) - F2-2 (GND) | Always | 11 to 14 V |
| F2-3 (+B2) - F2-2 (GND) | Always | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - RADIO RECEIVER)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-4 (MI+) - F54-11 (MO+) | Always | Below 1 Ω |
| F63-10 (MI-) - F54-25 (MO-) | Always | Below 1 Ω |
| F63-5 (SLDI) - F54-24 (SLDI) | Always | Below 1 Ω |
| F63-4 (MI+) - Body ground | Always | 10 kΩ or higher |
| F63-10 (MI-) - Body ground | Always | 10 kΩ or higher |
| F63-5 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 6.CONFIRM MODEL

a. Choose the model to be inspected.

**Result**

| Model | Proceed to |
|---|---|
| w/o Rear Seat Entertainment System | A |
| w/ Rear Seat Entertainment System | B |

B → Go to step 9

A

## 7.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - DISPLAY AND NAVIGATION MODULE)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**8.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Replace the stereo component amplifier assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**END**

**9.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - TELEVISION DISPLAY)**

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the L50 television display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - L50-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - L50-2 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - L50-3 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**10.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Replace the stereo component amplifier assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)


OK
END

## DTC B15E7 Harddisk Reading/Writing Malfunction(Low Temperature)

## DTC B15E8 Harddisk Reading/Writing Malfunction(High Temperature)

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when the temperature is higher or lower than the operation range of the hard disk drive built into the display and navigation module display, and hard disk drive read/write errors occur more than a specified number of times.

**HINT:**

The hard drive disk may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15E7 | Hard disk drive read/write error at low temperature. | Hard Disk Drive |
| B15E8 | Hard disk drive read/write error at high temperature. | |

### INSPECTION PROCEDURE

**1.CHECK CABIN**

Move the vehicle to an area that is at room temperature and allow the cabin temperature to adjust to between -20°C (-4°F) and 65°C (149°F).

**HINT:**

- **The hard disk drive may not operate normally at very high or low temperatures.**
- **Perform the DTC check at room temperature.**

**NEXT**

**2.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

**NG** → **REPLACE HARD DISK DRIVE (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC B1595 No Response from Rear Seat Entertainment System

## DTC B15D5 Rear Seat Entertainment System Disconnected

**for Preparation** Click here

### DESCRIPTION

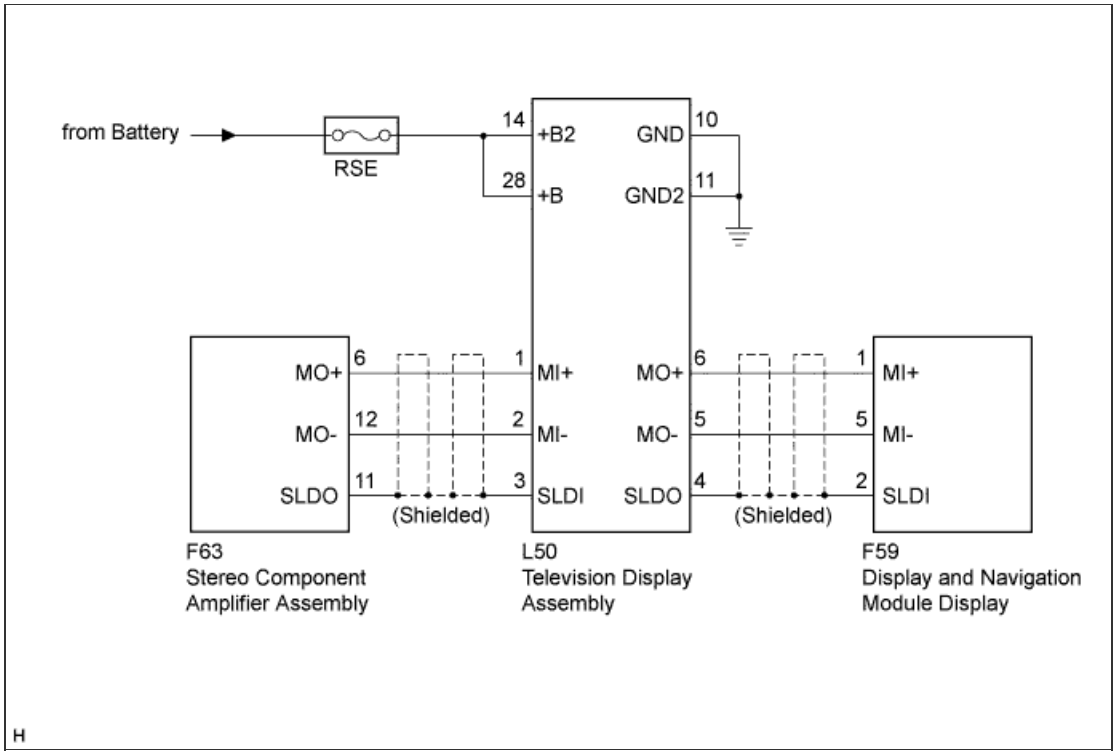
The display and navigation module display and television display assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and television display assembly, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1595 | No response to the diagnostic memory request from the master unit. | • Television display assembly power source circuit<br>• MOST circuit between stereo component amplifier assembly and television display assembly<br>• MOST circuit between television display assembly and display and navigation module display<br>• Television display assembly<br>• Display and navigation module display |
| B15D5 | A device that is listed in the MOST network connected device record of the master unit is missing. | |

**HINT:**

For the MOST network, the display and navigation module display is the master unit.

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**
- **When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) (Click here)**

#### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

**B** → **Go to step 3**

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

**NG** → **Go to step 4**

**OK**

**END**

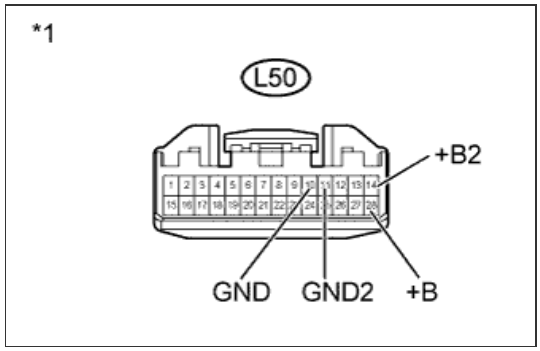
## 4.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY POWER SOURCE)

a. Disconnect the L50 television display assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-10 (GND) - Body ground | Always | Below 1 Ω |
| L50-11 (GND2) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-14 (+B2) - | | |

| | | |
|---|---|---|
| L50-10 (GND) | Always | 11 to 14 V |
| L50-28 (+B) - L50-10 (GND) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Television Display Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**5.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - STEREO COMPONENT AMPLIFIER)**

a. Disconnect the L50 television display assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-1 (MI+) - F63-6 (MO+) | Always | Below 1 Ω |
| L50-2 (MI-) - F63-12 (MO-) | Always | Below 1 Ω |
| L50-3 (SLDI) - F63-11 (SLDO) | Always | Below 1 Ω |
| L50-1 (MI+) - Body ground | Always | 10 kΩ or higher |
| L50-2 (MI-) - Body ground | Always | 10 kΩ or higher |
| L50-3 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**6.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - DISPLAY AND NAVIGATION MODULE DISPLAY)**

a. Disconnect the L50 television display assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| L50-5 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| L50-4 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| L50-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| L50-5 (MO-) - Body ground | Always | 10 kΩ or higher |
| L50-4 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**7.REPLACE TELEVISION DISPLAY ASSEMBLY**

a. Replace the television display assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**END**

## DTC B15E7 Harddisk Reading/Writing Malfunction(Low Temperature)

## DTC B15E8 Harddisk Reading/Writing Malfunction(High Temperature)

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when the temperature is higher or lower than the operation range of the hard disk drive built into the display and navigation module display, and hard disk drive read/write errors occur more than a specified number of times.

**HINT:**

The hard drive disk may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15E7 | Hard disk drive read/write error at low temperature. | Hard Disk Drive |
| B15E8 | Hard disk drive read/write error at high temperature. | |

### INSPECTION PROCEDURE

**1.CHECK CABIN**

Move the vehicle to an area that is at room temperature and allow the cabin temperature to adjust to between -20°C (-4°F) and 65°C (149°F).

**HINT:**

- **The hard disk drive may not operate normally at very high or low temperatures.**
- **Perform the DTC check at room temperature.**

**NEXT**

**2.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

**NG** → **REPLACE HARD DISK DRIVE (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC B1595 No Response from Rear Seat Entertainment System

## DTC B15D5 Rear Seat Entertainment System Disconnected

**for Preparation** Click here

### DESCRIPTION

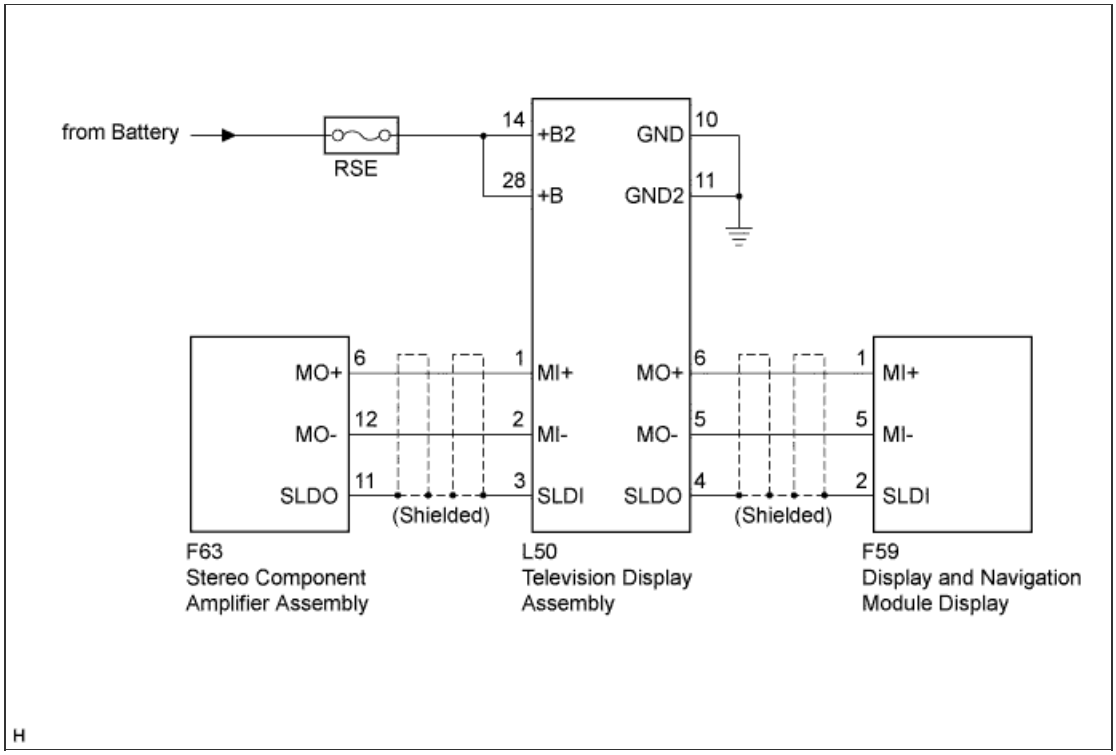
The display and navigation module display and television display assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and television display assembly, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1595 | No response to the diagnostic memory request from the master unit. | • Television display assembly power source circuit<br>• MOST circuit between stereo component amplifier assembly and television display assembly<br>• MOST circuit between television display assembly and display and navigation module display<br>• Television display assembly<br>• Display and navigation module display |
| B15D5 | A device that is listed in the MOST network connected device record of the master unit is missing. | |

**HINT:**

For the MOST network, the display and navigation module display is the master unit.

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**
- **When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) (Click here)**

#### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

**B** → **Go to step 3**

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

**NG** → **Go to step 4**

**OK**

**END**

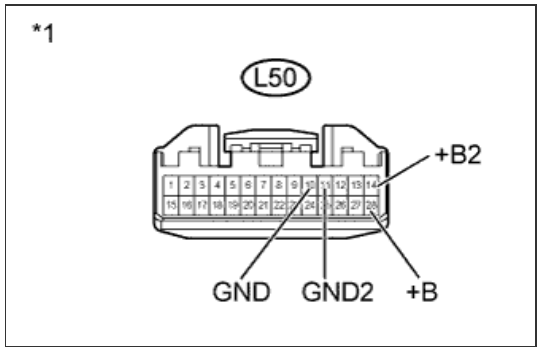
## 4.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY POWER SOURCE)

a. Disconnect the L50 television display assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-10 (GND) - Body ground | Always | Below 1 Ω |
| L50-11 (GND2) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-14 (+B2) - | | |

| | | |
|---|---|---|
| L50-10 (GND) | Always | 11 to 14 V |
| L50-28 (+B) - L50-10 (GND) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Television Display Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**5.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - STEREO COMPONENT AMPLIFIER)**

a. Disconnect the L50 television display assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-1 (MI+) - F63-6 (MO+) | Always | Below 1 Ω |
| L50-2 (MI-) - F63-12 (MO-) | Always | Below 1 Ω |
| L50-3 (SLDI) - F63-11 (SLDO) | Always | Below 1 Ω |
| L50-1 (MI+) - Body ground | Always | 10 kΩ or higher |
| L50-2 (MI-) - Body ground | Always | 10 kΩ or higher |
| L50-3 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**6.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - DISPLAY AND NAVIGATION MODULE DISPLAY)**

a. Disconnect the L50 television display assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| L50-5 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| L50-4 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| L50-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| L50-5 (MO-) - Body ground | Always | 10 kΩ or higher |
| L50-4 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**7.REPLACE TELEVISION DISPLAY ASSEMBLY**

a. Replace the television display assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**END**

# DTC B15F5 A/C ECU Vehicle Information Reading/Writing Processor Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when items controlled by the A/C ECU (air conditioning amplifier assembly) cannot be customized via the navigation system vehicle customization screen.

**HINT:**

The A/C ECU (air conditioning amplifier assembly) controls the air conditioning system related items that are customizable via the navigation system screen.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15F5 | A/C ECU (air conditioning amplifier assembly) vehicle setting processing error. | • CAN communication system<br>• Air conditioning system<br>• A/C ECU (air conditioning amplifier assembly)<br>• Display and navigation module display |

## INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here)

### 1.CHECK CAN COMMUNICATION SYSTEM

a. Use the intelligent tester to check if the CAN communication system is functioning normally ( Click here).

**OK:**
**CAN communication DTC is not output.**

NG → GO TO CAN COMMUNICATION SYSTEM (**Click here**)

OK

### 2.CHECK AIR CONDITIONING SYSTEM

a. Check if the air conditioning system is malfunctioning (Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the air conditioning system.

**OK:**
**No malfunctions are present in the air conditioning system.**

NG → GO TO AIR CONDITIONING SYSTEM (**Click here**)

OK

### 3.CHECK CUSTOMIZE ITEMS

a. Display the "Vehicle Customization" screen.

b. Make a note of the customizable items for the air conditioning system.

**HINT:**

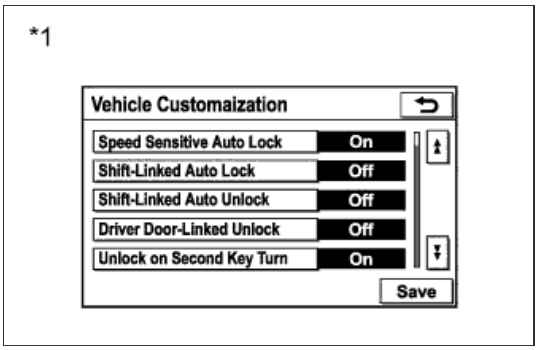
These air conditioning system items shown as customizable via the navigation system vehicle customization screen can also be changed using the intelligent tester. In the following steps, the intelligent tester will be used.

i. To match-up the items in the navigation display with the items on the intelligent tester, check the customize parameters list for the air conditioning system related items that can be customized via the navigation system screen (Click here).

c. Using the intelligent tester, confirm that it is possible to change the settings of the air conditioning system related customize parameters that are shown as customizable via the navigation system screen.

**OK:**

**The items available for customization via the navigation system screen can be customized successfully using the intelligent tester.**




**Text in Illustration**

| | |
|---|---|
| *1 | Example |

NG → REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY (Click here)

OK → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

## DTC B1595 No Response from Rear Seat Entertainment System

## DTC B15D5 Rear Seat Entertainment System Disconnected

**for Preparation** Click here

### DESCRIPTION

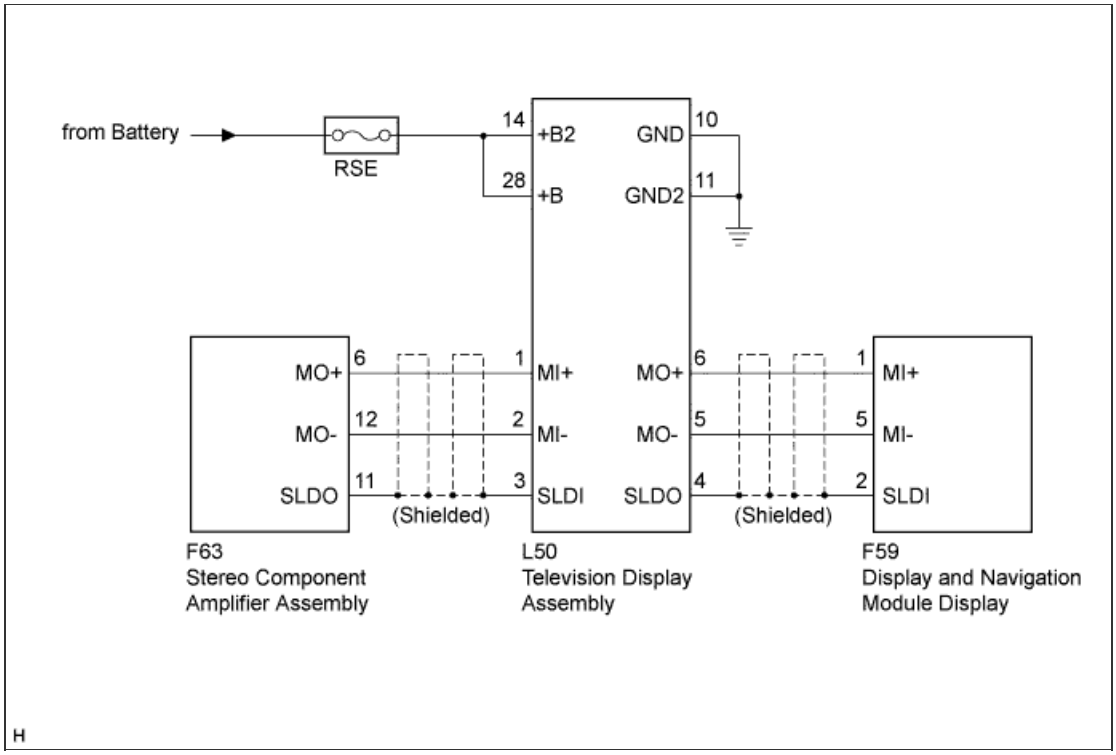
The display and navigation module display and television display assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and television display assembly, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1595 | No response to the diagnostic memory request from the master unit. | • Television display assembly power source circuit<br>• MOST circuit between stereo component amplifier assembly and television display assembly<br>• MOST circuit between television display assembly and display and navigation module display<br>• Television display assembly<br>• Display and navigation module display |
| B15D5 | A device that is listed in the MOST network connected device record of the master unit is missing. | |

**HINT:**

For the MOST network, the display and navigation module display is the master unit.

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**
- **When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) (Click here)**

#### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

**B** → **Go to step 3**

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

**NG** → **Go to step 4**

**OK**

**END**

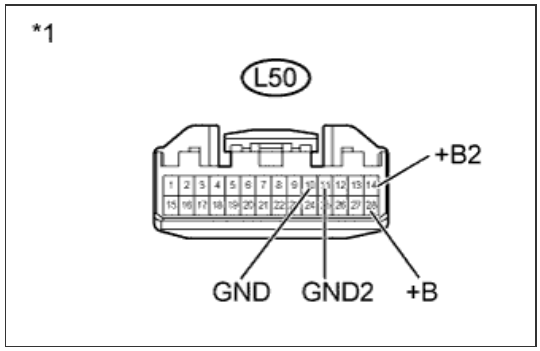
## 4.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY POWER SOURCE)

a. Disconnect the L50 television display assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-10 (GND) - Body ground | Always | Below 1 Ω |
| L50-11 (GND2) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-14 (+B2) - | | |

| | | |
|---|---|---|
| L50-10 (GND) | Always | 11 to 14 V |
| L50-28 (+B) - L50-10 (GND) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Television Display Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**5.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - STEREO COMPONENT AMPLIFIER)**

a. Disconnect the L50 television display assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-1 (MI+) - F63-6 (MO+) | Always | Below 1 Ω |
| L50-2 (MI-) - F63-12 (MO-) | Always | Below 1 Ω |
| L50-3 (SLDI) - F63-11 (SLDO) | Always | Below 1 Ω |
| L50-1 (MI+) - Body ground | Always | 10 kΩ or higher |
| L50-2 (MI-) - Body ground | Always | 10 kΩ or higher |
| L50-3 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**6.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - DISPLAY AND NAVIGATION MODULE DISPLAY)**

a. Disconnect the L50 television display assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| L50-5 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| L50-4 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| L50-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| L50-5 (MO-) - Body ground | Always | 10 kΩ or higher |
| L50-4 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**7.REPLACE TELEVISION DISPLAY ASSEMBLY**

a. Replace the television display assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**END**

# DTC B15F6 Main Body ECU Vehicle Information Reading/Writing Process Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when items controlled by the main body ECU (cowl side junction block LH) cannot be customized via the navigation system vehicle customization screen.

**HINT:**

**The main body ECU (cowl side junction block LH) controls the items for the following systems that are customizable via the navigation system screen:**

- **Power door lock control system**
- **Wireless door lock control system**
- **Lighting system**

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15F6 | Main body ECU (cowl side junction block LH) vehicle setting processing error. | • CAN communication system<br>• Power door lock control system<br>• Wireless door lock control system<br>• Lighting system<br>• Main body ECU (cowl side junction block LH)<br>• Display and navigation module display |

## INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here)

### 1.CHECK CAN COMMUNICATION SYSTEM

a. Use the intelligent tester to check if the CAN communication system is functioning normally ( Click here).

**OK:**
**CAN communication DTC is not output.**

**NG** → GO TO CAN COMMUNICATION SYSTEM (**Click here**)

**OK** ↓

### 2.CHECK POWER DOOR LOCK CONTROL SYSTEM

a. Check if the power door lock control system is malfunctioning ( Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the power door lock control system.

**OK:**
**No malfunctions are present in the power door lock control system.**

**NG** → GO TO POWER DOOR LOCK CONTROL SYSTEM (**Click here**)

**OK** ↓

### 3.CHECK WIRELESS DOOR LOCK CONTROL SYSTEM

a. Check if the wireless door lock control system is malfunctioning ( Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the wireless door lock control system.

**OK:**
**No malfunctions are present in the wireless door lock control system.**

NG → GO TO WIRELESS DOOR LOCK CONTROL SYSTEM (Click here)

OK

## 4.CHECK LIGHTING SYSTEM

a. Check if the lighting system is malfunctioning (Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the lighting system.

**OK:**
**No malfunctions are present in the lighting system.**

NG → GO TO LIGHTING SYSTEM (Click here)

OK

## 5.CHECK CUSTOMIZE ITEMS

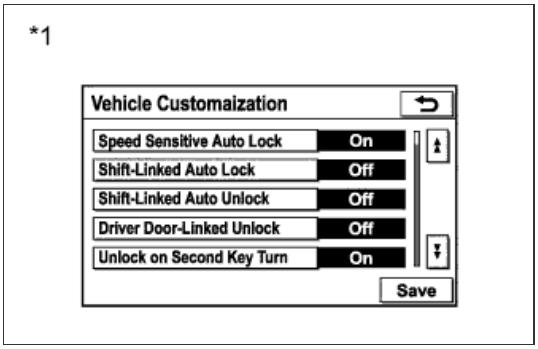
a. Display the "Vehicle Customization" screen.

b. Make a note of the customizable items for each main body ECU (cowl side junction block LH) related system.

**HINT:**

These items shown as customizable via the navigation system vehicle customization screen can also be changed using the intelligent tester. In a following step, the intelligent tester will be used.

i. To match-up the items in the navigation display with the items on the intelligent tester, check the customize parameters list for the power door lock control system related items that can be customized via the navigation system screen (Click here).




ii. To match-up the items in the navigation display with the items on the intelligent tester, check the customize parameters list for the wireless door lock control system related items that can be customized via the navigation system screen (Click here).

iii. To match-up the items in the navigation display with the items on the intelligent tester, check the customize parameters list for the lighting system related items that can be customized via the navigation system screen (Click here).

c. Using the intelligent tester, confirm that it is possible to change the settings of the customize parameters that are available for customization via the navigation system screen.

**OK:**
**The items available for customization via the navigation system screen can be customized successfully using the intelligent tester.**

**Text in Illustration**

| | |
|---|---|
| *1 | Example |

NG → REPLACE MAIN BODY ECU (COWL SIDE JUNCTION BLOCK LH)

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

## DTC B1595 No Response from Rear Seat Entertainment System

## DTC B15D5 Rear Seat Entertainment System Disconnected

**for Preparation** Click here

### DESCRIPTION

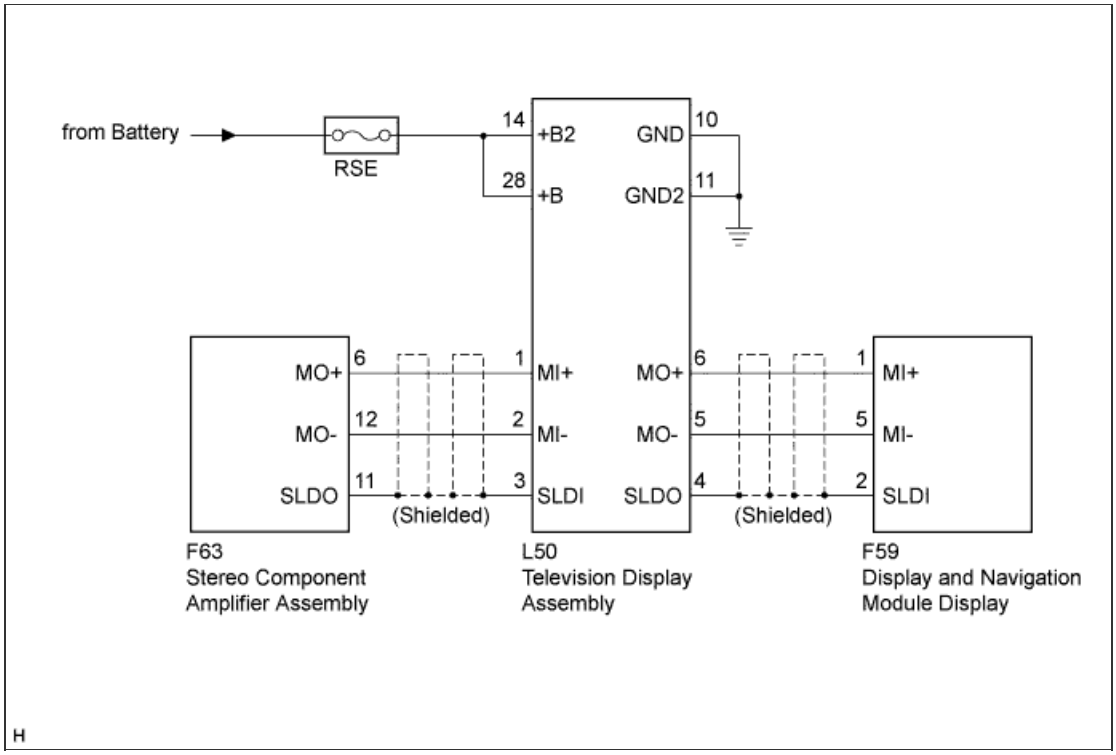
The display and navigation module display and television display assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and television display assembly, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1595 | No response to the diagnostic memory request from the master unit. | • Television display assembly power source circuit<br>• MOST circuit between stereo component amplifier assembly and television display assembly<br>• MOST circuit between television display assembly and display and navigation module display<br>• Television display assembly<br>• Display and navigation module display |
| B15D5 | A device that is listed in the MOST network connected device record of the master unit is missing. | |

**HINT:**

For the MOST network, the display and navigation module display is the master unit.

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**
- **When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) (Click here)**

#### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

**B** → **Go to step 3**

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

**NG** → **Go to step 4**

**OK**

**END**

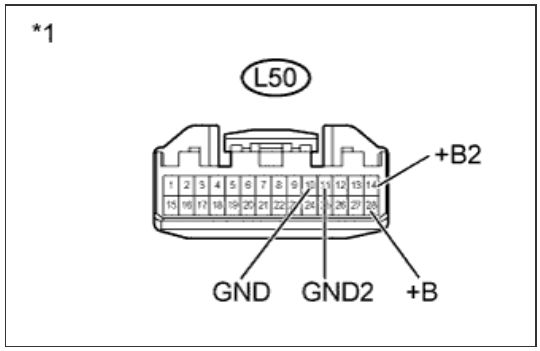
## 4.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY POWER SOURCE)

a. Disconnect the L50 television display assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-10 (GND) - Body ground | Always | Below 1 Ω |
| L50-11 (GND2) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-14 (+B2) - | | |

| | | |
|---|---|---|
| L50-10 (GND) | Always | 11 to 14 V |
| L50-28 (+B) - L50-10 (GND) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Television Display Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**5.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - STEREO COMPONENT AMPLIFIER)**

a. Disconnect the L50 television display assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-1 (MI+) - F63-6 (MO+) | Always | Below 1 Ω |
| L50-2 (MI-) - F63-12 (MO-) | Always | Below 1 Ω |
| L50-3 (SLDI) - F63-11 (SLDO) | Always | Below 1 Ω |
| L50-1 (MI+) - Body ground | Always | 10 kΩ or higher |
| L50-2 (MI-) - Body ground | Always | 10 kΩ or higher |
| L50-3 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**6.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - DISPLAY AND NAVIGATION MODULE DISPLAY)**

a. Disconnect the L50 television display assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| L50-5 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| L50-4 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| L50-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| L50-5 (MO-) - Body ground | Always | 10 kΩ or higher |
| L50-4 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**7.REPLACE TELEVISION DISPLAY ASSEMBLY**

a. Replace the television display assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**END**

# DTC B15F7 Certification ECU Vehicle Information Reading/Writing Process Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when items controlled by the certification ECU (smart key ECU assembly) cannot be customized via the navigation system vehicle customization screen.

**HINT:**

**The certification ECU (smart key ECU assembly) controls the items for the following systems that are customizable via the navigation system screen:**

- **Entry and start system (for Entry Function)**
- **Entry and start system (for Start Function)**

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15F7 | Certification ECU (smart key ECU assembly) vehicle setting processing error. | • CAN communication system<br>• Entry and start system (for Entry Function)<br>• Entry and start system (for Start Function)<br>• Certification ECU (smart key ECU assembly)<br>• Display and navigation module display |

## INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here)

### 1.CHECK CAN COMMUNICATION SYSTEM

a. Use the intelligent tester to check if the CAN communication system is functioning normally ( Click here).

**OK:**
**CAN communication DTC is not output.**

NG → GO TO CAN COMMUNICATION SYSTEM (**Click here**)

OK

### 2.CHECK ENTRY AND START SYSTEM (for Entry Function)

a. Check if the entry and start system (for entry function) is malfunctioning ( Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the entry and start system (for entry function).

**OK:**
**No malfunctions are present in the entry and start system (for entry function).**

NG → GO TO ENTRY AND START SYSTEM (for Entry Function) ( **Click here**)

OK

### 3.CHECK ENTRY AND START SYSTEM (for Start Function)

a. Check if the entry and start system (for start function) is malfunctioning ( Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the entry and start system (for start function).

**OK:**

**No malfunctions are present in the entry and start system (for start function).**

NG → GO TO ENTRY AND START SYSTEM (for Start Function) ( **Click here**)

OK ↓

**4.CHECK CUSTOMIZE ITEMS**

a. Display the "Vehicle Customization" screen.

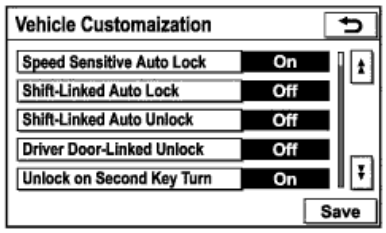
b. Make a note of the customizable items for each certification ECU related system.

**HINT:**

These items shown as customizable via the navigation system vehicle customization screen can also be changed using the intelligent tester. In a following step, the intelligent tester will be used.

i. To match-up the items in the navigation display with the items on the intelligent tester, check the customize parameters list for the entry and start system (for entry function) related items that can be customized via the navigation system screen (Click here).

*1




ii. To match-up the items in the navigation display with the items on the intelligent tester, check the customize parameters list for the entry and start system (for start function) related items that can be customized via the navigation system screen (Click here).

c. Using the intelligent tester, confirm that it is possible to change the settings of the customize parameters that are available for customization via the navigation system screen.

**OK:**

**The items available for customization via the navigation system screen can be customized successfully using the intelligent tester.**

**Text in Illustration**

| | |
|---|---|
| *1 | Example |

NG → REPLACE SMART KEY ECU ASSEMBLY

OK ↓

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

## DTC B15A0 LAN Master Malfunction

## DTC B15AD Navigation Processor Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the display and navigation module display.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A0 | When one of the conditions below is met:<br>• Bus malfunction<br>• Sub-microprocessor malfunction<br>• EEPROM error | Display and navigation module display |
| B15AD | When either of the conditions below is met:<br>• A short to ground, short to +B or open occurs in the gyro signal circuit<br>• Gyro sensor malfunction | |

### INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

**1.CHECK DTC**

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK

**USE SIMULATION METHOD TO CHECK (Click here)**

# DTC B15F7 Certification ECU Vehicle Information Reading/Writing Process Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when items controlled by the certification ECU (smart key ECU assembly) cannot be customized via the navigation system vehicle customization screen.

**HINT:**

**The certification ECU (smart key ECU assembly) controls the items for the following systems that are customizable via the navigation system screen:**

- **Entry and start system (for Entry Function)**
- **Entry and start system (for Start Function)**

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15F7 | Certification ECU (smart key ECU assembly) vehicle setting processing error. | • CAN communication system<br>• Entry and start system (for Entry Function)<br>• Entry and start system (for Start Function)<br>• Certification ECU (smart key ECU assembly)<br>• Display and navigation module display |

## INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here)

### 1.CHECK CAN COMMUNICATION SYSTEM

a. Use the intelligent tester to check if the CAN communication system is functioning normally ( Click here).

**OK:**
**CAN communication DTC is not output.**

NG → GO TO CAN COMMUNICATION SYSTEM (**Click here**)

OK

### 2.CHECK ENTRY AND START SYSTEM (for Entry Function)

a. Check if the entry and start system (for entry function) is malfunctioning ( Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the entry and start system (for entry function).

**OK:**
**No malfunctions are present in the entry and start system (for entry function).**

NG → GO TO ENTRY AND START SYSTEM (for Entry Function) ( **Click here**)

OK

### 3.CHECK ENTRY AND START SYSTEM (for Start Function)

a. Check if the entry and start system (for start function) is malfunctioning ( Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the entry and start system (for start function).

**OK:**

**No malfunctions are present in the entry and start system (for start function).**

NG → GO TO ENTRY AND START SYSTEM (for Start Function) ( **Click here**)

OK

**4.CHECK CUSTOMIZE ITEMS**

a. Display the "Vehicle Customization" screen.

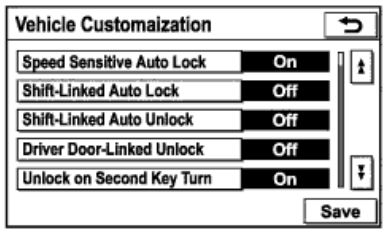
b. Make a note of the customizable items for each certification ECU related system.

**HINT:**

These items shown as customizable via the navigation system vehicle customization screen can also be changed using the intelligent tester. In a following step, the intelligent tester will be used.

i. To match-up the items in the navigation display with the items on the intelligent tester, check the customize parameters list for the entry and start system (for entry function) related items that can be customized via the navigation system screen (Click here).

*1




ii. To match-up the items in the navigation display with the items on the intelligent tester, check the customize parameters list for the entry and start system (for start function) related items that can be customized via the navigation system screen (Click here).

c. Using the intelligent tester, confirm that it is possible to change the settings of the customize parameters that are available for customization via the navigation system screen.

**OK:**

**The items available for customization via the navigation system screen can be customized successfully using the intelligent tester.**

**Text in Illustration**

| | |
|---|---|
| *1 | Example |

NG → REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

## DTC B15A0 LAN Master Malfunction

## DTC B15AD Navigation Processor Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the display and navigation module display.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A0 | When one of the conditions below is met:<br>• Bus malfunction<br>• Sub-microprocessor malfunction<br>• EEPROM error | Display and navigation module display |
| B15AD | When either of the conditions below is met:<br>• A short to ground, short to +B or open occurs in the gyro signal circuit<br>• Gyro sensor malfunction | |

### INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

**1.CHECK DTC**

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC U0073 Control Module Communication Bus Off

## DTC U0155 Lost Communication with Combination Meter

## DTC U0164 Lost Communication with A/C ECU

## DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a malfunction occurs in the CAN communication circuit.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN bus connection error | CAN communication system |
| U0155 | CAN reception error | |
| U0164 | CAN reception error | |
| U1110 | CAN reception error | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTC and check if the same DTC is output again.

**OK:**
**No DTC is output.**

**NG** → **GO TO CAN COMMUNICATION SYSTEM (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC B15A0 LAN Master Malfunction

## DTC B15AD Navigation Processor Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the display and navigation module display.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A0 | When one of the conditions below is met:<br>• Bus malfunction<br>• Sub-microprocessor malfunction<br>• EEPROM error | Display and navigation module display |
| B15AD | When either of the conditions below is met:<br>• A short to ground, short to +B or open occurs in the gyro signal circuit<br>• Gyro sensor malfunction | |

### INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

**1.CHECK DTC**

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC U0073 Control Module Communication Bus Off

## DTC U0155 Lost Communication with Combination Meter

## DTC U0164 Lost Communication with A/C ECU

## DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a malfunction occurs in the CAN communication circuit.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN bus connection error | CAN communication system |
| U0155 | CAN reception error | |
| U0164 | CAN reception error | |
| U1110 | CAN reception error | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTC and check if the same DTC is output again.

**OK:**
**No DTC is output.**

**NG** → **GO TO CAN COMMUNICATION SYSTEM (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC B15A0 LAN Master Malfunction

## DTC B15AD Navigation Processor Malfunction

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the display and navigation module display.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A0 | When one of the conditions below is met:<br>• Bus malfunction<br>• Sub-microprocessor malfunction<br>• EEPROM error | Display and navigation module display |
| B15AD | When either of the conditions below is met:<br>• A short to ground, short to +B or open occurs in the gyro signal circuit<br>• Gyro sensor malfunction | |

### INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

**1.CHECK DTC**

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC U0073 Control Module Communication Bus Off

## DTC U0155 Lost Communication with Combination Meter

## DTC U0164 Lost Communication with A/C ECU

## DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a malfunction occurs in the CAN communication circuit.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN bus connection error | CAN communication system |
| U0155 | CAN reception error | |
| U0164 | CAN reception error | |
| U1110 | CAN reception error | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTC and check if the same DTC is output again.

**OK:**
**No DTC is output.**

**NG** → **GO TO CAN COMMUNICATION SYSTEM (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

# DTC B15B0 Display Screen Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when a malfunction occurs in the display and navigation module display.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15B0 | Picture circuit (TFT unit) malfunction | Display and navigation module display |

## INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC U0073 Control Module Communication Bus Off

## DTC U0155 Lost Communication with Combination Meter

## DTC U0164 Lost Communication with A/C ECU

## DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a malfunction occurs in the CAN communication circuit.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN bus connection error | CAN communication system |
| U0155 | CAN reception error | |
| U0164 | CAN reception error | |
| U1110 | CAN reception error | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTC and check if the same DTC is output again.

**OK:**
**No DTC is output.**

**NG** → **GO TO CAN COMMUNICATION SYSTEM (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

# DTC B15B0 Display Screen Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when a malfunction occurs in the display and navigation module display.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15B0 | Picture circuit (TFT unit) malfunction | Display and navigation module display |

## INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC U0073 Control Module Communication Bus Off

## DTC U0155 Lost Communication with Combination Meter

## DTC U0164 Lost Communication with A/C ECU

## DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a malfunction occurs in the CAN communication circuit.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN bus connection error | CAN communication system |
| U0155 | CAN reception error | |
| U0164 | CAN reception error | |
| U1110 | CAN reception error | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTC and check if the same DTC is output again.

**OK:**
**No DTC is output.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**B** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**C** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**A**

USE SIMULATION METHOD TO CHECK (Click here)

# DTC B15B8 Harddisk Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when the hard disk drive which is built into the display and navigation module display has an initialization malfunction or read/write errors occur more than a specified number of times.

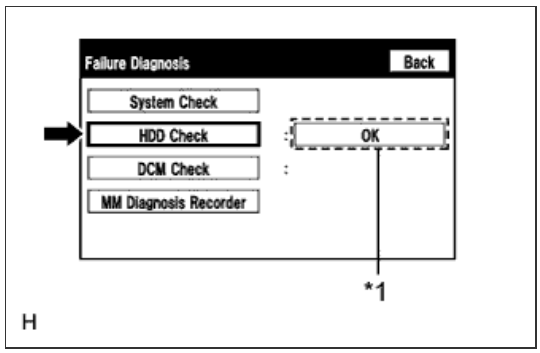
| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15B8 | Hard Disk Drive (HDD) malfunction | Hard Disk Drive |

## INSPECTION PROCEDURE

### 1.CHECK HARD DISK DRIVE (OPERATION CHECK)

a. Enter the "Failure Diagnosis" screen. Refer to Check Hard Disk Drive in Operation Check (Click here).

b. Select "HDD Check" and check the result.




**OK:**
**"OK" is displayed.**

**HINT:**

- **After "HDD Check" is selected, it may take a while until the result is displayed.**
- **If the cabin temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher, the HDD may not operate normally, and NG may be shown on the display. Make sure to perform the inspection with the cabin at an appropriate temperature.**

Text in Illustration

| | |
|---|---|
| *1 | Result |

NG → REPLACE HARD DISK DRIVE (Click here)

OK ↓

### 2.CHECK DTC

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

**HINT:**

The hard disk drive may be malfunctioning even if DTC B15B8 is not output.

NG → REPLACE HARD DISK DRIVE (Click here)

OK ↓

USE SIMULATION METHOD TO CHECK (Click here)

## DTC U0073 Control Module Communication Bus Off

## DTC U0155 Lost Communication with Combination Meter

## DTC U0164 Lost Communication with A/C ECU

## DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a malfunction occurs in the CAN communication circuit.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN bus connection error | CAN communication system |
| U0155 | CAN reception error | |
| U0164 | CAN reception error | |
| U1110 | CAN reception error | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTC and check if the same DTC is output again.

**OK:**
**No DTC is output.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**B** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**C** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**A**

USE SIMULATION METHOD TO CHECK (Click here)

# DTC B15B8 Harddisk Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when the hard disk drive which is built into the display and navigation module display has an initialization malfunction or read/write errors occur more than a specified number of times.

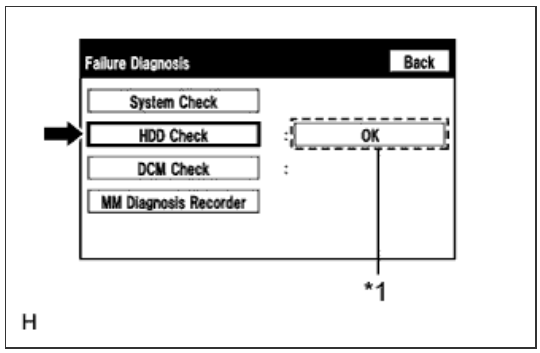
| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15B8 | Hard Disk Drive (HDD) malfunction | Hard Disk Drive |

## INSPECTION PROCEDURE

### 1.CHECK HARD DISK DRIVE (OPERATION CHECK)

a. Enter the "Failure Diagnosis" screen. Refer to Check Hard Disk Drive in Operation Check (Click here).

b. Select "HDD Check" and check the result.




**OK:**
**"OK" is displayed.**

**HINT:**

- **After "HDD Check" is selected, it may take a while until the result is displayed.**
- **If the cabin temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher, the HDD may not operate normally, and NG may be shown on the display. Make sure to perform the inspection with the cabin at an appropriate temperature.**

Text in Illustration

| | |
|---|---|
| *1 | Result |

NG → REPLACE HARD DISK DRIVE (Click here)

OK ↓

### 2.CHECK DTC

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

**HINT:**

The hard disk drive may be malfunctioning even if DTC B15B8 is not output.

NG → REPLACE HARD DISK DRIVE (Click here)

OK ↓

USE SIMULATION METHOD TO CHECK (Click here)

## DTC U0073 Control Module Communication Bus Off

## DTC U0155 Lost Communication with Combination Meter

## DTC U0164 Lost Communication with A/C ECU

## DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a malfunction occurs in the CAN communication circuit.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN bus connection error | CAN communication system |
| U0155 | CAN reception error | |
| U0164 | CAN reception error | |
| U1110 | CAN reception error | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTC and check if the same DTC is output again.

**OK:**
**No DTC is output.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**B** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**C** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**A**

USE SIMULATION METHOD TO CHECK (Click here)

## DTC B15C0 Short in GPS Antenna

## DTC B15C1 Open in GPS Antenna

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored when a malfunction occurs in the navigation antenna assembly.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15C0 | Navigation antenna error | • Wire harness<br>• Navigation antenna assembly<br>• Display and navigation module display |
| B15C1 | Error of the power source to the navigation antenna assembly | |

### INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

**1.CHECK CONNECTION OF ANTENNA CABLE**

a. Check if the navigation antenna cable is securely connected to the display and navigation module display.

**OK:**
**Navigation antenna cable is securely connected.**

NG → **SECURELY CONNECT NAVIGATION ANTENNA CABLE**

OK

**2.REPLACE NAVIGATION ANTENNA ASSEMBLY**

a. Replace the navigation antenna assembly with a known good one and check if the same problem occurs again ( Click here).

i. Clear the DTCs (Click here).

ii. Recheck for DTCs and check if the same DTC is output again.

**OK:**
**No DTCs are output.**

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK

**END**

## DTC U0073 Control Module Communication Bus Off

## DTC U0155 Lost Communication with Combination Meter

## DTC U0164 Lost Communication with A/C ECU

## DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a malfunction occurs in the CAN communication circuit.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN bus connection error | CAN communication system |
| U0155 | CAN reception error | |
| U0164 | CAN reception error | |
| U1110 | CAN reception error | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTC and check if the same DTC is output again.

**OK:**
**No DTC is output.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**B** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**C** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**A**

USE SIMULATION METHOD TO CHECK (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

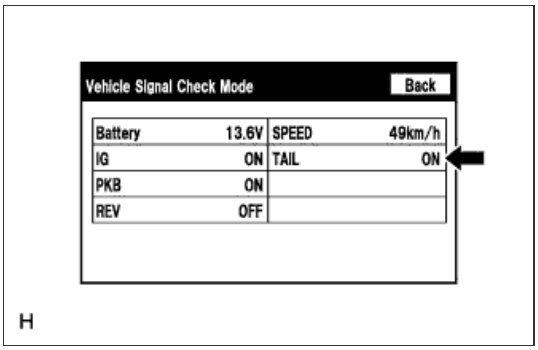
### 1.CHECK VEHICLE SIGNAL (OPERATION CHECK)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check (Click here).

b. Cover the automatic light control sensor on the instrument panel with a cloth.

c. Set the instrument panel light control to less than the maximum (to activate the dimmer function that works when the light control switch is in the TAIL position).

d. Check that the display changes between ON and OFF according to the light control switch operation.




**OK:**

| Light Control Switch Condition | Display Condition |
|---|---|
| TAIL or HEAD | ON |
| OFF | OFF |

**HINT:**

This display is updated once per second. As a result, it is normal for the display to lag behind the actual switch operation.

**NG** → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

**OK** → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

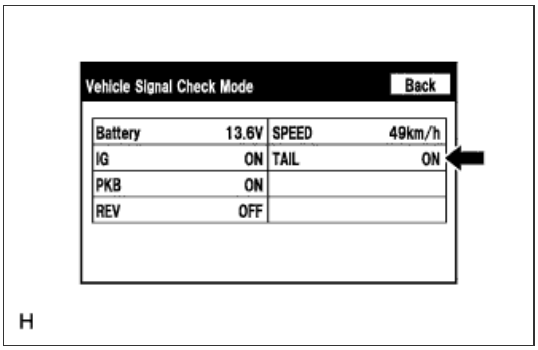
### 1.CHECK VEHICLE SIGNAL (OPERATION CHECK)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check (Click here).

b. Cover the automatic light control sensor on the instrument panel with a cloth.

c. Set the instrument panel light control to less than the maximum (to activate the dimmer function that works when the light control switch is in the TAIL position).

d. Check that the display changes between ON and OFF according to the light control switch operation.




**OK:**

| Light Control Switch Condition | Display Condition |
|---|---|
| TAIL or HEAD | ON |
| OFF | OFF |

**HINT:**

This display is updated once per second. As a result, it is normal for the display to lag behind the actual switch operation.

**NG** → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

**OK** → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

### 1.CHECK IMAGE QUALITY SETTING

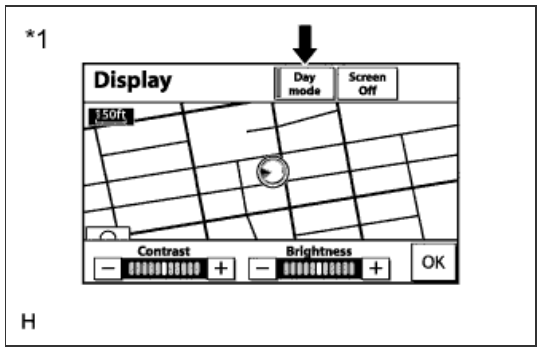
a. Enter the display adjustment screen by pressing the "DISP" switch.

b. Turn the light control switch to the tail position.

c. Check if "Day mode" on the display adjustment screen is on.

**Result**

| Result | Proceed to |
|---|---|
| "Day mode" is on | A |
| "Day mode" is off | B |




**Text in Illustration**

| | |
|---|---|
| *1 | Example |

B → Go to step 2

A

### TURN "Day mode" SETTING OFF

### 2.CHECK VEHICLE SIGNAL (OPERATION CHECK)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check (Click here).

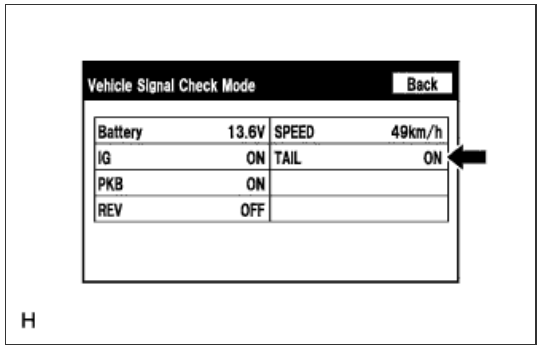
b. Cover the automatic light control sensor on the instrument panel with a cloth.

c. Set the instrument panel light control to less than the maximum (to activate the dimmer function that works when the light control switch is in the TAIL position).

d. Check that the display changes between ON and OFF according to the light control switch operation.

**Result:**

| Light Control Switch Condition | Display Condition |
|---|---|
| TAIL or HEAD | ON |
| OFF | OFF |




**HINT:**

The display is updated once per second. It is normal for the display to lag behind the actual switch operation.

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

### REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

### 1.CHECK IMAGE QUALITY SETTING

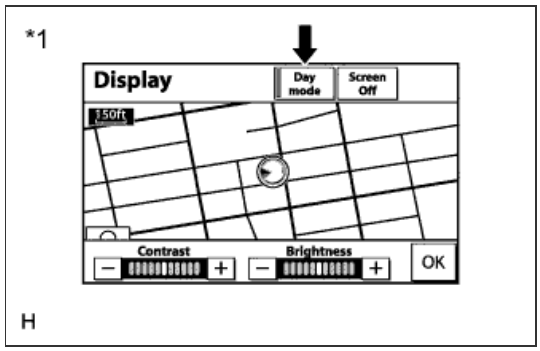
a. Enter the display adjustment screen by pressing the "DISP" switch.

b. Turn the light control switch to the tail position.

c. Check if "Day mode" on the display adjustment screen is on.

**Result**

| Result | Proceed to |
|---|---|
| "Day mode" is on | A |
| "Day mode" is off | B |




**Text in Illustration**

| | |
|---|---|
| *1 | Example |

B → Go to step 2

A

### TURN "Day mode" SETTING OFF

### 2.CHECK VEHICLE SIGNAL (OPERATION CHECK)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check (Click here).

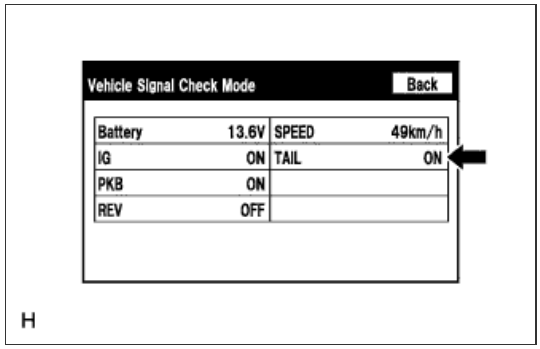
b. Cover the automatic light control sensor on the instrument panel with a cloth.

c. Set the instrument panel light control to less than the maximum (to activate the dimmer function that works when the light control switch is in the TAIL position).

d. Check that the display changes between ON and OFF according to the light control switch operation.

**Result:**

| Light Control Switch Condition | Display Condition |
|---|---|
| TAIL or HEAD | ON |
| OFF | OFF |




**HINT:**

The display is updated once per second. It is normal for the display to lag behind the actual switch operation.

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

### REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

### 1.CHECK PANEL SWITCH

a. Check for foreign matter around the switches that might prevent operation.

**OK:**
**No foreign matter is found.**

NG → REMOVE ANY FOREIGN MATTER FOUND

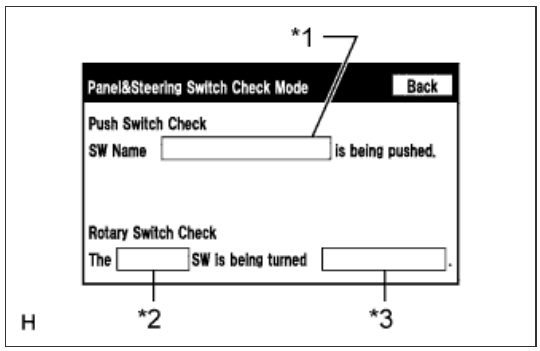
OK

### 2.CHECK PANEL SWITCH (OPERATION CHECK)

a. Enter the "Panel & Steering Switch Check Mode" screen. Refer to Check Panel & Steering Switch in Operation Check (Click here).

b. Operate the abnormal switch and check if the switch name and status are correctly displayed.

**OK:**
**The switch name and status are correctly displayed as operated.**




**Text in Illustration**

| | |
|---|---|
| *1 | Name of switch being pushed |
| *2 | Rotary switch name |
| *3 | Rotary switch direction |

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

### 1.CHECK PANEL SWITCH

a. Check for foreign matter around the switches that might prevent operation.

**OK:**
**No foreign matter is found.**

NG → REMOVE ANY FOREIGN MATTER FOUND

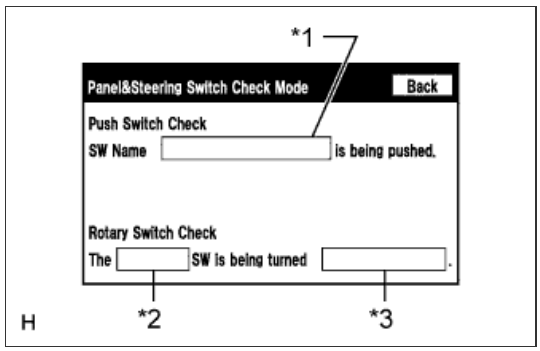
OK

### 2.CHECK PANEL SWITCH (OPERATION CHECK)

a. Enter the "Panel & Steering Switch Check Mode" screen. Refer to Check Panel & Steering Switch in Operation Check (Click here).

b. Operate the abnormal switch and check if the switch name and status are correctly displayed.

**OK:**
**The switch name and status are correctly displayed as operated.**




**Text in Illustration**

| | |
|---|---|
| *1 | Name of switch being pushed |
| *2 | Rotary switch name |
| *3 | Rotary switch direction |

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

**1.CHECK TOUCH PANEL**

a. Check for foreign matter on the display.

**OK:**
**The display is clean.**

NG → **CLEAN DISPLAY AND RECHECK TOUCH PANEL**

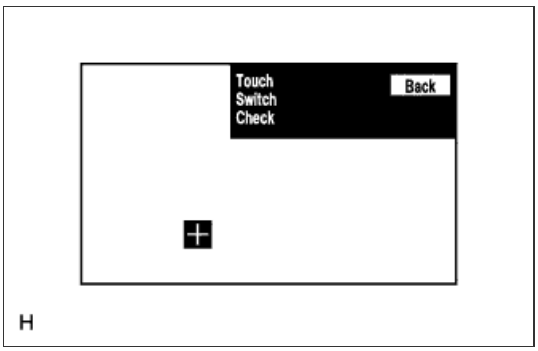
OK

**2.CHECK TOUCH SWITCH (OPERATION CHECK)**

a. Enter the "Touch Switch Check" screen. Refer to Check Touch Switch in Operation Check (Click here).

b. Touch the display in the area where the switch malfunction occurs.

**OK:**
**A "+" mark appears at the touched position.**




NG → **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)**

OK

**REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

**for Preparation** Click here

## INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

**1.CHECK TOUCH PANEL**

a. Check for foreign matter on the display.

**OK:**
**The display is clean.**

NG → **CLEAN DISPLAY AND RECHECK TOUCH PANEL**

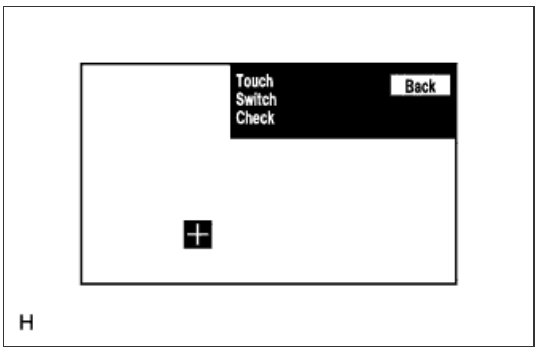
OK

**2.CHECK TOUCH SWITCH (OPERATION CHECK)**

a. Enter the "Touch Switch Check" screen. Refer to Check Touch Switch in Operation Check (Click here).

b. Touch the display in the area where the switch malfunction occurs.

**OK:**
**A "+" mark appears at the touched position.**




NG → **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)**

OK

**REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

**for Preparation** Click here

## INSPECTION PROCEDURE

**NOTICE:**

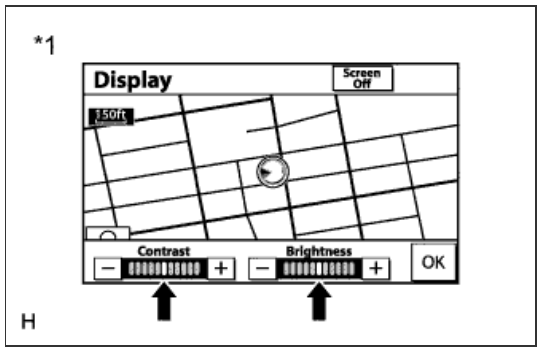
When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

### 1.CHECK DISPLAY SETTING

a. Enter the display adjustment screen by pressing the "DISP" switch.

b. Reset display settings (contrast, brightness) and check that the screen appears normally.

**OK:**
**The display returns to normal.**




**Text in Illustration**

| | |
|---|---|
| *1 | Example |

NG → Go to step 2

OK →

### END

### 2.CHECK CABIN

a. Check that the temperature in the cabin is neither -20°C (-4°F) or lower nor 65°C (149°F) or higher.

**HINT:**

The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.

**Standard:**
**Temperature in the cabin is between -20°C (-4°F) and 65°C (149°F).**

NG → HEAT OR COOL CABIN AND RECHECK TEMPERATURE

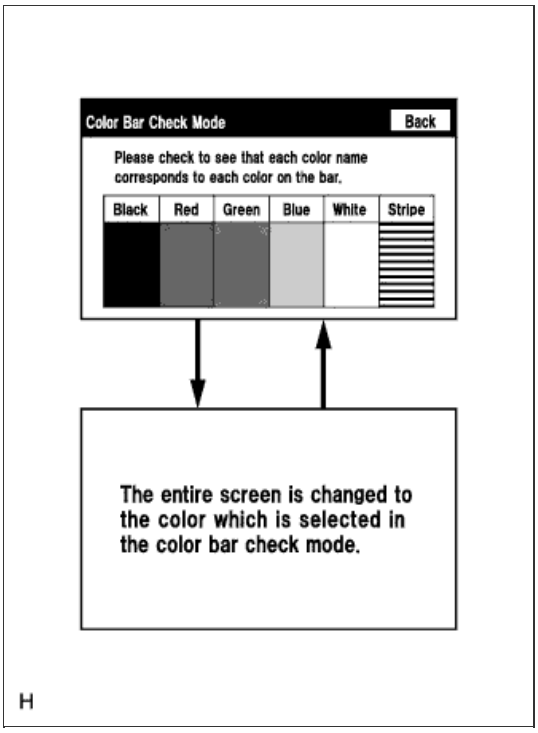
OK →

### 3.CHECK COLOR BAR (OPERATION CHECK)

a. Enter the "Color Bar Check Mode" screen. Refer to Check Color Bar in Operation Check (Click here).

b. Check that the color bars match the displayed names.

**OK:**
**Color bars match the displayed names.**




NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**NOTICE:**

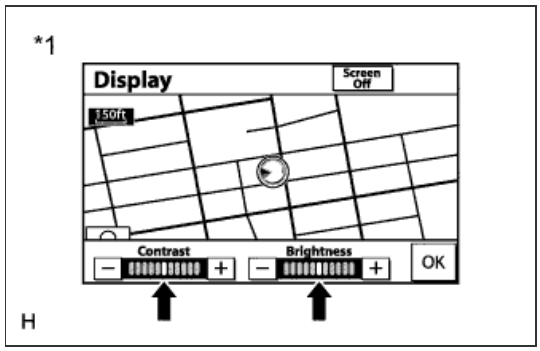
When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

### 1.CHECK DISPLAY SETTING

a. Enter the display adjustment screen by pressing the "DISP" switch.

b. Reset display settings (contrast, brightness) and check that the screen appears normally.

**OK:**
**The display returns to normal.**




**Text in Illustration**

| | |
|---|---|
| *1 | Example |

NG → Go to step 2

OK →

### END

### 2.CHECK CABIN

a. Check that the temperature in the cabin is neither -20°C (-4°F) or lower nor 65°C (149°F) or higher.

**HINT:**

The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.

**Standard:**
**Temperature in the cabin is between -20°C (-4°F) and 65°C (149°F).**

NG → HEAT OR COOL CABIN AND RECHECK TEMPERATURE

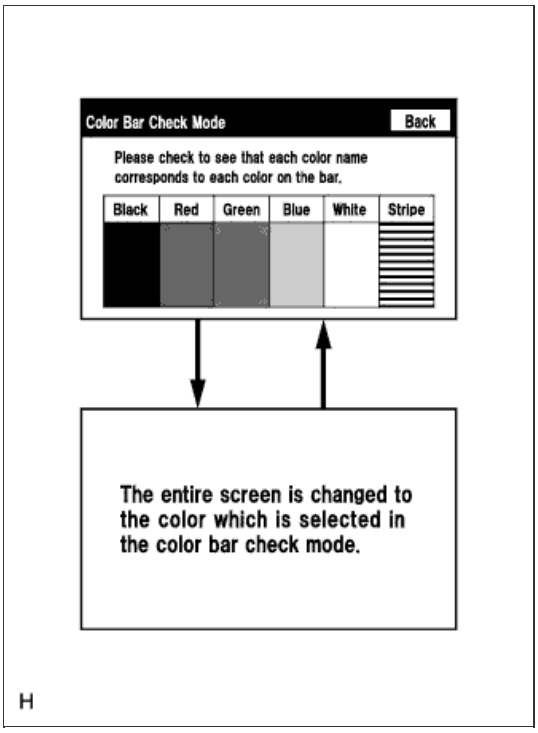
OK →

### 3.CHECK COLOR BAR (OPERATION CHECK)

a. Enter the "Color Bar Check Mode" screen. Refer to Check Color Bar in Operation Check (Click here).

b. Check that the color bars match the displayed names.

**OK:**
**Color bars match the displayed names.**




NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

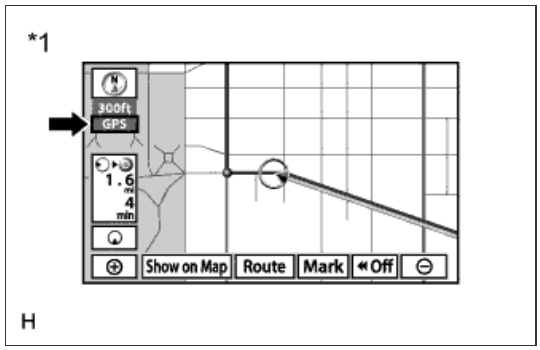
**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK GPS MARK

a. Check that the GPS mark is displayed.

**OK:**
**GPS mark is displayed.**




**Text in Illustration**

| | |
|---|---|
| *1 | Example |

NG → GO TO "GPS MARK IS NOT DISPLAYED" IN PROBLEM SYMPTOMS TABLE (Click here)

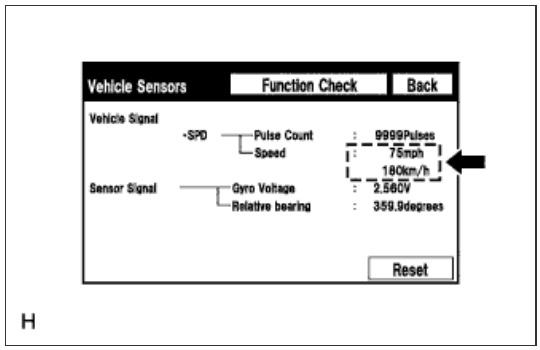
OK

### 2.CHECK VEHICLE SENSOR (OPERATION CHECK)

a. Enter the "Vehicle Sensors" screen. Refer to Check GPS & Vehicle Sensors in Operation Check (Click here).

b. While driving the vehicle, compare the "Speed" indicator to the reading on the speedometer. Check that these readings are almost equal.

**OK:**
**The readings are almost equal.**




NG → CHECK DTC OUTPUT (Click here)

OK

### 3.CHECK VEHICLE SIGNAL (OPERATION CHECK)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check ( Click here).

b. Check that the display changes between ON and OFF according to the shift lever operation.

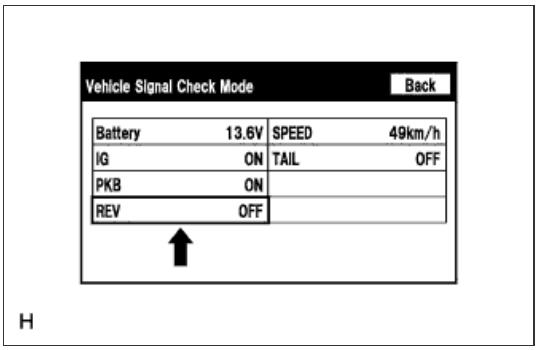
**OK:**

| Shift Lever Position | Display |
|---|---|
| Except R | OFF |
| R | ON |

**HINT:**

The display is updated once per second. It is normal for the display to lag

behind the actual switch operation.




NG → CHECK DTC OUTPUT (Click here)

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

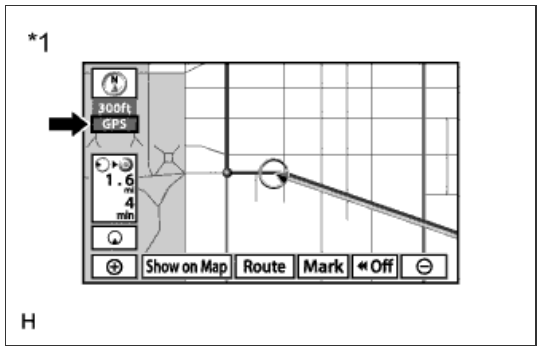
**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK GPS MARK

a. Check that the GPS mark is displayed.

**OK:**
**GPS mark is displayed.**




**Text in Illustration**

| | |
|---|---|
| *1 | Example |

NG → GO TO "GPS MARK IS NOT DISPLAYED" IN PROBLEM SYMPTOMS TABLE (Click here)

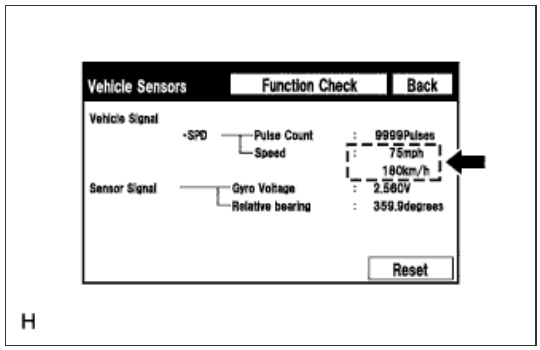
OK

### 2.CHECK VEHICLE SENSOR (OPERATION CHECK)

a. Enter the "Vehicle Sensors" screen. Refer to Check GPS & Vehicle Sensors in Operation Check (Click here).

b. While driving the vehicle, compare the "Speed" indicator to the reading on the speedometer. Check that these readings are almost equal.

**OK:**
**The readings are almost equal.**




NG → CHECK DTC OUTPUT (Click here)

OK

### 3.CHECK VEHICLE SIGNAL (OPERATION CHECK)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check ( Click here).

b. Check that the display changes between ON and OFF according to the shift lever operation.

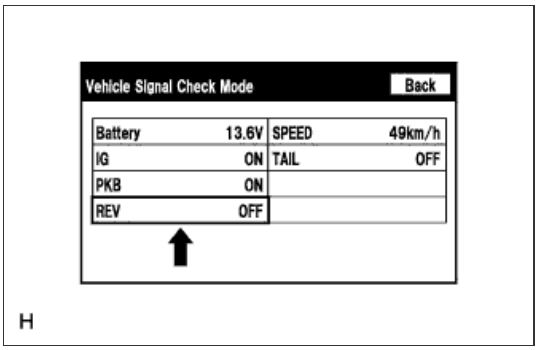
**OK:**

| Shift Lever Position | Display |
|---|---|
| Except R | OFF |
| R | ON |

**HINT:**

The display is updated once per second. It is normal for the display to lag

behind the actual switch operation.




NG → CHECK DTC OUTPUT (Click here)

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

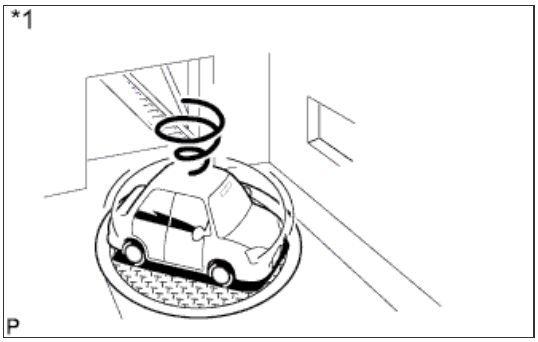
## INSPECTION PROCEDURE

### 1.CHECK CONDITION

a. Check with the customer if the vehicle has been turned by a turntable.

**OK:**

**Vehicle has not been turned by turntable.**




**Text in Illustration**

| | |
|---|---|
| *1 | Example |

**HINT:**

If the vehicle is turned on a turntable with the engine switch on (IG), the system may store the angular velocity. As a result, the vehicle position cursor may deviate.

NG → TURN ENGINE SWITCH TO ON WHEN VEHICLE IS COMPLETELY STOPPED

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

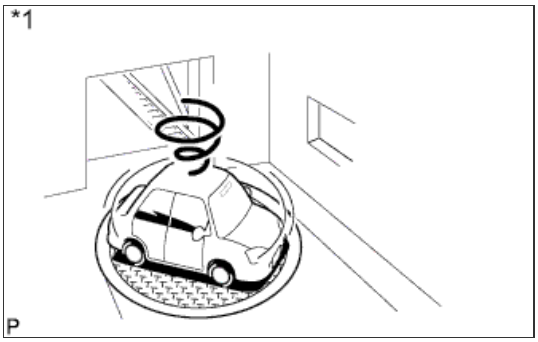
## INSPECTION PROCEDURE

### 1.CHECK CONDITION

a. Check with the customer if the vehicle has been turned by a turntable.

**OK:**

**Vehicle has not been turned by turntable.**




**Text in Illustration**

| | |
|---|---|
| *1 | Example |

**HINT:**

If the vehicle is turned on a turntable with the engine switch on (IG), the system may store the angular velocity. As a result, the vehicle position cursor may deviate.

NG → TURN ENGINE SWITCH TO ON WHEN VEHICLE IS COMPLETELY STOPPED

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**NOTICE:**

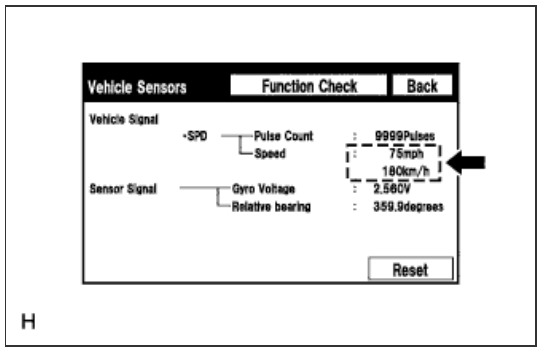
When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

**1.CHECK VEHICLE SENSOR (OPERATION CHECK)**

a. Enter the "Vehicle Sensors" screen. Refer to Check GPS & Vehicle Sensors in Operation Check (Click here).

b. While driving the vehicle, compare the "Speed" indicator to the reading on the speedometer. Check if these readings are almost equal.

**OK:**
**The readings are almost equal.**




NG → CHECK DTC OUTPUT (Click here)

OK → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**NOTICE:**

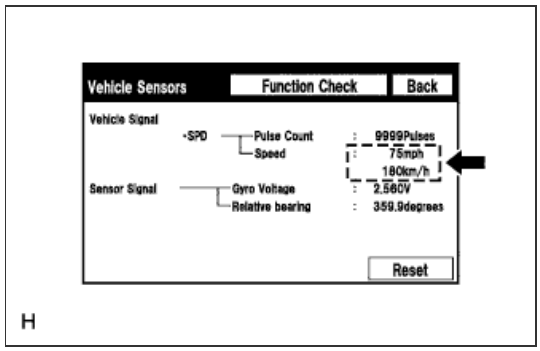
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**1.CHECK VEHICLE SENSOR (OPERATION CHECK)**

a. Enter the "Vehicle Sensors" screen. Refer to Check GPS & Vehicle Sensors in Operation Check (Click here).

b. While driving the vehicle, compare the "Speed" indicator to the reading on the speedometer. Check if these readings are almost equal.

**OK:**
**The readings are almost equal.**




NG → CHECK DTC OUTPUT (Click here)

OK → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

### 1.CHECK CABIN

a. Check the cabin for any object that might interrupt radio reception on the instrument panel. If such an object exists, remove it and check if the GPS mark reappears.

**HINT:**

The GPS uses extremely faint radio waves originating from satellites. If the signal is interrupted by obstructions or other radio waves, the GPS may not be able to properly receive the signal.

**OK:**
**The GPS mark appears.**

NG → Go to step 2

OK

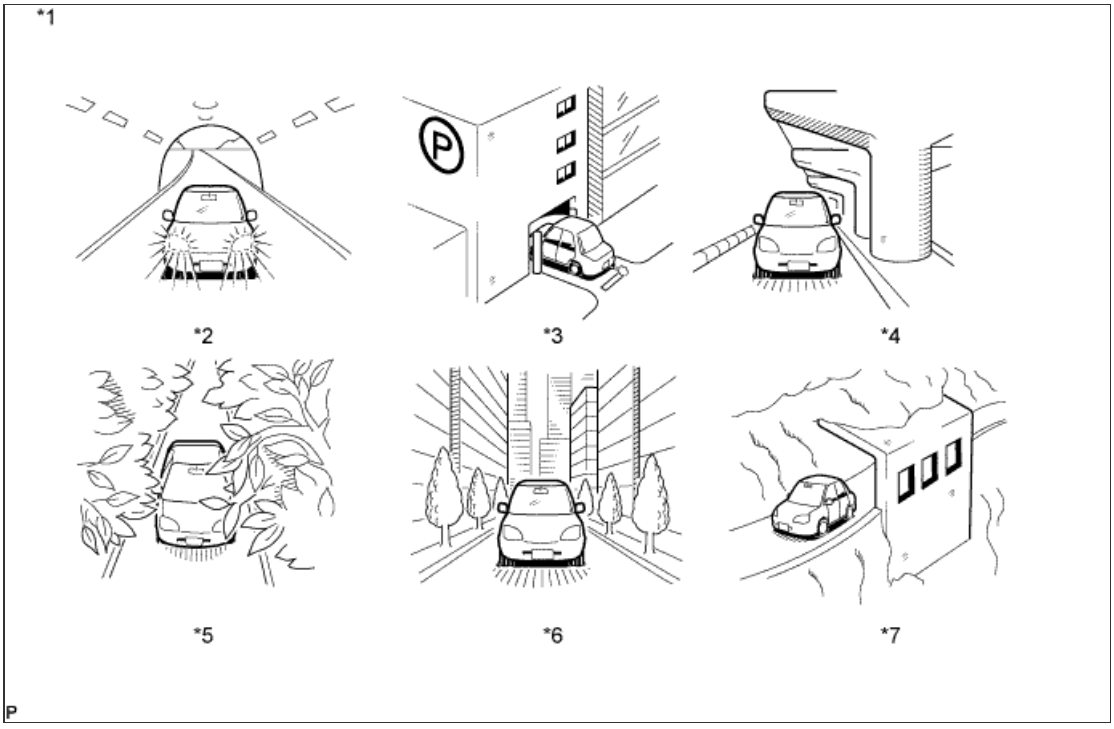
### NORMAL OPERATION

### 2.CHECK SURROUNDINGS

a. Check if the vehicle is in a location where GPS signal reception is poor. If the vehicle is in such a place, relocate the vehicle and check if the GPS mark reappears.

**HINT:**

The GPS uses 24 satellites in 6 orbits. At any point in time, 4 satellites should be able to pinpoint your vehicle. However, GPS signals may not reach the vehicle due to influence from the surroundings, vehicle direction and time. For examples, see the following illustration.



**Text in Illustration**

| | | | |
|---|---|---|---|
| *1 | Example | *2 | In a tunnel |
| *3 | In a building | *4 | Under an overpass |
| *5 | On a forest or tree-lined path | *6 | Between tall buildings |
| *7 | Under a cliff or overhang | - | - |

**OK:**

**The GPS mark is displayed.**

NG → Go to step 3

OK

SYSTEM RETURNS TO NORMAL

## 3.CHECK GPS INFORMATION (OPERATION CHECK)

a. Enter the "GPS Information" screen. Refer to Check GPS & Vehicle Sensors in Operation Check (Click here).

b. Check how many of the following codes appear in the "STS" column.

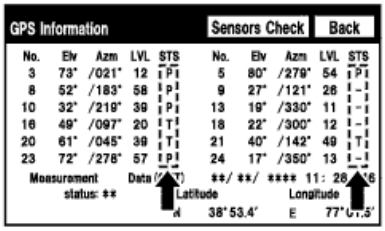
**HINT:**

T or P appears.

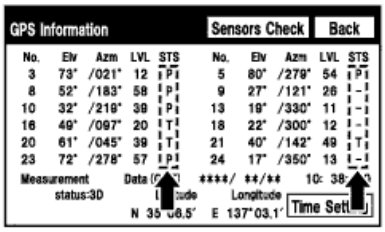
**OK:**

**At least 3 codes appear.**

*1




*2




**Text in Illustration**

| | |
|---|---|
| *1 | w/o G-BOOK System |
| *2 | w/ G-BOOK System |

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

### 1.CHECK CABIN

a. Check the cabin for any object that might interrupt radio reception on the instrument panel. If such an object exists, remove it and check if the GPS mark reappears.

**HINT:**

The GPS uses extremely faint radio waves originating from satellites. If the signal is interrupted by obstructions or other radio waves, the GPS may not be able to properly receive the signal.

**OK:**
**The GPS mark appears.**

NG → Go to step 2

OK

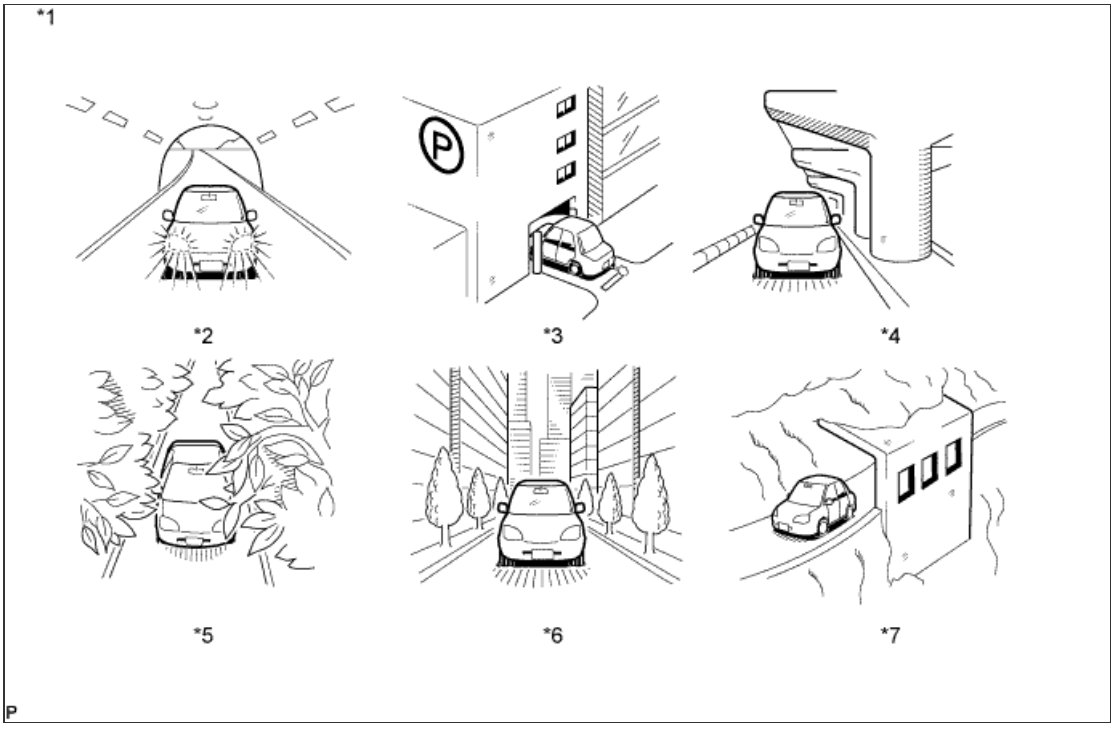
### NORMAL OPERATION

### 2.CHECK SURROUNDINGS

a. Check if the vehicle is in a location where GPS signal reception is poor. If the vehicle is in such a place, relocate the vehicle and check if the GPS mark reappears.

**HINT:**

The GPS uses 24 satellites in 6 orbits. At any point in time, 4 satellites should be able to pinpoint your vehicle. However, GPS signals may not reach the vehicle due to influence from the surroundings, vehicle direction and time. For examples, see the following illustration.



**Text in Illustration**

| | | | |
|---|---|---|---|
| *1 | Example | *2 | In a tunnel |
| *3 | In a building | *4 | Under an overpass |
| *5 | On a forest or tree-lined path | *6 | Between tall buildings |
| *7 | Under a cliff or overhang | - | - |

**OK:**

**The GPS mark is displayed.**

NG → Go to step 3

OK

SYSTEM RETURNS TO NORMAL

## 3.CHECK GPS INFORMATION (OPERATION CHECK)

a. Enter the "GPS Information" screen. Refer to Check GPS & Vehicle Sensors in Operation Check (Click here).

b. Check how many of the following codes appear in the "STS" column.

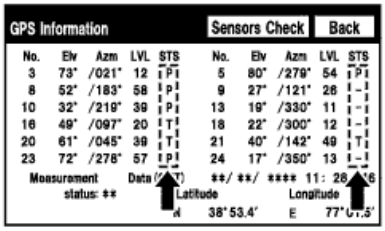
**HINT:**

T or P appears.

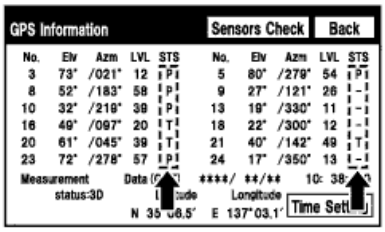
**OK:**

**At least 3 codes appear.**

*1




*2




**Text in Illustration**

| | |
|---|---|
| *1 | w/o G-BOOK System |
| *2 | w/ G-BOOK System |

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**NOTICE:**

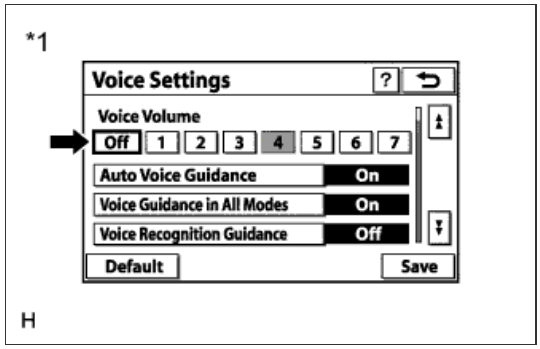
When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

### 1.CHECK NAVIGATION SETTING

a. Display the "Voice Settings" screen.

b. Check that "Off" is not selected.

**OK:**
**"Off" is not selected.**




**Text in Illustration**

| | |
|---|---|
| *1 | Example |

NG → SELECT VOICE VOLUME SETTING OTHER THAN "Off"

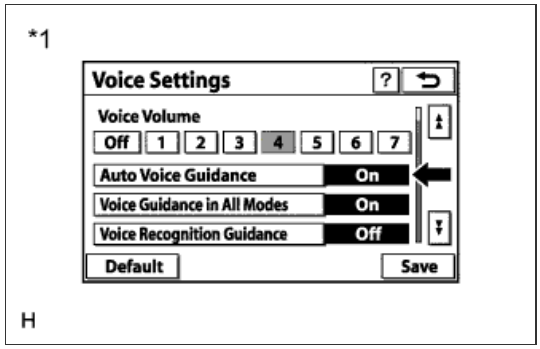
OK

### 2.CHECK NAVIGATION SETTING

a. Display the "Voice Settings" screen.

b. Check that "Auto Voice Guidance" is not "Off".

**OK:**
**"Auto Voice Guidance" is not "Off".**




**Text in Illustration**

| | |
|---|---|
| *1 | Example |

NG → TURN AUTO VOICE GUIDANCE "On"

OK

### 3.CHECK NAVIGATION SETTING

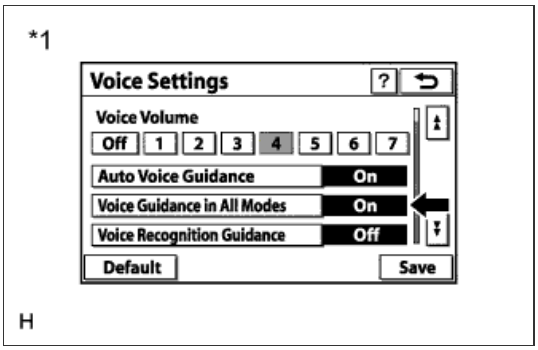
a. Display the "Voice Settings" screen.

b. Check that "Voice Guidance in All Modes" is not "Off".

**OK:**
**"Voice Guidance in All Modes" is not "Off".**

**Text in Illustration**

| | |
|---|---|
| *1 | Example |




NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

**4.CHECK AUDIO FUNCTION**

a. Check that audio sound can be heard from the driver side speaker.

**OK:**
**Audio sound can be heard.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**NOTICE:**

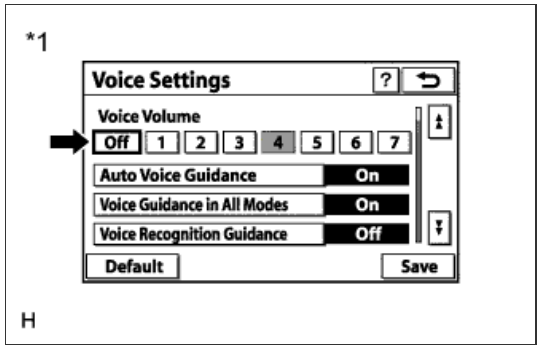
When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

### 1.CHECK NAVIGATION SETTING

a. Display the "Voice Settings" screen.

b. Check that "Off" is not selected.

**OK:**
**"Off" is not selected.**




**Text in Illustration**

| | |
|---|---|
| *1 | Example |

NG → SELECT VOICE VOLUME SETTING OTHER THAN "Off"

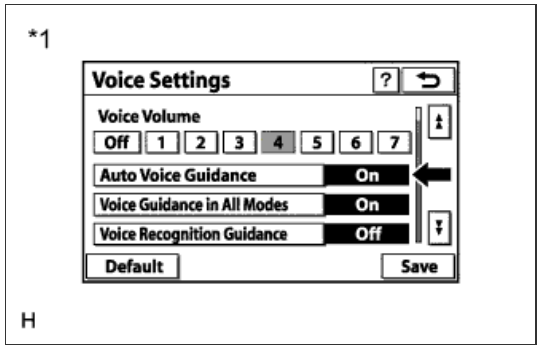
OK

### 2.CHECK NAVIGATION SETTING

a. Display the "Voice Settings" screen.

b. Check that "Auto Voice Guidance" is not "Off".

**OK:**
**"Auto Voice Guidance" is not "Off".**




**Text in Illustration**

| | |
|---|---|
| *1 | Example |

NG → TURN AUTO VOICE GUIDANCE "On"

OK

### 3.CHECK NAVIGATION SETTING

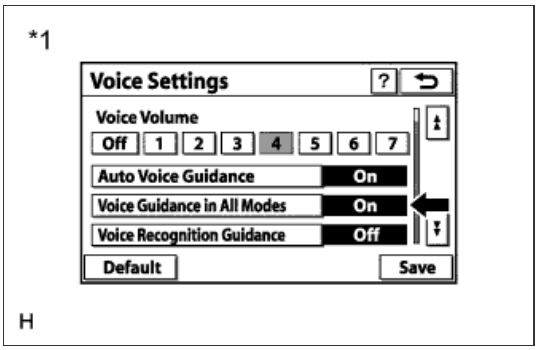
a. Display the "Voice Settings" screen.

b. Check that "Voice Guidance in All Modes" is not "Off".

**OK:**
**"Voice Guidance in All Modes" is not "Off".**

**Text in Illustration**

| | |
|---|---|
| *1 | Example |




NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

**4.CHECK AUDIO FUNCTION**

a. Check that audio sound can be heard from the driver side speaker.

**OK:**
**Audio sound can be heard.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CONFIRM SYMPTOMS

a. Confirm the information about the situation when the route calculation did not complete.

**Result**

| Result | Proceed to |
|---|---|
| Route cannot be calculated for any destination. | A |
| A road in the route is closed or has not been officially opened yet. | B |
| A ferry crossing is included in the route. | B |
| The destination is too close. | B |
| The route cannot be calculated only when driving on a bumpy road. | B |

**HINT:**

A route cannot be calculated if the route is unavailable, a ferry crossing is included in the route, the destination is too close or when driving on bumpy roads.

B → NORMAL OPERATION

A

### 2.REPLACE HARD DISK DRIVE

a. Replace the hard disk drive (Click here).

b. Set another destination and check if the system can calculate the route correctly.

**OK:**
**Route can be correctly calculated.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

### END

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CONFIRM SYMPTOMS

a. Confirm the information about the situation when the route calculation did not complete.

**Result**

| Result | Proceed to |
|---|---|
| Route cannot be calculated for any destination. | A |
| A road in the route is closed or has not been officially opened yet. | B |
| A ferry crossing is included in the route. | B |
| The destination is too close. | B |
| The route cannot be calculated only when driving on a bumpy road. | B |

**HINT:**

A route cannot be calculated if the route is unavailable, a ferry crossing is included in the route, the destination is too close or when driving on bumpy roads.

B → NORMAL OPERATION

A

### 2.REPLACE HARD DISK DRIVE

a. Replace the hard disk drive (Click here).

b. Set another destination and check if the system can calculate the route correctly.

**OK:**
**Route can be correctly calculated.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

### END

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CONDITION

a. Check if the system voice recognition level is low when recognizing a particular voice.

**Result**

| Result | Proceed to |
|---|---|
| System voice recognition level is low with any voice. | A |
| System voice recognition level is low only for a particular voice. | B |

**HINT:**

System voice recognition level varies depending on voice and pronunciation. This is not a malfunction.

B → END

A

### 2.CHECK MICROPHONE AND VOICE RECOGNITION (OPERATION CHECK)

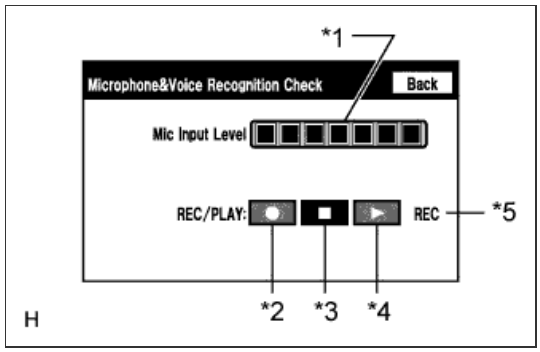
a. Enter the "Microphone & Voice Recognition Check" screen. Refer to Check Mic & Voice Recognition in Operation Check (Click here).

b. When voice is input into the microphone, check that the microphone input level meter changes according to the input voice.

c. Push the recording switch and perform voice recording.

**HINT:**

- **Select the recording switch with the blower motor of the air conditioning system stopped. If an outlet of the air conditioning system is facing the microphone, noise may be recorded.**
- **Voice can be recorded up to 5 seconds.**




**HINT:**

Voice can be recorded up to 5 seconds.

d. Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.

**OK:**
**All check results are normal.**

**Text in Illustration**

| | |
|---|---|
| *1 | Microphone Input Level Meter |
| *2 | Recording Switch |
| *3 | Stop Switch |
| *4 | Play Switch |
| *5 | Recording Indicator |

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

### 3.REPLACE HARD DISK DRIVE

a. Replace the hard disk drive (Click here).

b. Check that voice recognition is normal.

**OK:**

**Voice can be recognized normally.**



**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CONDITION

a. Check if the system voice recognition level is low when recognizing a particular voice.

**Result**

| Result | Proceed to |
|---|---|
| System voice recognition level is low with any voice. | A |
| System voice recognition level is low only for a particular voice. | B |

**HINT:**

System voice recognition level varies depending on voice and pronunciation. This is not a malfunction.

B → END

A

### 2.CHECK MICROPHONE AND VOICE RECOGNITION (OPERATION CHECK)

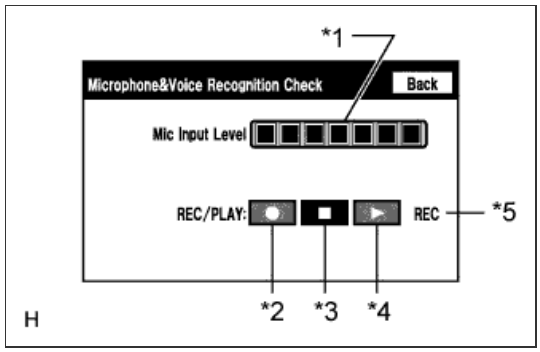
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**Text in Illustration**

| | |
|---|---|
| *1 | Microphone Input Level Meter |
| *2 | Recording Switch |
| *3 | Stop Switch |
| *4 | Play Switch |
| *5 | Recording Indicator |

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

### 3.REPLACE HARD DISK DRIVE

a. Replace the hard disk drive (Click here).

b. Check that voice recognition is normal.

**OK:**

**Voice can be recognized normally.**



**for Preparation** Click here

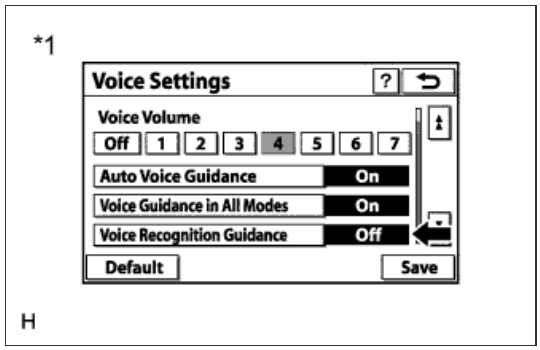
## INSPECTION PROCEDURE

### 1.CHECK NAVIGATION SETTING

a. Display the "Voice Settings" screen.

b. Check that "Voice Recognition Guidance" is not "Off".

**OK:**
**"Voice Recognition Guidance" is not "Off".**




Text in Illustration

| | |
|---|---|
| *1 | Example |

NG → TURN VOICE RECOGNITION GUIDANCE "On"

OK

### 2.CHECK MICROPHONE AND VOICE RECOGNITION (OPERATION CHECK)

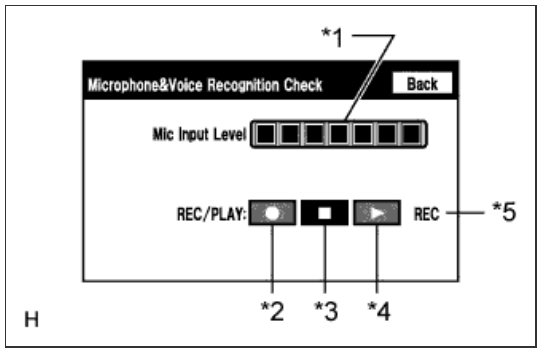
a. Enter the "Microphone & Voice Recognition Check" screen. Refer to Check Mic & Voice Recognition in Operation Check (Click here).

b. When voice is input into the microphone, check that the microphone input level meter changes according to the input voice.

c. Push the recording switch and perform voice recording.

**HINT:**

- **Select the recording switch with the blower motor of the air conditioning system stopped. If an outlet of the air conditioning system is facing the microphone, noise may be recorded.**
- **Voice can be recorded up to 5 seconds.**




**HINT:**

Voice can be recorded up to 5 seconds.

d. Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.

**OK:**
**All check results are normal.**

Text in Illustration

| | |
|---|---|
| *1 | Microphone Input Level Meter |
| *2 | Recording Switch |
| *3 | Stop Switch |
| *4 | Play Switch |
| *5 | Recording Indicator |

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

3.REPLACE HARD DISK DRIVE

a. Replace the hard disk drive (Click here).

b. Check that voice recognition is normal.

**OK:**

**Voice can be recognized normally.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK → END

**for Preparation** Click here

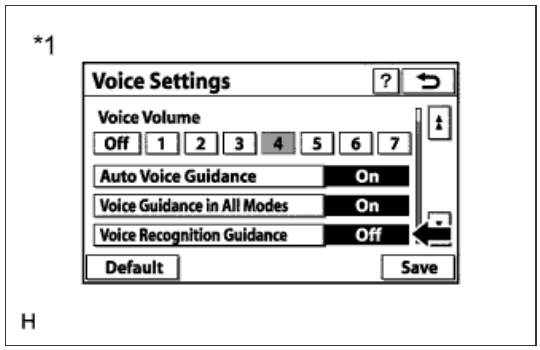
## INSPECTION PROCEDURE

### 1.CHECK NAVIGATION SETTING

a. Display the "Voice Settings" screen.

b. Check that "Voice Recognition Guidance" is not "Off".

**OK:**
**"Voice Recognition Guidance" is not "Off".**




Text in Illustration

| | |
|---|---|
| *1 | Example |

NG → TURN VOICE RECOGNITION GUIDANCE "On"

OK

### 2.CHECK MICROPHONE AND VOICE RECOGNITION (OPERATION CHECK)

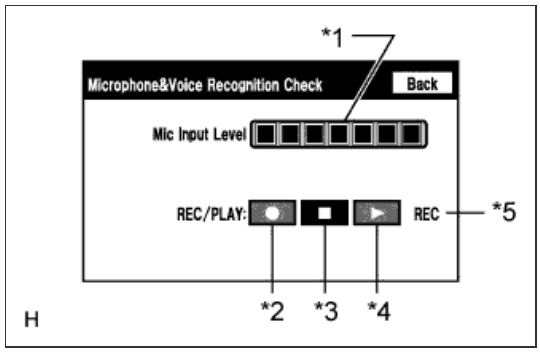
a. Enter the "Microphone & Voice Recognition Check" screen. Refer to Check Mic & Voice Recognition in Operation Check (Click here).

b. When voice is input into the microphone, check that the microphone input level meter changes according to the input voice.

c. Push the recording switch and perform voice recording.

**HINT:**

- **Select the recording switch with the blower motor of the air conditioning system stopped. If an outlet of the air conditioning system is facing the microphone, noise may be recorded.**
- **Voice can be recorded up to 5 seconds.**




**HINT:**

Voice can be recorded up to 5 seconds.

d. Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.

**OK:**
**All check results are normal.**

Text in Illustration

| | |
|---|---|
| *1 | Microphone Input Level Meter |
| *2 | Recording Switch |
| *3 | Stop Switch |
| *4 | Play Switch |
| *5 | Recording Indicator |

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

3.REPLACE HARD DISK DRIVE

a. Replace the hard disk drive (Click here).

b. Check that voice recognition is normal.

**OK:**

**Voice can be recognized normally.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK → END

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CURRENT CONDITIONS

a. Proceed to the next step according to the table below.

Result

| Result | Proceed to |
|---|---|
| Another "Bluetooth" compatible cellular phone is present. | A |
| Another "Bluetooth" compatible vehicle is present. | B |
| None of the above | C |

B → Go to step 3

C → Go to step 4

A

### 2.CHECK USING ANOTHER CELLULAR PHONE

a. Check if the system functions using another "Bluetooth" compatible cellular phone.

**HINT:**

- **Confirm that either the same or a different version of another "Bluetooth" compatible cellular phone complies with the system.**
- **Depending on the version, some "Bluetooth" compatible cellular phones cannot be used.**

**OK:**
**The system functions.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

### USE A "Bluetooth" COMPATIBLE CELLULAR PHONE

### 3.CHECK USING ANOTHER "Bluetooth" COMPATIBLE VEHICLE

a. Register the cellular phone with another vehicle and check if the system functions normally.

**HINT:**

Depending on the version, some "Bluetooth" compatible cellular phones cannot be used.

**OK:**
**The system functions.**

NG → REPAIR OR REPLACE CELLULAR PHONE

OK

### REPLACE RADIO RECEIVER ASSEMBLY (Click here)

### 4.CHECK CELLULAR PHONE

a. Check if the cellular phone is "Bluetooth" compatible.

**HINT:**

Some versions of "Bluetooth" compatible cellular phones may not function.

**OK:**

**The phone is "Bluetooth" compatible.**

NG → USE A "Bluetooth" COMPATIBLE CELLULAR PHONE

OK ↓

5.CHECK CELLULAR PHONE

a. Check if a call can be made from the cellular phone.

**HINT:**

When the battery is low, registration or directory transfer cannot be done.

**OK:**

**A call can be made from the cellular phone.**

NG → REPAIR OR REPLACE CELLULAR PHONE

OK ↓

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK "Bluetooth" SETTINGS

a. Check if the "Bluetooth" settings are correct.

**OK:**
**"Bluetooth" settings are correct.**

NG → SET SETTINGS CORRECTLY

OK

### 2.CHECK CELLULAR PHONE

a. Check if the cellular phone is "Bluetooth" compatible.

**HINT:**

Some versions of "Bluetooth" compatible cellular phones may not function.

**OK:**
**The phone is "Bluetooth" compatible.**

NG → END (ONLY A "Bluetooth" COMPATIBLE CELLULAR PHONE CAN BE USED)

OK

### 3.CHECK SETTINGS

a. Check the cellular phone functions.

**HINT:**

The cellular phone is unable to call under any of the following conditions:

- **The cellular phone is locked.**
- **The directory is being transferred.**
- **The line is crossed.**
- **Outside service range**
- **The power is off.**
- **The cellular phone is not connected to "Bluetooth" ("BT" is displayed while connected).**

**OK:**
**None of the above conditions exist.**

NG → SET CORRECTLY

OK

### 4.CHECK CELLULAR PHONE

a. Check if the cellular phone can make a call.

**HINT:**

When the battery is low, calls cannot be made or received.

**OK:**
**Cellular phone can make a call.**

NG → REPAIR OR REPLACE CELLULAR PHONE

OK

5.CHECK RECEPTION

a. Set the cellular phone so that it can receive calls.

b. Place the cellular phone close to the radio receiver assembly.

c. Check if the cellular phone has reception according to the multi display.

**OK:**
**The cellular phone has reception.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK "Bluetooth" SETTINGS

a. Check if the "Bluetooth" settings are correct.

**OK:**
**"Bluetooth" settings are correct.**

NG → SET SETTINGS CORRECTLY

OK

### 2.CHECK CELLULAR PHONE

a. Check if the cellular phone is "Bluetooth" compatible.

**HINT:**

Some versions of "Bluetooth" compatible cellular phones may not function.

**OK:**
**The phone is "Bluetooth" compatible.**

NG → END (ONLY A "Bluetooth" COMPATIBLE CELLULAR PHONE CAN BE USED)

OK

### 3.CHECK SETTINGS

a. Check the cellular phone functions.

**HINT:**

The cellular phone is unable to call under any of the following conditions:

- **The cellular phone is locked.**
- **The directory is being transferred.**
- **The line is crossed.**
- **Outside service range**
- **The power is off.**
- **The cellular phone is not connected to "Bluetooth" ("BT" is displayed while connected).**

**OK:**
**None of the above conditions exist.**

NG → SET CORRECTLY

OK

### 4.CHECK CELLULAR PHONE

a. Check if the cellular phone can make a call.

**HINT:**

When the battery is low, calls cannot be made or received.

**OK:**
**Cellular phone can make a call.**

NG → REPAIR OR REPLACE CELLULAR PHONE

OK

5.CHECK RECEPTION

a. Set the cellular phone so that it can receive calls.

b. Place the cellular phone close to the radio receiver assembly.

c. Check if the cellular phone has reception according to the multi display.

**OK:**
**The cellular phone has reception.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK SURROUNDING CONDITIONS

a. Check if the cellular phone can make calls in a certain place.

**OK:**
**It can make calls.**

NG → END (CELLULAR PHONES CAN ONLY FUNCTION IN CELLULAR SERVICE AREAS)

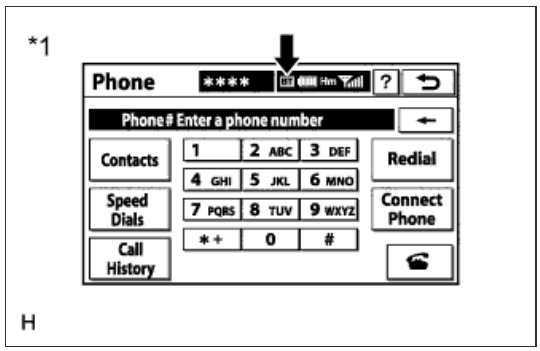
OK

### 2.CHECK RECEPTION

a. Display the "Phone" screen and check the "Bluetooth" connection indicator ("BT" indicator).

**Result**

| Result | Proceed to |
|---|---|
| "BT" indicator color is yellow. | A |
| "BT" indicator color is blue. | B |
| No connection mark is displayed. | C |




**Text in Illustration**

| | |
|---|---|
| *1 | Example |

B → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

C → SELECT A REGISTERED CELLULAR PHONE OR REGISTER A "Bluetooth" COMPATIBLE PHONE

A

MOVE CELLULAR PHONE TO A LOCATION WHERE "BT" MARK TURNS BLUE

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CELLULAR PHONE

a. Check if the voice on the other side can be heard using a cellular phone.

**OK:**
**Voice can be heard.**

NG → REPAIR OR REPLACE CELLULAR PHONE

OK

### 2.CHECK NAVIGATION SYSTEM

a. Check that navigation sound can be heard from the front speaker.

**OK:**
**Sound can be heard from the navigation system.**

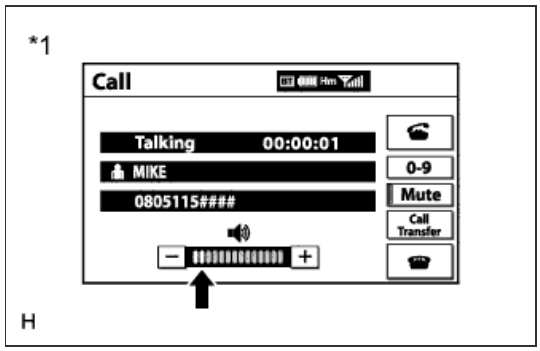
NG → GO TO "VOICE GUIDANCE DOES NOT FUNCTION" IN PROBLEM SYMPTOMS TABLE (Click here)

OK

### 3.CHECK SETTINGS

a. Check if the volume level is set to low on the "Call" screen.

**OK:**
**The level is not set to low.**




Text in Illustration

| | |
|---|---|
| *1 | Example |

NG → SET VOLUME TO HIGH

OK

### 4.CHECK SETTINGS (OPERATION CHECK)

a. Enter the "Hands-free Volume Setting" screen. Refer to Check Hands-free Volume Setting in Operation Check (Click here).

b. Check if the Receive Voice Level is set to "0".

**HINT:**

The Receive Voice Level can be set to 11 different levels, -5 to +5, with a 3 dB difference.

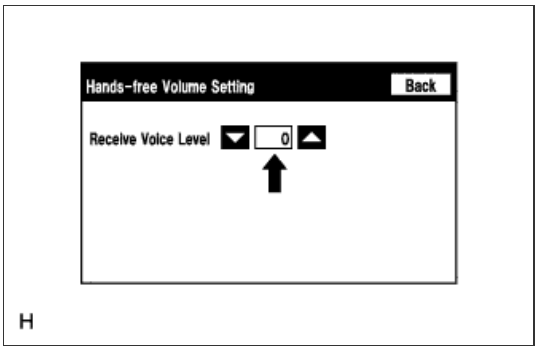
c. Check if the Receive Voice Level is set to the minimum or maximum level.

**HINT:**

When the Receive Voice Level is set to the minimum or maximum level, the sound may be distorted.

**OK:**

**The Receive Voice Level is set to "0".**




NG → SET RECEIVE VOICE LEVEL TO "0"

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CELLULAR PHONE

a. Check if the voice on the other side can be heard using a cellular phone.

**OK:**
**Voice can be heard.**

NG → REPAIR OR REPLACE CELLULAR PHONE

OK

### 2.CHECK NAVIGATION SYSTEM

a. Check that navigation sound can be heard from the front speaker.

**OK:**
**Sound can be heard from the navigation system.**

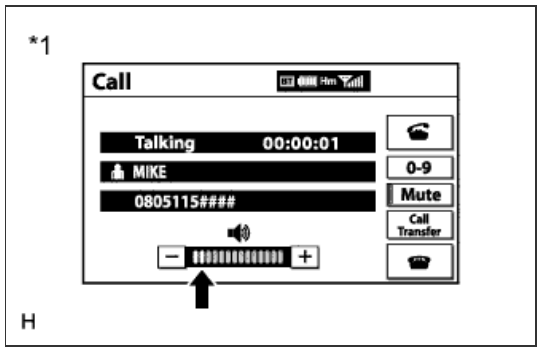
NG → GO TO "VOICE GUIDANCE DOES NOT FUNCTION" IN PROBLEM SYMPTOMS TABLE (Click here)

OK

### 3.CHECK SETTINGS

a. Check if the volume level is set to low on the "Call" screen.

**OK:**
**The level is not set to low.**




Text in Illustration

| | |
|---|---|
| *1 | Example |

NG → SET VOLUME TO HIGH

OK

### 4.CHECK SETTINGS (OPERATION CHECK)

a. Enter the "Hands-free Volume Setting" screen. Refer to Check Hands-free Volume Setting in Operation Check (Click here).

b. Check if the Receive Voice Level is set to "0".

**HINT:**

The Receive Voice Level can be set to 11 different levels, -5 to +5, with a 3 dB difference.

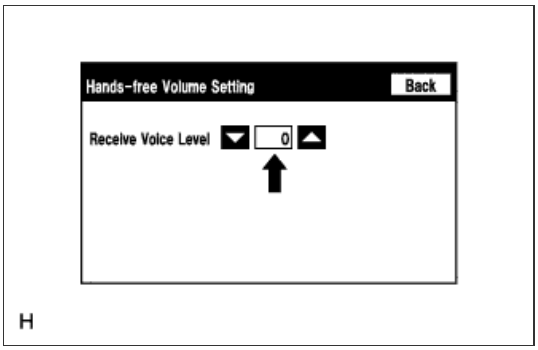
c. Check if the Receive Voice Level is set to the minimum or maximum level.

**HINT:**

When the Receive Voice Level is set to the minimum or maximum level, the sound may be distorted.

**OK:**

**The Receive Voice Level is set to "0".**




NG → SET RECEIVE VOICE LEVEL TO "0"

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

### 1.CHECK CELLULAR PHONE

a. Check if the other caller can hear your voice correctly.

**OK:**
**Your voice can be heard correctly.**

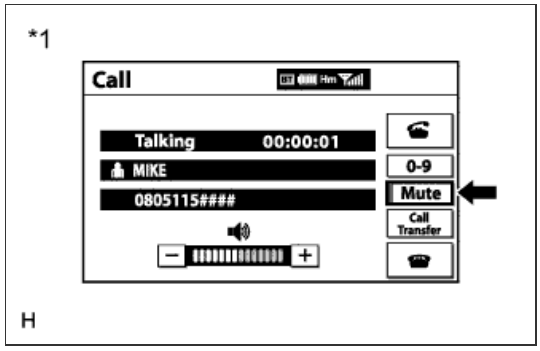
NG → REPLACE CELLULAR PHONE

OK

### 2.CHECK SETTINGS

a. Check if the Mute switch is set to on.

**OK:**
**Mute switch is not set to on.**




Text in Illustration

| | |
|---|---|
| *1 | Example |

NG → TURN MUTE SWITCH OFF

OK

### 3.CHECK MICROPHONE AND VOICE RECOGNITION (OPERATION CHECK)

a. Enter the "Microphone & Voice Recognition Check" screen. Refer to Check Mic & Voice Recognition in Operation Check (Click here).

b. When voice is input into the microphone, check that the microphone input level meter changes according to the input voice.

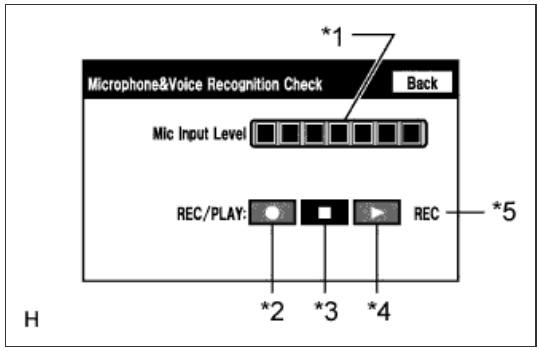
c. Push the recording switch and perform voice recording.

**HINT:**

- **Select the recording switch with the blower motor of the air conditioning system stopped. If an outlet of the air conditioning system is facing the microphone, noise may be recorded.**
- **Voice can be recorded up to 5 seconds.**

**HINT:**

Voice can be recorded up to 5 seconds.




d. Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.

**OK:**

**All check results are normal.**

**Text in Illustration**

| | |
|---|---|
| *1 | Microphone Input Level Meter |
| *2 | Recording Switch |
| *3 | Stop Switch |
| *4 | Play Switch |
| *5 | Recording Indicator |

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

**4.REPLACE RADIO RECEIVER ASSEMBLY**

a. Replace the radio receiver assembly ( Click here).

b. Check for symptoms again.

**OK:**

**The other caller can hear your voice loud enough without noise or distortion.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

**END**

**for Preparation** Click here

## INSPECTION PROCEDURE

**NOTICE:**

When replacing the display and navigation module display or telematics transceiver, perform vehicle contract setting (w/ G-BOOK system) ( Click here).

### 1.CHECK CELLULAR PHONE

a. Check if the other caller can hear your voice correctly.

**OK:**
**Your voice can be heard correctly.**

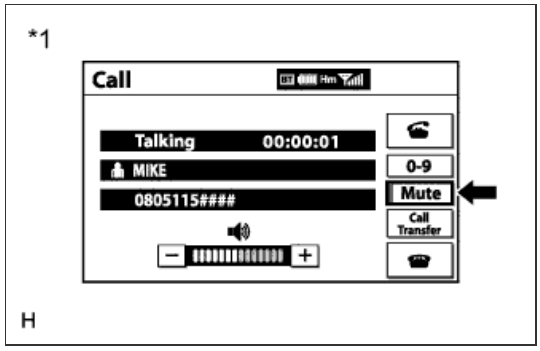
NG → REPLACE CELLULAR PHONE

OK

### 2.CHECK SETTINGS

a. Check if the Mute switch is set to on.

**OK:**
**Mute switch is not set to on.**




Text in Illustration

| | |
|---|---|
| *1 | Example |

NG → TURN MUTE SWITCH OFF

OK

### 3.CHECK MICROPHONE AND VOICE RECOGNITION (OPERATION CHECK)

a. Enter the "Microphone & Voice Recognition Check" screen. Refer to Check Mic & Voice Recognition in Operation Check (Click here).

b. When voice is input into the microphone, check that the microphone input level meter changes according to the input voice.

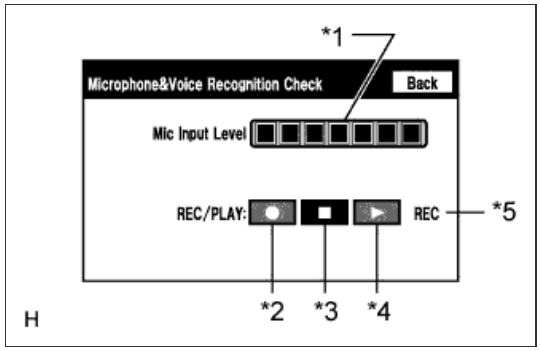
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- **Voice can be recorded up to 5 seconds.**

**HINT:**

Voice can be recorded up to 5 seconds.




d. Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.

**OK:**

**All check results are normal.**

**Text in Illustration**

| | |
|---|---|
| *1 | Microphone Input Level Meter |
| *2 | Recording Switch |
| *3 | Stop Switch |
| *4 | Play Switch |
| *5 | Recording Indicator |

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

**4.REPLACE RADIO RECEIVER ASSEMBLY**

a. Replace the radio receiver assembly ( Click here).

b. Check for symptoms again.

**OK:**

**The other caller can hear your voice loud enough without noise or distortion.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

**END**

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK DISPLAY SETTING

a. Check that the display is not in "Screen OFF" mode.

**OK:**
**The display setting is not in "Screen OFF" mode.**

NG → CHANGE SCREEN TO "SCREEN ON" MODE

OK ↓

### 2.CHECK IMAGE QUALITY SETTING

a. Check that the screen color quality can be set.

**OK:**
**Setting is possible.**

NG → Go to step 3

OK ↓

PRESS PANEL SWITCH "DISPLAY" AND SET SCREEN COLOR QUALITY TO NORMAL

### 3.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

**HINT:**

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

**OK:**
**Condensation is not likely being produced and the temperature is not high or extremely low.**

NG → SET CABIN TO APPROPRIATE TEMPERATURE

OK ↓

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK DISPLAY SETTING

a. Check that the display is not in "Screen OFF" mode.

**OK:**
**The display setting is not in "Screen OFF" mode.**

NG → CHANGE SCREEN TO "SCREEN ON" MODE

OK ↓

### 2.CHECK IMAGE QUALITY SETTING

a. Check that the screen color quality can be set.

**OK:**
**Setting is possible.**

NG → Go to step 3

OK ↓

PRESS PANEL SWITCH "DISPLAY" AND SET SCREEN COLOR QUALITY TO NORMAL

### 3.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

**HINT:**

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

**OK:**
**Condensation is not likely being produced and the temperature is not high or extremely low.**

NG → SET CABIN TO APPROPRIATE TEMPERATURE

OK ↓

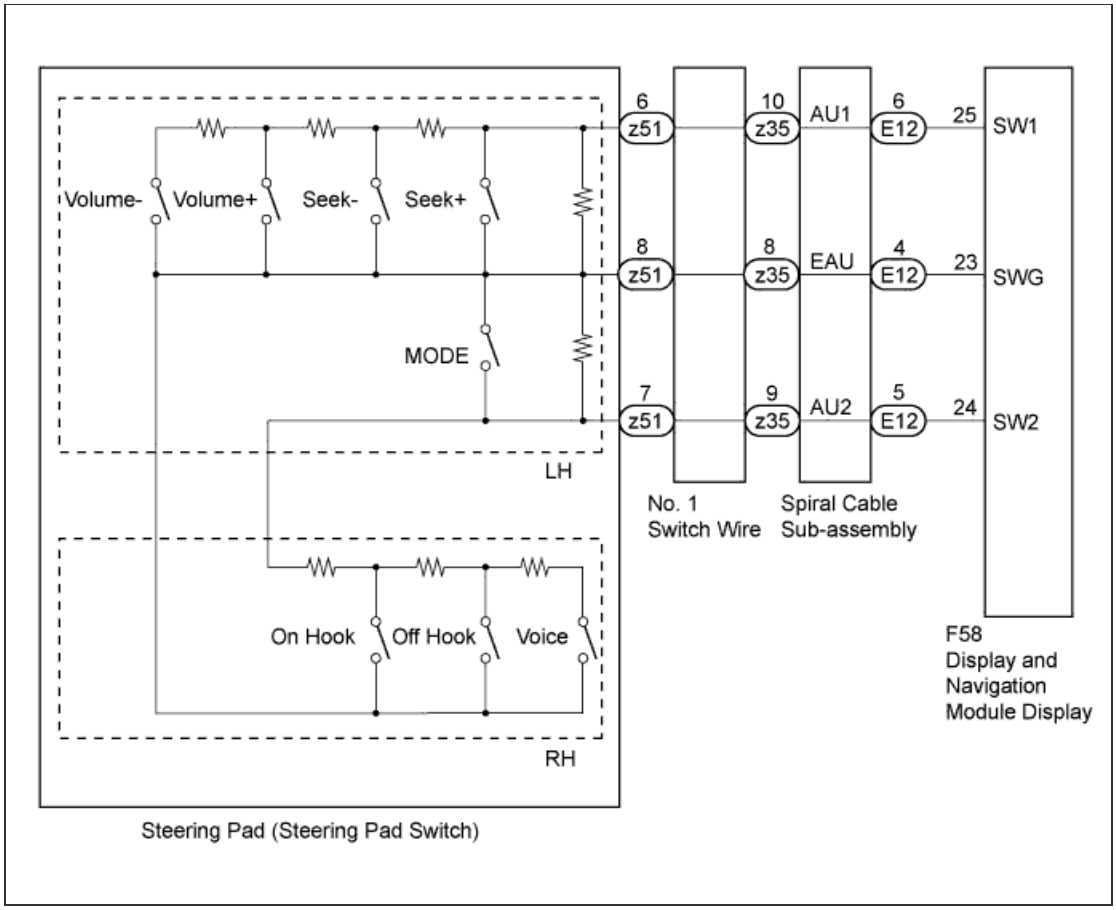
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit sends an operation signal from the steering pad (steering pad switch) to the display and navigation module display.
If there is an open in the circuit, the navigation system cannot be operated using the steering pad (steering pad switch).
If there is a short in the circuit, the resulting condition is the same as if the switch were continuously pressed. Therefore, the display and navigation module display cannot be operated using the steering pad (steering pad switch), and the display and navigation module display itself cannot function.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

The vehicle is equipped with an Supplemental Restraint System (SRS). Before servicing (including removal or installation of parts), be sure to read the precaution for Supplemental Restraint System (Click here).

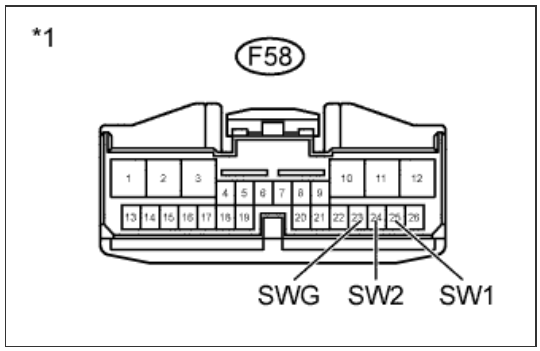
### 1.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

a. Disconnect the F58 display and navigation module display connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F58-25 (SW1) - F58-23 (SWG) | No switch pushed | 95 to 105 kΩ |
| F58-25 (SW1) - F58-23 (SWG) | Seek+ switch pushed | Below 2.5 Ω |
| F58-25 (SW1) - | Seek- switch | 312 to 345 Ω |



| | | |
|---|---|---|
| F58-23 (SWG) | pushed | |
| F58-25 (SW1) - F58-23 (SWG) | Volume+ switch pushed | 950 to 1050 Ω |
| F58-25 (SW1) - F58-23 (SWG) | Volume- switch pushed | 2954 to 3265 Ω |
| F58-24 (SW2) - F58-23 (SWG) | No switch pushed | 95 to 105 kΩ |
| F58-24 (SW2) - F58-23 (SWG) | MODE switch pushed | Below 2.5 Ω |
| F58-24 (SW2) - F58-23 (SWG) | Voice switch pushed | 2954 to 3265 Ω |
| F58-24 (SW2) - F58-23 (SWG) | On Hook switch pushed | 312 to 345 Ω |
| F58-24 (SW2) - F58-23 (SWG) | Off Hook switch pushed | 950 to 1050 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Display and Navigation Module Display) |

NG → Go to step 2

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

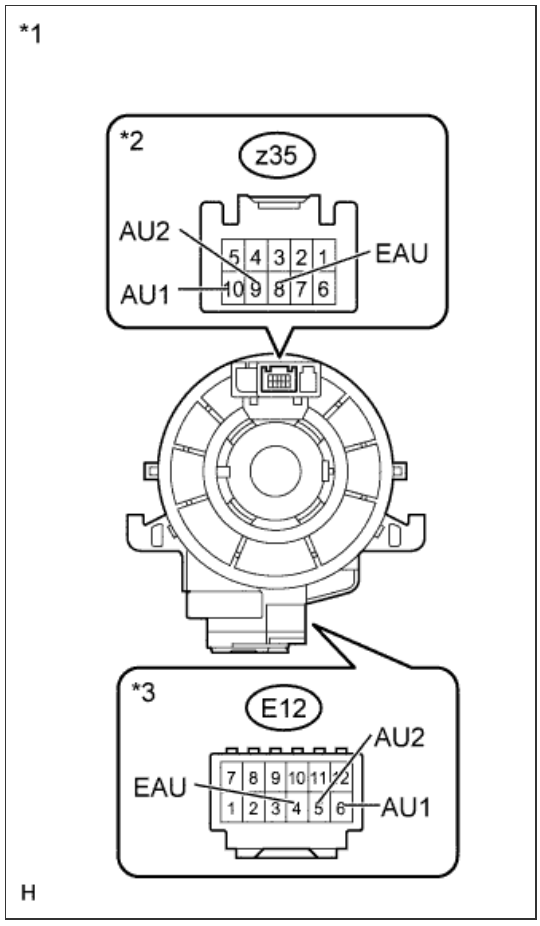
## 2.INSPECT SPIRAL CABLE SUB-ASSEMBLY

a. Disconnect the z35 and E12 spiral cable sub-assembly connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| z35-8 (EAU) - E12-4 (EAU) | Center | Below 1 Ω |
| | 2.5 rotations to the left | |
| | 2.5 rotations to the right | |
| z35-10 (AU1) - E12-6 (AU1) | Center | Below 1 Ω |
| | 2.5 rotations to the left | |
| | 2.5 rotations to the right | |
| z35-9 (AU2) - E12-5 (AU2) | Center | Below 1 Ω |
| | 2.5 rotations to the left | |
| | 2.5 rotations to the right | |




**NOTICE:**

The spiral cable is an important part of the SRS airbag system. Incorrect removal or installation of the spiral cable may prevent the airbag from deploying. Refer to the pages shown in the brackets.

**HINT:**

- **Removal (Click here)**
- **Installation (Click here)**

**Text in Illustration**

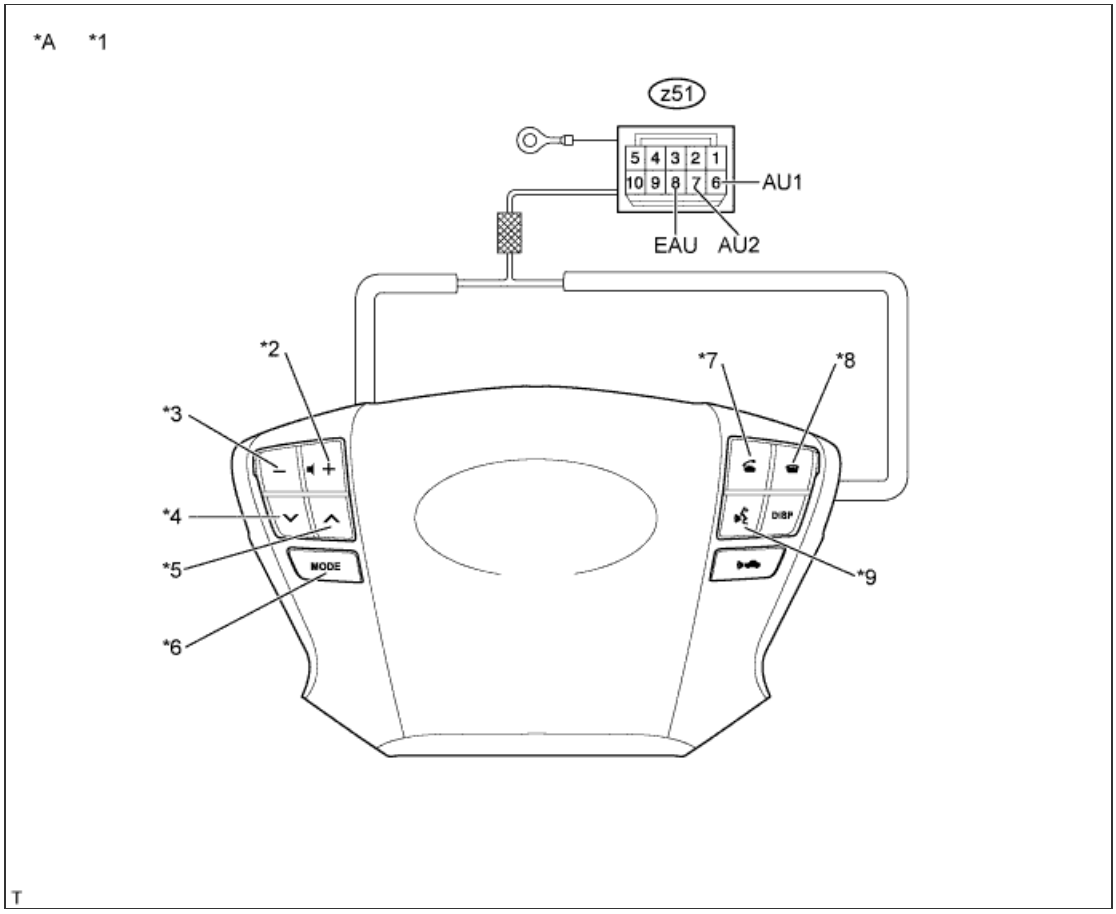
| | |
|---|---|
| *1 | Component without harness connected (Spiral Cable Sub-assembly) |

| | |
|---|---|
| *2 | Steering Pad Switch Side |
| *3 | Vehicle Side |

NG → REPLACE SPIRAL CABLE SUB-ASSEMBLY (Click here)

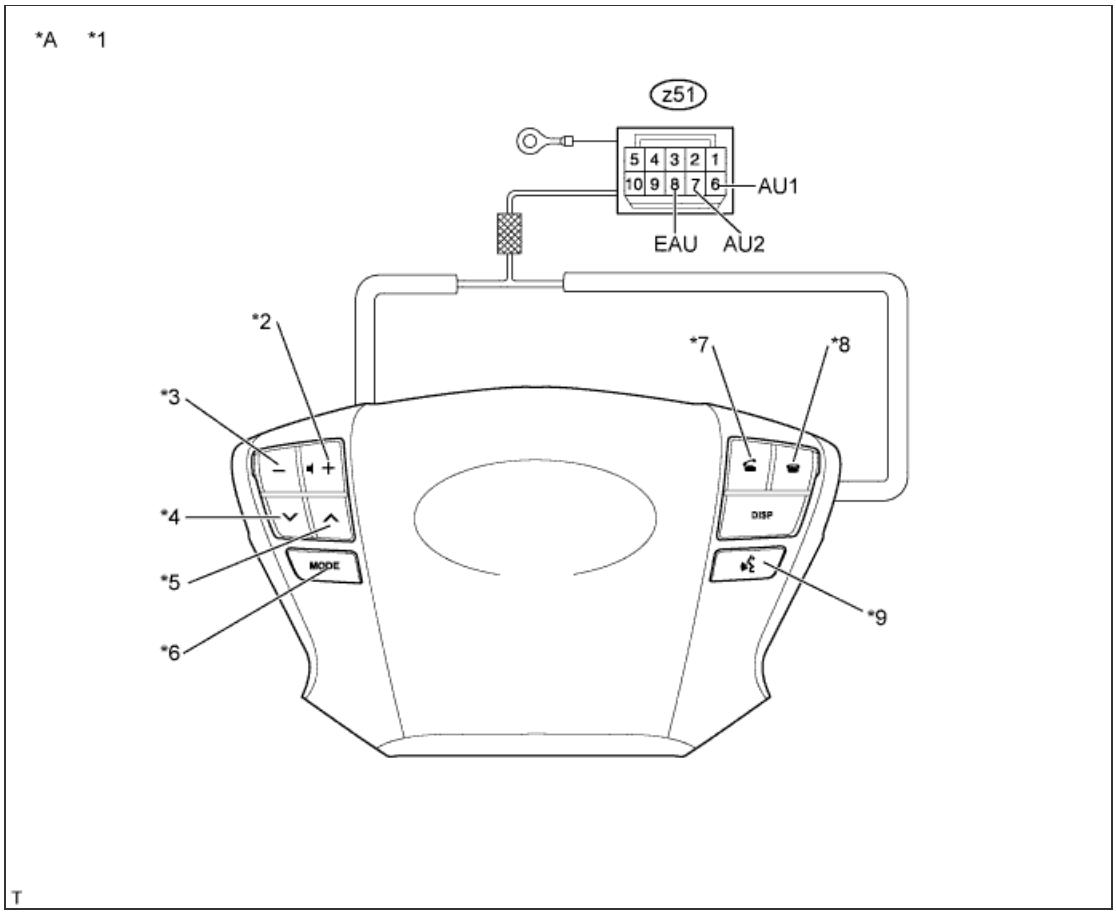
OK

### 3.INSPECT STEERING PAD (STEERING PAD SWITCH)




**Text in Illustration**

| | | | |
|---|---|---|---|
| *A | w/ Dynamic Radar Cruise Control System | *1 | Component without harness connected<br>(Steering Pad (Steering Pad Switch)) |
| *2 | Volume+ | *3 | Volume- |
| *4 | Seek- | *5 | Seek+ |
| *6 | MODE | *7 | Off Hook |
| *8 | On Hook | *9 | Voice |




**Text in Illustration**

| | | | |
|---|---|---|---|
| *A | w/o Dynamic Radar Cruise Control System | *1 | Component without harness connected (Steering Pad (Steering Pad Switch)) |
| *2 | Volume+ | *3 | Volume- |
| *4 | Seek- | *5 | Seek+ |
| *6 | MODE | *7 | Off Hook |
| *8 | On Hook | *9 | Voice |

a. Disconnect the z51 steering pad (steering pad switch) connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| z51-6 (AU1) - z51-8 (EAU) | No switch pushed | 95 to 105 kΩ |
| z51-6 (AU1) - z51-8 (EAU) | Seek+ switch pushed | Below 2.5 Ω |
| z51-6 (AU1) - z51-8 (EAU) | Seek- switch pushed | 312 to 345 Ω |
| z51-6 (AU1) - z51-8 (EAU) | Volume+ switch pushed | 950 to 1050 Ω |
| z51-6 (AU1) - z51-8 (EAU) | Volume- switch pushed | 2954 to 3265 Ω |
| z51-7 (AU2) - z51-8 (EAU) | No switch pushed | 95 to 105 kΩ |
| z51-7 (AU2) - z51-8 (EAU) | MODE switch pushed | Below 2.5 Ω |
| z51-7 (AU2) - z51-8 (EAU) | Voice switch pushed | 2954 to 3265 Ω |
| z51-7 (AU2) - z51-8 (EAU) | On Hook switch pushed | 312 to 345 Ω |
| z51-7 (AU2) - z51-8 (EAU) | Off Hook switch pushed | 950 to 1050 Ω |

NG → REPLACE STEERING PAD (STEERING PAD SWITCH) (Click here)

OK

**4.CHECK NO. 1 SWITCH WIRE**

a. Disconnect the z35 spiral cable sub-assembly connector.

b. Disconnect the z51 steering pad (steering pad switch) connector.

c. Measure the resistance according to the valve(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| z35-10 - z51-6 | Always | Below 1 Ω |
| z35-9 - z51-7 | Always | Below 1 Ω |
| z35-8 - z51-8 | Always | Below 1 Ω |
| z35-10 - Body ground | Always | 10 kΩ or higher |
| z35-9 - Body ground | Always | 10 kΩ or higher |
| z35-8 - Body ground | Always | 10 kΩ or higher |

NG → REPLACE NO. 1 SWITCH WIRE

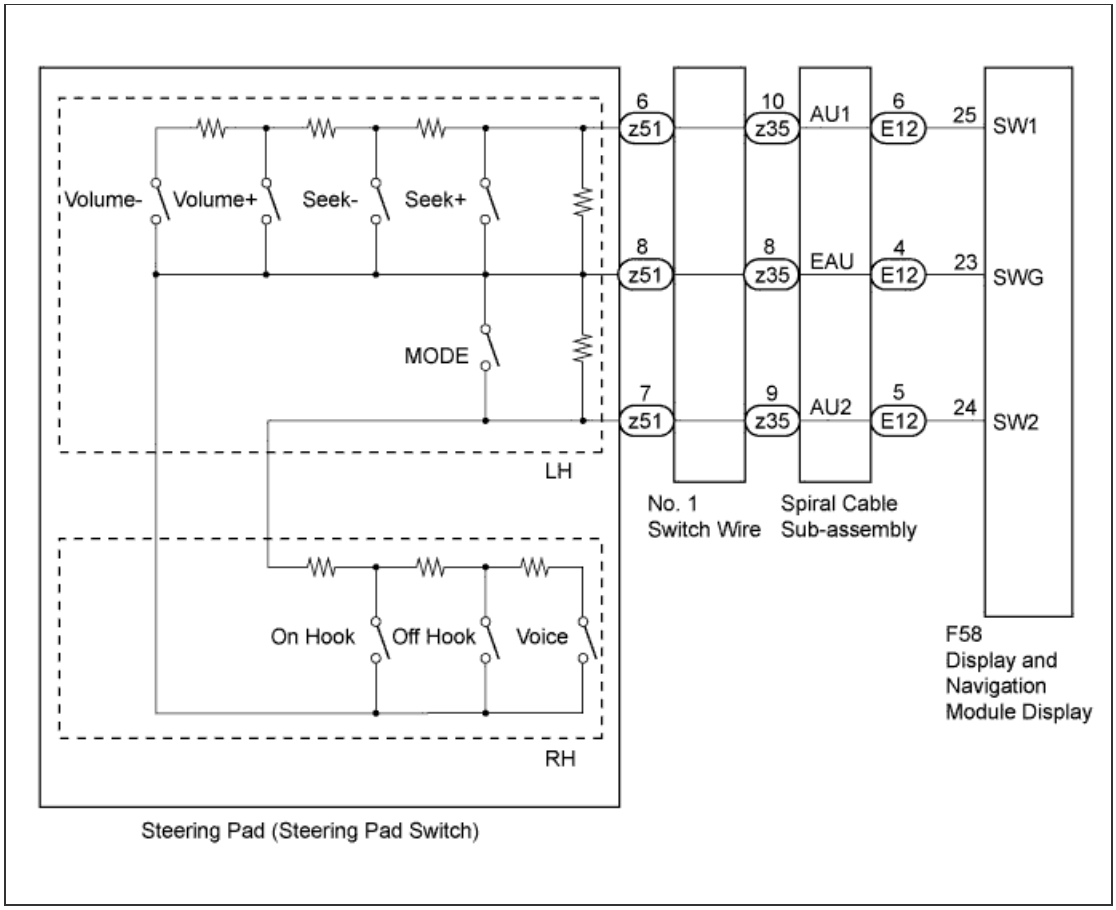
OK → REPAIR OR REPLACE HARNESS OR CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - SPIRAL CABLE)

**for Preparation** Click here

## DESCRIPTION

This circuit sends an operation signal from the steering pad (steering pad switch) to the display and navigation module display.
If there is an open in the circuit, the navigation system cannot be operated using the steering pad (steering pad switch).
If there is a short in the circuit, the resulting condition is the same as if the switch were continuously pressed. Therefore, the display and navigation module display cannot be operated using the steering pad (steering pad switch), and the display and navigation module display itself cannot function.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

The vehicle is equipped with an Supplemental Restraint System (SRS). Before servicing (including removal or installation of parts), be sure to read the precaution for Supplemental Restraint System (Click here).

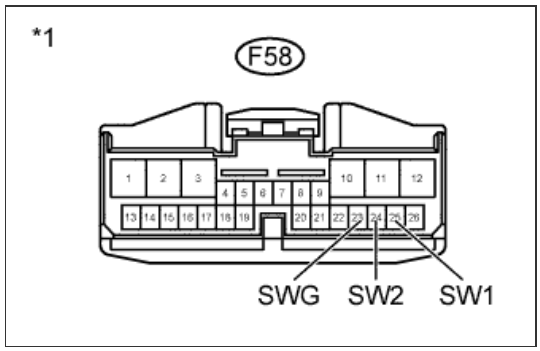
### 1.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

a. Disconnect the F58 display and navigation module display connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F58-25 (SW1) - F58-23 (SWG) | No switch pushed | 95 to 105 kΩ |
| F58-25 (SW1) - F58-23 (SWG) | Seek+ switch pushed | Below 2.5 Ω |
| F58-25 (SW1) - | Seek- switch | 312 to 345 Ω |



| | | |
|---|---|---|
| F58-23 (SWG) | pushed | |
| F58-25 (SW1) - F58-23 (SWG) | Volume+ switch pushed | 950 to 1050 Ω |
| F58-25 (SW1) - F58-23 (SWG) | Volume- switch pushed | 2954 to 3265 Ω |
| F58-24 (SW2) - F58-23 (SWG) | No switch pushed | 95 to 105 kΩ |
| F58-24 (SW2) - F58-23 (SWG) | MODE switch pushed | Below 2.5 Ω |
| F58-24 (SW2) - F58-23 (SWG) | Voice switch pushed | 2954 to 3265 Ω |
| F58-24 (SW2) - F58-23 (SWG) | On Hook switch pushed | 312 to 345 Ω |
| F58-24 (SW2) - F58-23 (SWG) | Off Hook switch pushed | 950 to 1050 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Display and Navigation Module Display) |

NG → Go to step 2

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

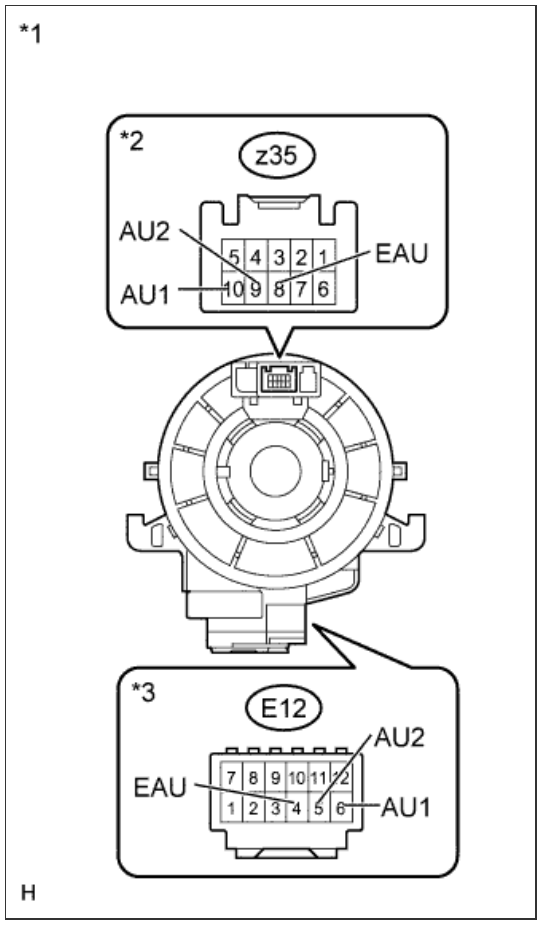
## 2.INSPECT SPIRAL CABLE SUB-ASSEMBLY

a. Disconnect the z35 and E12 spiral cable sub-assembly connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| z35-8 (EAU) - E12-4 (EAU) | Center | Below 1 Ω |
| | 2.5 rotations to the left | |
| | 2.5 rotations to the right | |
| z35-10 (AU1) - E12-6 (AU1) | Center | Below 1 Ω |
| | 2.5 rotations to the left | |
| | 2.5 rotations to the right | |
| z35-9 (AU2) - E12-5 (AU2) | Center | Below 1 Ω |
| | 2.5 rotations to the left | |
| | 2.5 rotations to the right | |




**NOTICE:**

The spiral cable is an important part of the SRS airbag system. Incorrect removal or installation of the spiral cable may prevent the airbag from deploying. Refer to the pages shown in the brackets.

**HINT:**

- **Removal (Click here)**
- **Installation (Click here)**

**Text in Illustration**

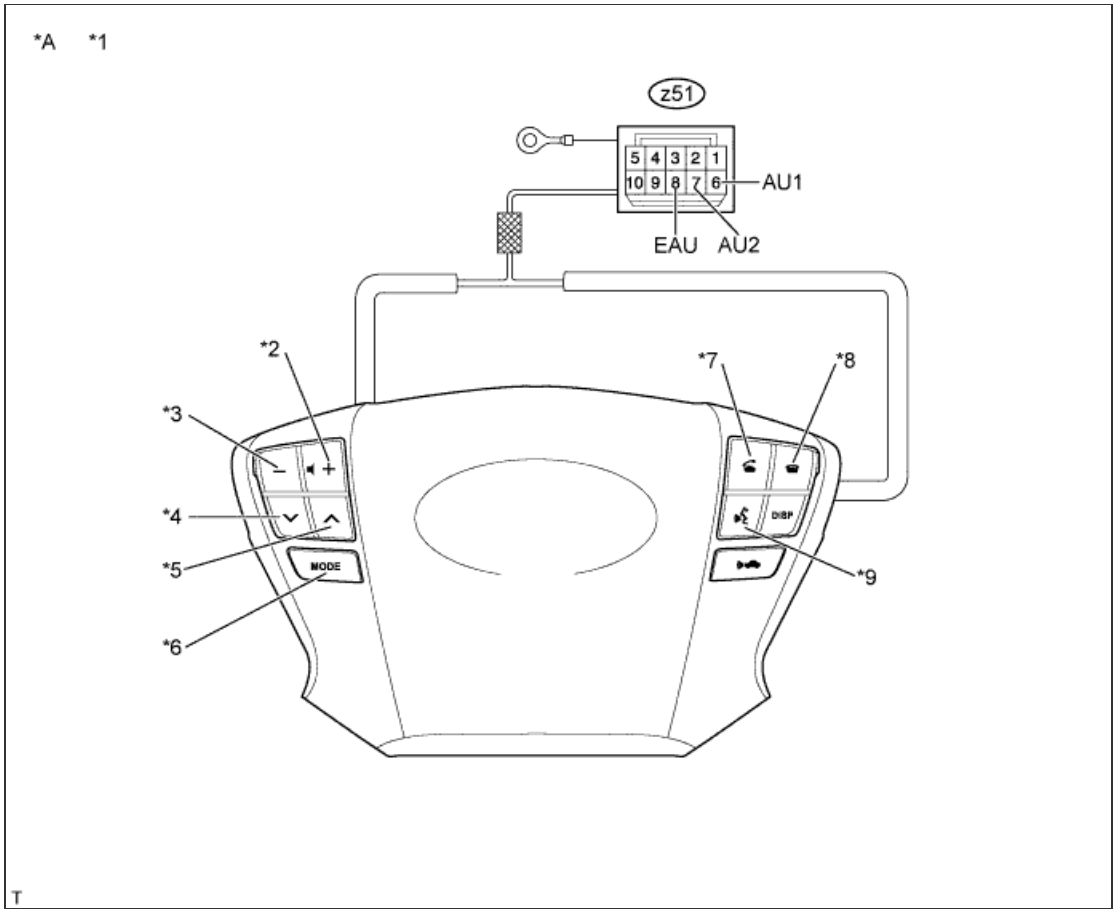
| | |
|---|---|
| *1 | Component without harness connected (Spiral Cable Sub-assembly) |

| | |
|---|---|
| *2 | Steering Pad Switch Side |
| *3 | Vehicle Side |

NG → REPLACE SPIRAL CABLE SUB-ASSEMBLY (Click here)

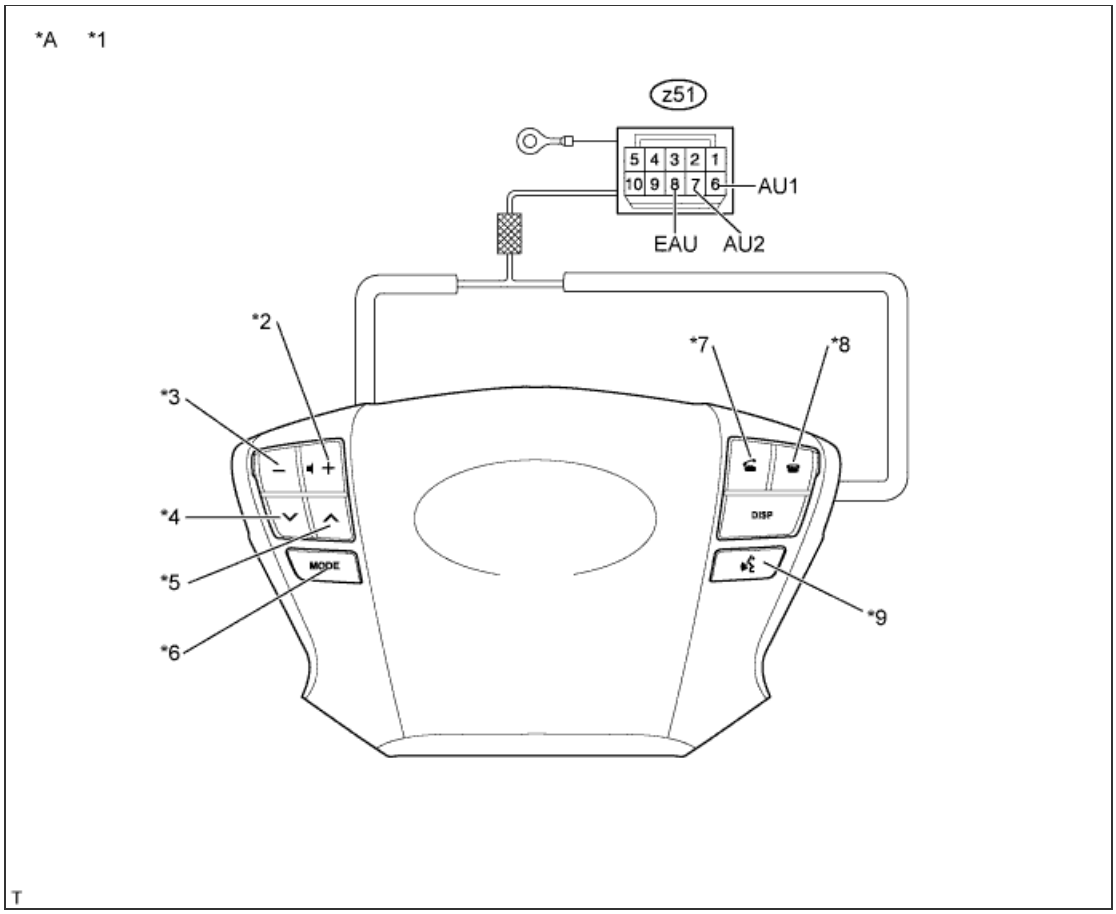
OK

### 3.INSPECT STEERING PAD (STEERING PAD SWITCH)




**Text in Illustration**

| | | | |
|---|---|---|---|
| *A | w/ Dynamic Radar Cruise Control System | *1 | Component without harness connected<br>(Steering Pad (Steering Pad Switch)) |
| *2 | Volume+ | *3 | Volume- |
| *4 | Seek- | *5 | Seek+ |
| *6 | MODE | *7 | Off Hook |
| *8 | On Hook | *9 | Voice |




**Text in Illustration**

| | | | |
|---|---|---|---|
| *A | w/o Dynamic Radar Cruise Control System | *1 | Component without harness connected (Steering Pad (Steering Pad Switch)) |
| *2 | Volume+ | *3 | Volume- |
| *4 | Seek- | *5 | Seek+ |
| *6 | MODE | *7 | Off Hook |
| *8 | On Hook | *9 | Voice |

a. Disconnect the z51 steering pad (steering pad switch) connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| z51-6 (AU1) - z51-8 (EAU) | No switch pushed | 95 to 105 kΩ |
| z51-6 (AU1) - z51-8 (EAU) | Seek+ switch pushed | Below 2.5 Ω |
| z51-6 (AU1) - z51-8 (EAU) | Seek- switch pushed | 312 to 345 Ω |
| z51-6 (AU1) - z51-8 (EAU) | Volume+ switch pushed | 950 to 1050 Ω |
| z51-6 (AU1) - z51-8 (EAU) | Volume- switch pushed | 2954 to 3265 Ω |
| z51-7 (AU2) - z51-8 (EAU) | No switch pushed | 95 to 105 kΩ |
| z51-7 (AU2) - z51-8 (EAU) | MODE switch pushed | Below 2.5 Ω |
| z51-7 (AU2) - z51-8 (EAU) | Voice switch pushed | 2954 to 3265 Ω |
| z51-7 (AU2) - z51-8 (EAU) | On Hook switch pushed | 312 to 345 Ω |
| z51-7 (AU2) - z51-8 (EAU) | Off Hook switch pushed | 950 to 1050 Ω |

NG → REPLACE STEERING PAD (STEERING PAD SWITCH) (Click here)

OK

**4.CHECK NO. 1 SWITCH WIRE**

a. Disconnect the z35 spiral cable sub-assembly connector.

b. Disconnect the z51 steering pad (steering pad switch) connector.

c. Measure the resistance according to the valve(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| z35-10 - z51-6 | Always | Below 1 Ω |
| z35-9 - z51-7 | Always | Below 1 Ω |
| z35-8 - z51-8 | Always | Below 1 Ω |
| z35-10 - Body ground | Always | 10 kΩ or higher |
| z35-9 - Body ground | Always | 10 kΩ or higher |
| z35-8 - Body ground | Always | 10 kΩ or higher |

NG → REPLACE NO. 1 SWITCH WIRE

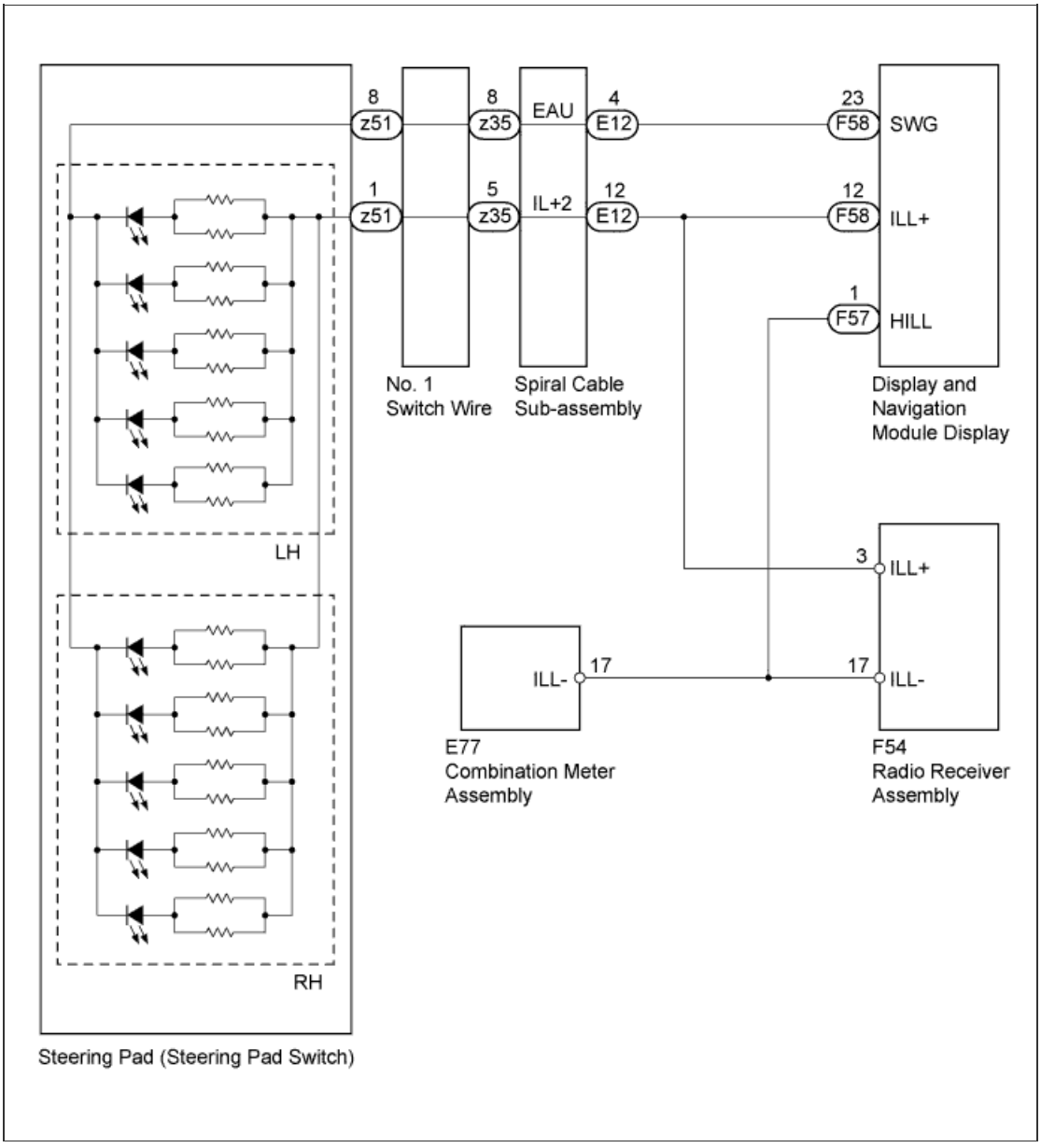
OK → REPAIR OR REPLACE HARNESS OR CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - SPIRAL CABLE)

**for Preparation** Click here

## DESCRIPTION

Power is supplied to the display and navigation module display, radio receiver assembly and steering pad (steering pad switch) illumination when the light control switch is in the TAIL or HEAD position.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

The vehicle is equipped with an SRS (Supplemental Restraint System) which includes components such as airbags. Before servicing (including removal or installation of parts), be sure to read the Precaution in the Supplemental Restraint System (Click here).

### 1.CHECK ILLUMINATION

a. Check if the illumination for the display and navigation module display, steering pad switch, glove box light, cigarette lighter, or other parts (seat heater switch, front seat memory switch, etc.) comes on when the light control switch is turned to the HEAD or TAIL position.

**Result**

| Result | Proceed to |
|---|---|
| Illumination comes on for all components except steering pad (steering pad switch). | A |

| | |
|---|---|
| Illumination comes on for all components except radio receiver assembly. | B |
| Illumination comes on for all components except display and navigation module display. | C |
| No illumination comes on for all components. | D |

B → Go to step 7

C → Go to step 8

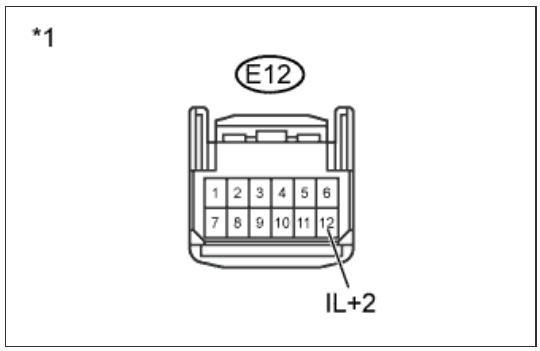
D → GO TO LIGHTING SYSTEM (Click here)

A

## 2.CHECK HARNESS AND CONNECTOR (BATTERY - SPIRAL CABLE SUB-ASSEMBLY)

a. Disconnect the E12 spiral cable sub-assembly connector.

b. Measure the voltage according to the value(s) in the table below.




**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| E12-12 (IL+2) - Body ground | Light control switch in tail or head | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Spiral Cable Sub-assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 3.CHECK NO. 1 SWITCH WIRE

a. Disconnect the z35 spiral cable sub-assembly connector.

b. Disconnect the z51 steering pad (steering pad switch) connector.

c. Measure the resistance according to the valve(s) in the table below.

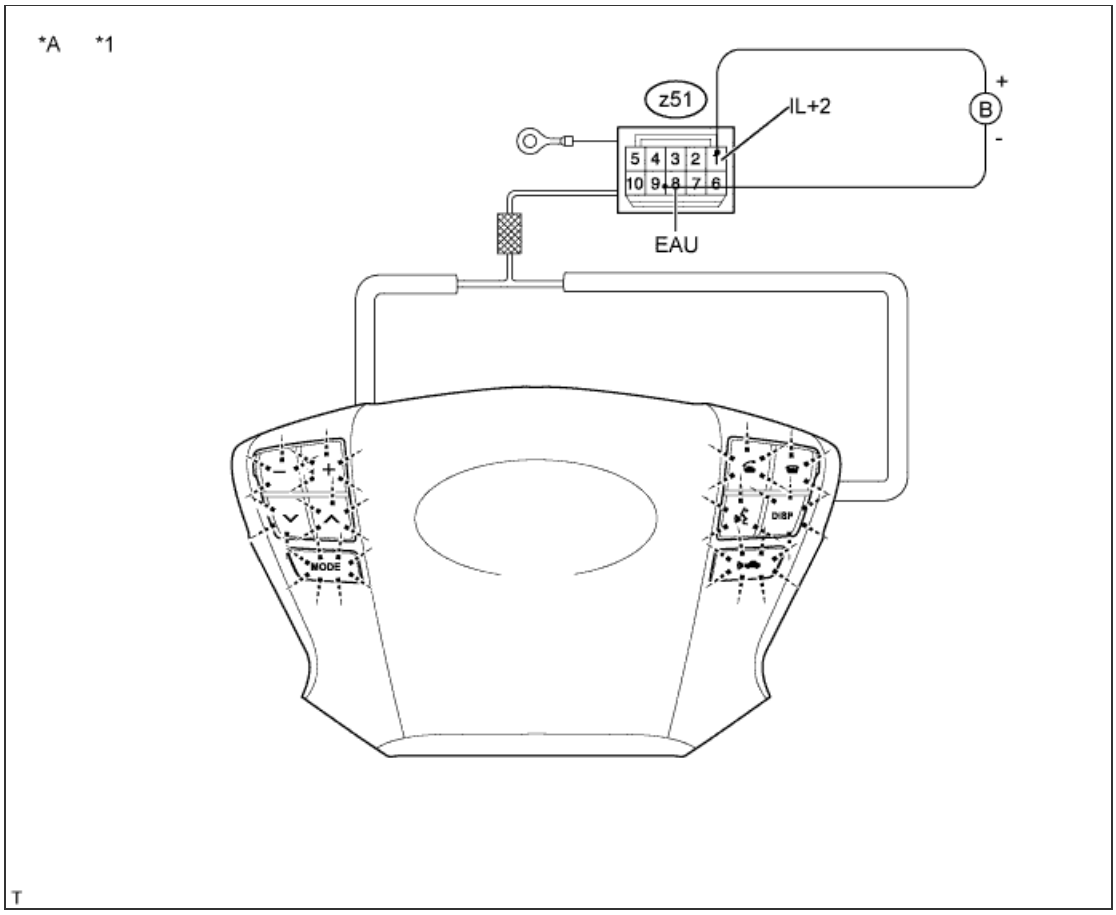
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| z35-8 - z51-8 | Always | Below 1 Ω |
| z35-5 - z51-1 | Always | Below 1 Ω |
| z35-8 - Body ground | Always | 10 kΩ or higher |
| z35-5 - Body ground | Always | 10 kΩ or higher |

NG → REPLACE NO. 1 SWITCH WIRE

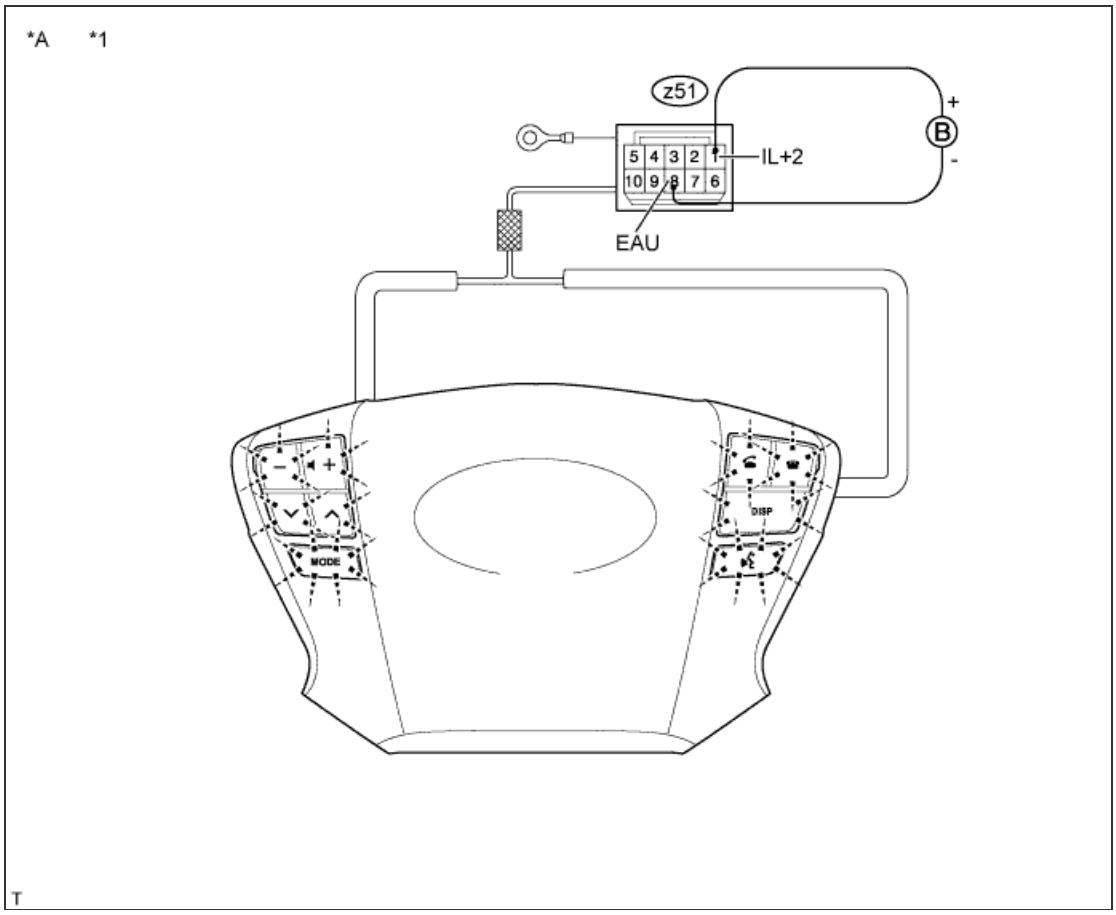
OK

## 4.INSPECT STEERING PAD (STEERING PAD SWITCH)




**Text in Illustration**

| | | | |
|---|---|---|---|
| *A | w/ Dynamic Radar Cruise Control System | *1 | Component without harness connected<br>(Steering Pad (Steering Pad Switch)) |




**Text in Illustration**

| | | | |
|---|---|---|---|
| *A | w/o Dynamic Radar Cruise Control System | *1 | Component without harness connected (Steering Pad (Steering Pad Switch)) |

a. Disconnect the z51 steering pad (steering pad switch) connector.

b. Connect a positive (+) lead from the battery to terminal 1 (IL+2) and a negative (-) lead from the battery to terminal 8 (EAU) of the steering pad switch assembly connector.

c. Check if the illumination for the steering pad switch assembly comes on.

**OK:**

**Illumination for the steering pad switch assembly comes on.**

NG → REPLACE STEERING PAD (STEERING PAD SWITCH) (Click here)

OK

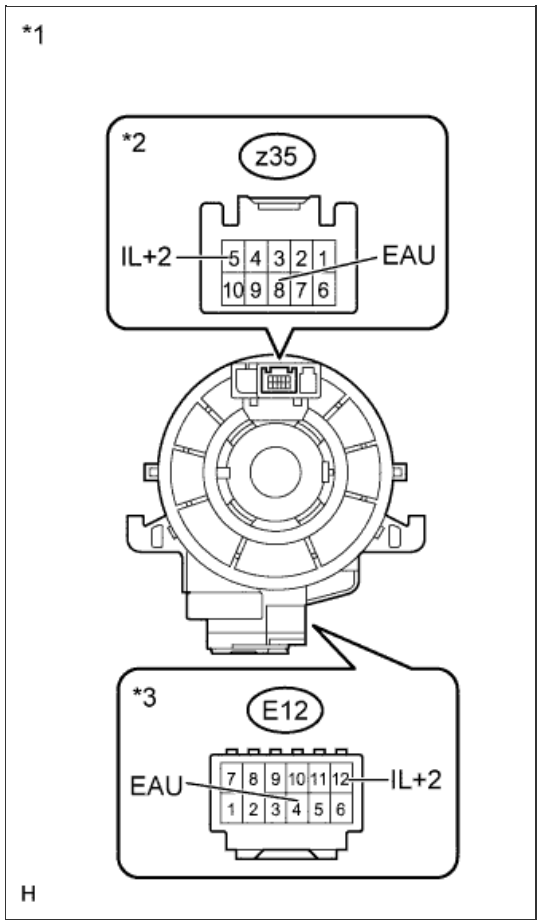
## 5.INSPECT SPIRAL CABLE SUB-ASSEMBLY

a. Disconnect the z35 and E12 spiral cable sub-assembly connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| z35-5 (IL+2) - E12-12 (IL+2) | Center | Below 1 Ω |
| | 2.5 rotations to the left | |
| | 2.5 rotations to the right | |
| z35-8 (EAU) - E12-4 (EAU) | Center | Below 1 Ω |
| | 2.5 rotations to the left | |
| | 2.5 rotations to the right | |




**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Spiral Cable Sub-assembly) |
| *2 | Steering Pad Switch Side |
| *3 | Vehicle Side |

**NOTICE:**

The spiral cable is an important part of the SRS airbag system. Incorrect removal or installation of the spiral cable may prevent the airbag from deploying. Be sure to read the Precaution for the supplemental restraint system (Click here).

NG → REPLACE SPIRAL CABLE SUB-ASSEMBLY (Click here)

OK

## 6.CHECK HARNESS AND CONNECTOR (SPIRAL CABLE - DISPLAY AND NAVIGATION MODULE DISPLAY AND RADIO RECEIVER)

a. Disconnect the E12 spiral cable sub-assembly connector.

b. Disconnect the F58 display and navigation module display connector.

c. Disconnect the F54 radio receiver assembly connector.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E12-12 (IL+2) - F58-12 (ILL+) | Always | Below 1 Ω |
| E12-12 (IL+2) - F54-3 (ILL+) | Always | Below 1 Ω |
| E12-4 (EAU) - F58-23 (SWG) | Always | Below 1 Ω |
| E12-12 (IL+2) - Body ground | Always | 10 kΩ or higher |
| E12-4 (EAU) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

7.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - BATTERY AND COMBINATION METER)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the E77 combination meter assembly connector.

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F54-3 (ILL+) - Body ground | Light control switch in TAIL or HEAD | 11 to 14 V |

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-17 (ILL-) - E77-17 (ILL-) | Always | Below 1 Ω |
| F54-17 (ILL-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

8.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - BATTERY AND COMBINATION METER)

a. Disconnect the F58 and F57 display and navigation module display connector.

b. Disconnect the E77 combination meter assembly connector.

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F58-12 (ILL+) - Body ground | Light control switch in TAIL or HEAD | 11 to 14 V |

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F57-1 (HILL) - E77-17 (ILL-) | Always | Below 1 Ω |
| F57-1 (HILL) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

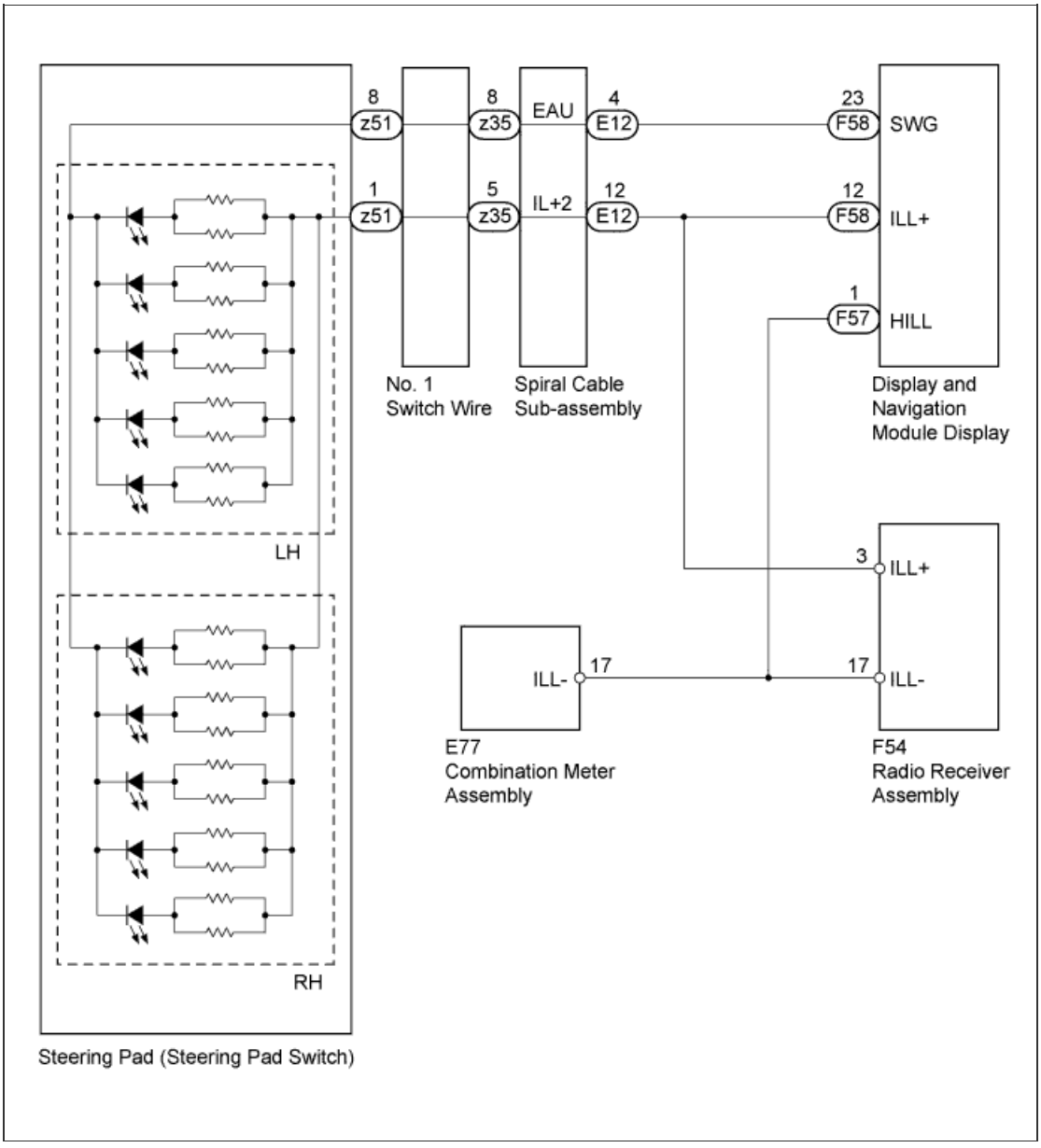
REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## DESCRIPTION

Power is supplied to the display and navigation module display, radio receiver assembly and steering pad (steering pad switch) illumination when the light control switch is in the TAIL or HEAD position.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

The vehicle is equipped with an SRS (Supplemental Restraint System) which includes components such as airbags. Before servicing (including removal or installation of parts), be sure to read the Precaution in the Supplemental Restraint System (Click here).

### 1.CHECK ILLUMINATION

a. Check if the illumination for the display and navigation module display, steering pad switch, glove box light, cigarette lighter, or other parts (seat heater switch, front seat memory switch, etc.) comes on when the light control switch is turned to the HEAD or TAIL position.

**Result**

| Result | Proceed to |
|---|---|
| Illumination comes on for all components except steering pad (steering pad switch). | A |

| | |
|---|---|
| Illumination comes on for all components except radio receiver assembly. | B |
| Illumination comes on for all components except display and navigation module display. | C |
| No illumination comes on for all components. | D |

B → Go to step 7

C → Go to step 8

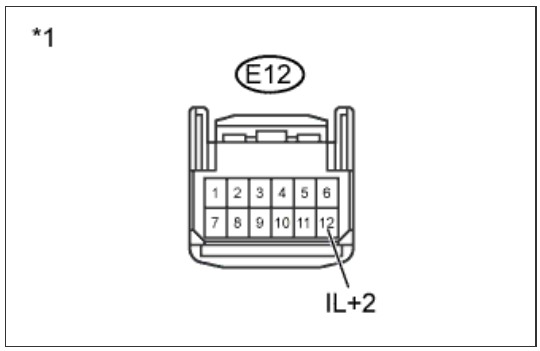
D → GO TO LIGHTING SYSTEM (Click here)

A

## 2.CHECK HARNESS AND CONNECTOR (BATTERY - SPIRAL CABLE SUB-ASSEMBLY)

a. Disconnect the E12 spiral cable sub-assembly connector.

b. Measure the voltage according to the value(s) in the table below.




**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| E12-12 (IL+2) - Body ground | Light control switch in tail or head | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Spiral Cable Sub-assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 3.CHECK NO. 1 SWITCH WIRE

a. Disconnect the z35 spiral cable sub-assembly connector.

b. Disconnect the z51 steering pad (steering pad switch) connector.

c. Measure the resistance according to the valve(s) in the table below.

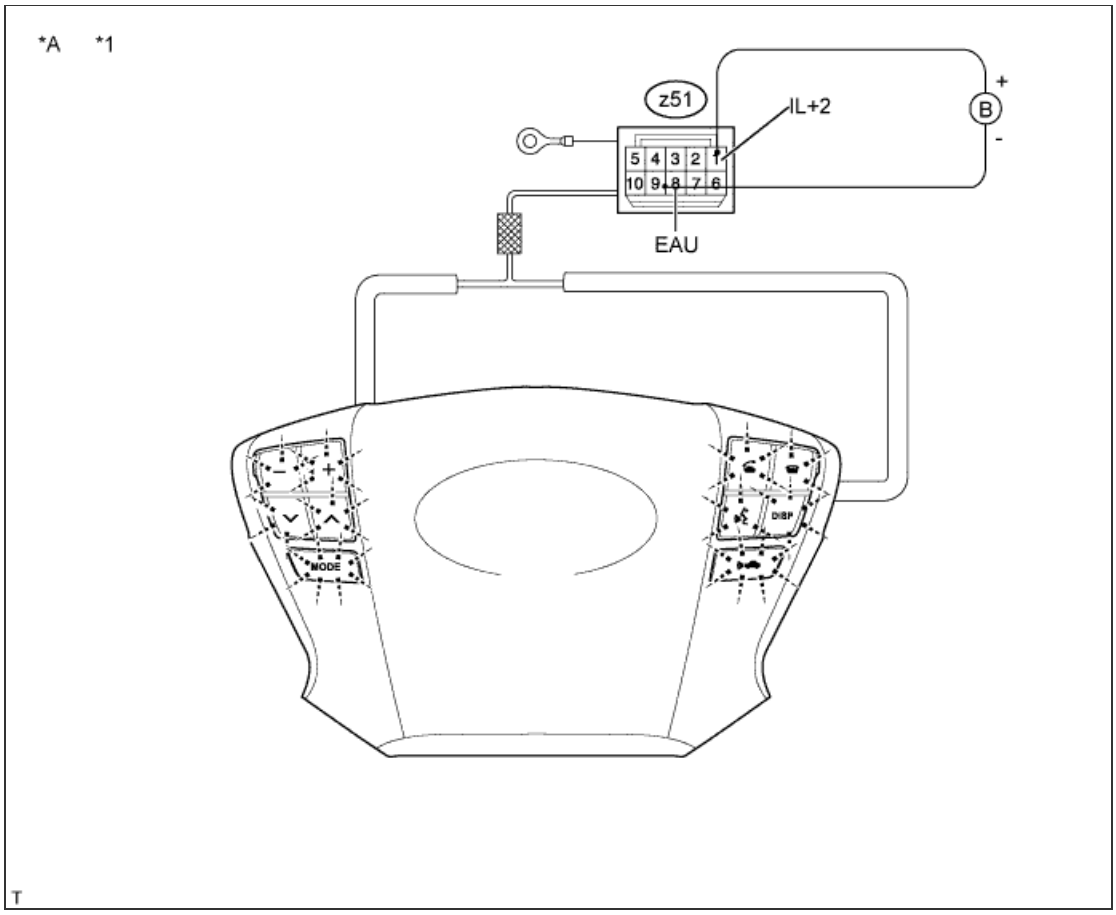
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| z35-8 - z51-8 | Always | Below 1 Ω |
| z35-5 - z51-1 | Always | Below 1 Ω |
| z35-8 - Body ground | Always | 10 kΩ or higher |
| z35-5 - Body ground | Always | 10 kΩ or higher |

NG → REPLACE NO. 1 SWITCH WIRE

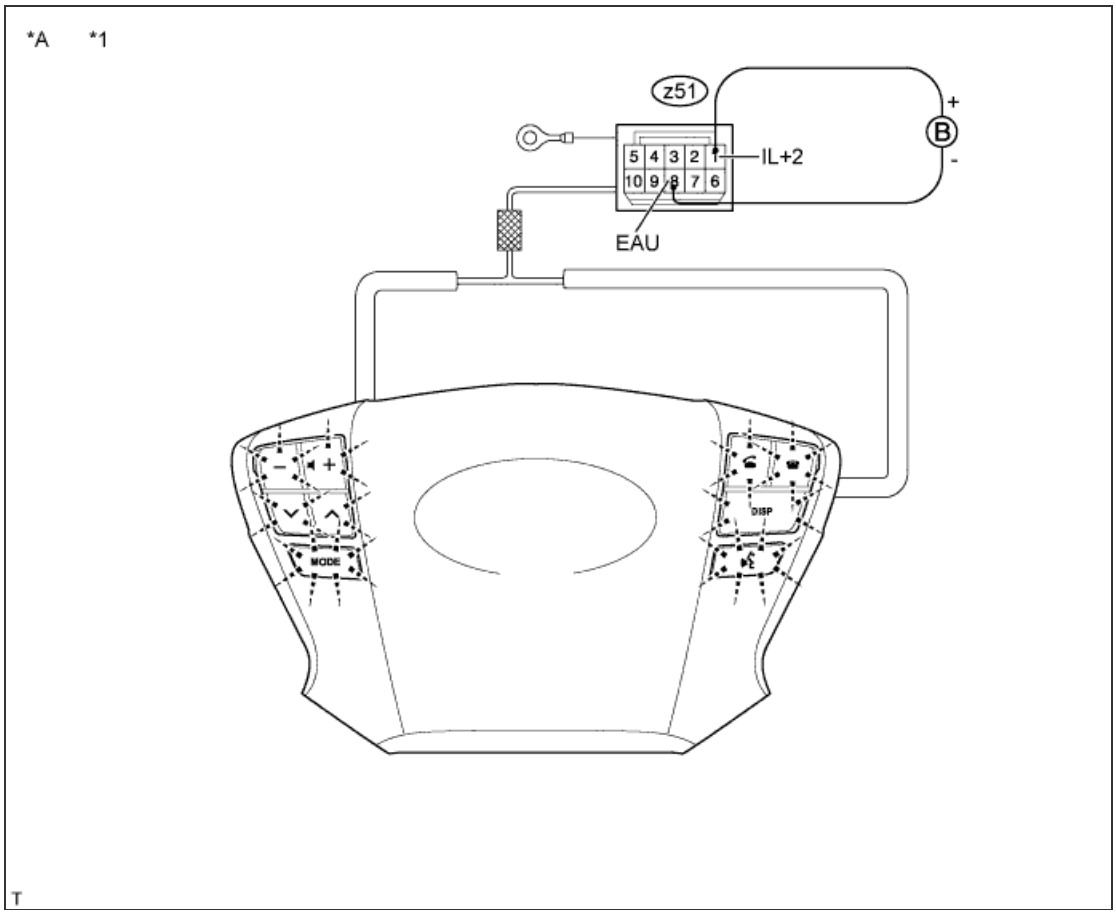
OK

## 4.INSPECT STEERING PAD (STEERING PAD SWITCH)




**Text in Illustration**

| | | | |
|---|---|---|---|
| *A | w/ Dynamic Radar Cruise Control System | *1 | Component without harness connected<br>(Steering Pad (Steering Pad Switch)) |




**Text in Illustration**

| | | | |
|---|---|---|---|
| *A | w/o Dynamic Radar Cruise Control System | *1 | Component without harness connected (Steering Pad (Steering Pad Switch)) |

a. Disconnect the z51 steering pad (steering pad switch) connector.

b. Connect a positive (+) lead from the battery to terminal 1 (IL+2) and a negative (-) lead from the battery to terminal 8 (EAU) of the steering pad switch assembly connector.

c. Check if the illumination for the steering pad switch assembly comes on.

**OK:**

**Illumination for the steering pad switch assembly comes on.**

NG → REPLACE STEERING PAD (STEERING PAD SWITCH) (Click here)

OK

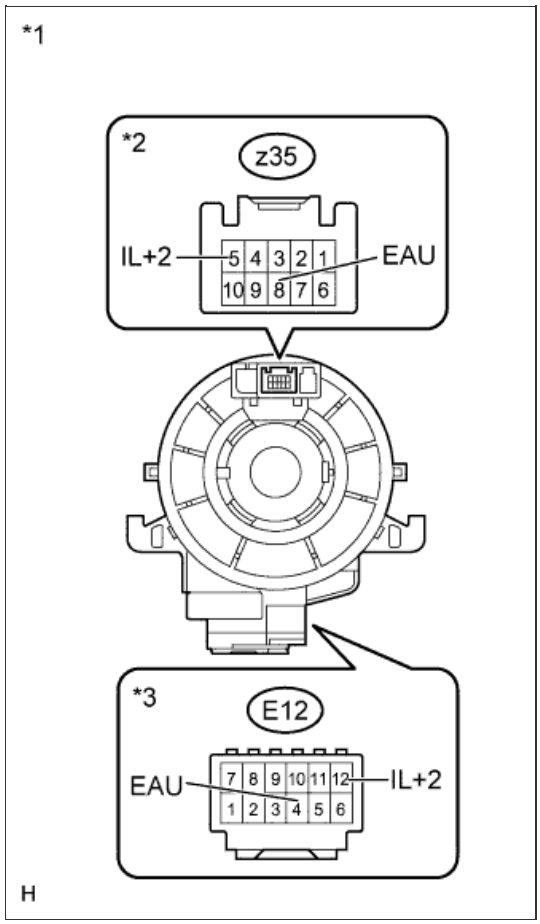
## 5.INSPECT SPIRAL CABLE SUB-ASSEMBLY

a. Disconnect the z35 and E12 spiral cable sub-assembly connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| z35-5 (IL+2) - E12-12 (IL+2) | Center | Below 1 Ω |
| | 2.5 rotations to the left | |
| | 2.5 rotations to the right | |
| z35-8 (EAU) - E12-4 (EAU) | Center | Below 1 Ω |
| | 2.5 rotations to the left | |
| | 2.5 rotations to the right | |




**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Spiral Cable Sub-assembly) |
| *2 | Steering Pad Switch Side |
| *3 | Vehicle Side |

**NOTICE:**

The spiral cable is an important part of the SRS airbag system. Incorrect removal or installation of the spiral cable may prevent the airbag from deploying. Be sure to read the Precaution for the supplemental restraint system (Click here).

NG → REPLACE SPIRAL CABLE SUB-ASSEMBLY (Click here)

OK

## 6.CHECK HARNESS AND CONNECTOR (SPIRAL CABLE - DISPLAY AND NAVIGATION MODULE DISPLAY AND RADIO RECEIVER)

a. Disconnect the E12 spiral cable sub-assembly connector.

b. Disconnect the F58 display and navigation module display connector.

c. Disconnect the F54 radio receiver assembly connector.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E12-12 (IL+2) - F58-12 (ILL+) | Always | Below 1 Ω |
| E12-12 (IL+2) - F54-3 (ILL+) | Always | Below 1 Ω |
| E12-4 (EAU) - F58-23 (SWG) | Always | Below 1 Ω |
| E12-12 (IL+2) - Body ground | Always | 10 kΩ or higher |
| E12-4 (EAU) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

7.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - BATTERY AND COMBINATION METER)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the E77 combination meter assembly connector.

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F54-3 (ILL+) - Body ground | Light control switch in TAIL or HEAD | 11 to 14 V |

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-17 (ILL-) - E77-17 (ILL-) | Always | Below 1 Ω |
| F54-17 (ILL-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

8.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - BATTERY AND COMBINATION METER)

a. Disconnect the F58 and F57 display and navigation module display connector.

b. Disconnect the E77 combination meter assembly connector.

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F58-12 (ILL+) - Body ground | Light control switch in TAIL or HEAD | 11 to 14 V |

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F57-1 (HILL) - E77-17 (ILL-) | Always | Below 1 Ω |
| F57-1 (HILL) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

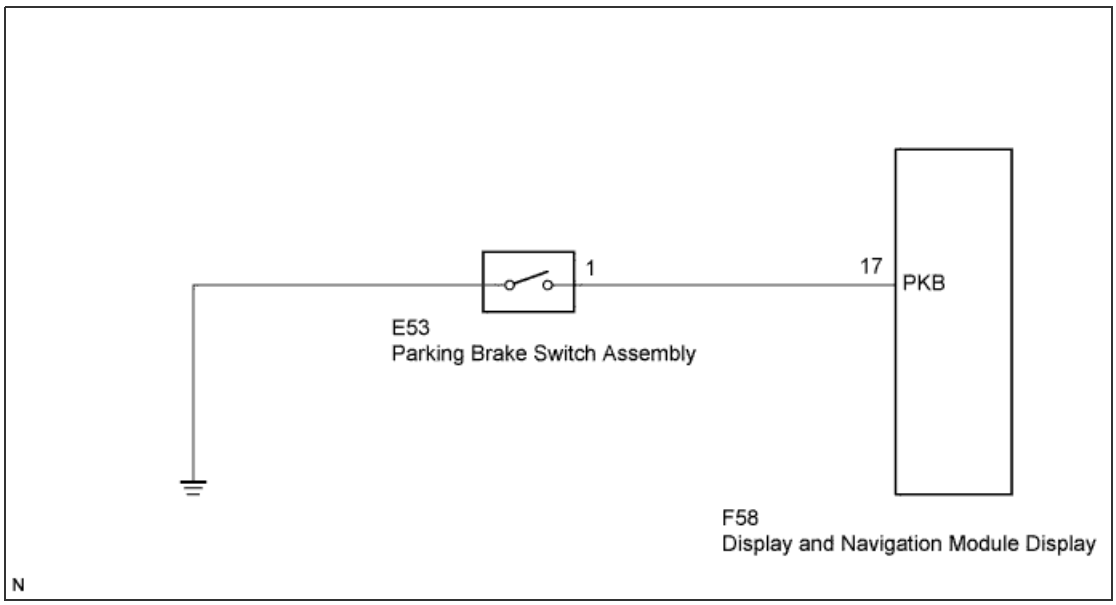
REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit is from the parking brake switch assembly to the display and navigation module display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK BRAKE WARNING LIGHT

a. Check that the brake warning light comes on when the parking brake is applied and goes off when it is released.

**OK:**
**The brake warning light operates as specified above.**

NG → Go to step 3

OK ↓

### 2.CHECK HARNESS AND CONNECTOR (PARKING BRAKE SWITCH - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F58 display and navigation module display connector.

b. Disconnect the E53 parking brake switch assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-17 (PKB) - E53-1 | Always | Below 1 Ω |
| F58-17 (PKB) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

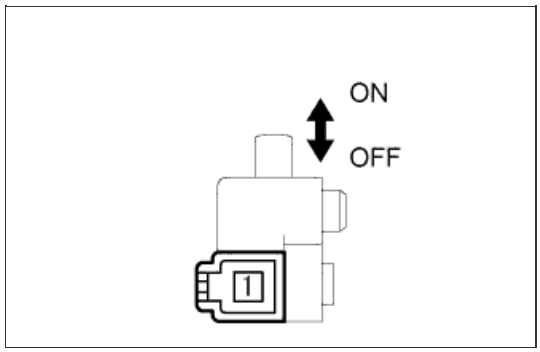
### 3.INSPECT PARKING BRAKE SWITCH ASSEMBLY

a. Disconnect the parking brake switch assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| 1 - Switch body | ON (When shaft is not pressed) | Below 1 Ω |
| 1 - Switch body | OFF (When shaft is pressed) | 10 kΩ or higher |




NG → REPLACE PARKING BRAKE SWITCH ASSEMBLY

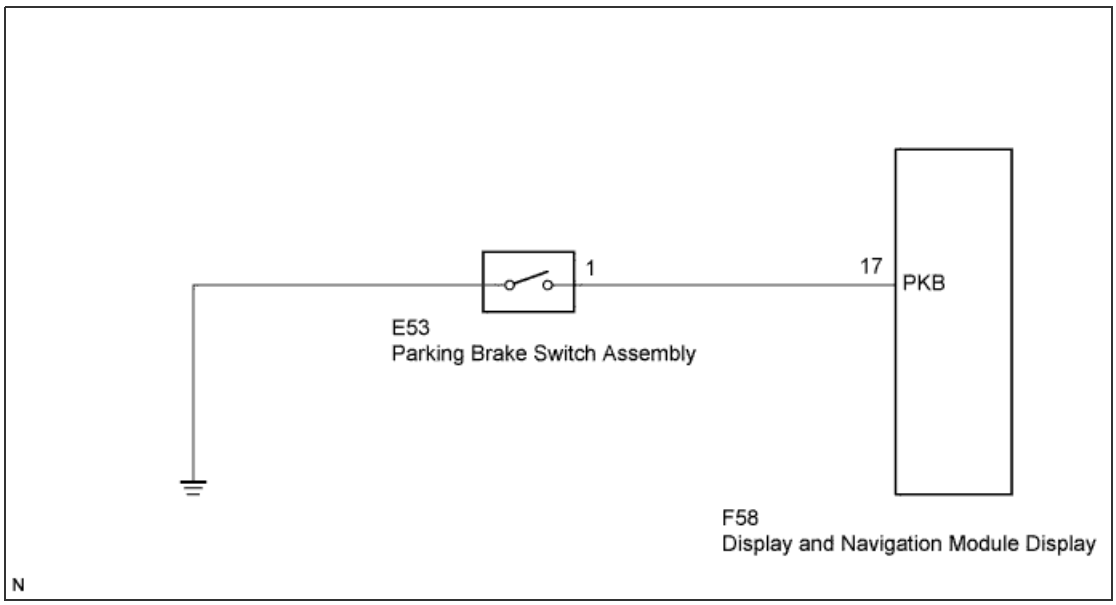
OK → REPAIR OR REPLACE HARNESS OR CONNECTOR (PARKING BRAKE SWITCH - BODY GROUND)

**for Preparation** Click here

## DESCRIPTION

This circuit is from the parking brake switch assembly to the display and navigation module display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK BRAKE WARNING LIGHT

a. Check that the brake warning light comes on when the parking brake is applied and goes off when it is released.

**OK:**
**The brake warning light operates as specified above.**

NG → Go to step 3

OK ↓

### 2.CHECK HARNESS AND CONNECTOR (PARKING BRAKE SWITCH - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F58 display and navigation module display connector.

b. Disconnect the E53 parking brake switch assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-17 (PKB) - E53-1 | Always | Below 1 Ω |
| F58-17 (PKB) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

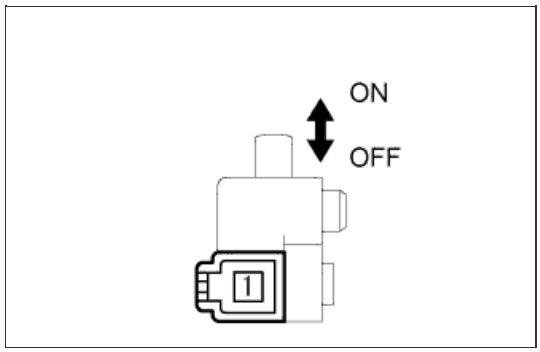
### 3.INSPECT PARKING BRAKE SWITCH ASSEMBLY

a. Disconnect the parking brake switch assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| 1 - Switch body | ON (When shaft is not pressed) | Below 1 Ω |
| 1 - Switch body | OFF (When shaft is pressed) | 10 kΩ or higher |




NG → REPLACE PARKING BRAKE SWITCH ASSEMBLY

OK → REPAIR OR REPLACE HARNESS OR CONNECTOR (PARKING BRAKE SWITCH - BODY GROUND)

**for Preparation** Click here

## DESCRIPTION

Each unit of the navigation system connected to the AVC-LAN (communication bus) transfers switch signals by the audio visual communication local area network.
If a short to +B or short to ground occurs in this AVC-LAN, the navigation system will not function normally as communication is stopped.

## INSPECTION PROCEDURE

**HINT:**

The display and navigation module display is the master unit.

### 1.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

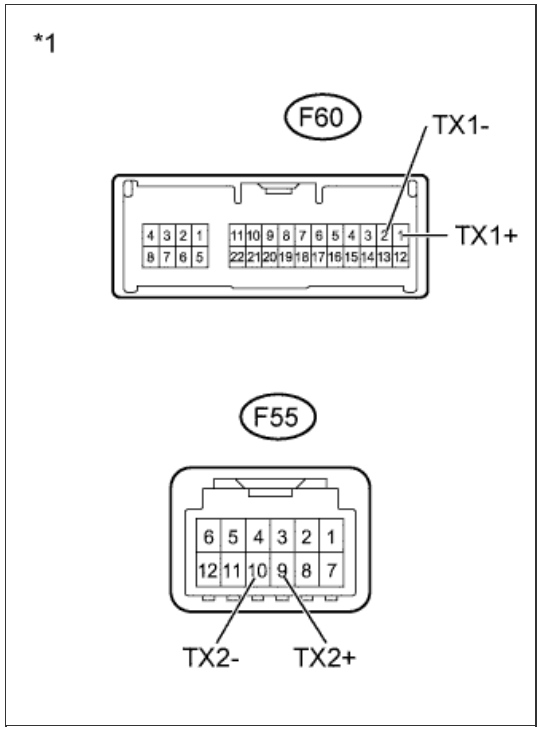
a. Disconnect the F60 display and navigation module display connector.

b. Disconnect the F55 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F60-1 (TX1+) - F60-2 (TX1-) | Always | 60 to 80 Ω |
| F55-9 (TX2+) - F55-10 (TX2-) | Always | 60 to 80 Ω |




**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Display and Navigation Module Display) |

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

### 2.CHECK HARNESS AND CONNECTOR (AVC-LAN CIRCUIT)

**HINT:**

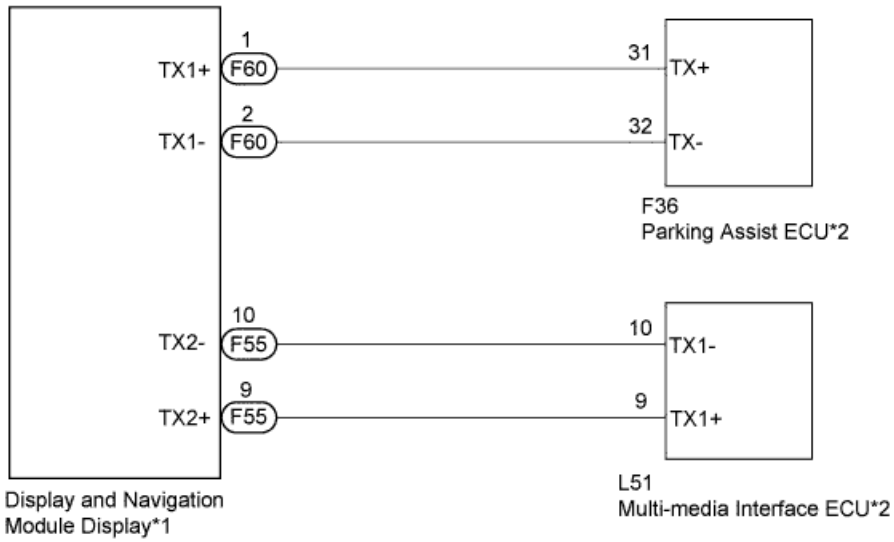
For details of the connectors, refer to Terminals of ECU ( Click here).

a. Referring to the AVC-LAN wiring diagram below, check all AVC-LAN circuits.

i. Disconnect all connectors in all AVC-LAN circuits.

ii. Check for an open or short in all AVC-LAN circuits.

AVC-LAN WIRING DIAGRAM:




*1: Master Unit

*2: Slave Unit

**OK:**

**There is no open or short circuit.**

| | |
|---|---|
| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR |

OK

**3.INSPECT MALFUNCTIONING PARTS**

a. Disconnect and reconnect each slave unit one by one until the master unit returns to normal operation.

**HINT:**

- **Check all slave units.**
- **If disconnecting a slave unit causes the master unit to return to normal operation, the slave unit is defective and should be replaced.**

**OK:**

**Master unit returns to normal operation.**

| | |
|---|---|
| NG | REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here) |

OK

**REPLACE MALFUNCTIONING PARTS**

**for Preparation** Click here

## DESCRIPTION

Each unit of the navigation system connected to the AVC-LAN (communication bus) transfers switch signals by the audio visual communication local area network.
If a short to +B or short to ground occurs in this AVC-LAN, the navigation system will not function normally as communication is stopped.

## INSPECTION PROCEDURE

**HINT:**

The display and navigation module display is the master unit.

### 1.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

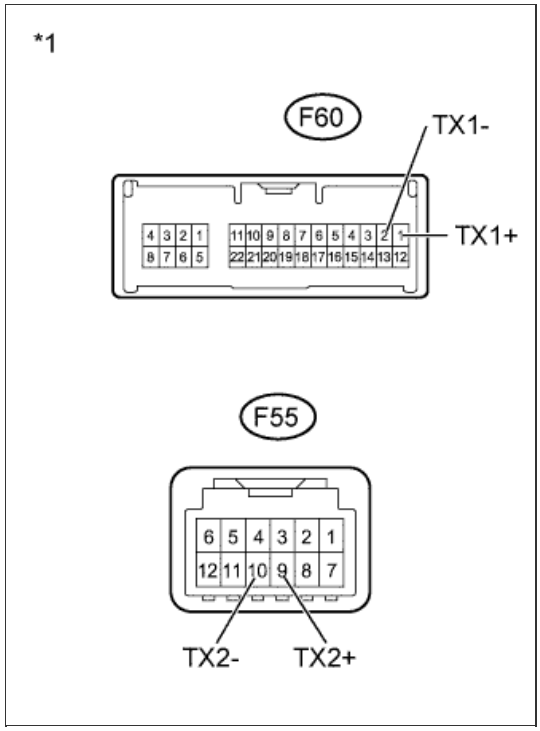
a. Disconnect the F60 display and navigation module display connector.

b. Disconnect the F55 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F60-1 (TX1+) - F60-2 (TX1-) | Always | 60 to 80 Ω |
| F55-9 (TX2+) - F55-10 (TX2-) | Always | 60 to 80 Ω |




**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Display and Navigation Module Display) |

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

### 2.CHECK HARNESS AND CONNECTOR (AVC-LAN CIRCUIT)

**HINT:**

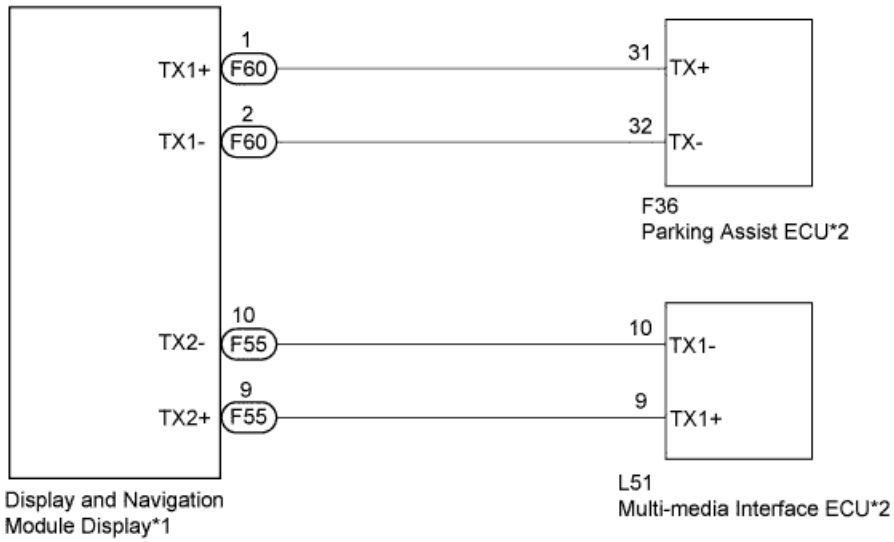
For details of the connectors, refer to Terminals of ECU ( Click here).

a. Referring to the AVC-LAN wiring diagram below, check all AVC-LAN circuits.

i. Disconnect all connectors in all AVC-LAN circuits.

ii. Check for an open or short in all AVC-LAN circuits.

AVC-LAN WIRING DIAGRAM:




*1: Master Unit

*2: Slave Unit

**OK:**

**There is no open or short circuit.**

| | |
|---|---|
| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR |

OK

**3.INSPECT MALFUNCTIONING PARTS**

a. Disconnect and reconnect each slave unit one by one until the master unit returns to normal operation.

**HINT:**

- **Check all slave units.**
- **If disconnecting a slave unit causes the master unit to return to normal operation, the slave unit is defective and should be replaced.**

**OK:**

**Master unit returns to normal operation.**

| | |
|---|---|
| NG | REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here) |

OK

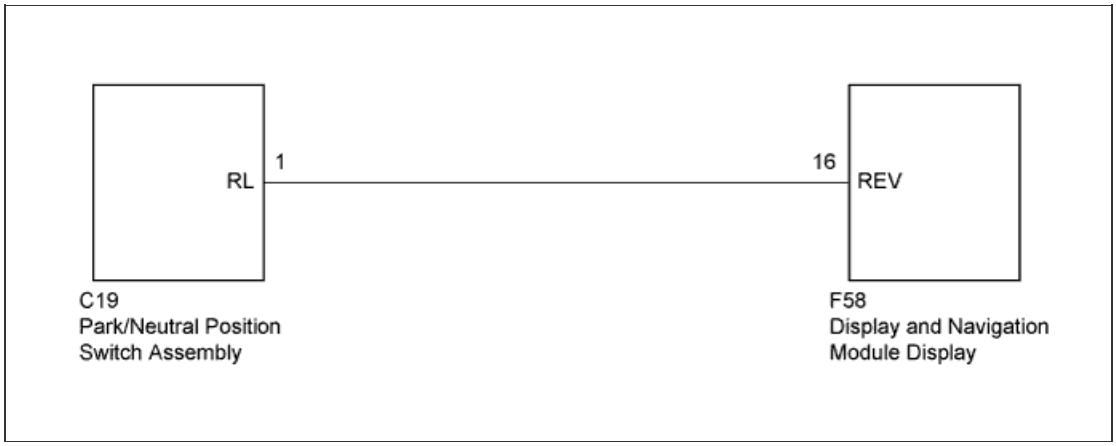
**REPLACE MALFUNCTIONING PARTS**

**for Preparation** Click here

## DESCRIPTION

The display and navigation module display receives a reverse signal from the park/neutral position switch and information about the navigation antenna assembly, and then adjusts the vehicle position on the navigation display.

## WIRING DIAGRAM

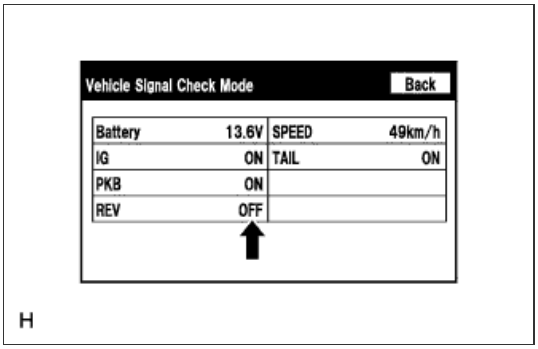



## INSPECTION PROCEDURE

### 1.CHECK REVERSE SIGNAL (DISPLAY CHECK MODE)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check (Click here).

b. Check that the display changes between ON and OFF according to the shift lever operation.




**OK:**

| Condition | Display |
|---|---|
| Shift lever in R | ON |
| Shift lever in any position except R | OFF |

**HINT:**

This display is updated once per second. As a result, it is normal for the display to lag behind the actual switch operation.

NG → Go to step 2

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

### 2.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

a. Disconnect the F58 display and navigation module display connector.

b. Measure the voltage according to the value(s) in the table below.

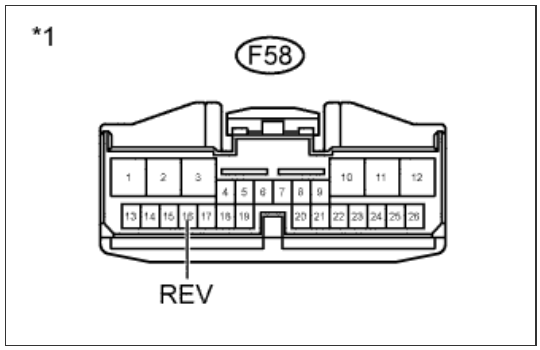
**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F58-16 (REV) - Body ground | Engine switch on (IG) | 11 to 14 V |

| | | |
|---|---|---|
| | Shift lever in R | |
| F58-16 (REV) - Body ground | Engine switch on (IG)<br>Shift lever in any position except R | Below 1 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Display and Navigation Module Display) |




NG → Go to step 3

OK →

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

3.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - PNP SWITCH)

a. Disconnect the F58 display and navigation module display connector.

b. Disconnect the C19 park/neutral position switch assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-16 (REV) - C19-1 (RL) | Always | Below 1 Ω |
| F58-16 (REV) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK →

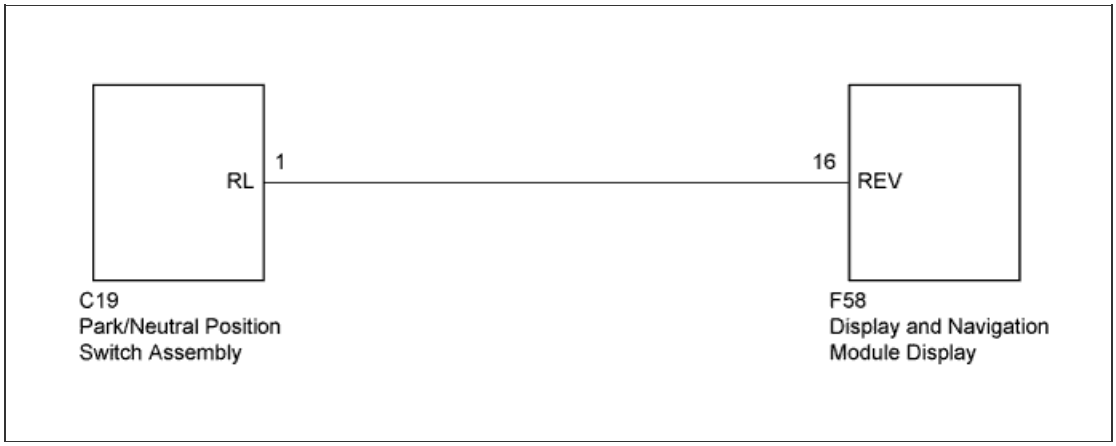
REPLACE PARK/NEUTRAL POSITION SWITCH ASSEMBLY (Click here)

**for Preparation** Click here

## DESCRIPTION

The display and navigation module display receives a reverse signal from the park/neutral position switch and information about the navigation antenna assembly, and then adjusts the vehicle position on the navigation display.

## WIRING DIAGRAM

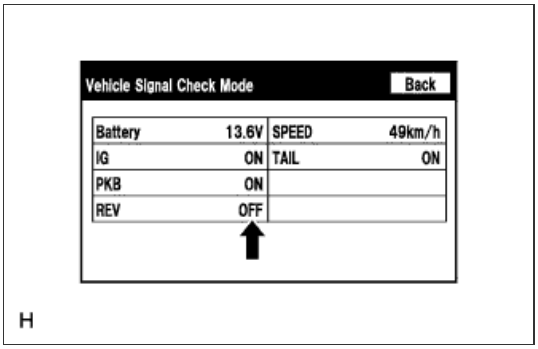



## INSPECTION PROCEDURE

### 1.CHECK REVERSE SIGNAL (DISPLAY CHECK MODE)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check (Click here).

b. Check that the display changes between ON and OFF according to the shift lever operation.




**OK:**

| Condition | Display |
|---|---|
| Shift lever in R | ON |
| Shift lever in any position except R | OFF |

**HINT:**

This display is updated once per second. As a result, it is normal for the display to lag behind the actual switch operation.

NG → Go to step 2

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

### 2.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

a. Disconnect the F58 display and navigation module display connector.

b. Measure the voltage according to the value(s) in the table below.

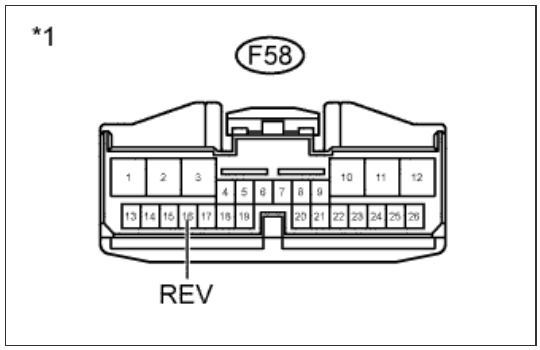
**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F58-16 (REV) - Body ground | Engine switch on (IG) | 11 to 14 V |

| | | |
|---|---|---|
| | Shift lever in R | |
| F58-16 (REV) - Body ground | Engine switch on (IG)<br>Shift lever in any position except R | Below 1 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Display and Navigation Module Display) |




NG → Go to step 3

OK →

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

3.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - PNP SWITCH)

a. Disconnect the F58 display and navigation module display connector.

b. Disconnect the C19 park/neutral position switch assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-16 (REV) - C19-1 (RL) | Always | Below 1 Ω |
| F58-16 (REV) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK →

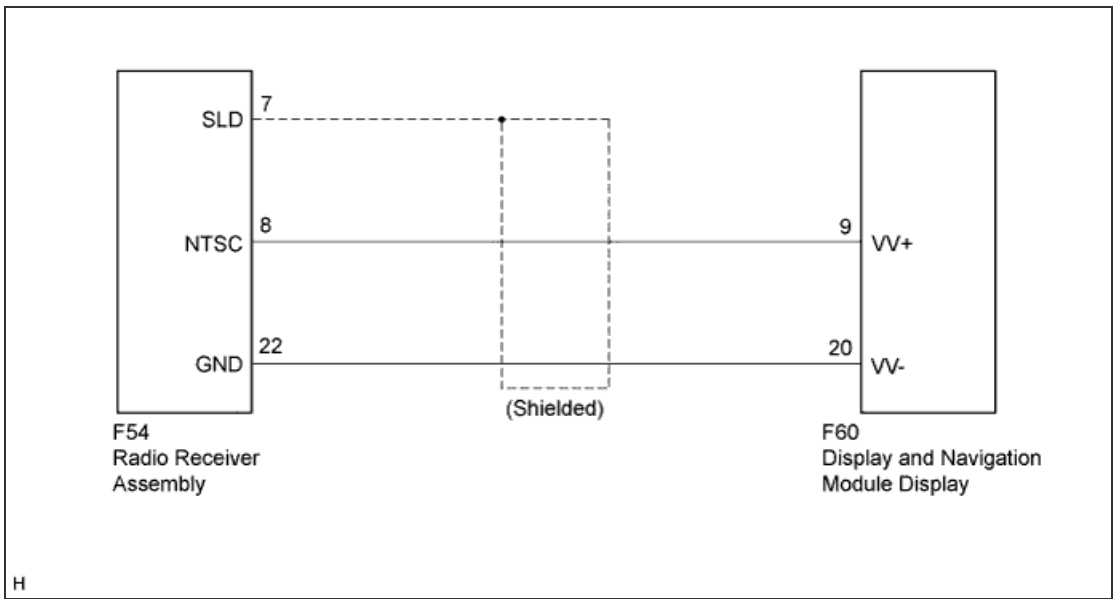
REPLACE PARK/NEUTRAL POSITION SWITCH ASSEMBLY (Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit sends a DVD image signal from the radio receiver assembly to the display and navigation module display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F60 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

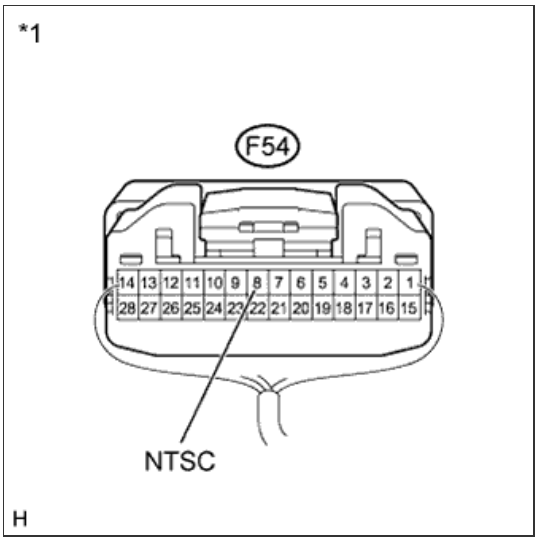
| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-8 (NTSC) - F60-9 (VV+) | Always | Below 1 Ω |
| F54-22 (GND) - F60-20 (VV-) | Always | Below 1 Ω |
| F54-8 (NTSC) - Body ground | Always | 10 kΩ or higher |
| F54-22 (GND) - Body ground | Always | 10 kΩ or higher |
| F54-7 (SLD) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 2.INSPECT RADIO RECEIVER ASSEMBLY (DVD IMAGE SIGNAL)

a. Reconnect the F54 radio receiver assembly connector.



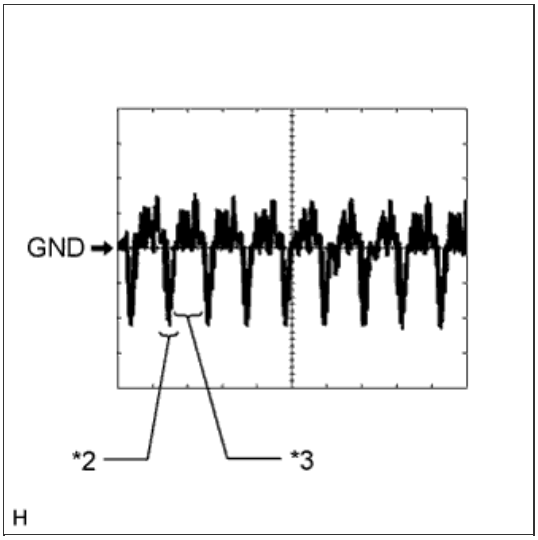

b. Check the waveform according to the table below.

**Oscilloscope Waveform**

| Item | Content |
|---|---|
| Measurement terminal | F54-8 (NTSC) - Body ground |
| Measurement setting | 200 mV/DIV., 10 µs/DIV. |
| Condition | DVD display is on |

**HINT:**

The video waveform changes according to the image output from the radio receiver assembly to the display and navigation module display, but the synchronization signal does not change.




**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Radio Receiver Assembly) |
| *2 | Synchronization Signal |
| *3 | Video Waveform |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

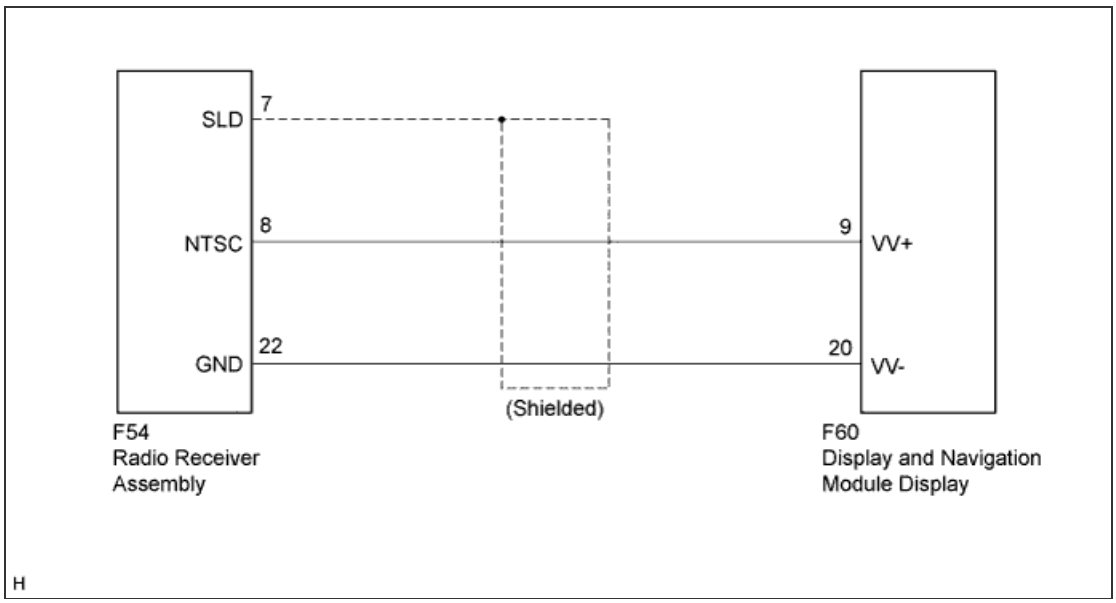
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit sends a DVD image signal from the radio receiver assembly to the display and navigation module display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F60 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

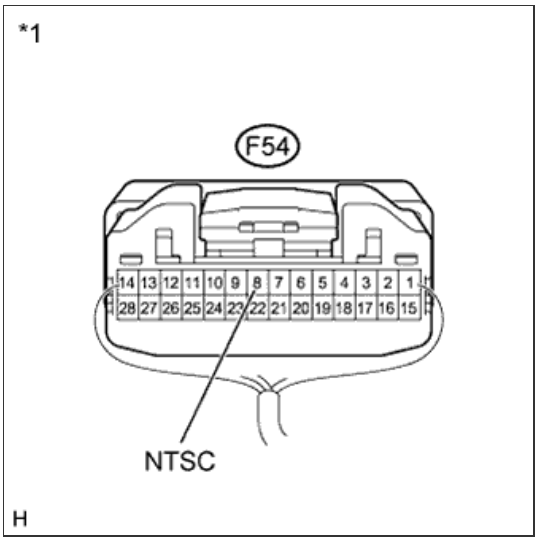
| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-8 (NTSC) - F60-9 (VV+) | Always | Below 1 Ω |
| F54-22 (GND) - F60-20 (VV-) | Always | Below 1 Ω |
| F54-8 (NTSC) - Body ground | Always | 10 kΩ or higher |
| F54-22 (GND) - Body ground | Always | 10 kΩ or higher |
| F54-7 (SLD) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 2.INSPECT RADIO RECEIVER ASSEMBLY (DVD IMAGE SIGNAL)

a. Reconnect the F54 radio receiver assembly connector.



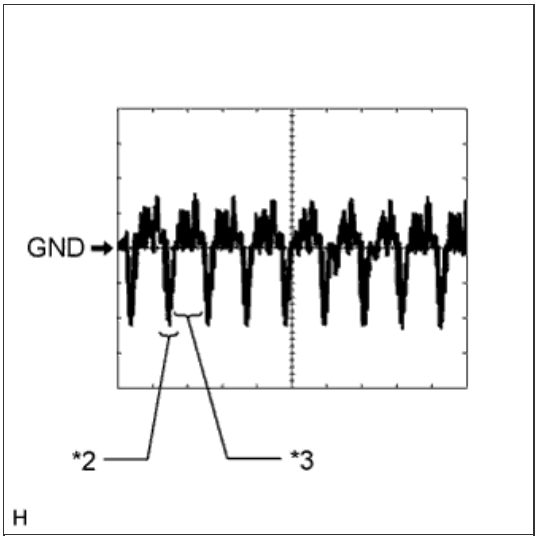

b. Check the waveform according to the table below.

**Oscilloscope Waveform**

| Item | Content |
|---|---|
| Measurement terminal | F54-8 (NTSC) - Body ground |
| Measurement setting | 200 mV/DIV., 10 µs/DIV. |
| Condition | DVD display is on |

**HINT:**

The video waveform changes according to the image output from the radio receiver assembly to the display and navigation module display, but the synchronization signal does not change.




**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Radio Receiver Assembly) |
| *2 | Synchronization Signal |
| *3 | Video Waveform |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

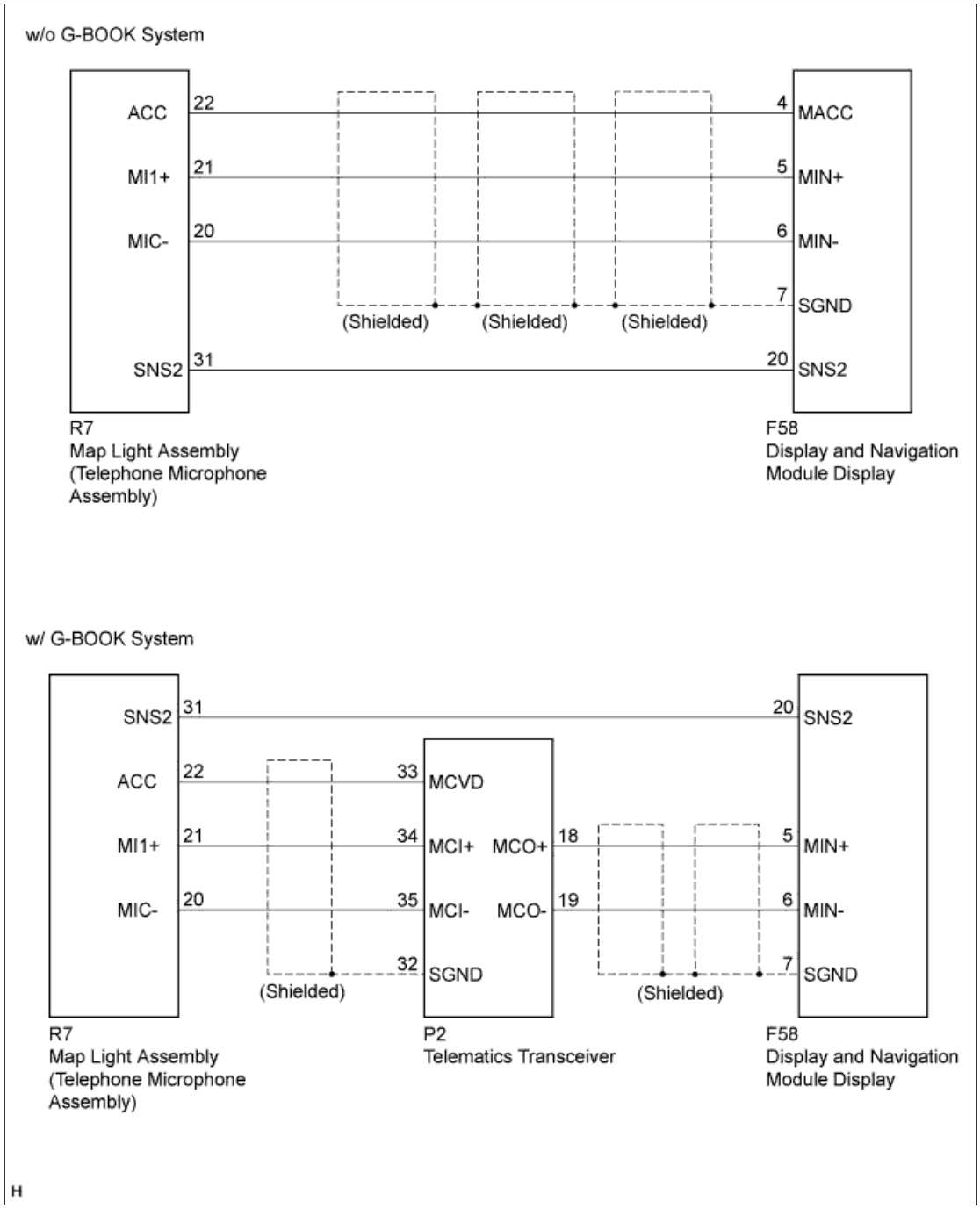
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

- Using this circuit, the display and navigation module display sends power to the map light assembly (telephone microphone assembly), and the map light assembly sends microphone signals to the display and navigation module display (w/o G-BOOK system).
- Using this circuit, the telematics transceiver sends power to the map light assembly (telephone microphone assembly), and the map light assembly (telephone microphone assembly) sends microphone signals to the display and navigation module display via the telematics transceiver. The display and navigation module display and map light assembly (telephone microphone assembly) are connected to each other using the microphone connection detection signal lines (w/ G-BOOK system).

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CONFIRM MODEL

a. Choose the model to be inspected.

**Result**

| Model | Proceed to |
|---|---|
| w/o G-BOOK System | A |
| w/ G-BOOK System | B |

B → Go to step 4

A

## 2.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

a. Measure the voltage according to the value(s) in the table below.

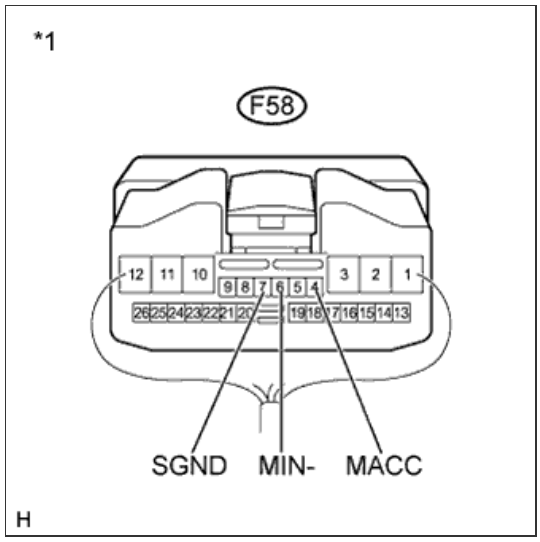
**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F58-4 (MACC) - Body ground | Engine switch on (ACC) | 5 V |

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-7 (SGND) - Body ground | Always | Below 1 Ω |
| F58-6 (MIN-) - Body ground | Always | Below 1 Ω |




**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Display and Navigation Module Display) |

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

## 3.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE - MAP LIGHT ASSEMBLY)

a. Disconnect the F58 display and navigation module display connector.

b. Disconnect the R7 map light assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-20 (SNS2) - R7-31 (SNS2) | Always | Below 1 Ω |
| F58-4 (MACC) - R7-22 (ACC) | Always | Below 1 Ω |
| F58-5 (MIN+) - R7-21 (MI1+) | Always | Below 1 Ω |
| F58-6 (MIN-) - R7-20 (MIC-) | Always | Below 1 Ω |
| F58-20 (SNS2) - Body ground | Always | 10 kΩ or higher |
| F58-4 (MACC) - Body ground | Always | 10 kΩ or higher |
| F58-5 (MIN+) - | | |

| | | |
|---|---|---|
| Body ground | Always | 10 kΩ or higher |
| F58-6 (MIN-) - Body ground | Always | 10 kΩ or higher |
| F58-7 (SGND) - Body ground | Always | 10 kΩ or higher |

d. Proceed to the next step based on the inspection result.

**Result**

| Result | Proceed to |
|---|---|
| NG | A |
| OK | B |

B → Go to step 9

A

**REPAIR OR REPLACE HARNESS OR CONNECTOR**

**4.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY**

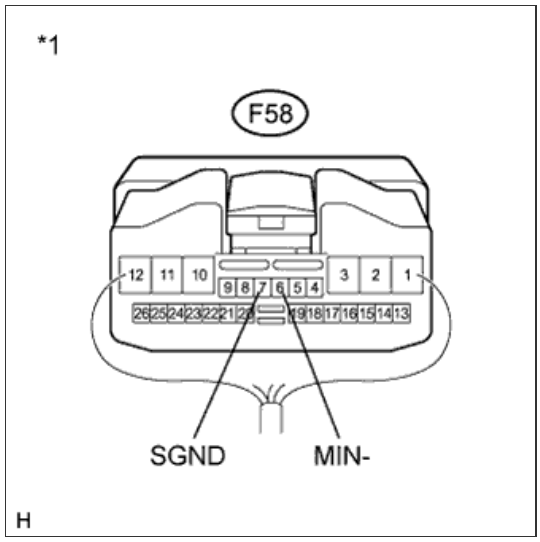
a. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-7 (SGND) - Body ground | Always | Below 1 Ω |
| F58-6 (MIN-) - Body ground | Always | Below 1 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Display and Navigation Module Display) |




NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY** (Click here)

OK

**5.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION NODULE - MAP LIGHT ASSEMBLY)**

a. Disconnect the F58 display and navigation module display connector.

b. Disconnect the R7 map light assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-20 (SNS2) - R7-31 (SNS2) | Always | Below 1 Ω |

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

### 6.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE - TELEMATICS TRANSCEIVER)

a. Disconnect the F58 display and navigation module display connector.

b. Disconnect the P2 telematics transceiver connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-5 (MIN+) - P2-18 (MCO+) | Always | Below 1 Ω |
| F58-6 (MIN-) - P2-19 (MCO-) | Always | Below 1 Ω |
| F58-5 (MIN+) - Body ground | Always | 10 kΩ or higher |
| F58-6 (MIN-) - Body ground | Always | 10 kΩ or higher |
| F58-7 (SGND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 7.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - MAP LIGHT ASSEMBLY)

a. Disconnect the P2 telematics transceiver connector.

b. Disconnect the R7 map light assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P2-33 (MCVD) - R7-22 (ACC) | Always | Below 1 Ω |
| P2-34 (MCI+) - R7-21 (MI1+) | Always | Below 1 Ω |
| P2-35 (MCI-) - R7-20 (MIC-) | Always | Below 1 Ω |
| P2-33 (MCVD) - Body ground | Always | 10 kΩ or higher |
| P2-34 (MCI+) - Body ground | Always | 10 kΩ or higher |
| P2-35 (MCI-) - Body ground | Always | 10 kΩ or higher |
| P2-32 (SGND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 8.INSPECT TELEMATICS TRANSCEIVER

a. Measure the voltage according to the value(s) in the table below.

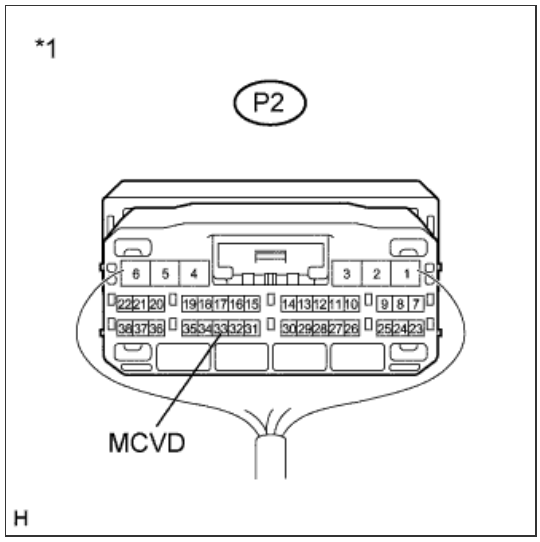
**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| P2-33 (MCVD) - Body ground | Engine switch on (ACC) | 5 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Telematics Transceiver) |




NG → REPLACE TELEMATICS TRANSCEIVER (Click here)

OK

## 9.INSPECT MAP LIGHT ASSEMBLY

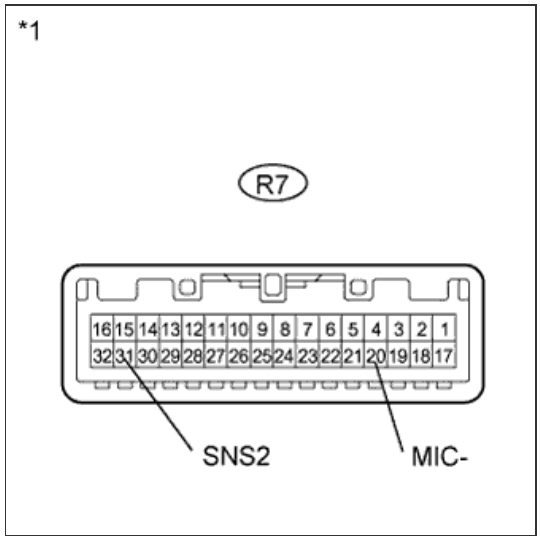
a. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| R7-31 (SNS2) - R7-20 (MIC-) | Always | Below 1 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Map Light Assembly) |




NG → Go to step 11

OK

## 10.INSPECT MAP LIGHT ASSEMBLY

a. Reconnect the F58 display and navigation module display connector.

b. Reconnect the P2 telematics transceiver connector (w/ G-BOOK system).

c. Reconnect the R7 map light assembly connector.

d. Turn the engine switch on (ACC).

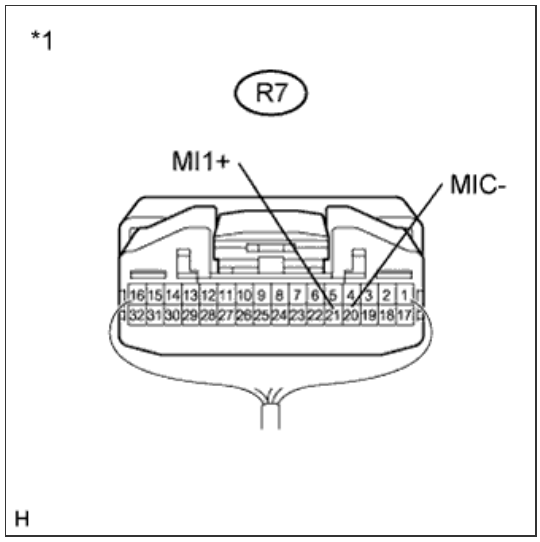
e. Connect an oscilloscope to terminals MI1+ and MIC- of the R7 telephone microphone assembly connector.

f. Check the waveform of the telephone microphone assembly using an oscilloscope.

**Result**

| | |
|---|---|
| | |

| Result | Proceed to |
|---|---|
| A waveform synchronized with the voice input to the telephone microphone assembly is output | A |
| A waveform synchronized with the voice input to the telephone microphone assembly is not output | B |




**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Map Light Assembly) |

B → Go to step 11

A → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

## 11.REPLACE TELEMATICS TRANSCEIVER

a. Replace the telephone microphone assembly ( Click here).

b. Check if the same malfunction recurs.

**Result**

| Result | Proceed to |
|---|---|
| Malfunction does not recur (returns to normal) | A |
| Malfunction recurs | B |

B → REPLACE MAP LIGHT ASSEMBLY (Click here)

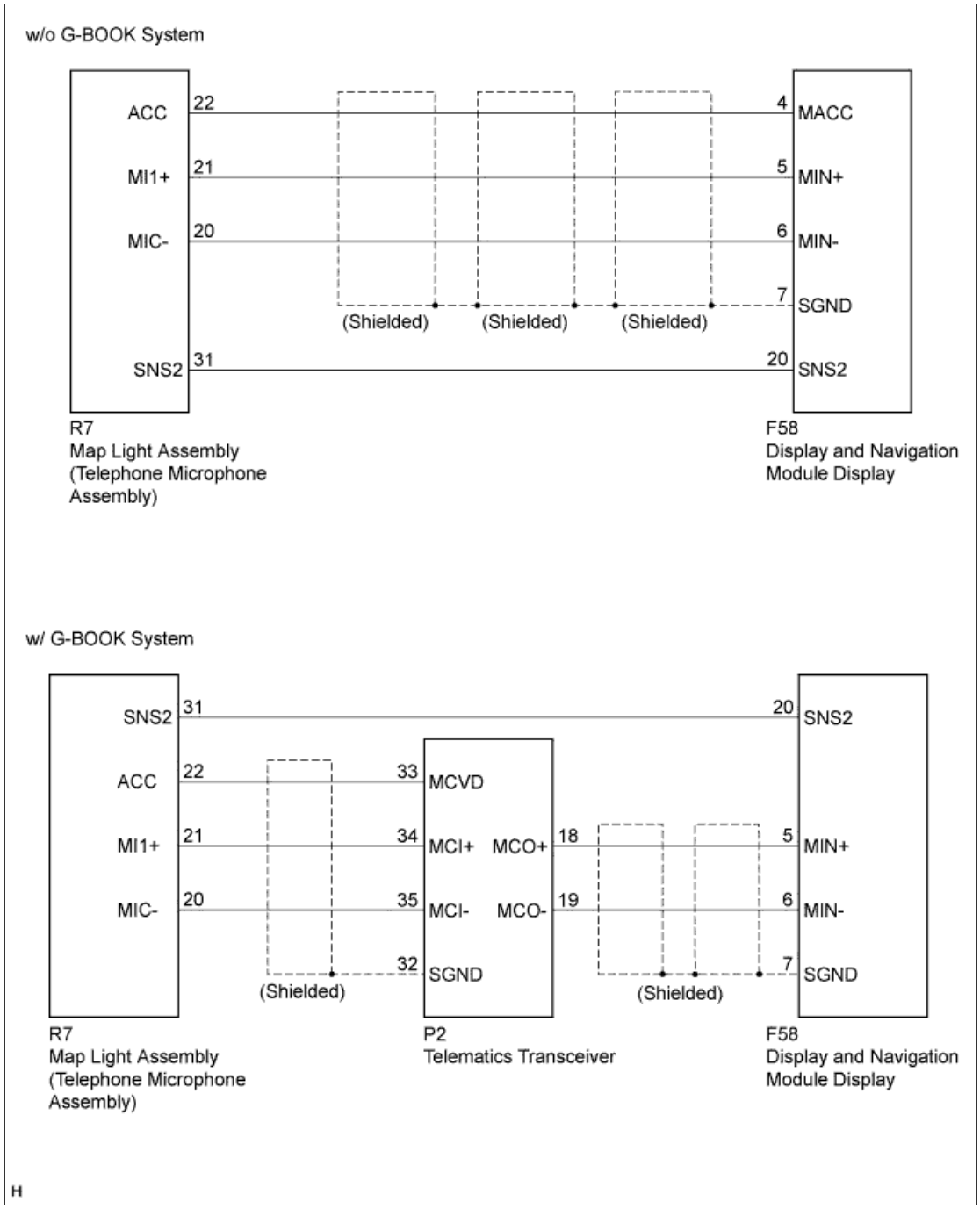
A → END

**for Preparation** Click here

## DESCRIPTION

- Using this circuit, the display and navigation module display sends power to the map light assembly (telephone microphone assembly), and the map light assembly sends microphone signals to the display and navigation module display (w/o G-BOOK system).
- Using this circuit, the telematics transceiver sends power to the map light assembly (telephone microphone assembly), and the map light assembly (telephone microphone assembly) sends microphone signals to the display and navigation module display via the telematics transceiver. The display and navigation module display and map light assembly (telephone microphone assembly) are connected to each other using the microphone connection detection signal lines (w/ G-BOOK system).

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CONFIRM MODEL

a. Choose the model to be inspected.

**Result**

| Model | Proceed to |
|---|---|
| w/o G-BOOK System | A |
| w/ G-BOOK System | B |

B → Go to step 4

A

## 2.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

a. Measure the voltage according to the value(s) in the table below.

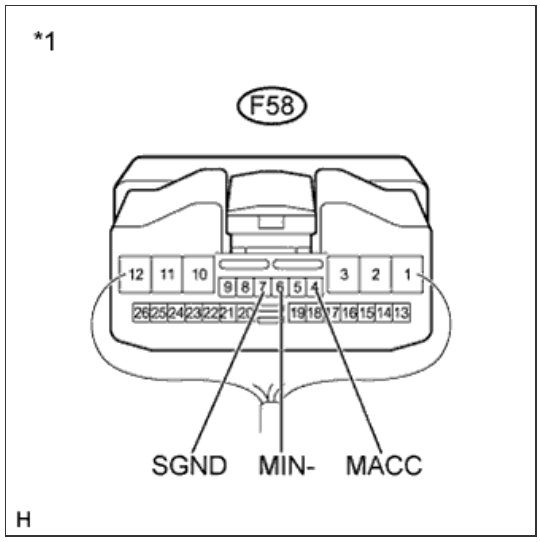
**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F58-4 (MACC) - Body ground | Engine switch on (ACC) | 5 V |

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-7 (SGND) - Body ground | Always | Below 1 Ω |
| F58-6 (MIN-) - Body ground | Always | Below 1 Ω |




**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Display and Navigation Module Display) |

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

## 3.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE - MAP LIGHT ASSEMBLY)

a. Disconnect the F58 display and navigation module display connector.

b. Disconnect the R7 map light assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-20 (SNS2) - R7-31 (SNS2) | Always | Below 1 Ω |
| F58-4 (MACC) - R7-22 (ACC) | Always | Below 1 Ω |
| F58-5 (MIN+) - R7-21 (MI1+) | Always | Below 1 Ω |
| F58-6 (MIN-) - R7-20 (MIC-) | Always | Below 1 Ω |
| F58-20 (SNS2) - Body ground | Always | 10 kΩ or higher |
| F58-4 (MACC) - Body ground | Always | 10 kΩ or higher |
| F58-5 (MIN+) - | | |

| | | |
|---|---|---|
| Body ground | Always | 10 kΩ or higher |
| F58-6 (MIN-) - Body ground | Always | 10 kΩ or higher |
| F58-7 (SGND) - Body ground | Always | 10 kΩ or higher |

d. Proceed to the next step based on the inspection result.

**Result**

| Result | Proceed to |
|---|---|
| NG | A |
| OK | B |

B → Go to step 9

A

**REPAIR OR REPLACE HARNESS OR CONNECTOR**

**4.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY**

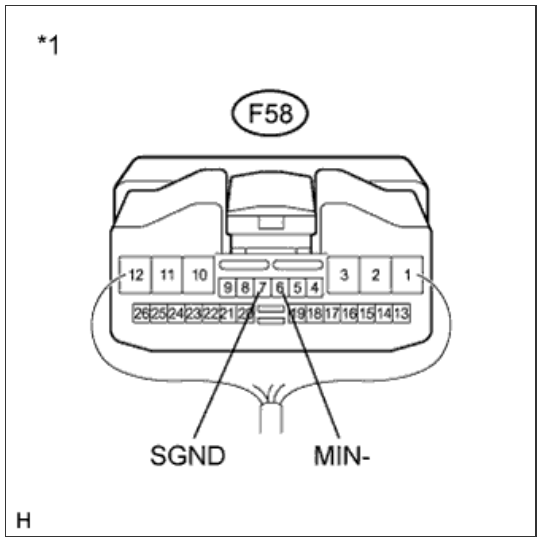
a. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-7 (SGND) - Body ground | Always | Below 1 Ω |
| F58-6 (MIN-) - Body ground | Always | Below 1 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Display and Navigation Module Display) |




NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY** (Click here)

OK

**5.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION NODULE - MAP LIGHT ASSEMBLY)**

a. Disconnect the F58 display and navigation module display connector.

b. Disconnect the R7 map light assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-20 (SNS2) - R7-31 (SNS2) | Always | Below 1 Ω |

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

### 6.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE - TELEMATICS TRANSCEIVER)

a. Disconnect the F58 display and navigation module display connector.

b. Disconnect the P2 telematics transceiver connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-5 (MIN+) - P2-18 (MCO+) | Always | Below 1 Ω |
| F58-6 (MIN-) - P2-19 (MCO-) | Always | Below 1 Ω |
| F58-5 (MIN+) - Body ground | Always | 10 kΩ or higher |
| F58-6 (MIN-) - Body ground | Always | 10 kΩ or higher |
| F58-7 (SGND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 7.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - MAP LIGHT ASSEMBLY)

a. Disconnect the P2 telematics transceiver connector.

b. Disconnect the R7 map light assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P2-33 (MCVD) - R7-22 (ACC) | Always | Below 1 Ω |
| P2-34 (MCI+) - R7-21 (MI1+) | Always | Below 1 Ω |
| P2-35 (MCI-) - R7-20 (MIC-) | Always | Below 1 Ω |
| P2-33 (MCVD) - Body ground | Always | 10 kΩ or higher |
| P2-34 (MCI+) - Body ground | Always | 10 kΩ or higher |
| P2-35 (MCI-) - Body ground | Always | 10 kΩ or higher |
| P2-32 (SGND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 8.INSPECT TELEMATICS TRANSCEIVER

a. Measure the voltage according to the value(s) in the table below.

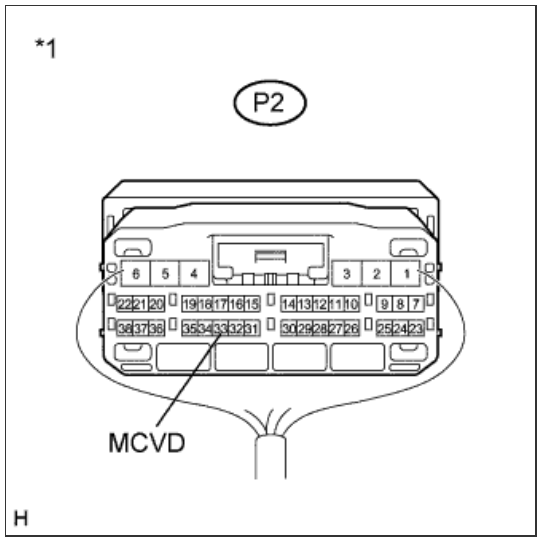
**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| P2-33 (MCVD) - Body ground | Engine switch on (ACC) | 5 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Telematics Transceiver) |




NG → REPLACE TELEMATICS TRANSCEIVER (Click here)

OK

## 9.INSPECT MAP LIGHT ASSEMBLY

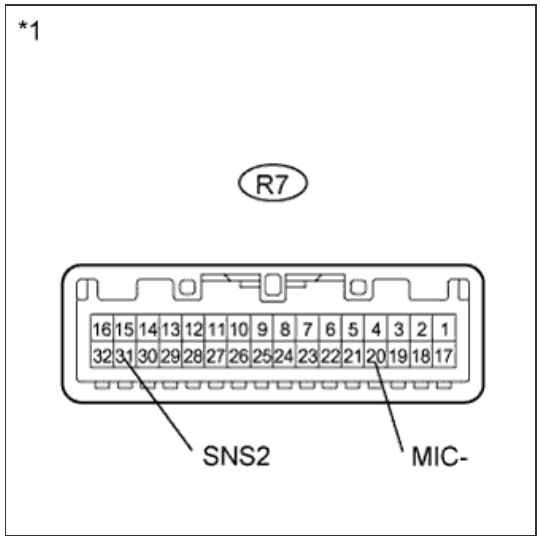
a. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| R7-31 (SNS2) - R7-20 (MIC-) | Always | Below 1 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Map Light Assembly) |




NG → Go to step 11

OK

## 10.INSPECT MAP LIGHT ASSEMBLY

a. Reconnect the F58 display and navigation module display connector.

b. Reconnect the P2 telematics transceiver connector (w/ G-BOOK system).

c. Reconnect the R7 map light assembly connector.

d. Turn the engine switch on (ACC).

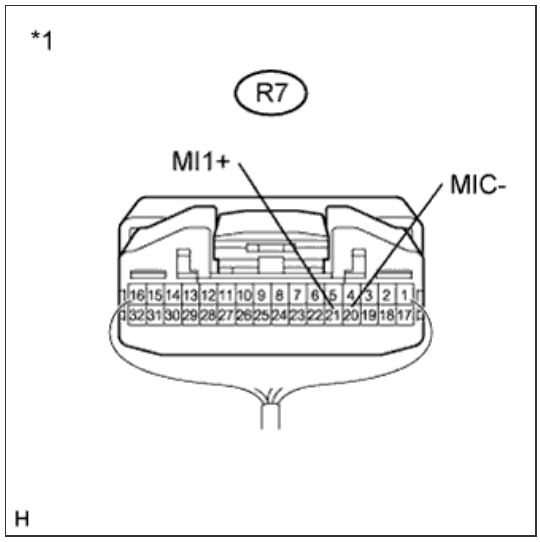
e. Connect an oscilloscope to terminals MI1+ and MIC- of the R7 telephone microphone assembly connector.

f. Check the waveform of the telephone microphone assembly using an oscilloscope.

**Result**

| | |
|---|---|
| | |

| Result | Proceed to |
|---|---|
| A waveform synchronized with the voice input to the telephone microphone assembly is output | A |
| A waveform synchronized with the voice input to the telephone microphone assembly is not output | B |




**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Map Light Assembly) |

B → Go to step 11

A → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

## 11.REPLACE TELEMATICS TRANSCEIVER

a. Replace the telephone microphone assembly ( Click here).

b. Check if the same malfunction recurs.

**Result**

| Result | Proceed to |
|---|---|
| Malfunction does not recur (returns to normal) | A |
| Malfunction recurs | B |

B → REPLACE MAP LIGHT ASSEMBLY (Click here)

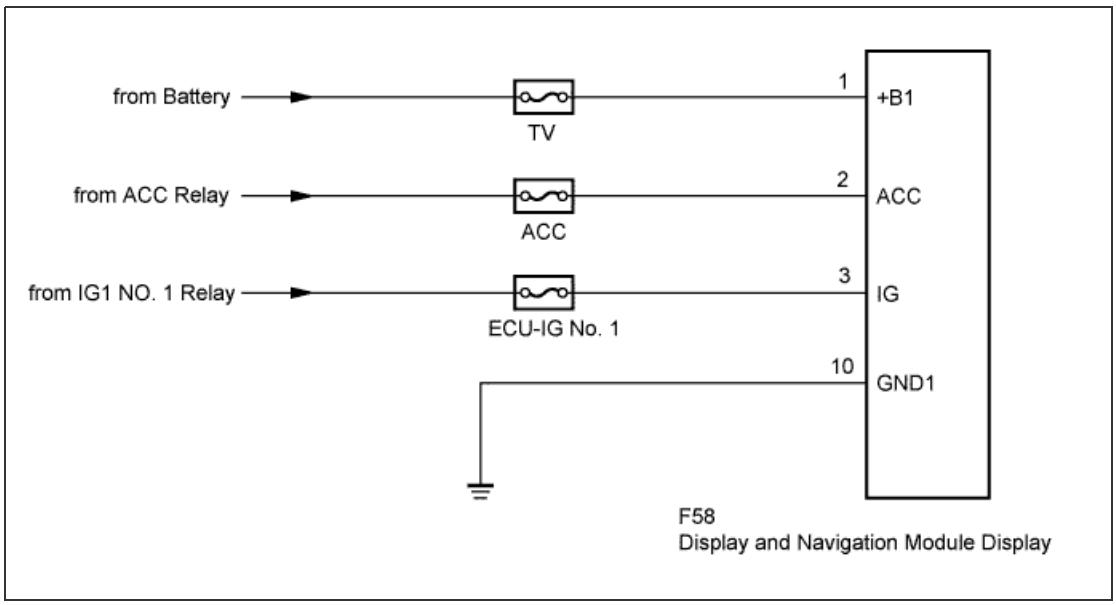
A → END

**for Preparation** Click here

## DESCRIPTION

This is the power source circuit to operate the display and navigation module display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY POWER SOURCE)

a. Disconnect the F58 display and navigation module display connector.

b. Measure the resistance according to the value(s) in the table below.

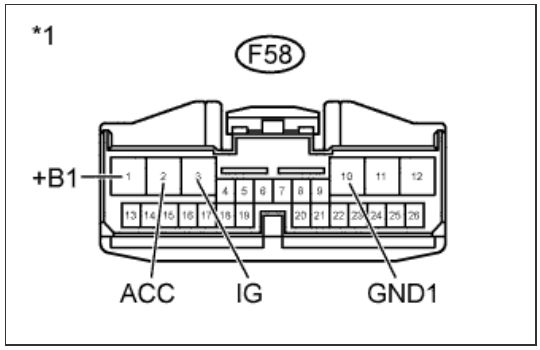
**Standard Resistance:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F58-10 (GND1) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F58-1 (+B1) - F58-10 (GND1) | Always | 11 to 14 V |
| F58-2 (ACC) - F58-10 (GND1) | Engine switch on (ACC) | 11 to 14 V |
| F58-3 (IG) - F58-10 (GND1) | Engine switch on (IG) | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Display and Navigation Module Display) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

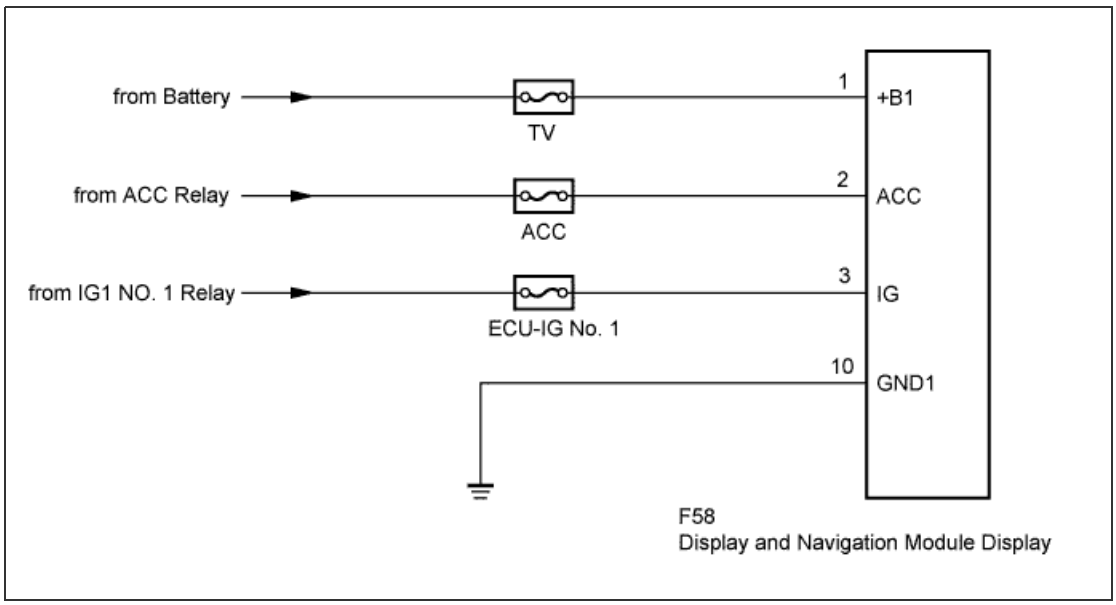
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This is the power source circuit to operate the display and navigation module display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY POWER SOURCE)

a. Disconnect the F58 display and navigation module display connector.

b. Measure the resistance according to the value(s) in the table below.

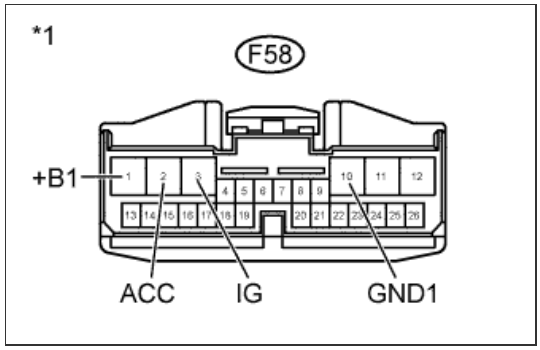
**Standard Resistance:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F58-10 (GND1) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F58-1 (+B1) - F58-10 (GND1) | Always | 11 to 14 V |
| F58-2 (ACC) - F58-10 (GND1) | Engine switch on (ACC) | 11 to 14 V |
| F58-3 (IG) - F58-10 (GND1) | Engine switch on (IG) | 11 to 14 V |




**Text in Illustration**

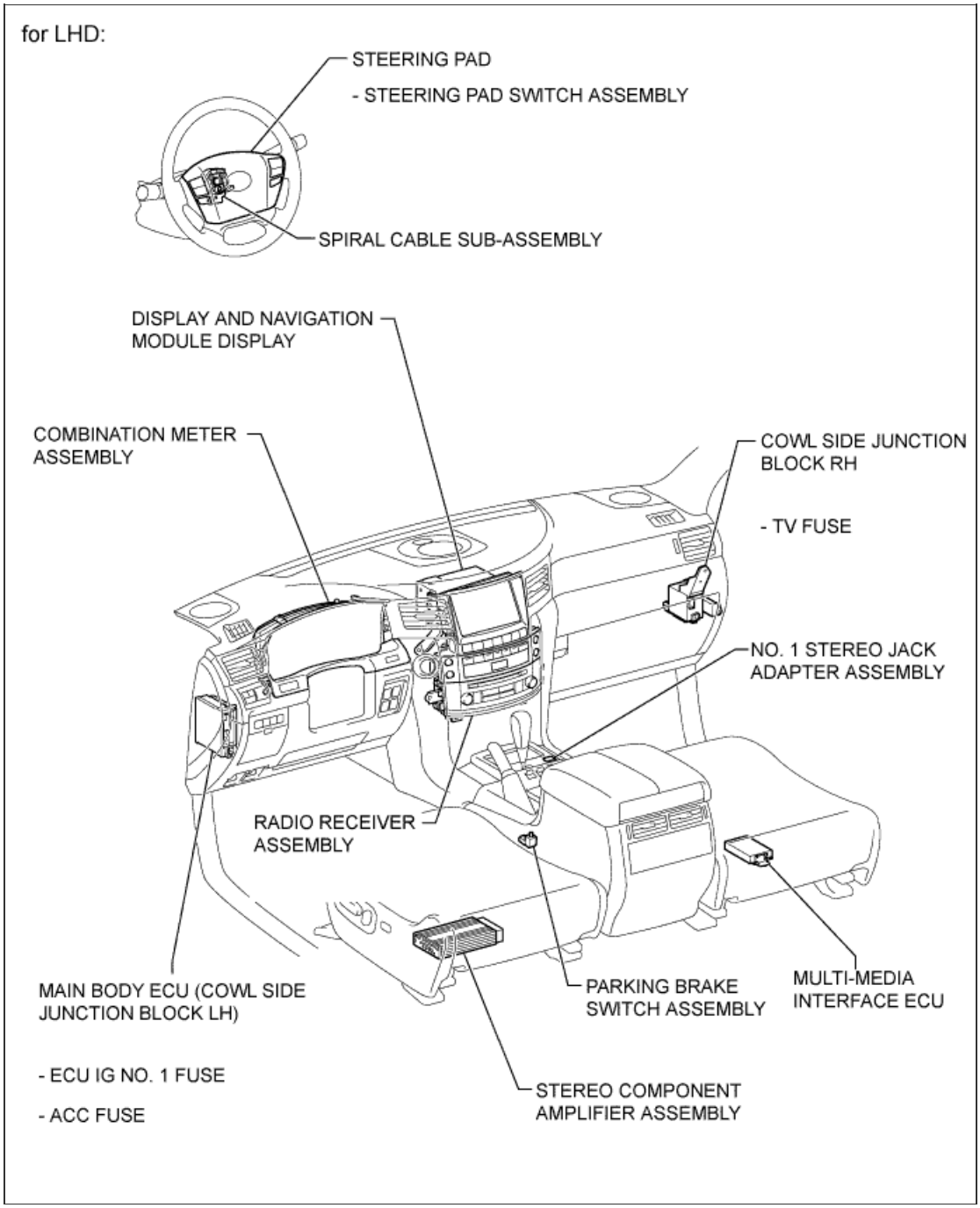
| | |
|---|---|
| *1 | Front view of wire harness connector (to Display and Navigation Module Display) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

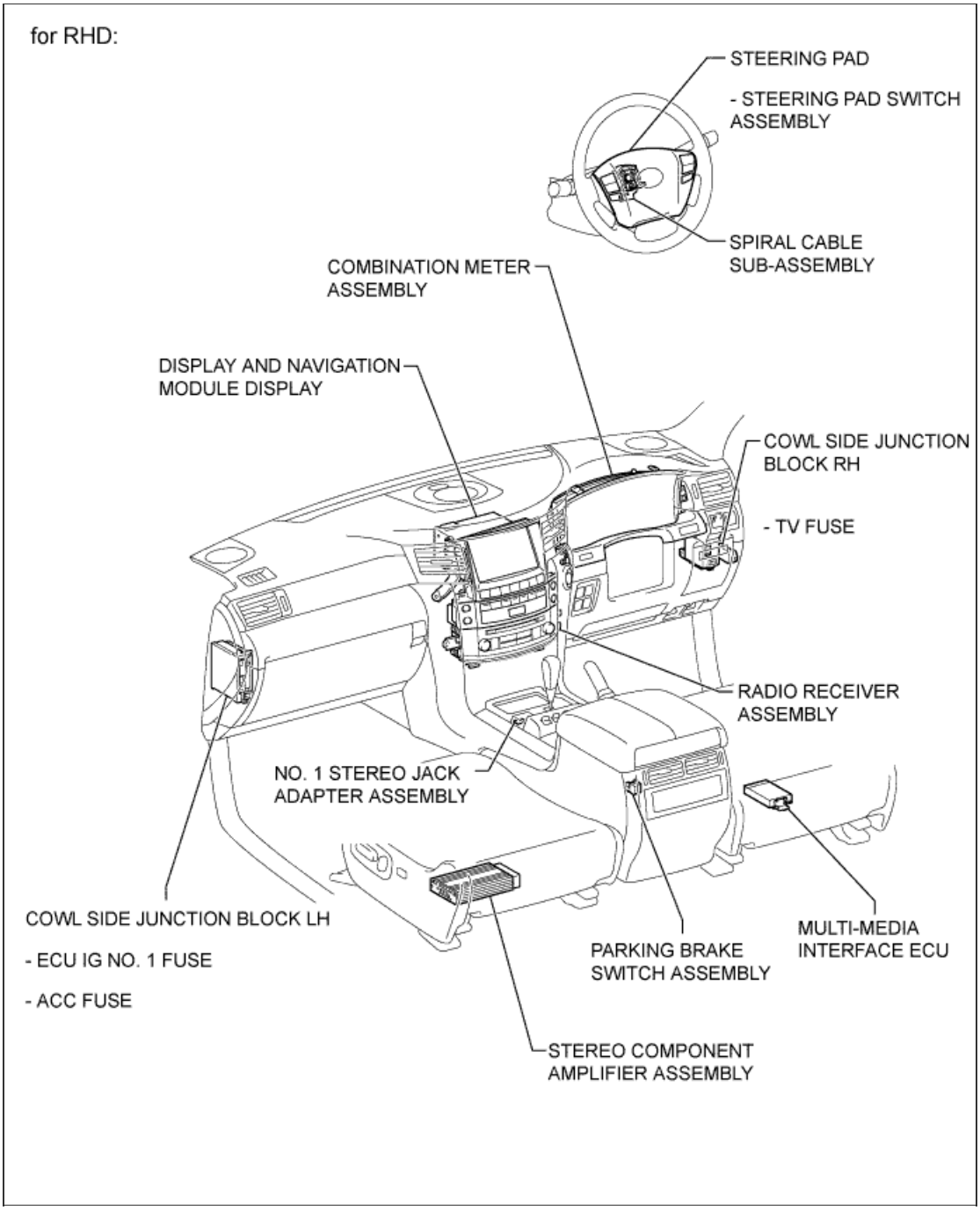
OK

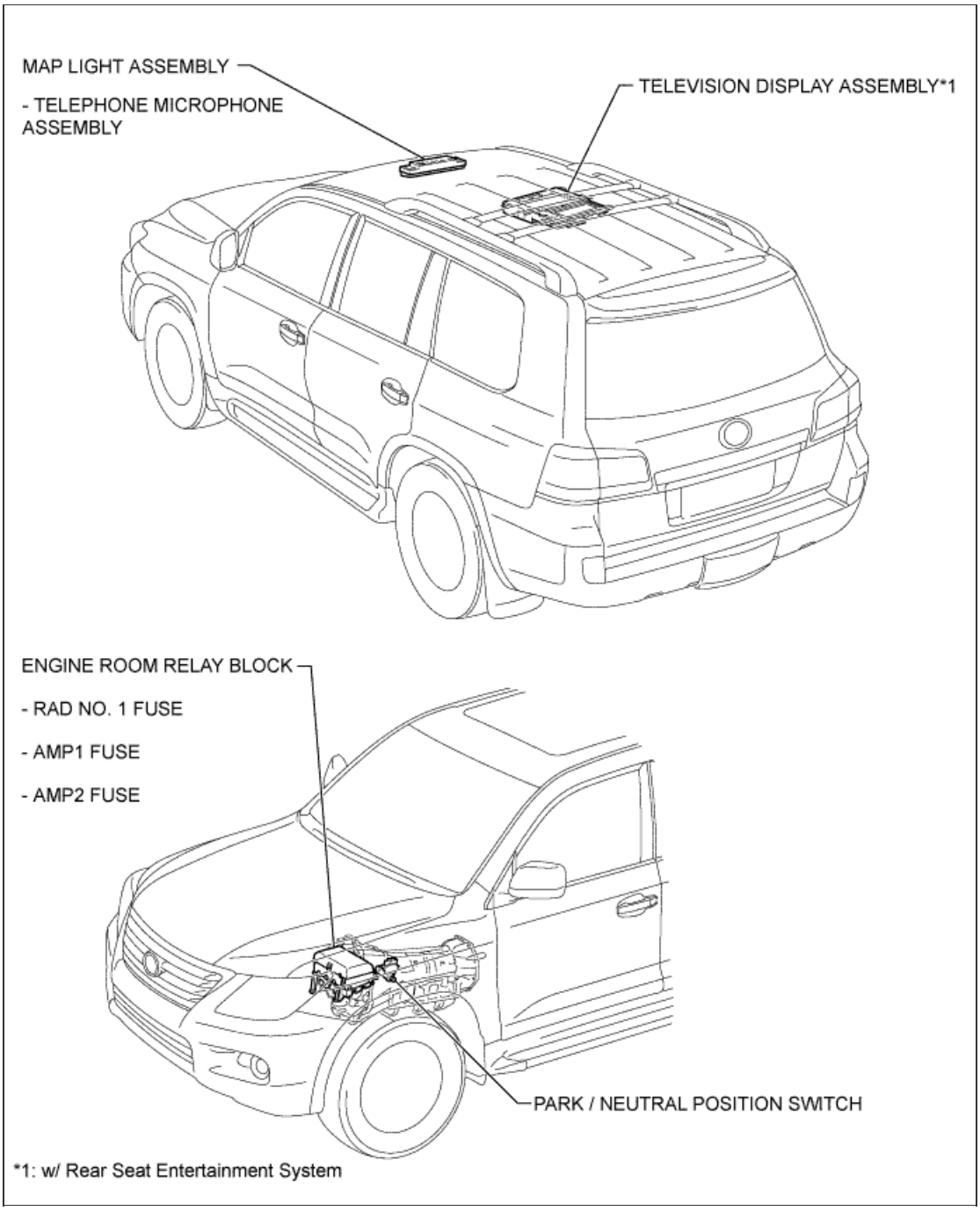
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here



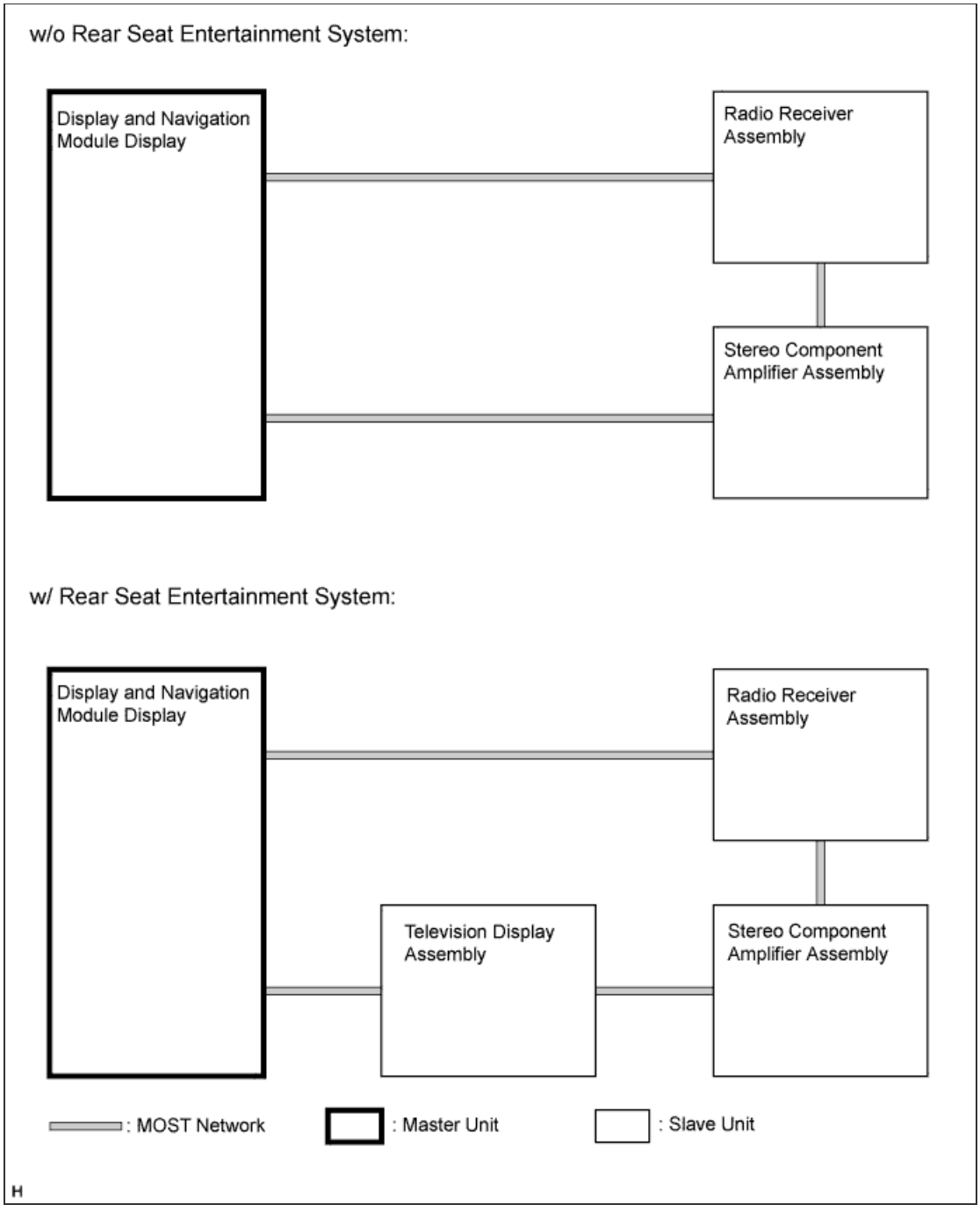
for RHD:


STEERING PAD
- STEERING PAD SWITCH ASSEMBLY
SPIRAL CABLE SUB-ASSEMBLY
COMBINATION METER ASSEMBLY
DISPLAY AND NAVIGATION MODULE DISPLAY
COWL SIDE JUNCTION BLOCK RH
- TV FUSE
RADIO RECEIVER ASSEMBLY
NO. 1 STEREO JACK ADAPTER ASSEMBLY
COWL SIDE JUNCTION BLOCK LH
- ECU IG NO. 1 FUSE
- ACC FUSE
PARKING BRAKE SWITCH ASSEMBLY
MULTI-MEDIA INTERFACE ECU
STEREO COMPONENT AMPLIFIER ASSEMBLY

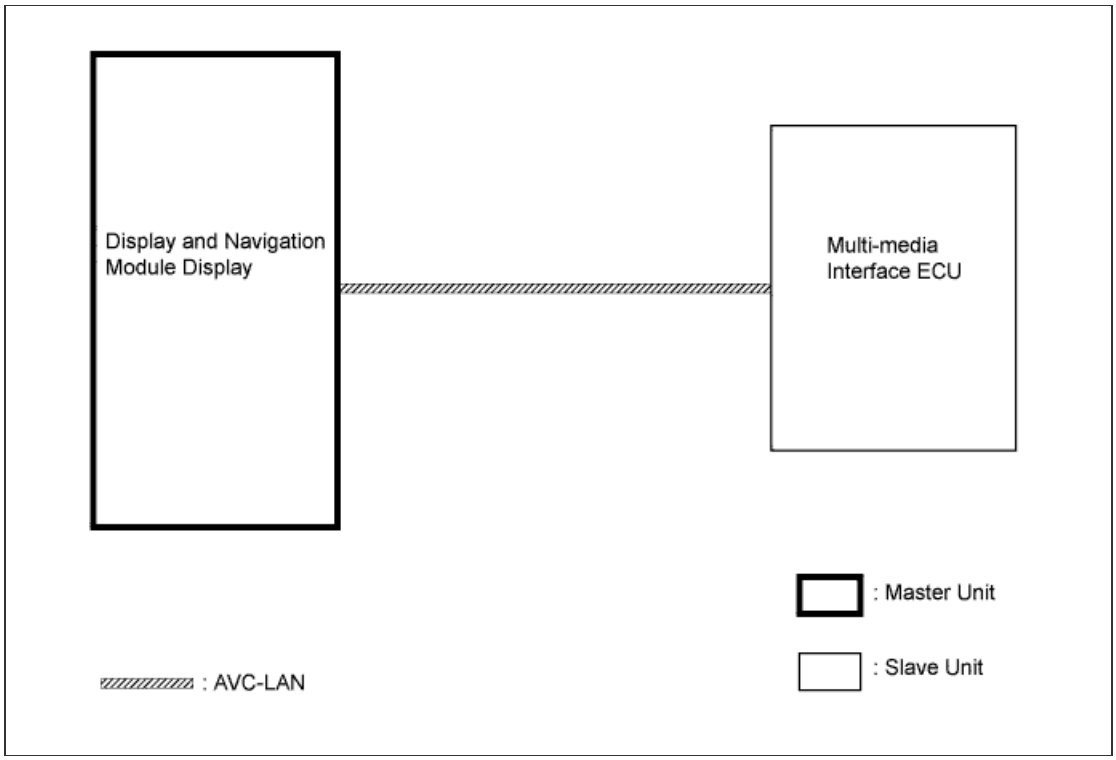

MAP LIGHT ASSEMBLY
- TELEPHONE MICROPHONE ASSEMBLY
TELEVISION DISPLAY ASSEMBLY*1
ENGINE ROOM RELAY BLOCK
- RAD NO. 1 FUSE
- AMP1 FUSE
- AMP2 FUSE
PARK / NEUTRAL POSITION SWITCH
*1: w/ Rear Seat Entertainment System

**for Preparation** Click here

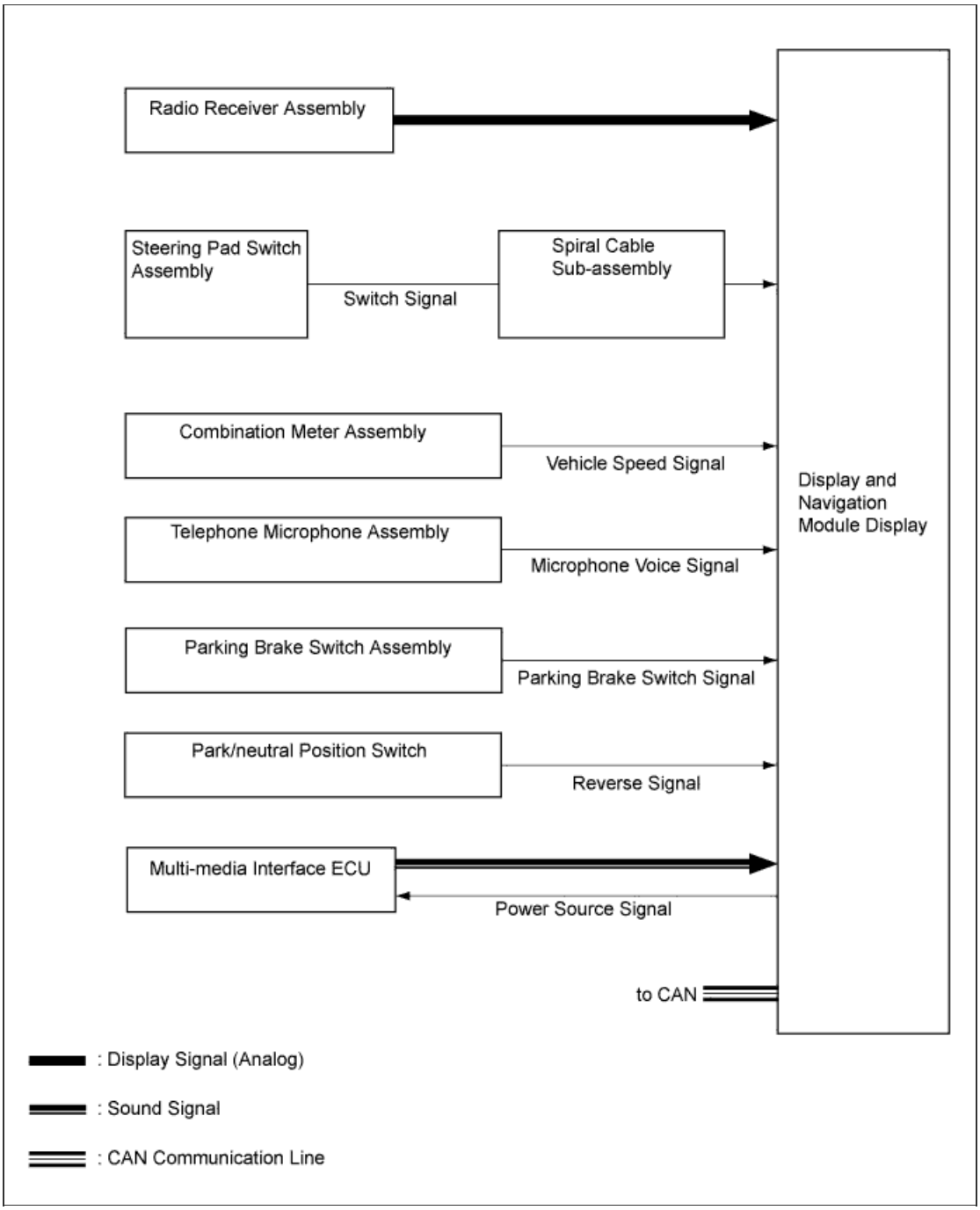
## MOST Communication Line




## AVC-LAN Communication Line


Display and Navigation
Module Display
Multi-media
Interface ECU
: Master Unit
: Slave Unit
: AVC-LAN

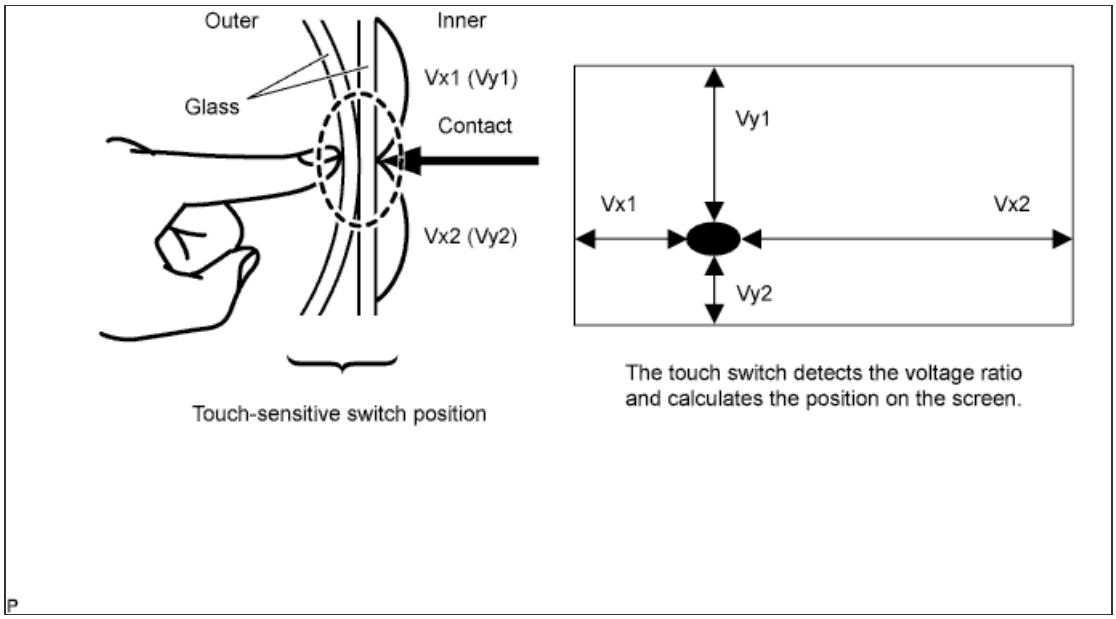
## Others


Radio Receiver Assembly
Steering Pad Switch Assembly
Switch Signal
Spiral Cable Sub-assembly
Combination Meter Assembly
Vehicle Speed Signal
Telephone Microphone Assembly
Microphone Voice Signal
Parking Brake Switch Assembly
Parking Brake Switch Signal
Park/neutral Position Switch
Reverse Signal
Multi-media Interface ECU
Power Source Signal
to CAN
Display and Navigation Module Display
: Display Signal (Analog)
: Sound Signal
: CAN Communication Line

**for Preparation** Click here

## TOUCH SCREEN OUTLINE

Touch switches are touch-sensitive (interactive) switches operated by touching the screen. When a switch is pressed, the outer glass bends to contact the inner glass at the pressed position. By doing this, the voltage ratio is measured and the pressed position is detected.




## DVD (Digital Versatile Disc) PLAYER OUTLINE

a. The DVD player can only play DVD videos, DVD audio and video CDs that have any of the following marks:




i. Precaution for use of discs

**NOTICE:**

- **PAL or SECAM color television standard discs cannot be played (only NTSC discs can be played).**
- **Keep the discs away from dirt. Be careful not to damage the discs or leave fingerprints on them.**
- **Hold discs by the outer edge and center hole with the label side up.**
- **Leaving the disc exposed halfway out of the slot for a long time after pressing the disc eject button may cause deformation of the disc, making the disc unusable.**
- **Do not use odd-shaped CDs because these may cause player malfunctions.**
- **Do not use discs whose recording portion is transparent or translucent because they may not be inserted, ejected or played normally.**
- **DualDiscs that combine DVD recorded material on one side with CD digital audio material on the other cannot be played.**

b. Cleaning

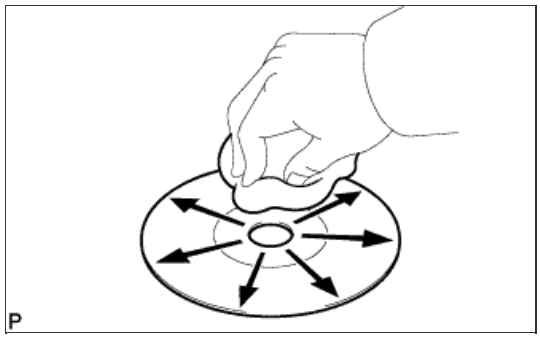
**NOTICE:**

Do not use a lens cleaner because it may cause a malfunction in the pickup portion of the player.

i. If dirt is on the disc surface, wipe it clean with a soft dry cloth such as an eyeglass cleaner for plastic lenses from the inside to the outside in a radial direction.

**NOTICE:**

- **Pressing on the disc by hand or rubbing the disc with a hard cloth may scratch the disc surface.**
- **Use of solvent such as a record spray, antistatic agent, alcohol, benzine and thinner or a chemical cloth may cause damage to the disc, making the disc unusable.**




## MP3/WMA OUTLINE

a. Playable MP3 file standards

| | |
|---|---|
| Compatible standard | MP3 (MPEG1 LAYER 3, MPEG2 LSF LAYER 3) |
| Compatible sampling frequency | • MPEG1 LAYER 3: 32, 44.1, 48 (kHz)<br>• MPEG2 LSF LAYER 3: 16, 22.05, 24 (kHz) |
| Compatible bit rate | • MPEG1 LAYER 3: 64, 80, 96, 112, 128, 160, 192, 224, 256, 320 (kbps)<br>• MPEG2 LSF LAYER 3: 64, 80, 96, 112, 128, 144, 160 (kbps)<br>• Compatible with VBR |
| Compatible channel mode | Stereo, joint stereo, dual channel, monaural |

b. Playable WMA file standards

| | |
|---|---|
| Compatible standard | WMA Ver. 7, 8, and 9 |
| Compatible sampling frequency | 32, 44.1, 48 (kHz) |
| Compatible bit rate (Only compatible with 2-channel playback) | • Ver. 7, 8: CBR48, 64, 80, 96, 128, 160, 192 (kbps)<br>• Ver. 9: CBR48, 64, 80, 96, 128, 160, 192, 256, 320 (kbps) |

c. ID3 tag and WMA tag

i. Additional textual information called ID3 tag can be input to MP3 files. Information such as song titles and artist names can be stored.

**HINT:**

This player is compatible with the ID3 tags of ID3 Ver. 1.0 and 1.1, and ID3 Ver. 2.2 and 2.3. (Number of characters complies with ID3 Ver. 1.0 and 1.1.)

ii. Additional textual information called WMA tag can be input to WMA files. Information such as song titles and artist names can be stored.

d. Usable media

i. Only CD-ROMs, CD-Rs (CD-Recordable) and CD-RWs (CD-ReWritable) can be used to play MP3/WMA files.

**NOTICE:**

- **CD-Rs and CD-RWs are more easily affected by a hot and humid environment than discs used for normal audio CDs. For this reason, some CD-Rs and CD-RWs will not play.**
- **If there are fingerprints or scratches on a disc, the disc may not play or the CD sound may skip.**
- **Some CD-Rs and CD-RWs may deteriorate if they are left in the cabin for a long time.**
- **Keep CD-Rs and CD-RWs in an opaque case.**

e. Usable media format

i. Usable media format

| | |
|---|---|
| Disc format | CD-ROM Mode 1, CD-ROM XA Mode 2 Form1 |

| | |
|---|---|
| File format | ISO9660 Level 1 and Level 2 (Joliet, Romeo) |

**HINT:**

- **As for MP3/WMA files written in any unlisted format, the contents of the files may not be played normally or the file names or folder names may not be displayed correctly.**
- **This player is compatible with multi-session discs and can play CD-Rs and CD-RWs on which MP3/WMA files are added. However, only the first session can be played.**
- **Discs whose first session includes both music data and MP3 or WMA format data cannot be played.**

ii. Standard and restrictions

| | |
|---|---|
| Maximum directory levels | 8 levels |
| Maximum number of characters for a folder name/file name | 32 characters |
| Maximum number of folders | 192 (Including the empty folders, roof folders, and folders that do not contain MP3/WMA files) |
| Maximum number of files in a disc | 255 (Including non-MP3/WMA files) |

f. File names

i. Only files with an extension of ".mp3" or ".wma" can be recognized and played as MP3 or WMA files.

ii. Save MP3 or WMA files with an extension of ".mp3" or ".wma".

**NOTICE:**

If non-MP3 or non-WMA files are saved with an extension of ".mp3" or ".wma", those files may be wrongly recognized as MP3 or WMA files and played. A loud noise may occur and damage to the speakers may result.

## "Bluetooth" OUTLINE

a. "Bluetooth" is a trademark owned by Bluetooth SIG.

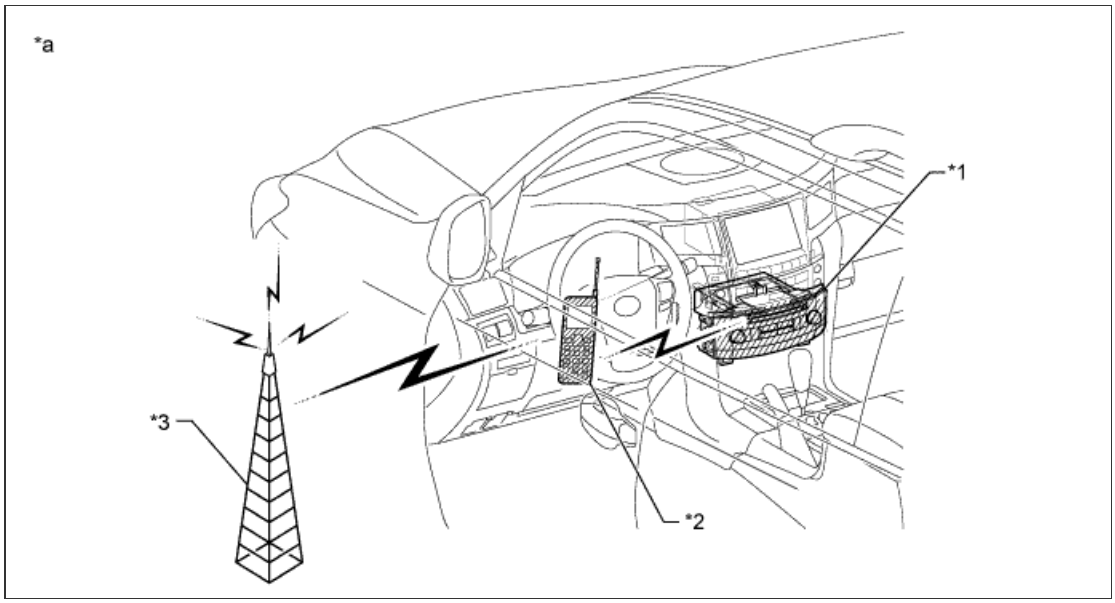
b. "Bluetooth" is a new wireless connection technology that uses the 2.4 GHz frequency band.

**HINT:**

The communication performance of "Bluetooth" may vary depending on obstructions or radio wave conditions between communication devices, electromagnetic radiation, communication device sensitivity or antenna capacity.

c. Hands-free function

i. The "Bluetooth" built-in radio receiver and a "Bluetooth" compatible cellular phone*1 can be connected using a "Bluetooth" wireless connection. This enables use of the hands-free function on the cellular phone even the phone may be in a pocket or bag. For this reason, it is not necessary to use a connector or cable to connect the cellular phone.
*1: Some versions of "Bluetooth" compatible cellular phones may not function.




**Text in Illustration**

| | | | |
|---|---|---|---|
| *1 | Radio Receiver Assembly<br>(Built-in "Bluetooth" Receiver Antenna) | *2 | Cellular Phone<br>("Bluetooth" Type) |
| *3 | Cellular Tower | - | - |
| *a | Example: | - | - |

## VEHICLE CUSTOMIZATION OUTLINE

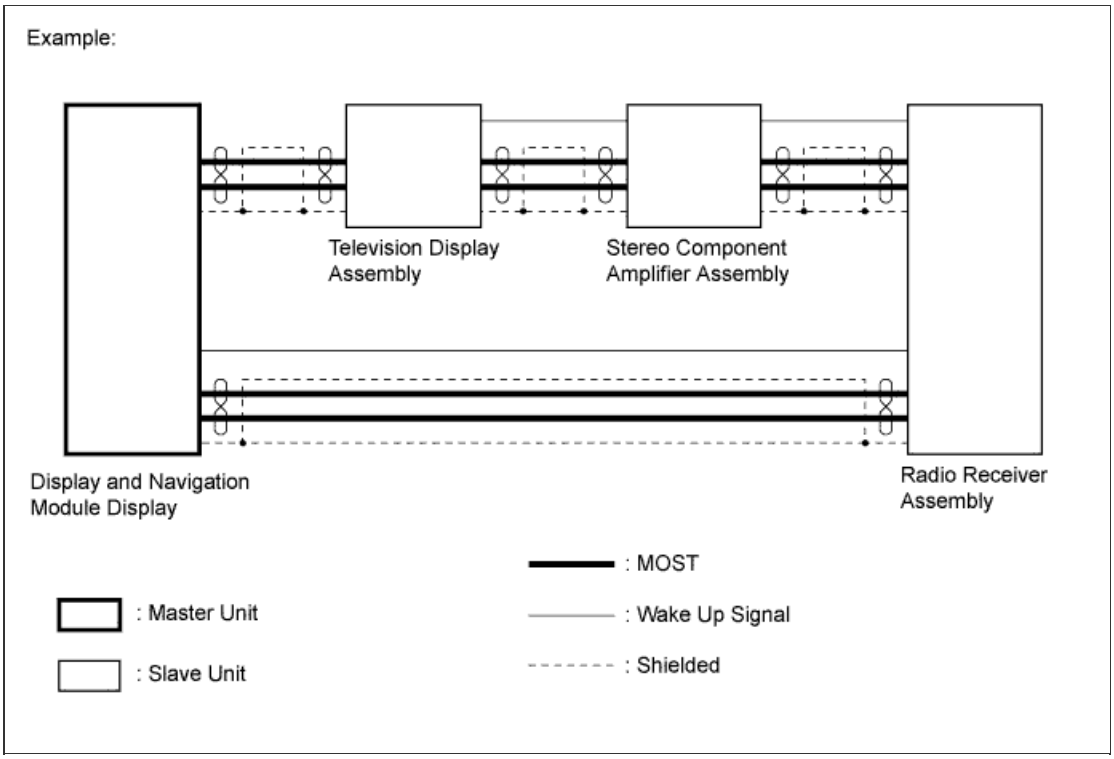
a. Customization of functions can be performed on the multi display screen. Refer to the owner's manual for further information on customizable items for the electro multi vision system.

**HINT:**

- **Items available for customization via the electro multi vision system can be performed by using the intelligent tester.**
- **Some customize parameters displayed on the intelligent tester will be displayed on the "Vehicle Customization" screen for the electro multi vision system. Users can customize these items.**

## COMMUNICATION SYSTEM

a. MOST Network Outline




i. Electro multi vision system components communicate with each other via the MOST network.

ii. The MOST network uses a shielded twisted pair of wires for its communication lines.

iii. The master unit of the MOST network is the display and navigation module display (navigation ECU).

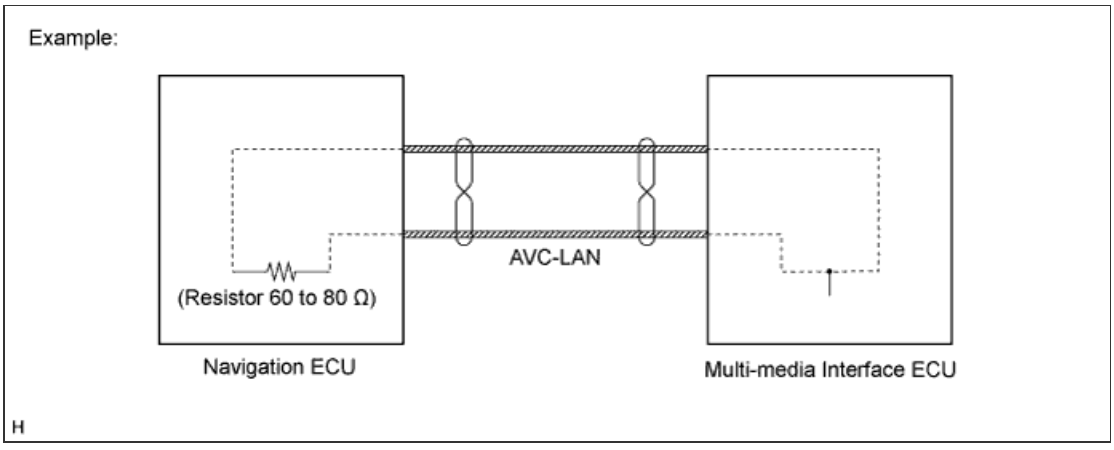
iv. MOST communication lines connect each slave unit centering around the master unit to form a MOST network ring.

v. The master unit sends a wake-up signal to activate each slave unit connected to the MOST network.

**HINT:**

If a short or open circuit occurs in the MOST circuit, communication will be interrupted and the system will not operate normally.

b. AVC-LAN Outline




i. Components of the electro multi vision system communicate with each other via the AVC-LAN.

ii. The AVC-LAN uses a twisted pair of wires for its communication lines.

iii. The master unit of the AVC-LAN is the display and navigation module display (navigation ECU).

**HINT:**

- **The display and navigation module display (navigation ECU) has enough resistance (60 to 80 Ω) necessary for communication.**
- **If a short or open circuit occurs in the AVC-LAN circuit, communication is interrupted and the system will not**

operate normally.

## DIAGNOSTIC FUNCTION OUTLINE

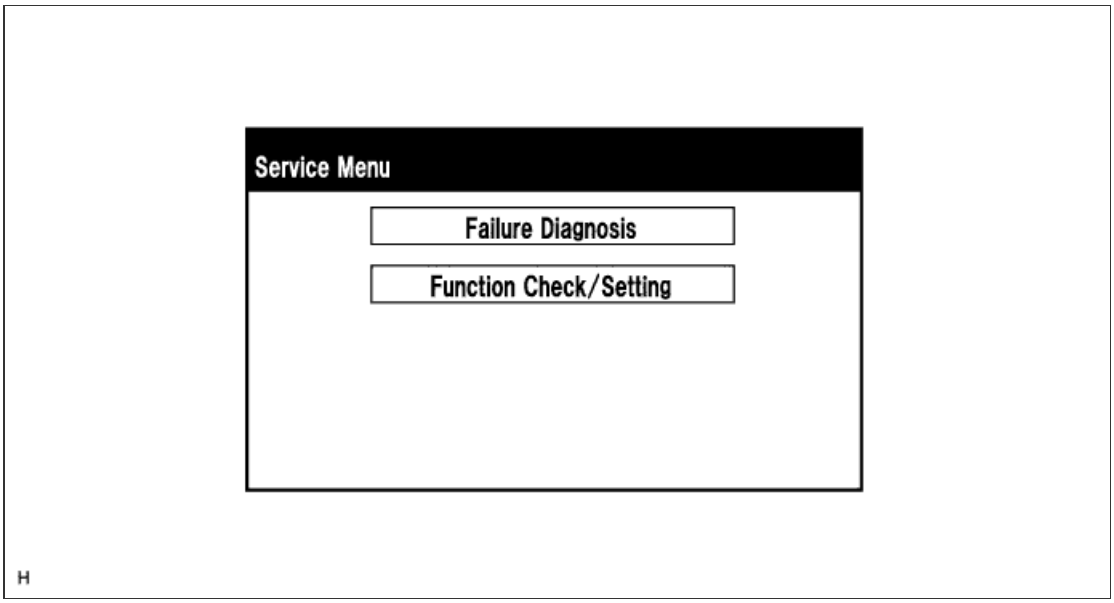
a. The electro multi vision system has a diagnostic function (the result will be displayed on the master unit or the intelligent tester).

## DIAGNOSIS DISPLAY DETAILED DESCRIPTION

**HINT:**

- **This section contains a detailed description of displays in diagnostic mode.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

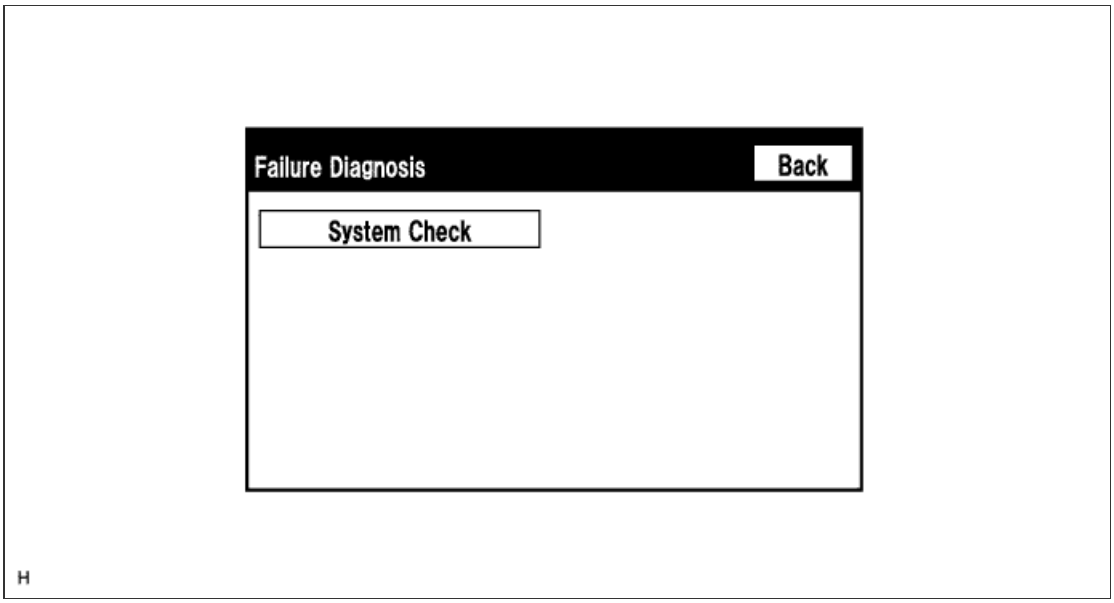
a. Service Menu Screen




**HINT:**

Each item is grayed out or not displayed based on the device settings.

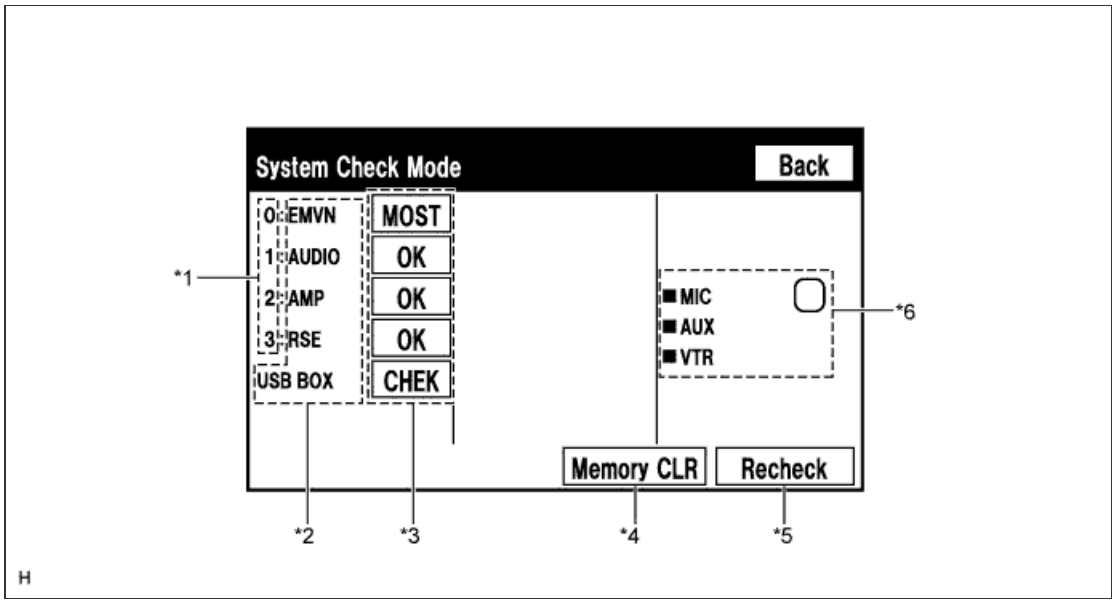
b. Failure Diagnosis Screen




**HINT:**

Each item is grayed out or not displayed based on the device settings.

i. System Check Mode Screen




*1: Node position number for devices connected to the MOST network.

**HINT:**

MOST node position numbers are provided for devices connected to the MOST network.

*2: Device Name List No. 1

**HINT:**

- **Device Name List No. 1 displays some of the devices that make up the electro multi vision system.**
- **The names of the components from Device Name List No. 1 are shown in the following table.**

| Name | Component | Connection Method |
|---|---|---|
| EMVN | Display and navigation module display | - |
| AUDIO | Radio receiver assembly | Communication line for MOST network |
| AMP | Stereo component amplifier assembly | Communication line for MOST network |

| | | |
|---|---|---|
| RSE | Television display assembly | Communication line for MOST network |
| USB BOX | Multi-media interface ECU | Communication line for AVC-LAN |

*3: Check Result

**HINT:**

- **Result codes for all devices are displayed.**
- **When "MOST" is displayed for the result, press "MOST" on the display and navigation module display to display the "MOST Line Check" screen.**

| Result | Meaning | Action |
|---|---|---|
| OK | The device does not respond with a DTC. | - |
| MOST | MOST communication error | Perform "MOST Line Check" to check the connection of each device on the MOST network. |
| EXCH | The device responds with a "replace"-type DTC. | Look up the DTC in "Unit Check Mode" and replace the device. |
| CHEK | The device responds with a "check"-type DTC. | Look up the DTC in "Unit Check Mode". |
| NCON | The device was previously present, but does not respond in diagnostic mode. | - Check power supply wire harness of the device.<br>- Check the AVC-LAN or MOST network for the device. |
| NRES | The device responds in diagnostic mode, but gives no DTC information. | - Check power supply wire harness of the device.<br>- Check the AVC-LAN or MOST network for the device. |

*4: Memory Clear

**HINT:**

- **Present and history DTCs and registered connected device names are cleared.**
- **Press the "Memory CLR" switch for 3 seconds.**

*5: Recheck

**HINT:**

- **A system check will be performed again after the memory is cleared.**
- **The "Recheck" switch will dim during a system check.**

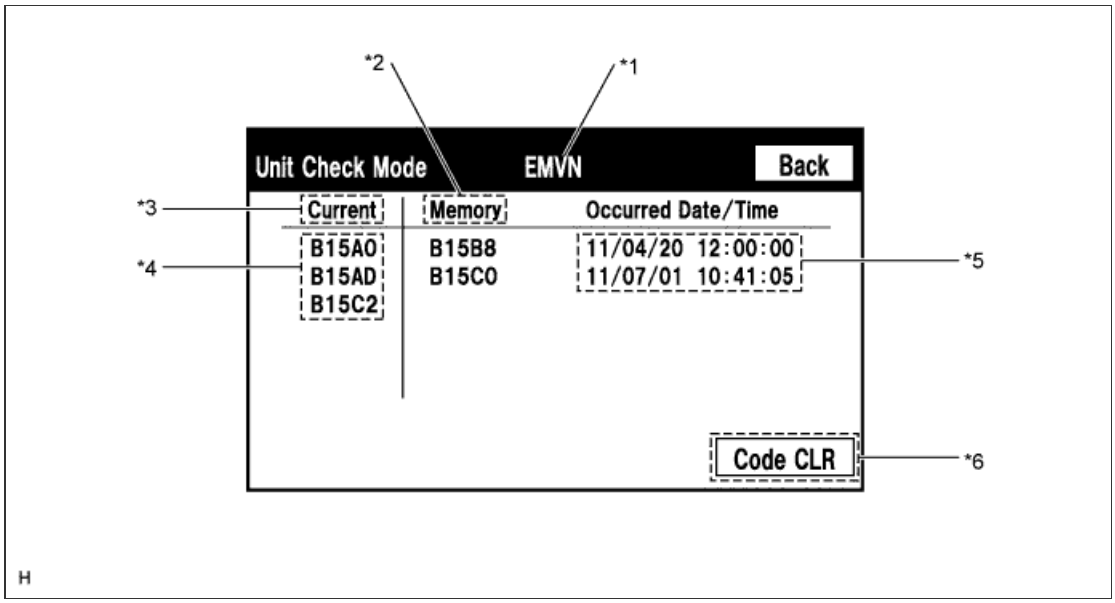
*6: Device Name List No. 2

**HINT:**

- **Device Name List No. 2 displays some of the devices that make up the electro multi vision system.**
- **The names of the components from Device Name List No. 2 are shown in the following table.**

| Name | Component | Connection Method |
|---|---|---|
| MIC | Telephone microphone assembly | Vehicle wire harness |
| AUX | No. 1 Stereo jack adapter | Vehicle wire harness |
| VTR | Video (video adapter) terminal | Vehicle wire harness |

ii. Unit Check Mode Screen



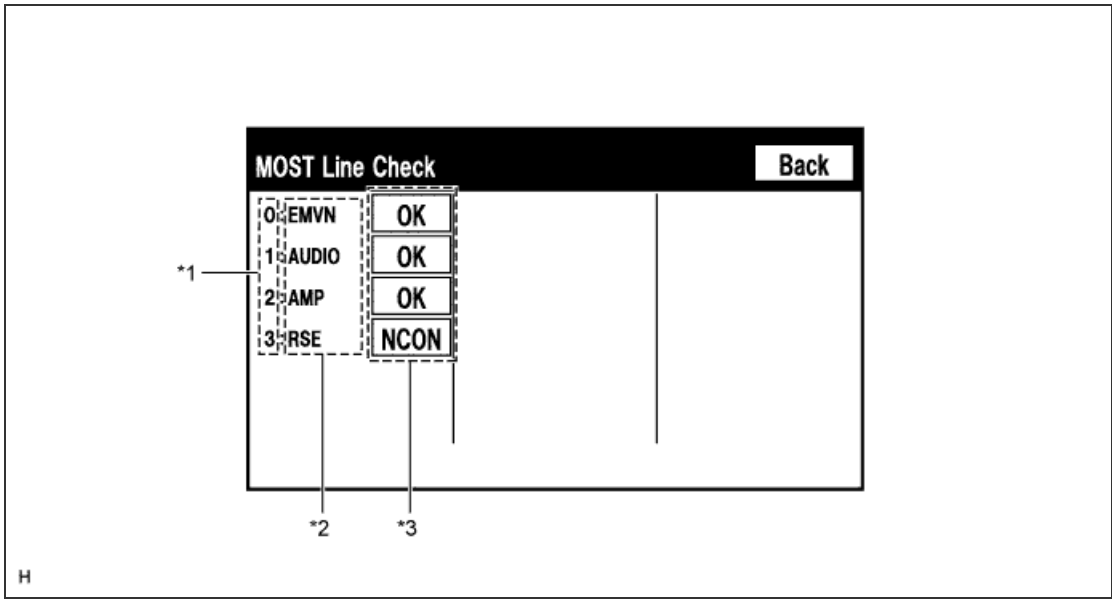

**Screen Description**

| Display | Content |
|---|---|
| *1: Device name | Target device |
| *2: History DTC | Diagnostic memory results and stored DTCs are displayed. |
| *3: Present DTC | DTCs output in the service check are displayed. |
| *4: DTC | DTC (Diagnostic Trouble Code) |
| *5: Timestamp | The time and date of history DTCs are displayed. (The year is displayed in 2-digit format.) |
| *6: Diagnosis clear switch | Pushing this switch for 3 seconds clears the diagnostic memory data of the target device. (Both response to diagnostic system check result and the displayed data are cleared.) |

iii. MOST Line Check Screen

**HINT:**

- **The inspection will be performed at the time the screen changes from "System Check Mode" to "MOST Line Check".**
- **The master unit checks the connection of each device on the MOST network.**




*1: Node position number for devices connected to the MOST network.
*2: Device Name List

**HINT:**

- **Device Name List displays some of the devices that make up the electro multi vision system.**
- **The names of the components from Device Name List are shown in the following table.**

| Name | Component |
|---|---|
| EMVN | Display and navigation module display |
| AUDIO | Radio receiver assembly |
| AMP | Stereo component amplifier assembly |
| RSE | Television display assembly |

*3: Check Result

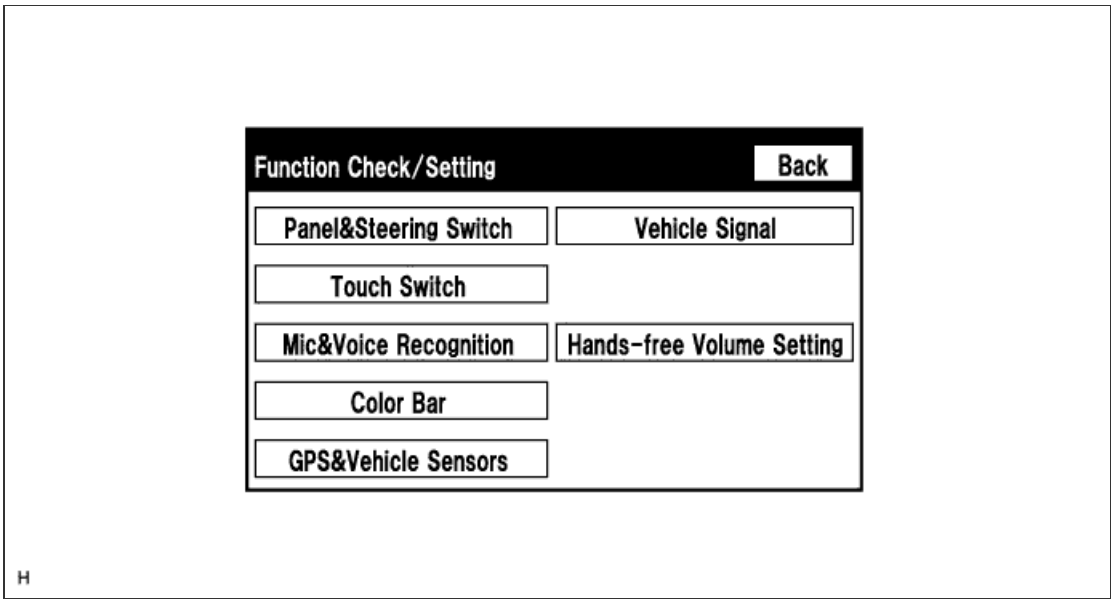
**HINT:**

- **The master unit displays the check result on the screen based on the response information from each slave unit.**
- **Result codes for all devices are displayed.**

| Result | Meaning |
|---|---|
| OK | There was a response for the connection check during the MOST line check. |
| NCON | There was no response for the connection check during the MOST line check. |

- **The device name and result will not be displayed if there is no system registration record and no response for the connection check during the MOST line check even if the device is connected to the MOST network.**

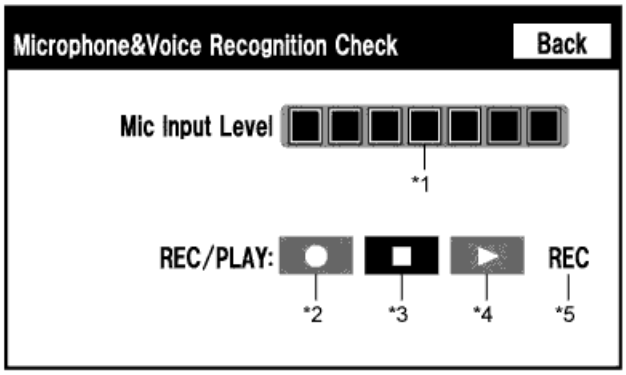
c. Function Check/Setting Screen




**HINT:**

Each item is grayed out or not displayed based on the device settings.

i. Microphone & Voice Recognition Check Screen




H

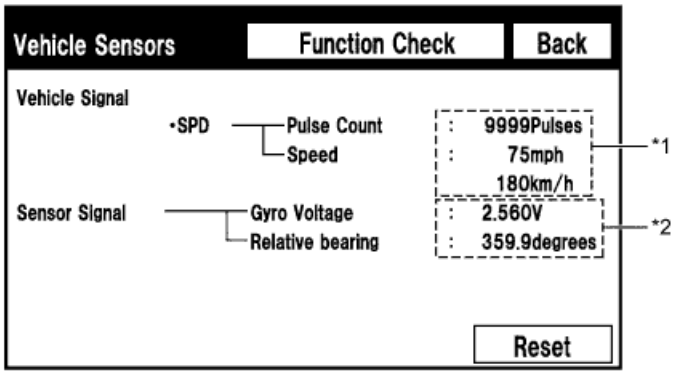
**Screen Description**

| Display | Content |
|---|---|
| *1: Microphone input level meter | Monitors the microphone input level every 0.1 sec. and displays the results in 8 different levels. |
| *2: Recording switch | Starts recording. |
| *3: Stop switch | Stops recording and playing. |
| *4: Play switch | Plays the recorded voice. |
| *5: Recording indicator | Comes on while recording. |

**HINT:**

- **The microphone is active at all times when this screen is displayed.**
- **While recording or playing, the switches other than the stop switch cannot be pushed.**
- **When no recording is present, the play switch cannot be pushed.**
- **Recording will stop after 5 seconds or when the stop switch is pushed.**

ii. Vehicle Sensors Screen




H

**Vehicle Signal**

| Display | Content |
|---|---|
| *1: SPD | SPD signal condition is displayed. |

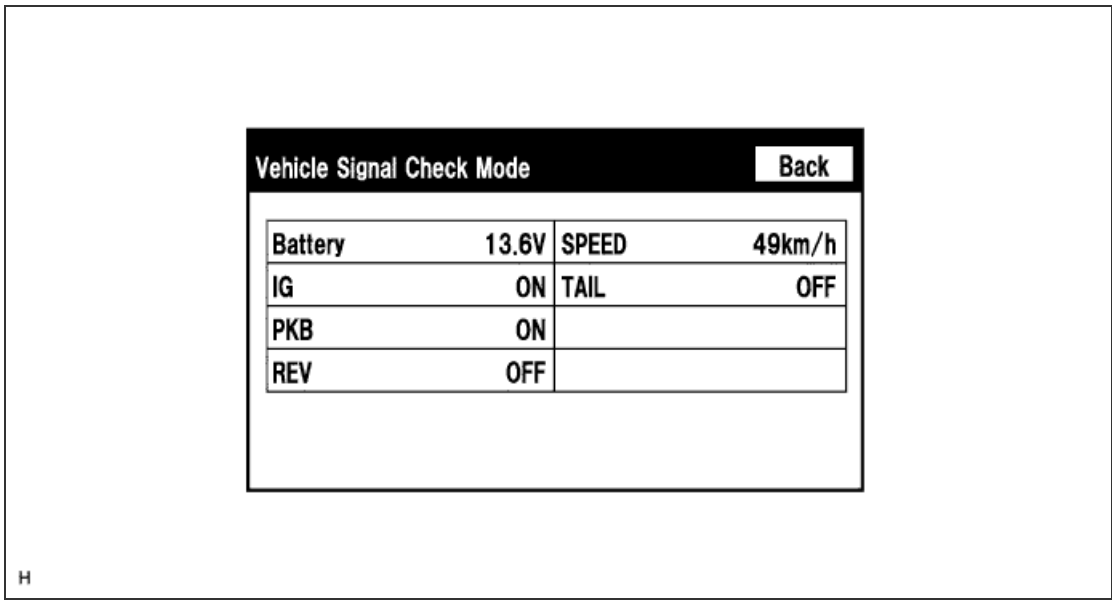
### Sensor Signal

| Display | Content |
|---|---|
| *2: Gyro sensor | Gyro sensor output condition is displayed.<br>2.1 to 2.9 V |

**HINT:**

Signals are updated once per second only when vehicle sensor signals are changed.

iii. Vehicle Signal Check Mode Screen




### Screen Description

| Display | Content |
|---|---|
| Battery | Battery voltage is displayed. |
| IG | Engine switch ON/OFF state is displayed. |
| PKB | Parking brake ON/OFF state is displayed. |
| REV | Reverse signal ON/OFF state is displayed. |
| SPEED | Vehicle speed is displayed in km/h. |
| TAIL | TAIL signal (Light control switch) ON/OFF state is displayed. |

**HINT:**

- **Only items sending vehicle signals will be displayed.**
- **This screen is updated once per second when input signals to the vehicle are changed.**

**for Preparation** Click here

**HINT:**

- **Use the following procedure to troubleshoot the multi vision system.**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

**NEXT**

## 2.INSPECT BATTERY VOLTAGE

a. Inspect the battery voltage.

**Standard Voltage:**
**11 to 14 V**

If the voltage is below 11 V, recharge or replace the battery before proceeding to the next step.

**NEXT**

## 3.DIAGNOSTIC QUESTIONING AND SYMPTOM CONFIRMATION

a. Ask the customer about symptoms and confirm malfunctions.

**Result**

| Result | Proceed to |
|---|---|
| Other symptoms. | A |
| The screen displays nothing. | B |

**B.** → **Go to step 10, AND PROCEED TO "BLACK SCREEN"**

**A**

## 4.OPERATION CHECK

a. Refer to Check System Normal Condition ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| Symptom is not normal operation. | A |
| Symptom is normal operation. | B |

**B.** → **SYMPTOM IS NORMAL OPERATION**

**A**

## 5.CHECK CAN COMMUNICATION SYSTEM*

a. Check for DTC output (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is not output. | A |

| | |
|---|---|
| DTC is output. | B |

B. GO TO CAN COMMUNICATION SYSTEM

A

## 6.CHECK FOR DTC*

a. Refer to DTC Check / Clear ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is output. | A |
| DTC is not output. | B |

**HINT:**

If more information is needed, perform a recheck using the "System Check Mode" screen after rechecking for DTCs using the intelligent tester (Click here).

B. Go to step 10

A

## 7.DTC CLEAR*

a. Refer to the DTC Check / Clear ( Click here).

**HINT:**

The current DTCs may not indicate actual malfunctions depending on the vehicle operating conditions.

NEXT

## 8.RECHECK FOR DTC*

**Result**

| Result | Proceed to |
|---|---|
| DTC is output. | A |
| DTC is not output. | B |

**HINT:**

- **Even if the malfunction symptom is not confirmed, check for DTCs. This is because the system stores history DTCs.**
- **If more information is needed, perform a recheck using the "System Check Mode" screen after rechecking for DTCs using the intelligent tester (Click here).**
- **Check the DTC and inspect the area code indicates.**

B. Go to step 10

A

## 9.DIAGNOSTIC TROUBLE CODE CHART

a. Find the output code in Diagnostic Trouble Code Chart ( Click here).

**NOTICE:**

- **The electro multi system outputs DTCs for the following system.**
- **When DTCs other than those in Diagnostic Trouble Code Chart for the electro multi vision system are output, refer to Diagnostic Trouble Code Chart for the system.**
- **Refer to Audio and Visual System (w/o Navigation System) ( Click here)**
- **Refer to Rear Seat Entertainment System (w/ Rear Seat Entertainment System) ( Click here)**

**Result**

| Result | Proceed to |
|---|---|
| Electro Multi Vision System are output. | A |
| Audio and Visual System (w/o Navigation System) are output. | B |
| Rear Seat Entertainment System are output. | C |

| | |
|---|---|
| **A.** | **Go to step 12** |
| **B.** | **GO TO AUDIO AND VISUAL SYSTEM** |
| **C.** | **GO TO REAR SEAT ENTERTAINMENT SYSTEM** |

## 10.PROBLEM SYMPTOMS TABLE

a. Refer to Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in Problem Symptoms Table. | A |
| Fault is listed in Problem Symptoms Table. | B |

**HINT:**

If the symptom does not recur and no DTC is output, perform the symptom reproduction method ( Click here).

| | |
|---|---|
| **B.** | **Go to step 12** |

**A**

## 11.CHECK ECU TERMINAL ARRANGEMENT BASED ON MALFUNCTION SYMPTOM

a. Refer to Terminals of ECU (Click here).

**NEXT**

## 12.CHECK CIRCUIT

a. Adjust, repair or replace as necessary.

**NEXT**

## 13.RECHECK FOR DIAGNOSTIC TROUBLE CODE

**HINT:**

After clearing the DTCs, recheck for DTCs.

**NEXT**

## 14.PERFORM CONFIRMATION TEST

**NEXT**

## END

**for Preparation** Click here

**HINT:**

- **Use the following procedure to troubleshoot the multi vision system.**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

**NEXT**

## 2.INSPECT BATTERY VOLTAGE

a. Inspect the battery voltage.

**Standard Voltage:**
**11 to 14 V**

If the voltage is below 11 V, recharge or replace the battery before proceeding to the next step.

**NEXT**

## 3.DIAGNOSTIC QUESTIONING AND SYMPTOM CONFIRMATION

a. Ask the customer about symptoms and confirm malfunctions.

**Result**

| Result | Proceed to |
|---|---|
| Other symptoms. | A |
| The screen displays nothing. | B |

**B.** → **Go to step 10, AND PROCEED TO "BLACK SCREEN"**

**A**

## 4.OPERATION CHECK

a. Refer to Check System Normal Condition ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| Symptom is not normal operation. | A |
| Symptom is normal operation. | B |

**B.** → **SYMPTOM IS NORMAL OPERATION**

**A**

## 5.CHECK CAN COMMUNICATION SYSTEM*

a. Check for DTC output (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is not output. | A |

| | |
|---|---|
| DTC is output. | B |

B. GO TO CAN COMMUNICATION SYSTEM

A

## 6.CHECK FOR DTC*

a. Refer to DTC Check / Clear ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is output. | A |
| DTC is not output. | B |

**HINT:**

If more information is needed, perform a recheck using the "System Check Mode" screen after rechecking for DTCs using the intelligent tester (Click here).

B. Go to step 10

A

## 7.DTC CLEAR*

a. Refer to the DTC Check / Clear ( Click here).

**HINT:**

The current DTCs may not indicate actual malfunctions depending on the vehicle operating conditions.

NEXT

## 8.RECHECK FOR DTC*

**Result**

| Result | Proceed to |
|---|---|
| DTC is output. | A |
| DTC is not output. | B |

**HINT:**

- **Even if the malfunction symptom is not confirmed, check for DTCs. This is because the system stores history DTCs.**
- **If more information is needed, perform a recheck using the "System Check Mode" screen after rechecking for DTCs using the intelligent tester (Click here).**
- **Check the DTC and inspect the area code indicates.**

B. Go to step 10

A

## 9.DIAGNOSTIC TROUBLE CODE CHART

a. Find the output code in Diagnostic Trouble Code Chart ( Click here).

**NOTICE:**

- **The electro multi system outputs DTCs for the following system.**
- **When DTCs other than those in Diagnostic Trouble Code Chart for the electro multi vision system are output, refer to Diagnostic Trouble Code Chart for the system.**
- **Refer to Audio and Visual System (w/o Navigation System) ( Click here)**
- **Refer to Rear Seat Entertainment System (w/ Rear Seat Entertainment System) ( Click here)**

**Result**

| Result | Proceed to |
|---|---|
| Electro Multi Vision System are output. | A |
| Audio and Visual System (w/o Navigation System) are output. | B |
| Rear Seat Entertainment System are output. | C |

| | |
|---|---|
| **A.** | **Go to step 12** |
| **B.** | **GO TO AUDIO AND VISUAL SYSTEM** |
| **C.** | **GO TO REAR SEAT ENTERTAINMENT SYSTEM** |

## 10.PROBLEM SYMPTOMS TABLE

a. Refer to Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in Problem Symptoms Table. | A |
| Fault is listed in Problem Symptoms Table. | B |

**HINT:**

If the symptom does not recur and no DTC is output, perform the symptom reproduction method ( Click here).

| | |
|---|---|
| **B.** | **Go to step 12** |

**A**

## 11.CHECK ECU TERMINAL ARRANGEMENT BASED ON MALFUNCTION SYMPTOM

a. Refer to Terminals of ECU (Click here).

**NEXT**

## 12.CHECK CIRCUIT

a. Adjust, repair or replace as necessary.

**NEXT**

## 13.RECHECK FOR DIAGNOSTIC TROUBLE CODE

**HINT:**

After clearing the DTCs, recheck for DTCs.

**NEXT**

## 14.PERFORM CONFIRMATION TEST

**NEXT**

## END

**for Preparation** Click here

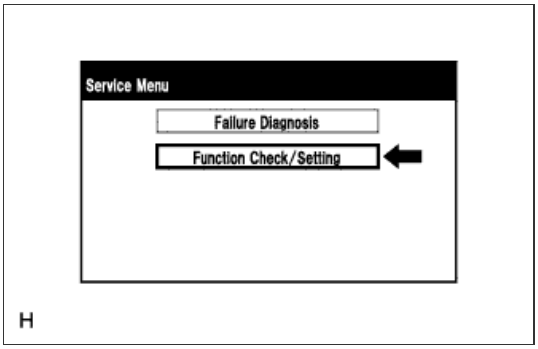
## CHECK PANEL & STEERING SWITCH

**HINT:**

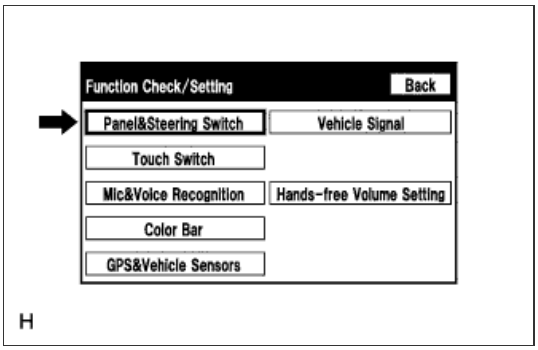
- **The display and navigation module display panel switches, radio receiver assembly panel switches and steering switches are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.

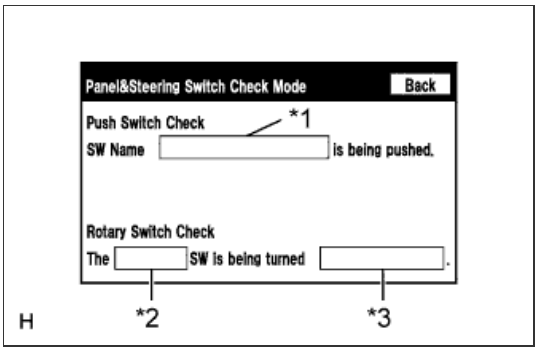



c. Select "Panel & Steering Switch" from the "Function Check/Setting" screen.




d. Panel & Steering Switch Check Mode

i. Operate each switch and check that the switch names and condition are correctly displayed.




**Screen Description**

| Display | Content |
|---|---|
| *1: Push switch name | • Name of the pressed switch is displayed.<br>• If more than one switch is pressed, "MULTIPLE" will be displayed. |
| *2: Rotary switch name | Name of the rotary switch is displayed. |

| | |
|---|---|
| *3: Rotary switch direction | Direction of the rotary switch is displayed. |

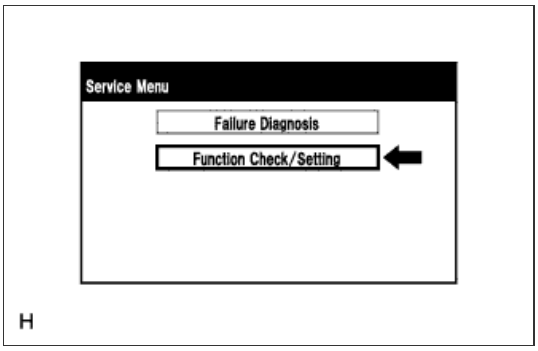
## CHECK TOUCH SWITCH

**HINT:**

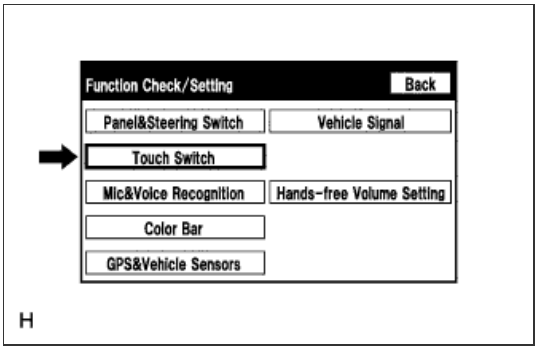
- **The touch switches on the screen are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "Touch Switch" from the "Function Check/Setting" screen.

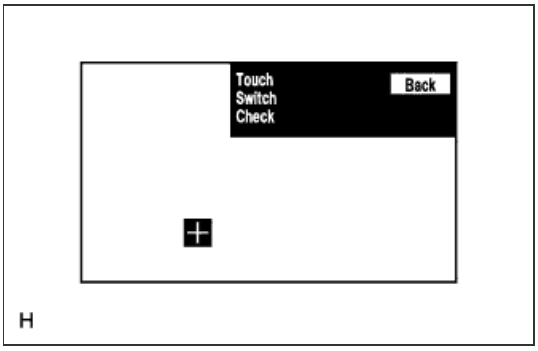



d. Touch Switch Check

i. Touch the display anywhere in the open area to perform the check when the "Touch Switch Check" screen is displayed.

**HINT:**

- **A "+" mark is displayed where the display is touched.**
- **The "+" mark remains on the display even after the finger is removed.**



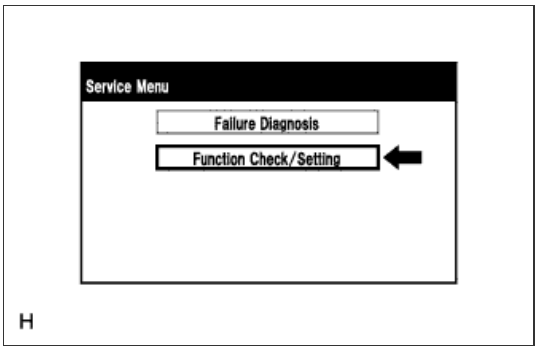

## CHECK MIC & VOICE RECOGNITION

**HINT:**

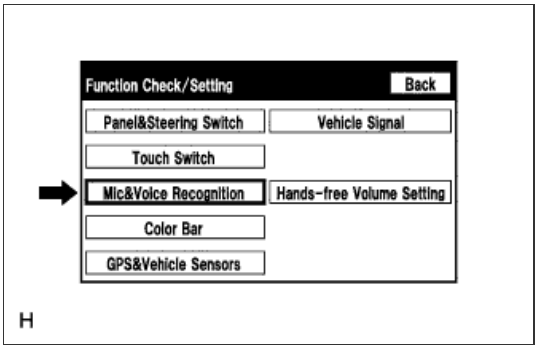
- **The microphone and microphone input level are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.



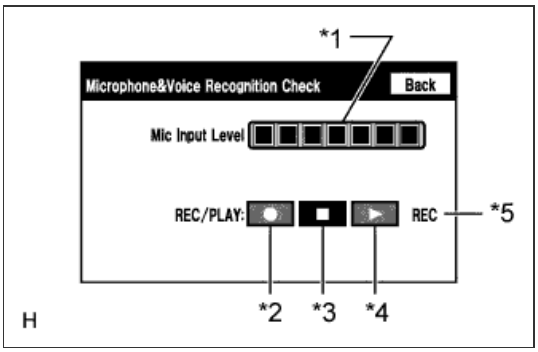

c. Select "Mic & Voice Recognition" from the "Function Check/Setting" screen.




d. Microphone & Voice Recognition Check

**Text in Illustration**

| | |
|---|---|
| *1 | Microphone Input Level Meter |
| *2 | Recording Switch |
| *3 | Stop Switch |
| *4 | Play Switch |
| *5 | Recording Indicator |




i. When speaking into the microphone, check that the microphone input level meter changes according to the input level.

ii. Push the recording switch and perform voice recording.

iii. Check that the recording indicator remains on while recording and that the recording can be played normally.

**HINT:**

- **For details of this function, refer to Diagnosis Display Detailed Description ( Click here).**
- **This function is controlled by the display and navigation module display.**

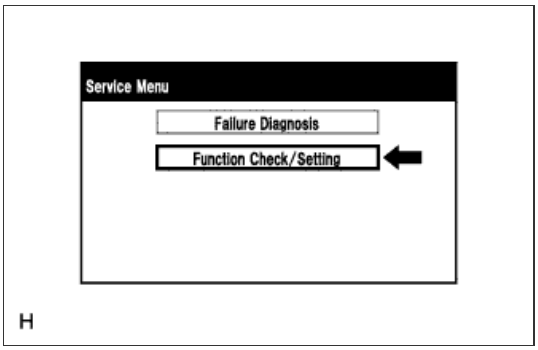
## CHECK COLOR BAR

**HINT:**

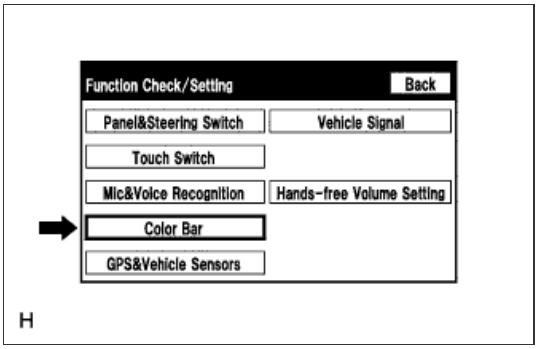
- **The display color on the screen is checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "Color Bar" from the "Function Check/Setting" screen.



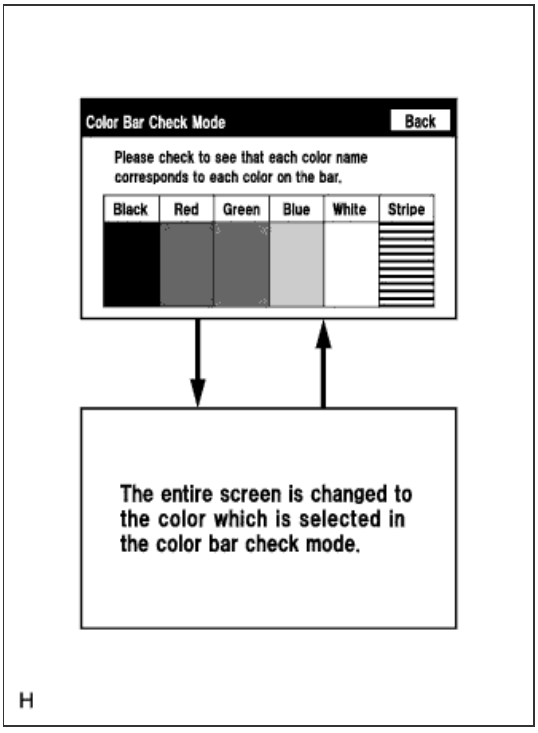

d. Color Bar Check Mode

i. Select a color bar from the "Color Bar Check Mode" screen.

ii. Check the display color.

**HINT:**

- **The entire screen turns to the color or stripe selected.**
- **Touching the display will return to the "Color Bar Check" screen.**



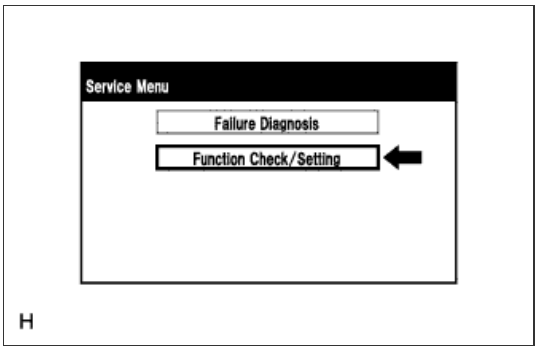

## CHECK VEHICLE SENSORS

**HINT:**

- **Vehicle signals and sensor signals are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

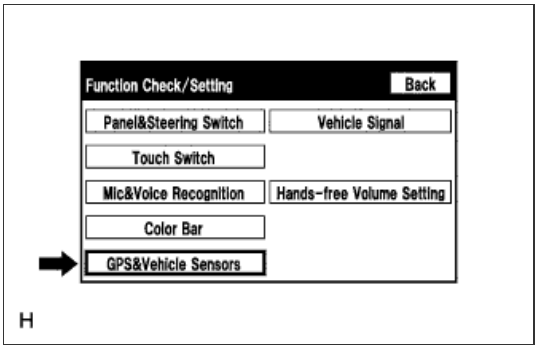
a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "GPS & Vehicle Sensors" from the "Function Check/Setting" screen.

d. Select "Sensors Check" from the "GPS Information" screen.

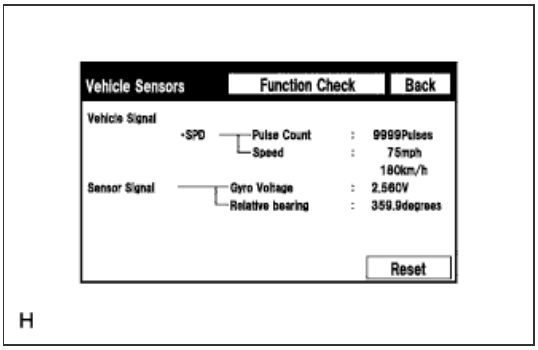



e. Vehicle Sensors

i. Check all the signals and sensors when vehicle signal information is displayed.

**HINT:**

- **This screen is updated once per second when input signals to the vehicle are changed.**
- **This screen displays vehicle signals input to the display and navigation module display.**
- **For details of this function, refer to Diagnosis Display Detailed Description in System Description (Click here).**



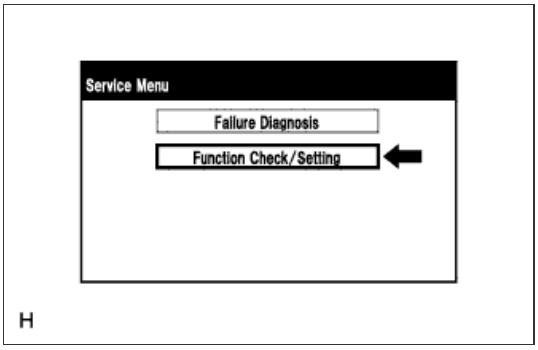

## CHECK VEHICLE SIGNAL

**HINT:**

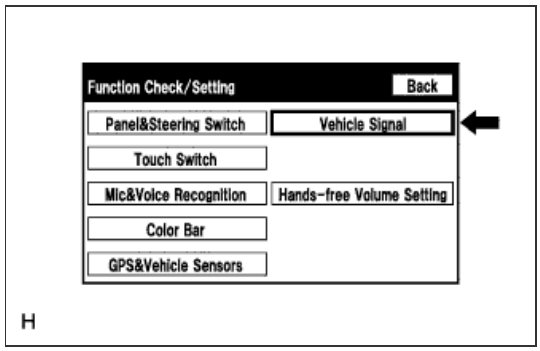
- **Vehicle signals received by the display and navigation module display are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.



c. Select "Vehicle Signal" from the "Function Check/Setting" screen.

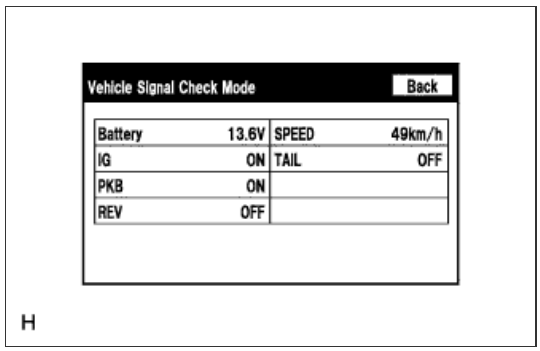



d. Vehicle Signal Check Mode

i. When the "Vehicle Signal Check Mode" screen is displayed, check all the vehicle signal conditions.

**HINT:**

- **Only conditions having inputs are displayed.**
- **This screen displays vehicle signals input to the display and navigation module display.**
- **For details of this function, refer to Diagnosis Display Detailed Description in System Description (Click here).**



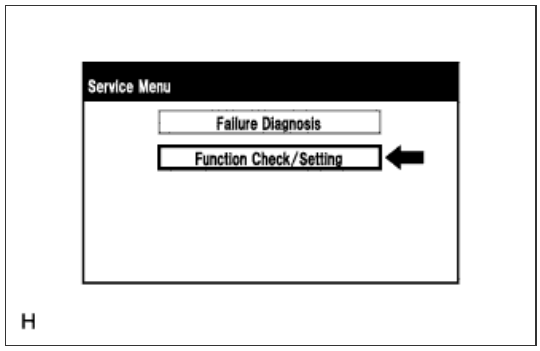

## CHECK HANDS-FREE VOLUME SETTING

**HINT:**

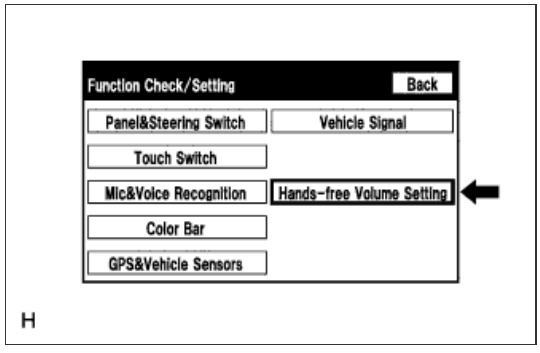
- **The hands-free volume of a "Bluetooth" compatible phone can be adjusted using the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.

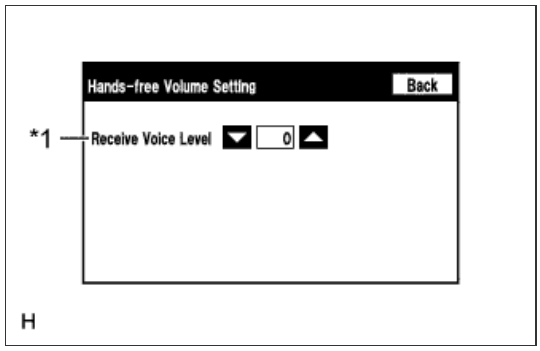



c. Select "Hands-free Volume Setting" from the "Function Check/Setting" screen.



d. Hands-free Volume Setting

i. Check the hands-free volume level.




**Screen Description**

| Display | Content |
|---|---|
| *1: Receive voice level adjustment | Setting possible for the voice level received from "Bluetooth" compatible phones. |

**NOTICE:**

Sound quality may deteriorate when the receive voice level is changed more than necessary. For this reason, check that the receive voice quality is still acceptable after changing this setting.

**for Preparation** Click here

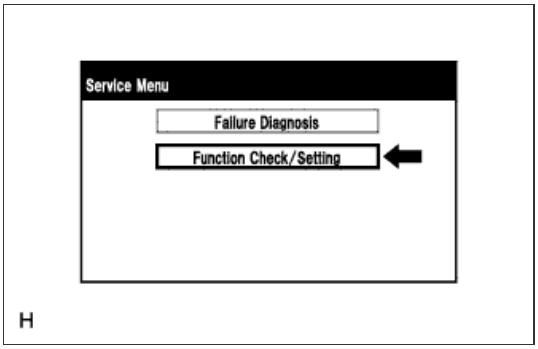
## CHECK PANEL & STEERING SWITCH

**HINT:**

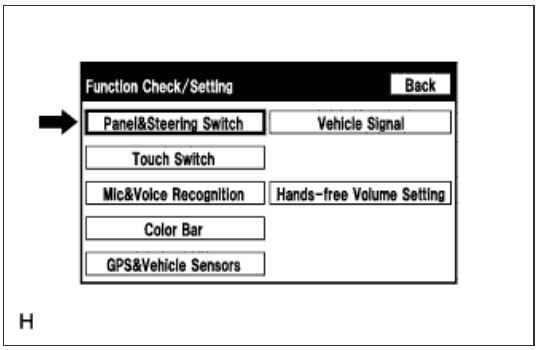
- **The display and navigation module display panel switches, radio receiver assembly panel switches and steering switches are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.

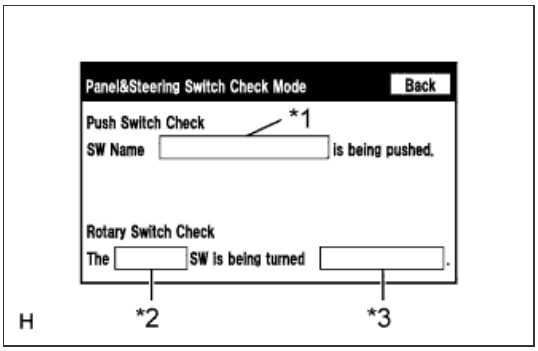



c. Select "Panel & Steering Switch" from the "Function Check/Setting" screen.




d. Panel & Steering Switch Check Mode

i. Operate each switch and check that the switch names and condition are correctly displayed.




**Screen Description**

| Display | Content |
|---|---|
| *1: Push switch name | • Name of the pressed switch is displayed.<br>• If more than one switch is pressed, "MULTIPLE" will be displayed. |
| *2: Rotary switch name | Name of the rotary switch is displayed. |

| | |
|---|---|
| *3: Rotary switch direction | Direction of the rotary switch is displayed. |

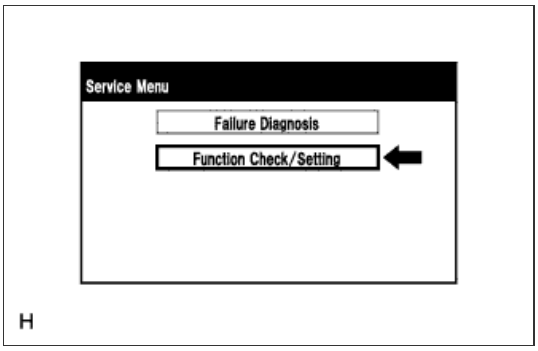
## CHECK TOUCH SWITCH

**HINT:**

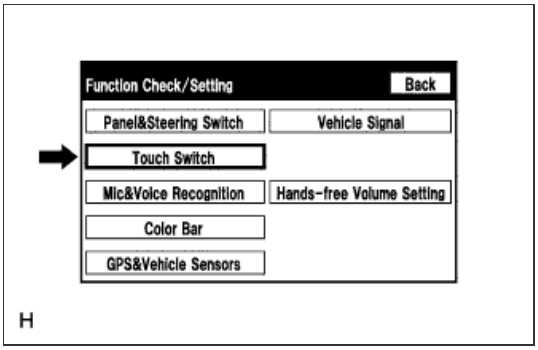
- **The touch switches on the screen are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "Touch Switch" from the "Function Check/Setting" screen.

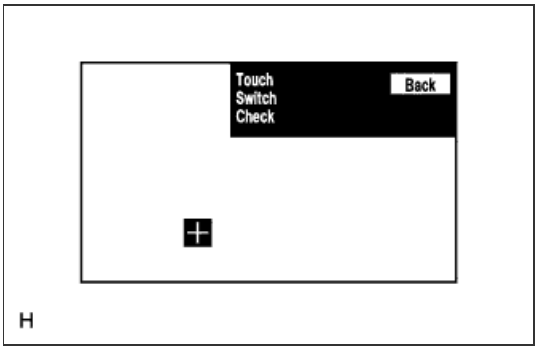



d. Touch Switch Check

i. Touch the display anywhere in the open area to perform the check when the "Touch Switch Check" screen is displayed.

**HINT:**

- **A "+" mark is displayed where the display is touched.**
- **The "+" mark remains on the display even after the finger is removed.**



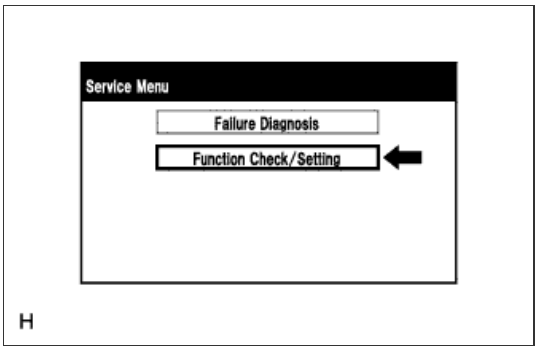

## CHECK MIC & VOICE RECOGNITION

**HINT:**

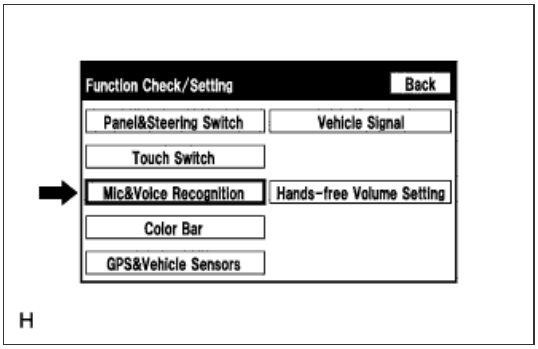
- **The microphone and microphone input level are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.



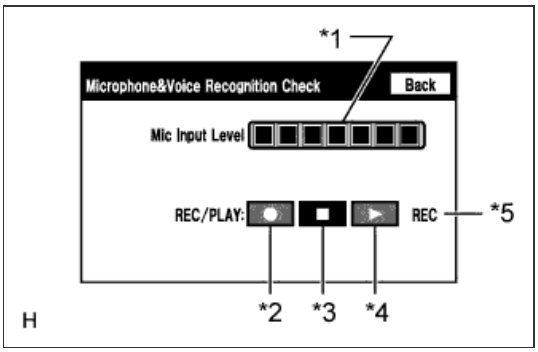

c. Select "Mic & Voice Recognition" from the "Function Check/Setting" screen.




d. Microphone & Voice Recognition Check

**Text in Illustration**

| | |
|---|---|
| *1 | Microphone Input Level Meter |
| *2 | Recording Switch |
| *3 | Stop Switch |
| *4 | Play Switch |
| *5 | Recording Indicator |




i. When speaking into the microphone, check that the microphone input level meter changes according to the input level.

ii. Push the recording switch and perform voice recording.

iii. Check that the recording indicator remains on while recording and that the recording can be played normally.

**HINT:**

- **For details of this function, refer to Diagnosis Display Detailed Description ( Click here).**
- **This function is controlled by the display and navigation module display.**

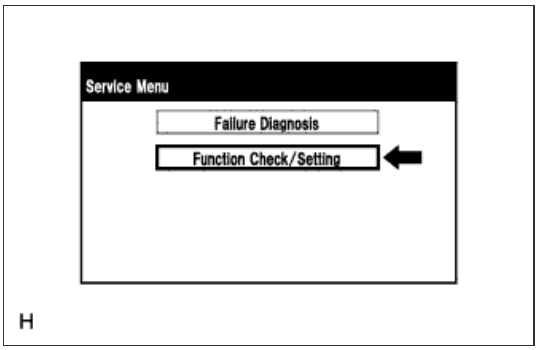
## CHECK COLOR BAR

**HINT:**

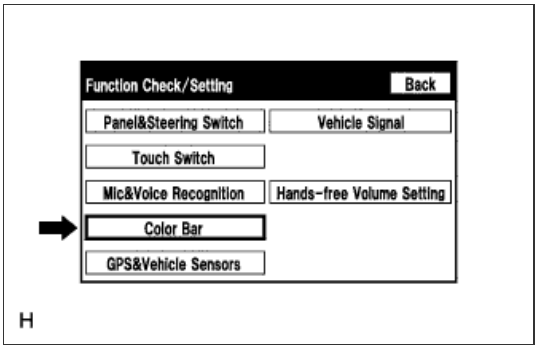
- **The display color on the screen is checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "Color Bar" from the "Function Check/Setting" screen.



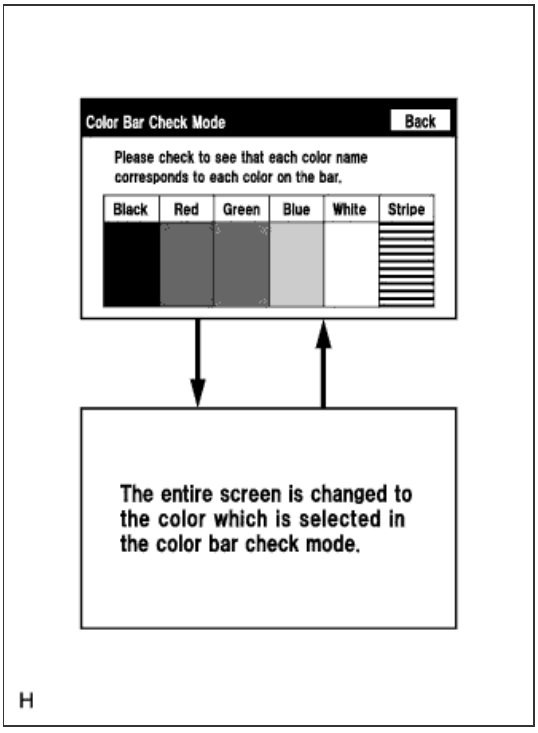

d. Color Bar Check Mode

i. Select a color bar from the "Color Bar Check Mode" screen.

ii. Check the display color.

**HINT:**

- **The entire screen turns to the color or stripe selected.**
- **Touching the display will return to the "Color Bar Check" screen.**



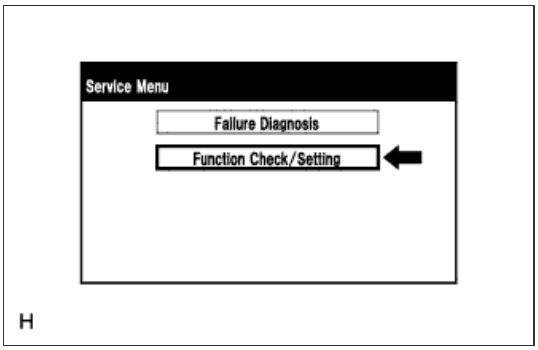

## CHECK VEHICLE SENSORS

**HINT:**

- **Vehicle signals and sensor signals are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

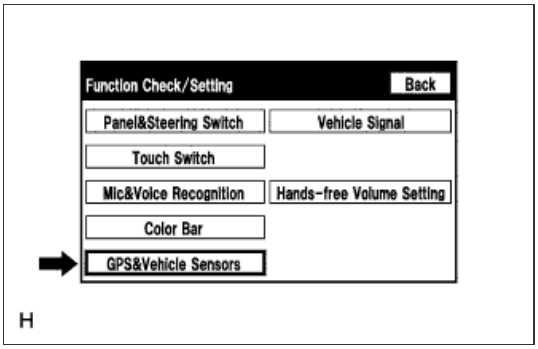
a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.




c. Select "GPS & Vehicle Sensors" from the "Function Check/Setting" screen.

d. Select "Sensors Check" from the "GPS Information" screen.

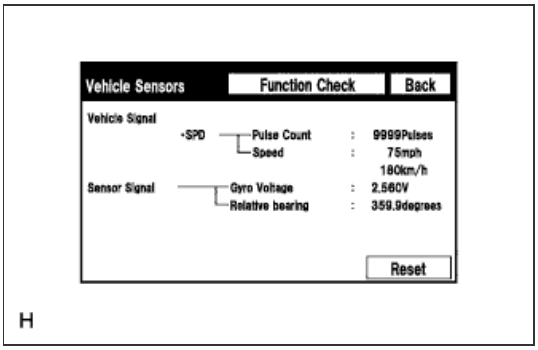



e. Vehicle Sensors

i. Check all the signals and sensors when vehicle signal information is displayed.

**HINT:**

- **This screen is updated once per second when input signals to the vehicle are changed.**
- **This screen displays vehicle signals input to the display and navigation module display.**
- **For details of this function, refer to Diagnosis Display Detailed Description in System Description (Click here).**



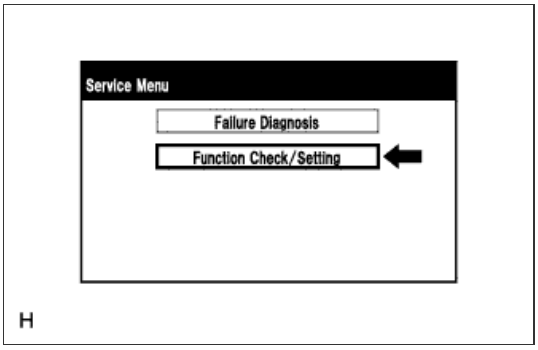

## CHECK VEHICLE SIGNAL

**HINT:**

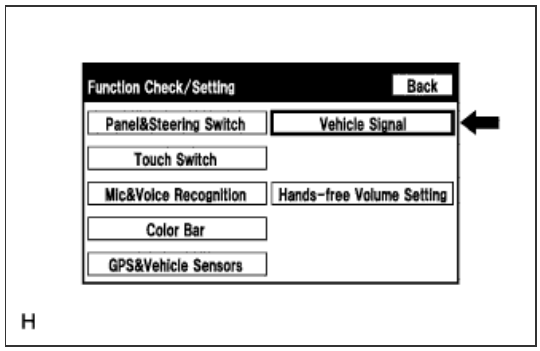
- **Vehicle signals received by the display and navigation module display are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.



c. Select "Vehicle Signal" from the "Function Check/Setting" screen.

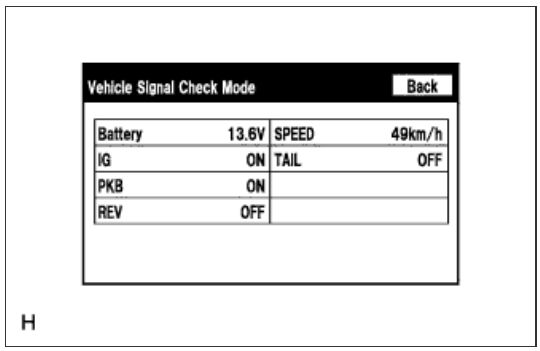



d. Vehicle Signal Check Mode

i. When the "Vehicle Signal Check Mode" screen is displayed, check all the vehicle signal conditions.

**HINT:**

- **Only conditions having inputs are displayed.**
- **This screen displays vehicle signals input to the display and navigation module display.**
- **For details of this function, refer to Diagnosis Display Detailed Description in System Description (Click here).**



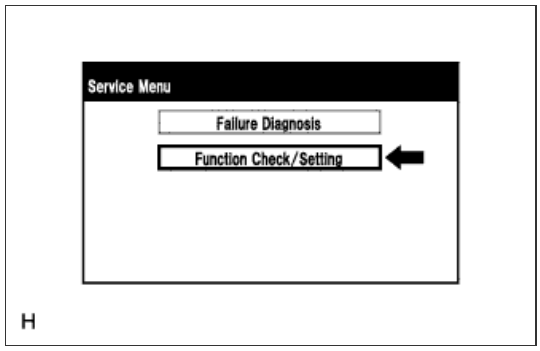

## CHECK HANDS-FREE VOLUME SETTING

**HINT:**

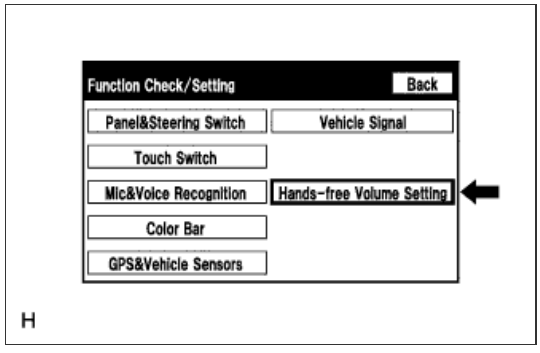
- **The hands-free volume of a "Bluetooth" compatible phone can be adjusted using the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

b. Select "Function Check/Setting" from the "Service Menu" screen.

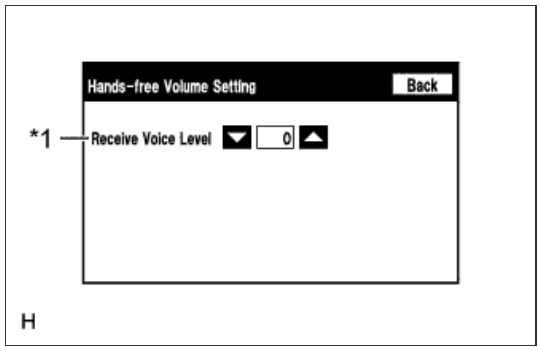



c. Select "Hands-free Volume Setting" from the "Function Check/Setting" screen.



d. Hands-free Volume Setting

i. Check the hands-free volume level.




**Screen Description**

| Display | Content |
|---|---|
| *1: Receive voice level adjustment | Setting possible for the voice level received from "Bluetooth" compatible phones. |

**NOTICE:**

Sound quality may deteriorate when the receive voice level is changed more than necessary. For this reason, check that the receive voice quality is still acceptable after changing this setting.

**for Preparation** Click here

**HINT:**

- **Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**
- **Inspect the fuses and relays related to this system before inspecting the suspected areas below.**

### Display Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Black screen (No image appears on audio screen). | Proceed to "Black Screen" | Click here |
| | Display and navigation module display | Click here |
| Illumination for panel switch does not come on with tail switch on. | Proceed to "Illumination for Panel Switch does not Come on with Tail Switch ON" | Click here |
| | Proceed to "Illumination Circuit" | Click here |
| | Display and navigation module display | Click here |
| Display does not dim with tail switch on. | Proceed to "Display does not Dim when Light Control Switch is Turned ON" | Click here |
| | Display and navigation module display | Click here |
| Panel switches do not function. | Proceed to "Panel Switches do not Function" | Click here |
| | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Display and navigation module display | Click here |
| Touch panel switch does not function. | Proceed to "Panel Switch does not Function" | Click here |
| | Display and navigation module display | Click here |
| Screen is distorted. | Proceed to "Navigation ECU Power Source Circuit" | Click here |
| | Display and navigation module display | Click here |
| Screen flicker or color distortion. | Proceed to "Screen Flicker or Color Distortion" | Click here |
| | Display and navigation module display | Click here |
| DVD image cannot be displayed on front screen (Parking brake is on). | Proceed to "DVD Image Signal Circuit between Radio receiver and Navigation ECU" | Click here |
| | Proceed to "Parking Brake Switch Circuit" | Click here |
| | Radio receiver assembly | Click here |
| | Display and navigation module display | Click here |

### Electro Multi Vision Function

| Symptom | Suspected Area | See page |
|---|---|---|
| "MIC" is not displayed on system check mode screen. | Proceed to "Microphone Circuit between Microphone and Navigation ECU" | Click here |
| | Display and navigation module display | Click here |
| | Proceed to "Sound Signal Circuit between Radio Receiver Assembly and Stereo Jack Adapter" | Click here |

| | | |
|---|---|---|
| "AUX" is not displayed on system check mode screen. | Radio receiver assembly | Click here |
| | Display and navigation module display | Click here |

### Steering Pad Switch Function

| Symptom | Suspected Area | See page |
|---|---|---|
| System cannot be operated by steering pad switch. | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Display and navigation module display | Click here |
| Illumination for steering pad switch does not come on with tail switch on. | Proceed to "Illumination Circuit" | Click here |
| | Display and navigation module display | Click here |

### "Bluetooth" Hands-free Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Cellular phone registration failure, phone directory transfer failure. | Proceed to "Cellular Phone Registration Failure, Phone Directory Transfer Failure" | Click here |
| Cellular phone cannot send/receive. | Proceed to "Cellular Phone cannot Send / Receive" | Click here |
| | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Radio receiver assembly | Click here |
| Cellular phone cannot make calls in a certain place. | Proceed to "Cannot Call in a Certain Place" | Click here |
| Other caller's voice cannot be heard, is too quiet, or distorted. | Proceed to "The Other Caller's Voice cannot be Heard, is too Quiet, or Distorted" | Click here |
| | Radio receiver assembly | Click here |
| | Stereo component amplifier assembly | Click here |
| | Display and navigation module display | Click here |
| Other caller cannot hear your voice, or your voice is too quiet or distorted. | Proceed to "The Other Caller cannot Hear Your Voice, or Your Voice is too Quiet or Distorted" | Click here |
| | Proceed to "Microphone Circuit between Microphone and Navigation ECU" | Click here |
| | Radio receiver assembly | Click here |

**for Preparation** Click here

**HINT:**

- **Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**
- **Inspect the fuses and relays related to this system before inspecting the suspected areas below.**

### Display Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Black screen (No image appears on audio screen). | Proceed to "Black Screen" | Click here |
| | Display and navigation module display | Click here |
| Illumination for panel switch does not come on with tail switch on. | Proceed to "Illumination for Panel Switch does not Come on with Tail Switch ON" | Click here |
| | Proceed to "Illumination Circuit" | Click here |
| | Display and navigation module display | Click here |
| Display does not dim with tail switch on. | Proceed to "Display does not Dim when Light Control Switch is Turned ON" | Click here |
| | Display and navigation module display | Click here |
| Panel switches do not function. | Proceed to "Panel Switches do not Function" | Click here |
| | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Display and navigation module display | Click here |
| Touch panel switch does not function. | Proceed to "Panel Switch does not Function" | Click here |
| | Display and navigation module display | Click here |
| Screen is distorted. | Proceed to "Navigation ECU Power Source Circuit" | Click here |
| | Display and navigation module display | Click here |
| Screen flicker or color distortion. | Proceed to "Screen Flicker or Color Distortion" | Click here |
| | Display and navigation module display | Click here |
| DVD image cannot be displayed on front screen (Parking brake is on). | Proceed to "DVD Image Signal Circuit between Radio receiver and Navigation ECU" | Click here |
| | Proceed to "Parking Brake Switch Circuit" | Click here |
| | Radio receiver assembly | Click here |
| | Display and navigation module display | Click here |

### Electro Multi Vision Function

| Symptom | Suspected Area | See page |
|---|---|---|
| "MIC" is not displayed on system check mode screen. | Proceed to "Microphone Circuit between Microphone and Navigation ECU" | Click here |
| | Display and navigation module display | Click here |
| | Proceed to "Sound Signal Circuit between Radio Receiver Assembly and Stereo Jack Adapter" | Click here |

| | | |
|---|---|---|
| "AUX" is not displayed on system check mode screen. | Radio receiver assembly | Click here |
| | Display and navigation module display | Click here |

### Steering Pad Switch Function

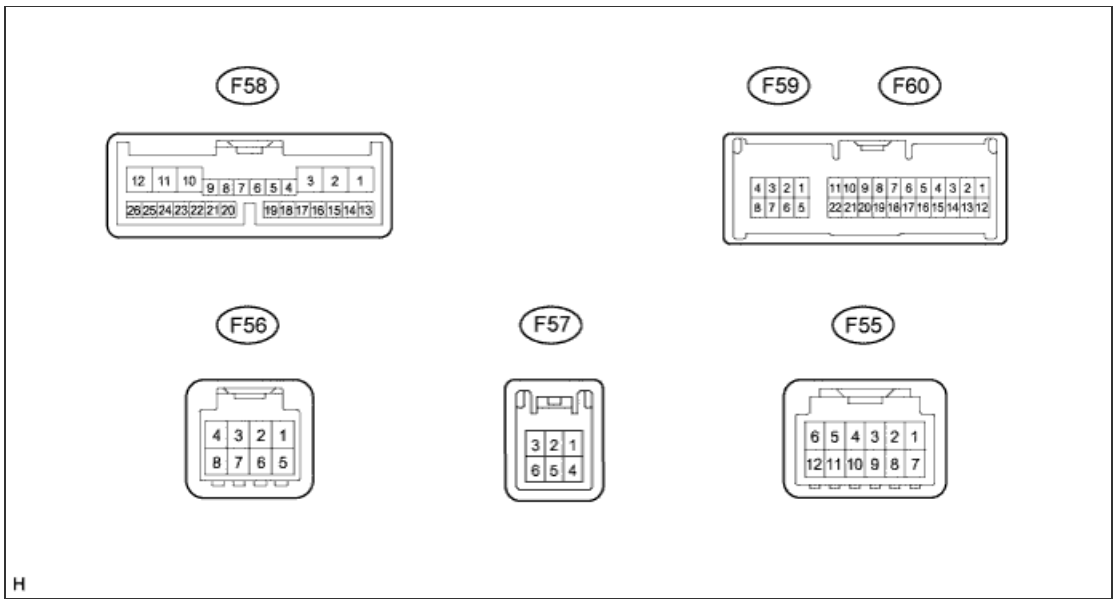
| Symptom | Suspected Area | See page |
|---|---|---|
| System cannot be operated by steering pad switch. | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Display and navigation module display | Click here |
| Illumination for steering pad switch does not come on with tail switch on. | Proceed to "Illumination Circuit" | Click here |
| | Display and navigation module display | Click here |

### "Bluetooth" Hands-free Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Cellular phone registration failure, phone directory transfer failure. | Proceed to "Cellular Phone Registration Failure, Phone Directory Transfer Failure" | Click here |
| Cellular phone cannot send/receive. | Proceed to "Cellular Phone cannot Send / Receive" | Click here |
| | Proceed to "Steering Pad Switch Circuit" | Click here |
| | Radio receiver assembly | Click here |
| Cellular phone cannot make calls in a certain place. | Proceed to "Cannot Call in a Certain Place" | Click here |
| Other caller's voice cannot be heard, is too quiet, or distorted. | Proceed to "The Other Caller's Voice cannot be Heard, is too Quiet, or Distorted" | Click here |
| | Radio receiver assembly | Click here |
| | Stereo component amplifier assembly | Click here |
| | Display and navigation module display | Click here |
| Other caller cannot hear your voice, or your voice is too quiet or distorted. | Proceed to "The Other Caller cannot Hear Your Voice, or Your Voice is too Quiet or Distorted" | Click here |
| | Proceed to "Microphone Circuit between Microphone and Navigation ECU" | Click here |
| | Radio receiver assembly | Click here |

**for Preparation** Click here

## DISPLAY AND NAVIGATION MODULE DISPLAY




| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F58-1 (+B1) - F58-10 (GND1) | R - W-B | Battery | Engine switch off | 11 to 14 V |
| F58-2 (ACC) - F58-10 (GND1) | GR - W-B | Accessory (ON) | Engine switch on (ACC) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F58-3 (IG) - F58-10 (GND1) | G - W-B | Power source (IG) | Engine switch on (IG) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F58-5 (MIN+) - F58-10 (GND1) | B - W-B | Microphone voice signal | See "Microphone & Voice Recognition Check" in Operation Check (Click here) | - |
| F58-6 (MIN-) - Body ground | R - Body ground | Microphone voice signal | See "Microphone & Voice Recognition Check" in Operation Check (Click here) | - |
| F58-7 (SGND) - F58-10 (GND1) | Shield - W-B | Shield ground | Always | Below 1 V |
| F58-9 (TC) - F58-10 (GND1) | V - W-B | Diagnosis ON signal | Engine switch on (IG) | 9 to 14 V |
| F58-10 (GND1) - Body ground | W-B - Body ground | Ground | Always | Below 1 V |
| F58-12 (ILL+) - F58-10 (GND1) | G - W-B | Illumination signal | Engine switch on (IG) Light control switch off → tail or on | Below 1 V → 11 to 14 V |
| F58-16 (REV) - F58-10 (GND1) | L - W-B | Reverse signal | See "Vehicle Signal Check Mode" in Operation Check (Click here) | - |
| F58-17 (PKB) - F58-10 (GND1) | Y - W-B | Parking brake signal | See "Vehicle Signal Check Mode" in Operation Check (Click here) | - |
| F58-18 (SPD) - F58-10 (GND1) | V - W-B | Speed signal from combination meter assembly | See "Vehicle Signal Check Mode" in Operation Check (Click here) | - |
| F58-20 (SNS2) - F58-10 (GND1) | GR - W-B | Microphone connection detection signal | Always | Below 0.1 V |
| F58-21 (CANH) | P | CAN communication signal | - | - |
| F58-22 (CANL) | B | CAN communication signal | - | - |
| F58-23 (SWG) - Body ground | W - Body ground | Steering pad switch signal | Always | Below 1 V |
| | | | No switch pushed → MODE switch pushed → ON HOOK | 4.44 to 5.43 V → 0.45 to |

| | | | | |
|---|---|---|---|---|
| F58-24 (SW2) - F58-23 (SWG) | P - W | Steering pad switch signal | switch pushed → OFF<br>HOOK switch pushed → VOICE switch pushed | 0.65 V → 1.19 to 1.49 V → 2.09 to 2.54 V → 3.2 to 3.88 V |
| F58-25 (SW1) - F58-23 (SWG) | L - W | Steering pad switch signal | No switch is pushed → SEEK+ switch pushed → SEEK- switch pushed → VOL+ switch pushed → VOL- switch pushed | 4.44 to 5.43 V → 0.45 to 0.65 V → 1.19 to 1.49 V → 2.09 to 2.54 V → 3.2 to 3.88 V |
| F60-5 (V+) - F58-10 (GND1) | R - W-B | Television camera image signal | Engine switch on (IG)<br>Shift lever in R<br>Under normal conditions | Pulse generation (Refer to waveform 1) |
| | | | Engine switch on (IG)<br>Shift lever in R<br>Camera lens covered, blacking out screen | Pulse generation (Refer to waveform 2) |
| F60-6 (CA+) - F58-10 (GND1) | B - W-B | Television camera power supply | Engine switch on (IG)<br>Shift lever in R | 5.5 to 7 V |
| F60-9 (VV+) - F58-10 (GND1) | W - W-B | Display signal | DVD played on the multi-display assembly | A waveform synchronized with display signals is output. (Refer to waveform 3) |
| F60-16 (V-) - F58-10 (GND1) | W - W-B | Ground | Always | Below 1 V |
| F60-17 (CGND) - Body ground | Shield - Body ground | Shield ground | Always | Below 1 V |
| F60-20 (VV-) - Body ground | B - Body ground | Ground | Always | Below 1 V |
| F59-1 (MI+) | W | MOST communication signal | - | - |
| F59-2 (SLDI) - F58-10 (GND1) | BR - W-B | MOST communication signal | Always | Below 1 V |
| F59-3 (MO+) | B | MOST communication signal | - | - |
| F59-5 (MI-) | B | MOST communication signal | - | - |
| F59-6 (SLDO) - F58-10 (GND1) | BR - W-B | MOST communication signal | Always | Below 1 V |
| F59-7 (MO-) | W | MOST communication signal | - | - |
| F59-8 (WUO) - F58-10 (GND1) | R - W-B | MOST communication signal | Engine switch on (ACC) | 4.5 V or higher |
| | | | Engine switch off | Below 1 V |
| F56-1 (AGND) - Body ground | Shield - Body ground | Shield ground | Always | Below 1 V |
| F56-3 (VAR+) - F56-7 (VA-) | W - R | Sound signal (Right) | USB audio device playing (When stereo jack adapter used) | A waveform synchronized with sounds is output. |
| F56-4 (VAL+) - F56-7 (VA-) | B - R | Sound signal (Left) | USB audio device playing (When stereo jack adapter used) | A waveform synchronized with sounds is output. |
| F56-7 (VA-) - F58-10 (GND1) | R - W-B | Sound signal ground | Always | Below 1 V |
| F55-7 (GND) - F58-10 (GND1) | B - W-B | Ground | Always | Below 1 V |
| F55-9 (TX2+) | W | AVC-LAN communication signal | - | - |
| F55-10 (TX2-) | L | AVC-LAN communication signal | - | - |
| F55-11 (ACC) - F58-10 (GND1) | GR - W-B | Accessory (ON) | Engine switch on (ACC) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F55-12 (+B) - F58-10 (GND1) | R - W-B | Battery | Engine switch off | 11 to 14 V |

a. Reference (Oscilloscope waveform):

i. Waveform 1 (under normal conditions)

| Item | Content |
|---|---|
| Measurement terminal | F60-5 (V+) - F58-10 (GND1) |
| Measurement | 200 mV/DIV., 50 µsec./DIV. |

| | |
|---|---|
| setting | |
| Condition | Engine switch on (IG), shift lever in R |

**HINT:**

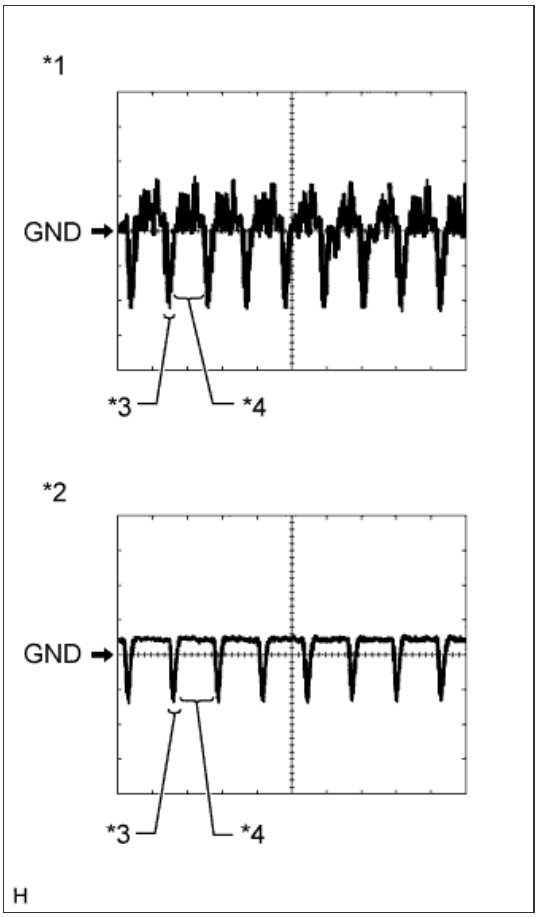
The video waveform changes according to the image from the television camera assembly.

ii. Waveform 2 (camera lens is covered, blacking out the screen)

| Item | Content |
|---|---|
| Measurement terminal | F60-5 (V+) - F58-10 (GND1) |
| Measurement setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), shift lever in R |

**HINT:**

The video waveform changes according to the image that the television camera assembly projects.



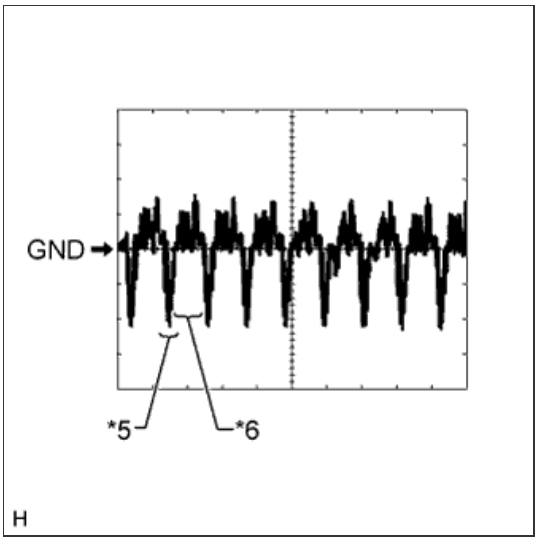

b. Reference (Oscilloscope waveform):

i. Waveform 3

| Item | Content |
|---|---|
| Measurement terminal | F60-9 (VV+) - F58-10 (GND1) |
| Measurement setting | 200 mV/DIV., 10 µs/DIV. |
| Condition | DVD is played on the display and navigation module display |

**HINT:**

The video waveform changes according to the image input from the radio receiver assembly to the display and navigation module display, but the synchronization signal does not change.




**Text in Illustration**

| | |
|---|---|
| *1 | Waveform 1 (under normal conditions) |
| *2 | Waveform 2 (camera lens is covered, blacking out the screen) |
| *3 | Synchronization Signal |
| *4 | Video Waveform |
| *5 | Synchronization Signal |
| *6 | Video Waveform |


RADIO RECEIVER ASSEMBLY (Click here)

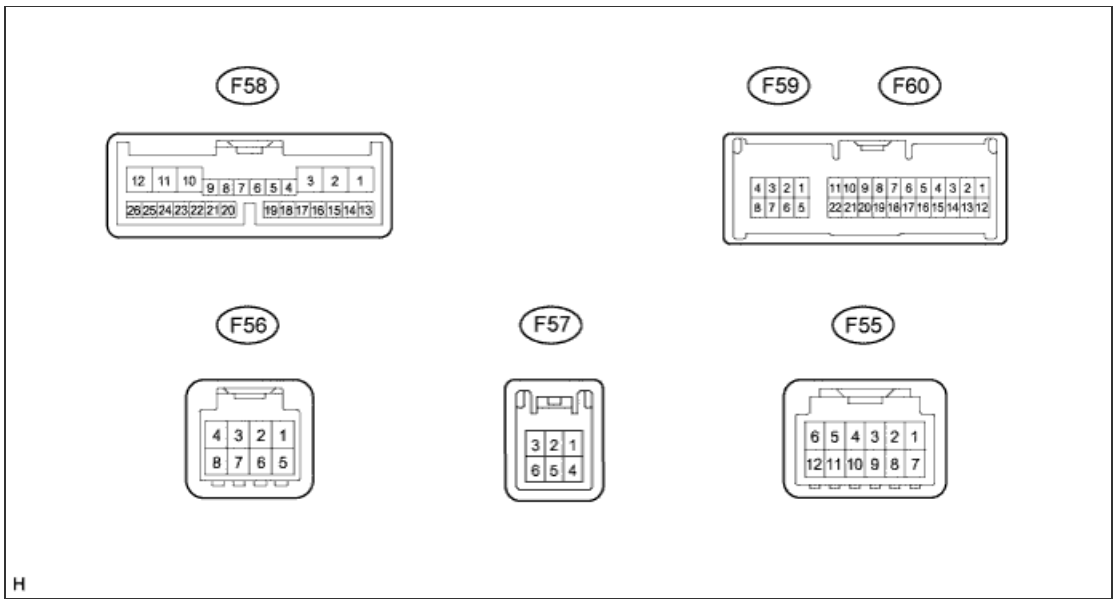
STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

MULTI-MEDIA INTERFACE ECU (Click here)

TELEVISION DISPLAY ASSEMBLY (w/ Rear Seat Entertainment System) (Click here)

**for Preparation** Click here

## DISPLAY AND NAVIGATION MODULE DISPLAY




| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F58-1 (+B1) - F58-10 (GND1) | R - W-B | Battery | Engine switch off | 11 to 14 V |
| F58-2 (ACC) - F58-10 (GND1) | GR - W-B | Accessory (ON) | Engine switch on (ACC) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F58-3 (IG) - F58-10 (GND1) | G - W-B | Power source (IG) | Engine switch on (IG) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F58-5 (MIN+) - F58-10 (GND1) | B - W-B | Microphone voice signal | See "Microphone & Voice Recognition Check" in Operation Check (Click here) | - |
| F58-6 (MIN-) - Body ground | R - Body ground | Microphone voice signal | See "Microphone & Voice Recognition Check" in Operation Check (Click here) | - |
| F58-7 (SGND) - F58-10 (GND1) | Shield - W-B | Shield ground | Always | Below 1 V |
| F58-9 (TC) - F58-10 (GND1) | V - W-B | Diagnosis ON signal | Engine switch on (IG) | 9 to 14 V |
| F58-10 (GND1) - Body ground | W-B - Body ground | Ground | Always | Below 1 V |
| F58-12 (ILL+) - F58-10 (GND1) | G - W-B | Illumination signal | Engine switch on (IG) Light control switch off → tail or on | Below 1 V → 11 to 14 V |
| F58-16 (REV) - F58-10 (GND1) | L - W-B | Reverse signal | See "Vehicle Signal Check Mode" in Operation Check (Click here) | - |
| F58-17 (PKB) - F58-10 (GND1) | Y - W-B | Parking brake signal | See "Vehicle Signal Check Mode" in Operation Check (Click here) | - |
| F58-18 (SPD) - F58-10 (GND1) | V - W-B | Speed signal from combination meter assembly | See "Vehicle Signal Check Mode" in Operation Check (Click here) | - |
| F58-20 (SNS2) - F58-10 (GND1) | GR - W-B | Microphone connection detection signal | Always | Below 0.1 V |
| F58-21 (CANH) | P | CAN communication signal | - | - |
| F58-22 (CANL) | B | CAN communication signal | - | - |
| F58-23 (SWG) - Body ground | W - Body ground | Steering pad switch signal | Always | Below 1 V |
| | | | No switch pushed → MODE switch pushed → ON HOOK | 4.44 to 5.43 V → 0.45 to |

| | | | | |
|---|---|---|---|---|
| F58-24 (SW2) - F58-23 (SWG) | P - W | Steering pad switch signal | switch pushed → OFF<br>HOOK switch pushed → VOICE switch pushed | 0.65 V → 1.19 to 1.49 V → 2.09 to 2.54 V → 3.2 to 3.88 V |
| F58-25 (SW1) - F58-23 (SWG) | L - W | Steering pad switch signal | No switch is pushed → SEEK+ switch pushed → SEEK- switch pushed → VOL+ switch pushed → VOL- switch pushed | 4.44 to 5.43 V → 0.45 to 0.65 V → 1.19 to 1.49 V → 2.09 to 2.54 V → 3.2 to 3.88 V |
| F60-5 (V+) - F58-10 (GND1) | R - W-B | Television camera image signal | Engine switch on (IG)<br>Shift lever in R<br>Under normal conditions | Pulse generation (Refer to waveform 1) |
| | | | Engine switch on (IG)<br>Shift lever in R<br>Camera lens covered, blacking out screen | Pulse generation (Refer to waveform 2) |
| F60-6 (CA+) - F58-10 (GND1) | B - W-B | Television camera power supply | Engine switch on (IG)<br>Shift lever in R | 5.5 to 7 V |
| F60-9 (VV+) - F58-10 (GND1) | W - W-B | Display signal | DVD played on the multi-display assembly | A waveform synchronized with display signals is output. (Refer to waveform 3) |
| F60-16 (V-) - F58-10 (GND1) | W - W-B | Ground | Always | Below 1 V |
| F60-17 (CGND) - Body ground | Shield - Body ground | Shield ground | Always | Below 1 V |
| F60-20 (VV-) - Body ground | B - Body ground | Ground | Always | Below 1 V |
| F59-1 (MI+) | W | MOST communication signal | - | - |
| F59-2 (SLDI) - F58-10 (GND1) | BR - W-B | MOST communication signal | Always | Below 1 V |
| F59-3 (MO+) | B | MOST communication signal | - | - |
| F59-5 (MI-) | B | MOST communication signal | - | - |
| F59-6 (SLDO) - F58-10 (GND1) | BR - W-B | MOST communication signal | Always | Below 1 V |
| F59-7 (MO-) | W | MOST communication signal | - | - |
| F59-8 (WUO) - F58-10 (GND1) | R - W-B | MOST communication signal | Engine switch on (ACC) | 4.5 V or higher |
| | | | Engine switch off | Below 1 V |
| F56-1 (AGND) - Body ground | Shield - Body ground | Shield ground | Always | Below 1 V |
| F56-3 (VAR+) - F56-7 (VA-) | W - R | Sound signal (Right) | USB audio device playing (When stereo jack adapter used) | A waveform synchronized with sounds is output. |
| F56-4 (VAL+) - F56-7 (VA-) | B - R | Sound signal (Left) | USB audio device playing (When stereo jack adapter used) | A waveform synchronized with sounds is output. |
| F56-7 (VA-) - F58-10 (GND1) | R - W-B | Sound signal ground | Always | Below 1 V |
| F55-7 (GND) - F58-10 (GND1) | B - W-B | Ground | Always | Below 1 V |
| F55-9 (TX2+) | W | AVC-LAN communication signal | - | - |
| F55-10 (TX2-) | L | AVC-LAN communication signal | - | - |
| F55-11 (ACC) - F58-10 (GND1) | GR - W-B | Accessory (ON) | Engine switch on (ACC) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F55-12 (+B) - F58-10 (GND1) | R - W-B | Battery | Engine switch off | 11 to 14 V |

a. Reference (Oscilloscope waveform):

i. Waveform 1 (under normal conditions)

| Item | Content |
|---|---|
| Measurement terminal | F60-5 (V+) - F58-10 (GND1) |
| Measurement | 200 mV/DIV., 50 µsec./DIV. |

| | |
|---|---|
| setting | |
| Condition | Engine switch on (IG), shift lever in R |

**HINT:**

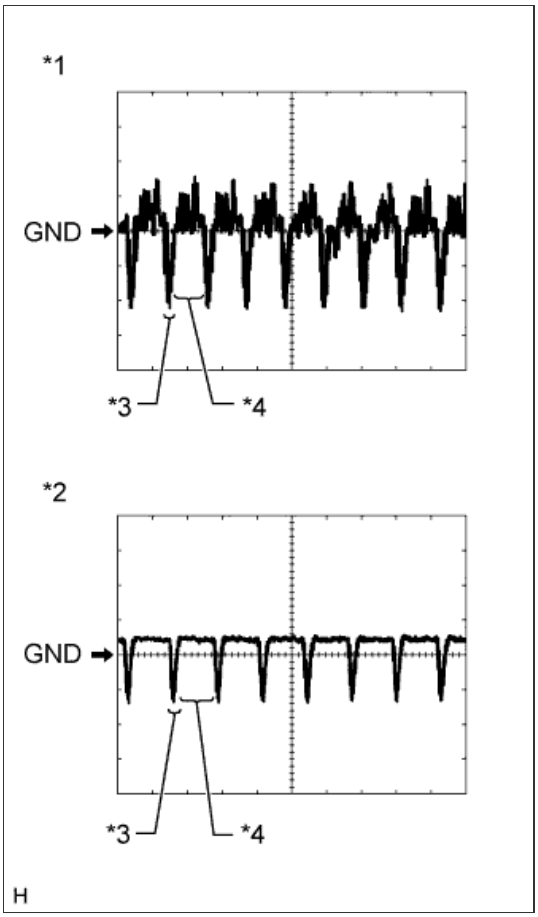
The video waveform changes according to the image from the television camera assembly.

ii. Waveform 2 (camera lens is covered, blacking out the screen)

| Item | Content |
|---|---|
| Measurement terminal | F60-5 (V+) - F58-10 (GND1) |
| Measurement setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), shift lever in R |

**HINT:**

The video waveform changes according to the image that the television camera assembly projects.



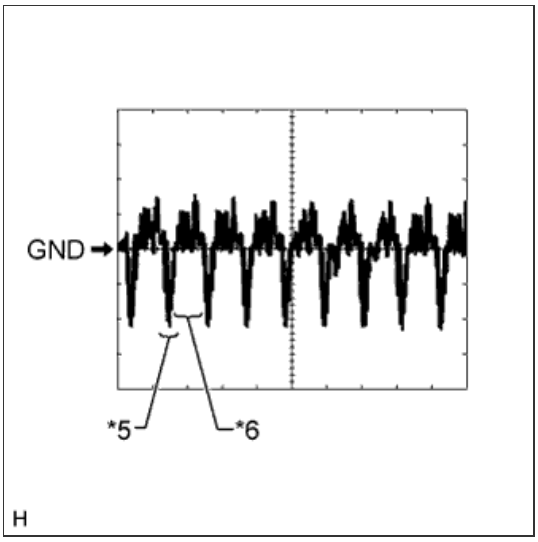

b. Reference (Oscilloscope waveform):

i. Waveform 3

| Item | Content |
|---|---|
| Measurement terminal | F60-9 (VV+) - F58-10 (GND1) |
| Measurement setting | 200 mV/DIV., 10 µs/DIV. |
| Condition | DVD is played on the display and navigation module display |

**HINT:**

The video waveform changes according to the image input from the radio receiver assembly to the display and navigation module display, but the synchronization signal does not change.




**Text in Illustration**

| | |
|---|---|
| *1 | Waveform 1 (under normal conditions) |
| *2 | Waveform 2 (camera lens is covered, blacking out the screen) |
| *3 | Synchronization Signal |
| *4 | Video Waveform |
| *5 | Synchronization Signal |
| *6 | Video Waveform |


RADIO RECEIVER ASSEMBLY (Click here)

STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

MULTI-MEDIA INTERFACE ECU (Click here)

TELEVISION DISPLAY ASSEMBLY (w/ Rear Seat Entertainment System) (Click here)

**for Preparation** Click here

## CHECK DTC (CHECK USING INTELLIGENT TESTER)

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Body / Navigation System / DTC.

e. Check the DTC(s) and freeze frame data, and then write them down.

f. Check the details of the DTC(s) ( Click here).

**NOTICE:**

The electro multi vision system outputs DTCs for the following system. When DTCs other than those in Diagnostic Trouble Code Chart for the electro multi vision system are output, refer to Diagnostic Trouble Code Chart for the system.

| System | Proceed to |
|---|---|
| Audio and visual system (w/o Navigation system) | Click here |
| Rear seat entertainment system (w/ Rear seat entertainment system) | Click here |

## CLEAR DTC (CLEAR USING INTELLIGENT TESTER)

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Body / Navigation System / DTC.

e. Clear DTCs.

## START DIAGNOSTIC MODE

**HINT:**

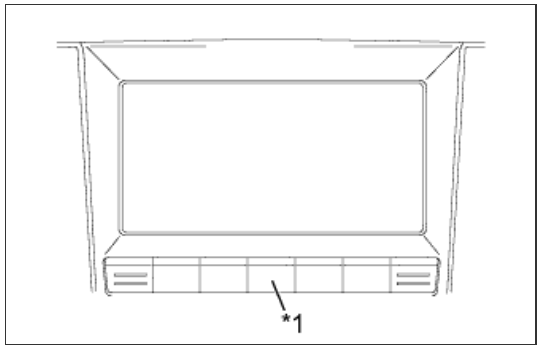
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**
- **To help find the malfunction when the system cannot change to diagnostic mode, check for DTCs using the intelligent tester.**
- **After the engine switch is turned on (IG), check that the map is displayed before starting diagnostic mode. Otherwise, some items cannot be checked.**

a. There are 2 methods to start diagnostic mode. Start the mode by using one of them.

b. Method 1

**Text in Illustration**

| | |
|---|---|
| *1 | "INFO TEL" switch |




i. Start the engine.

ii. While pressing and holding the "INFO TEL" switch, operate the light control switch: off → Turn on → Turn off → Turn on → Turn off → Turn on → Turn off.

iii. The diagnostic mode starts and the "System Check Mode" screen will be displayed.

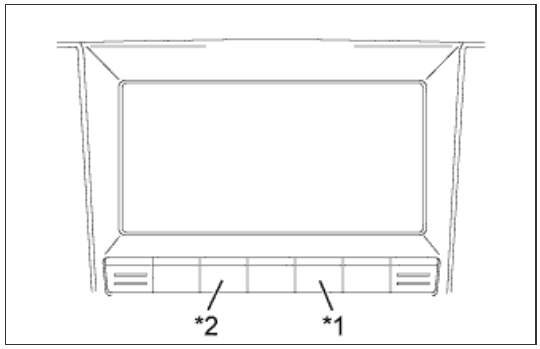
c. Method 2

i. Start the engine.

ii. Press the "DISP" switch.

**Text in Illustration**

| | |
|---|---|
| *1 | "DISP" switch (for LHD) |
| *2 | "DISP" switch (for RHD) |

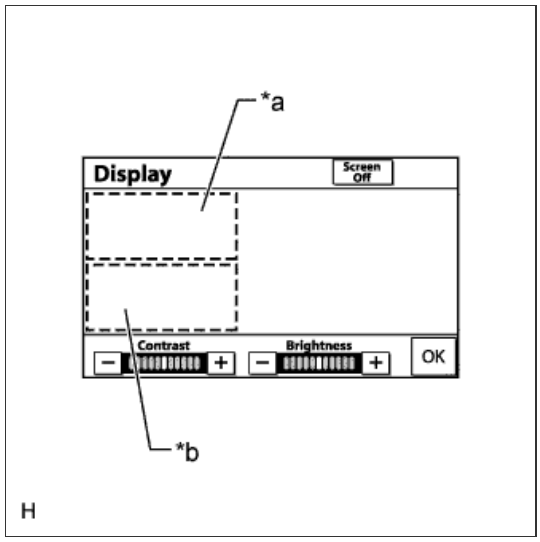



iii. From the display quality adjustment screen, touch the upper and lower left corners of the screen in the following: Upper left → Lower left → Upper left → Lower left → Upper left → Lower left.

**Text in Illustration**

| | |
|---|---|
| *a | Upper left |
| *b | Lower left |

iv. Diagnostic mode starts and the "System Check Mode" screen will be displayed. Service inspection starts automatically and the result will be displayed.

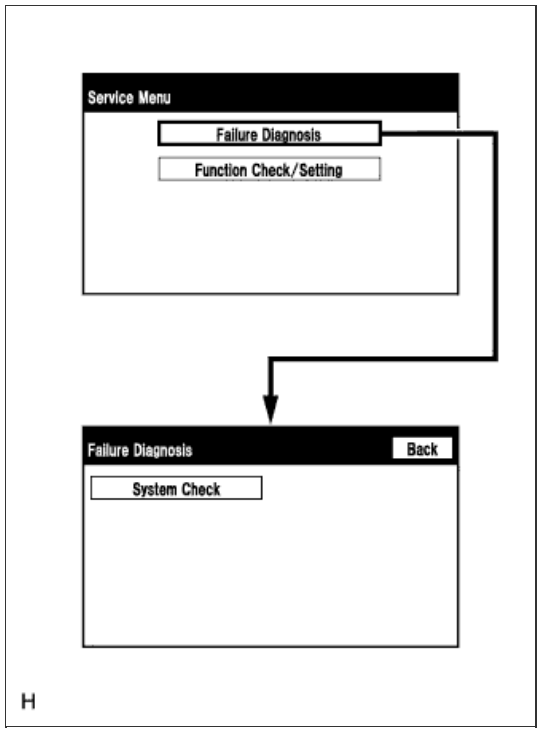



## FINISH DIAGNOSTIC MODE

a. Turn the engine switch off.

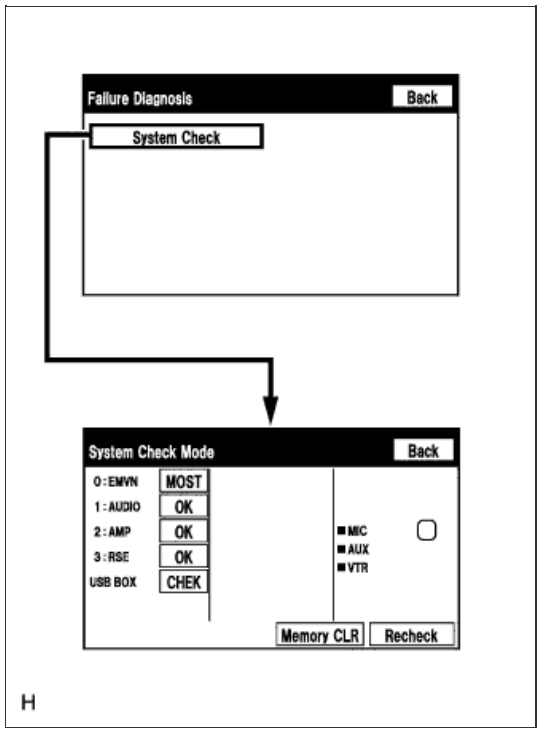
## FAILURE DIAGNOSIS

a. The "Failure Diagnosis" screen is displayed when the "Failure Diagnosis" switch on the "Service Menu" screen is selected.




## SYSTEM CHECK

a. The "System Check Mode" screen is displayed when the "System Check" switch on the "Failure Diagnosis" screen is selected.




## CHECK DTC (CHECK USING SYSTEM CHECK MODE SCREEN)

**HINT:**

Refer to Diagnosis Display Detailed Description for further details on the "System Check Mode" screen ( Click here).

a. Read the system check result.

**Text in Illustration**

| | |
|---|---|
| *a | Diagnostic Code |

i. When the result is "EXCH" or "CHEK", select the icon which displays the result, and check and record each DTC displayed on the "Unit

Check Mode" screen.

**NOTICE:**

A maximum of 6 DTCs can be displayed by the display and navigation module display. When more than 6 DTCs are expected, check DTCs using the intelligent tester.

**HINT:**

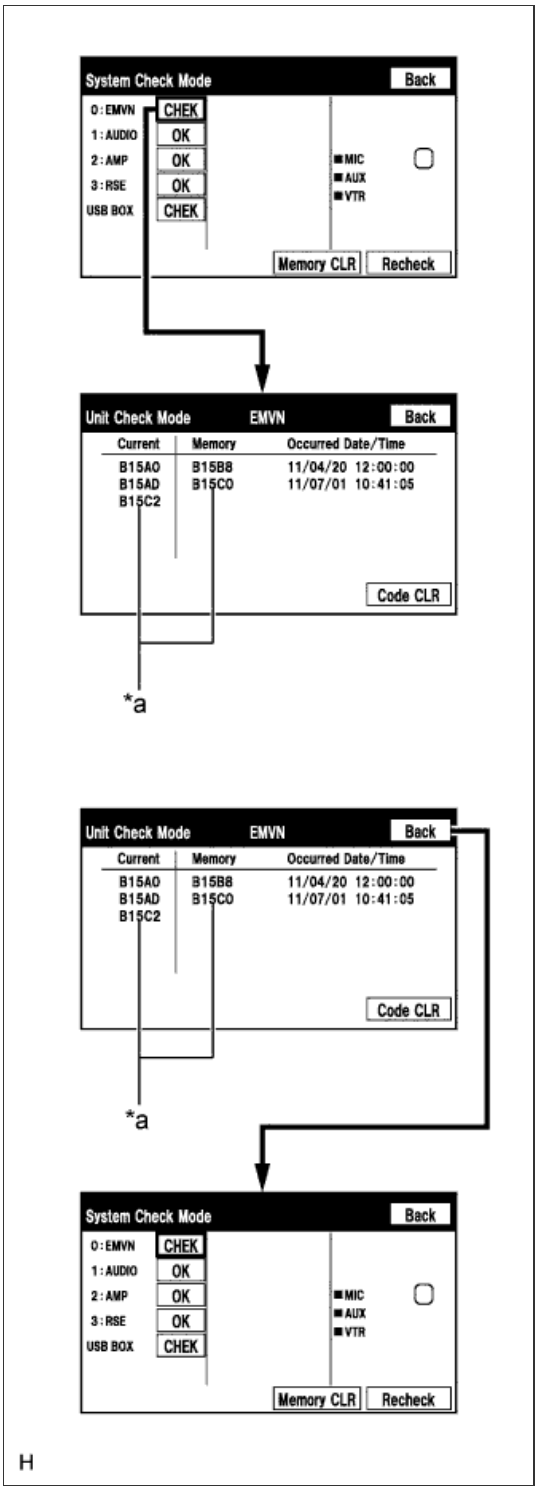
- **Refer to Diagnosis Display Detailed Description for further details on the "System Check Mode" screen (Click here).**
- **When all results are "OK", this means that no DTCs are present.**
- **When "MOST" is displayed for the result, selecting "MOST" displays the "MOST Line Check" screen and performs the MOST line check.**
- **Changing to the "MOST Line Check" screen is possible only when the MOST network is malfunctioning and "MOST" is displayed for the result.**
- **If the MOST network had a malfunction in the past, the DTCs will be displayed in the Memory column.**
- **Refer to Diagnosis Display Detailed Description for further details on the "MOST Line Check" screen (Click here).**
- **When "NCON" is displayed for all devices connected using the AVC-LAN, or when all device names are not displayed, check if there is a short circuit in the AVC-LAN or devices connected to the AVC-LAN. Repair or replace parts as necessary (Click here).**
- **When proceeding to view the results of another device, press the "Back" switch to return to the "System Check Mode" screen. Repeat the step above to view the results of other devices.**

ii. Check the details of the DTC(s) ( Click here).

**NOTICE:**

The electro multi vision system outputs DTCs for the following system. When DTCs other than the codes in Diagnostic Trouble Code Chart for the electro multi vision system are output, refer to Diagnostic Trouble Code Chart for the system.

| System | Proceed to |
|---|---|
| Audio and visual system (w/o Navigation system) | Click here |
| Rear seat entertainment system (w/ Rear seat entertainment system) | Click here |



H

## DTC CLEAR/RECHECK (CLEAR USING SYSTEM CHECK MODE SCREEN)

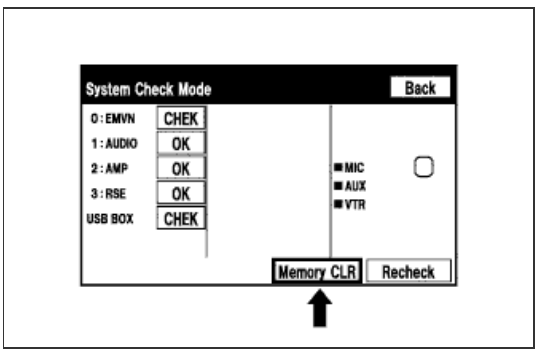
a. Clear DTC

i. Press the "Memory CLR" switch for 3 seconds.

ii. The check results are cleared.

**HINT:**

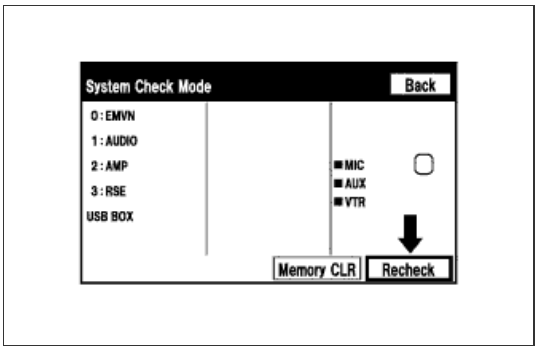
- **To clear the DTC for a specific device, clear the DTC using the "Unit Check Mode" screen.**
- **When clearing a DTC using the "Unit Check Mode" screen, press the "Code CLR" switch for 3 seconds.**




b. Recheck

b. Recheck

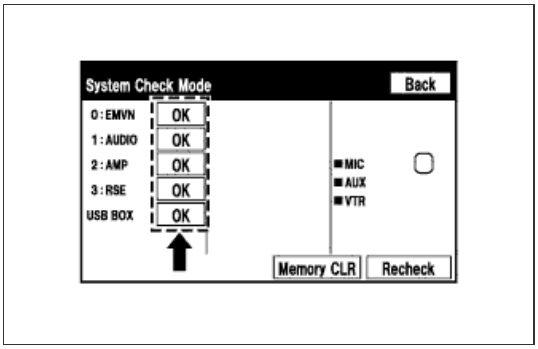
i. Press the "Recheck" switch.




ii. Confirm that all diagnostic codes are "OK" when the check results are displayed. If a code other than "OK" is displayed, troubleshoot again.

**HINT:**

When a DTC was cleared using the "Unit Check Mode" screen, press the "Back" switch to return to the "System Check Mode" screen and perform this operation.



**for Preparation** Click here

## CHECK DTC (CHECK USING INTELLIGENT TESTER)

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Body / Navigation System / DTC.

e. Check the DTC(s) and freeze frame data, and then write them down.

f. Check the details of the DTC(s) ( Click here).

**NOTICE:**

The electro multi vision system outputs DTCs for the following system. When DTCs other than those in Diagnostic Trouble Code Chart for the electro multi vision system are output, refer to Diagnostic Trouble Code Chart for the system.

| System | Proceed to |
|---|---|
| Audio and visual system (w/o Navigation system) | Click here |
| Rear seat entertainment system (w/ Rear seat entertainment system) | Click here |

## CLEAR DTC (CLEAR USING INTELLIGENT TESTER)

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Body / Navigation System / DTC.

e. Clear DTCs.

## START DIAGNOSTIC MODE

**HINT:**

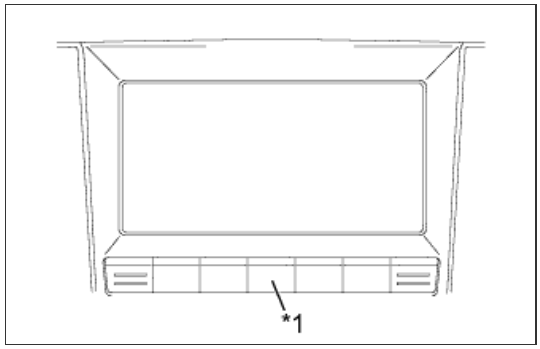
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**
- **To help find the malfunction when the system cannot change to diagnostic mode, check for DTCs using the intelligent tester.**
- **After the engine switch is turned on (IG), check that the map is displayed before starting diagnostic mode. Otherwise, some items cannot be checked.**

a. There are 2 methods to start diagnostic mode. Start the mode by using one of them.

b. Method 1

**Text in Illustration**

| | |
|---|---|
| *1 | "INFO TEL" switch |




i. Start the engine.

ii. While pressing and holding the "INFO TEL" switch, operate the light control switch: off → Turn on → Turn off → Turn on → Turn off → Turn on → Turn off.

iii. The diagnostic mode starts and the "System Check Mode" screen will be displayed.

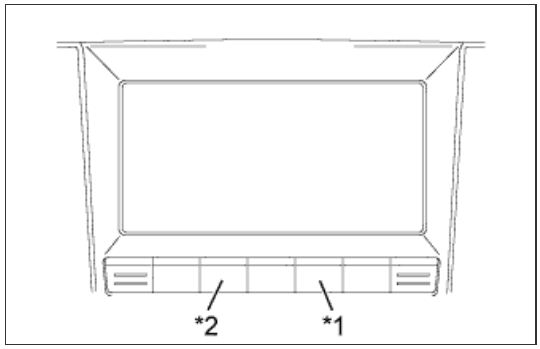
c. Method 2

i. Start the engine.

ii. Press the "DISP" switch.

**Text in Illustration**

| | |
|---|---|
| *1 | "DISP" switch (for LHD) |
| *2 | "DISP" switch (for RHD) |

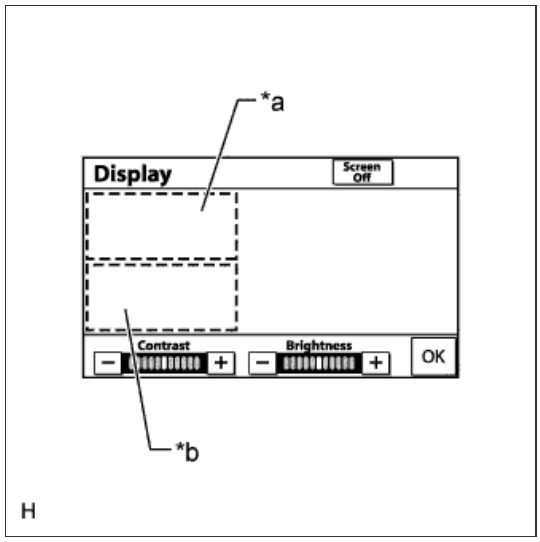



iii. From the display quality adjustment screen, touch the upper and lower left corners of the screen in the following: Upper left → Lower left → Upper left → Lower left → Upper left → Lower left.

**Text in Illustration**

| | |
|---|---|
| *a | Upper left |
| *b | Lower left |

iv. Diagnostic mode starts and the "System Check Mode" screen will be displayed. Service inspection starts automatically and the result will be displayed.

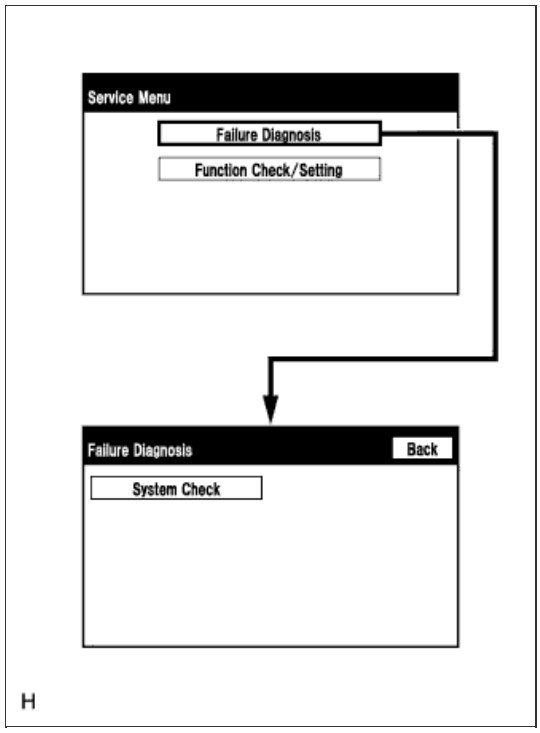



## FINISH DIAGNOSTIC MODE

a. Turn the engine switch off.

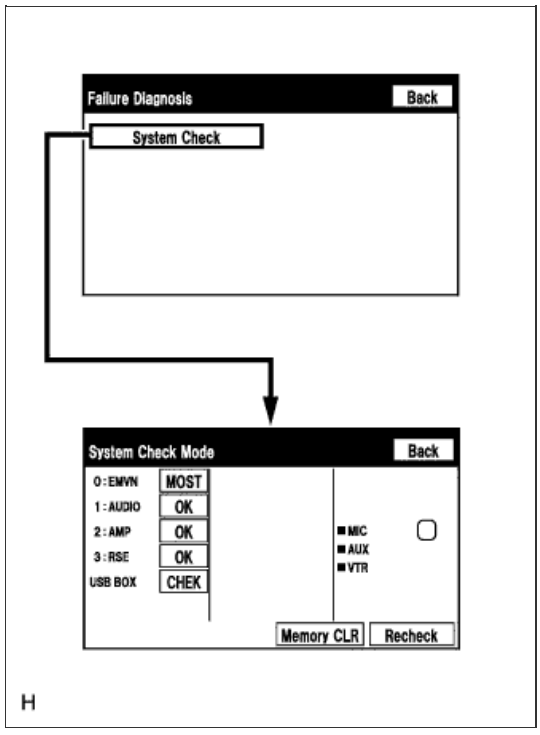
## FAILURE DIAGNOSIS

a. The "Failure Diagnosis" screen is displayed when the "Failure Diagnosis" switch on the "Service Menu" screen is selected.




## SYSTEM CHECK

a. The "System Check Mode" screen is displayed when the "System Check" switch on the "Failure Diagnosis" screen is selected.




## CHECK DTC (CHECK USING SYSTEM CHECK MODE SCREEN)

**HINT:**

Refer to Diagnosis Display Detailed Description for further details on the "System Check Mode" screen ( Click here).

a. Read the system check result.

**Text in Illustration**

| | |
|---|---|
| *a | Diagnostic Code |

i. When the result is "EXCH" or "CHEK", select the icon which displays the result, and check and record each DTC displayed on the "Unit

Check Mode" screen.

**NOTICE:**

A maximum of 6 DTCs can be displayed by the display and navigation module display. When more than 6 DTCs are expected, check DTCs using the intelligent tester.

**HINT:**

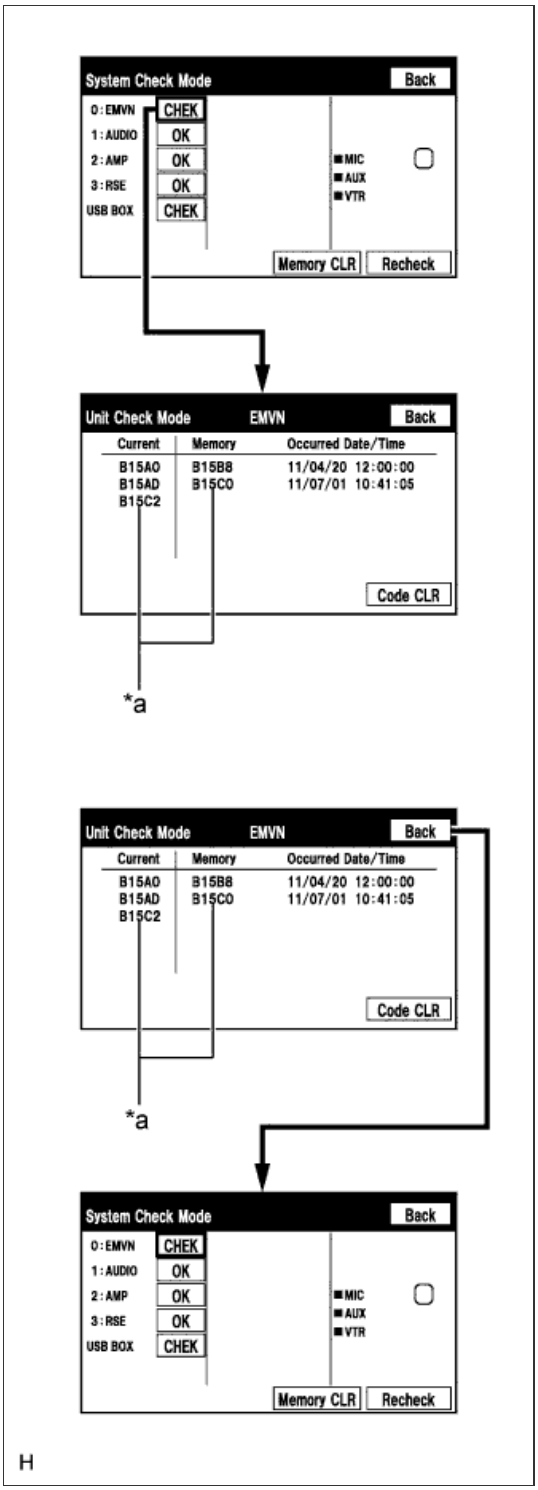
- **Refer to Diagnosis Display Detailed Description for further details on the "System Check Mode" screen (Click here).**
- **When all results are "OK", this means that no DTCs are present.**
- **When "MOST" is displayed for the result, selecting "MOST" displays the "MOST Line Check" screen and performs the MOST line check.**
- **Changing to the "MOST Line Check" screen is possible only when the MOST network is malfunctioning and "MOST" is displayed for the result.**
- **If the MOST network had a malfunction in the past, the DTCs will be displayed in the Memory column.**
- **Refer to Diagnosis Display Detailed Description for further details on the "MOST Line Check" screen (Click here).**
- **When "NCON" is displayed for all devices connected using the AVC-LAN, or when all device names are not displayed, check if there is a short circuit in the AVC-LAN or devices connected to the AVC-LAN. Repair or replace parts as necessary (Click here).**
- **When proceeding to view the results of another device, press the "Back" switch to return to the "System Check Mode" screen. Repeat the step above to view the results of other devices.**

ii. Check the details of the DTC(s) ( Click here).

**NOTICE:**

The electro multi vision system outputs DTCs for the following system. When DTCs other than the codes in Diagnostic Trouble Code Chart for the electro multi vision system are output, refer to Diagnostic Trouble Code Chart for the system.

| System | Proceed to |
|---|---|
| Audio and visual system (w/o Navigation system) | Click here |
| Rear seat entertainment system (w/ Rear seat entertainment system) | Click here |



H

## DTC CLEAR/RECHECK (CLEAR USING SYSTEM CHECK MODE SCREEN)

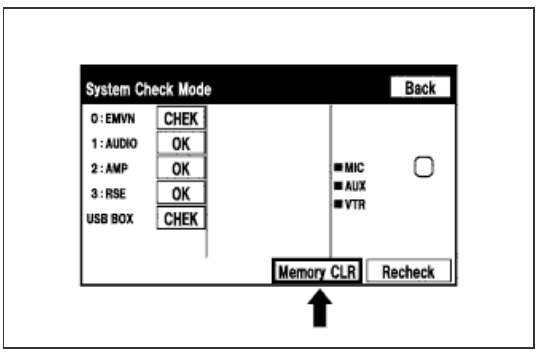
a. Clear DTC

i. Press the "Memory CLR" switch for 3 seconds.

ii. The check results are cleared.

**HINT:**

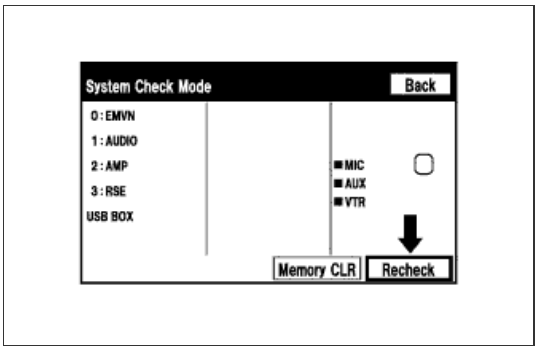
- **To clear the DTC for a specific device, clear the DTC using the "Unit Check Mode" screen.**
- **When clearing a DTC using the "Unit Check Mode" screen, press the "Code CLR" switch for 3 seconds.**




b. Recheck

b. Recheck

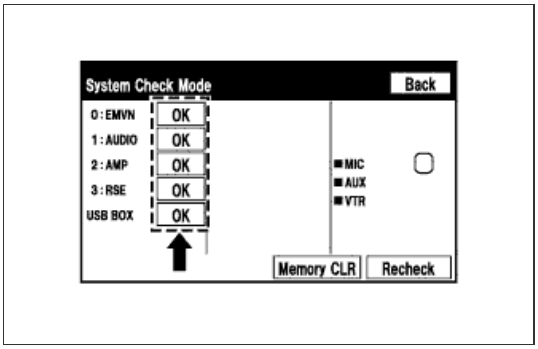
i. Press the "Recheck" switch.




ii. Confirm that all diagnostic codes are "OK" when the check results are displayed. If a code other than "OK" is displayed, troubleshoot again.

**HINT:**

When a DTC was cleared using the "Unit Check Mode" screen, press the "Back" switch to return to the "System Check Mode" screen and perform this operation.



**for Preparation** Click here

### Electro Multi Vision System

| DTC Code | Detection Item | Trouble Area | See page |
|---|---|---|---|
| B156B | Multi-media Interface ECU Disconnected | 1. Multi-media interface ECU power source circuit<br>2. AVC-LAN circuit between display and navigation module display and multi-media interface ECU<br>3. Multi-media interface ECU<br>4. Display and navigation module display | Click here |
| B156E | No Response from Multi-media Interface ECU | 1. Multi-media interface ECU power source circuit<br>2. AVC-LAN circuit between display and navigation module display and multi-media interface ECU<br>3. Multi-media interface ECU<br>4. Display and navigation module display | Click here |
| B1591 | No Response from Audio HU | 1. Radio receiver assembly power source circuit<br>2. MOST circuit between display and navigation module display and radio receiver assembly<br>3. MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>4. Radio receiver assembly<br>5. Display and navigation module display | Click here |
| B1593 | No Response from Stereo Component Amplifier | 1. Stereo component amplifier assembly power source circuit<br>2. MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>3. MOST circuit between stereo component amplifier assembly and display and navigation module display (w/o Rear Seat Entertainment System)<br>4. MOST circuit between stereo component amplifier assembly and television display assembly (w/ Rear Seat Entertainment System)<br>5. Stereo component amplifier assembly<br>6. Display and navigation module display | Click here |
| B15A0 | LAN Master Malfunction | Display and navigation module display | Click here |
| B15B0 | Display Screen Malfunction | Display and navigation module display | Click here |
| B15D0 | MOST Communication Malfunction | 1. MOST line check<br>2. MOST communication line connector<br>3. Wire harness and connector<br>4. MOST communication line<br>5. Radio receiver assembly<br>6. Stereo component amplifier assembly<br>7. Television display assembly (w/ Rear Seat Entertainment System)<br>8. Display and navigation module display | Click here |
| B15D1 | Audio HU Disconnected | 1. Radio receiver assembly power source circuit<br>2. MOST circuit between display and navigation module display and radio receiver assembly<br>3. MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>4. Radio receiver assembly<br>5. Display and navigation module display | Click here |
| B15D3 | Stereo Component Amplifier Disconnected | 1. Stereo component amplifier assembly power source circuit<br>2. MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>3. MOST circuit between stereo component amplifier assembly and display and navigation module display (w/o Rear Seat Entertainment System)<br>4. MOST circuit between stereo component amplifier assembly and television display assembly (w/ Rear Seat Entertainment System)<br>5. Stereo component amplifier assembly<br>6. Display and navigation module display | Click here |
| B15F5 | A/C ECU Vehicle Information Reading/Writing Processor Malfunction | 1. CAN communication system<br>2. Air conditioning system<br>3. A/C ECU (air conditioning amplifier assembly)<br>4. Display and navigation module display | Click here |
| B15F6 | Main Body ECU Vehicle Information | 1. CAN communication system<br>2. Power door lock control system<br>3. Wireless door lock control system | Click |

| | | | |
|---|---|---|---|
| | Reading/Writing Process Malfunction | 4. Lighting system<br>5. Main body ECU (cowl side junction block LH)<br>6. Display and navigation module display | here |
| B15F7 | Certification ECU Vehicle Information Reading/Writing Process Malfunction | 1. CAN communication system<br>2. Smart access system with push-button start (for entry function)<br>3. Smart access system with push-button start (for start function)<br>4. Certification ECU (smart key ECU assembly)<br>5.Display and navigation module display | Click here |
| U0073 | Control Module Communication Bus Off | CAN communication system | Click here |
| U0155 | Lost Communication with Combination Meter | CAN communication system | Click here |
| U0164 | Lost Communication with A/C ECU | CAN communication system | Click here |
| U1110 | Lost Communication with Clearance Warning ECU | CAN communication system | Click here |

**for Preparation** Click here

### Electro Multi Vision System

| DTC Code | Detection Item | Trouble Area | See page |
|---|---|---|---|
| B156B | Multi-media Interface ECU Disconnected | 1. Multi-media interface ECU power source circuit<br>2. AVC-LAN circuit between display and navigation module display and multi-media interface ECU<br>3. Multi-media interface ECU<br>4. Display and navigation module display | Click here |
| B156E | No Response from Multi-media Interface ECU | 1. Multi-media interface ECU power source circuit<br>2. AVC-LAN circuit between display and navigation module display and multi-media interface ECU<br>3. Multi-media interface ECU<br>4. Display and navigation module display | Click here |
| B1591 | No Response from Audio HU | 1. Radio receiver assembly power source circuit<br>2. MOST circuit between display and navigation module display and radio receiver assembly<br>3. MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>4. Radio receiver assembly<br>5. Display and navigation module display | Click here |
| B1593 | No Response from Stereo Component Amplifier | 1. Stereo component amplifier assembly power source circuit<br>2. MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>3. MOST circuit between stereo component amplifier assembly and display and navigation module display (w/o Rear Seat Entertainment System)<br>4. MOST circuit between stereo component amplifier assembly and television display assembly (w/ Rear Seat Entertainment System)<br>5. Stereo component amplifier assembly<br>6. Display and navigation module display | Click here |
| B15A0 | LAN Master Malfunction | Display and navigation module display | Click here |
| B15B0 | Display Screen Malfunction | Display and navigation module display | Click here |
| B15D0 | MOST Communication Malfunction | 1. MOST line check<br>2. MOST communication line connector<br>3. Wire harness and connector<br>4. MOST communication line<br>5. Radio receiver assembly<br>6. Stereo component amplifier assembly<br>7. Television display assembly (w/ Rear Seat Entertainment System)<br>8. Display and navigation module display | Click here |
| B15D1 | Audio HU Disconnected | 1. Radio receiver assembly power source circuit<br>2. MOST circuit between display and navigation module display and radio receiver assembly<br>3. MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>4. Radio receiver assembly<br>5. Display and navigation module display | Click here |
| B15D3 | Stereo Component Amplifier Disconnected | 1. Stereo component amplifier assembly power source circuit<br>2. MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>3. MOST circuit between stereo component amplifier assembly and display and navigation module display (w/o Rear Seat Entertainment System)<br>4. MOST circuit between stereo component amplifier assembly and television display assembly (w/ Rear Seat Entertainment System)<br>5. Stereo component amplifier assembly<br>6. Display and navigation module display | Click here |
| B15F5 | A/C ECU Vehicle Information Reading/Writing Processor Malfunction | 1. CAN communication system<br>2. Air conditioning system<br>3. A/C ECU (air conditioning amplifier assembly)<br>4. Display and navigation module display | Click here |
| B15F6 | Main Body ECU Vehicle Information | 1. CAN communication system<br>2. Power door lock control system<br>3. Wireless door lock control system | Click |

| | | | |
|---|---|---|---|
| | Reading/Writing Process Malfunction | 4. Lighting system<br>5. Main body ECU (cowl side junction block LH)<br>6. Display and navigation module display | here |
| B15F7 | Certification ECU Vehicle Information Reading/Writing Process Malfunction | 1. CAN communication system<br>2. Smart access system with push-button start (for entry function)<br>3. Smart access system with push-button start (for start function)<br>4. Certification ECU (smart key ECU assembly)<br>5. Display and navigation module display | Click here |
| U0073 | Control Module Communication Bus Off | CAN communication system | Click here |
| U0155 | Lost Communication with Combination Meter | CAN communication system | Click here |
| U0164 | Lost Communication with A/C ECU | CAN communication system | Click here |
| U1110 | Lost Communication with Clearance Warning ECU | CAN communication system | Click here |

## DTC B156B Multi-media Interface ECU Disconnected

## DTC B156E No Response from Multi-media Interface ECU

**for Preparation** Click here

### DESCRIPTION

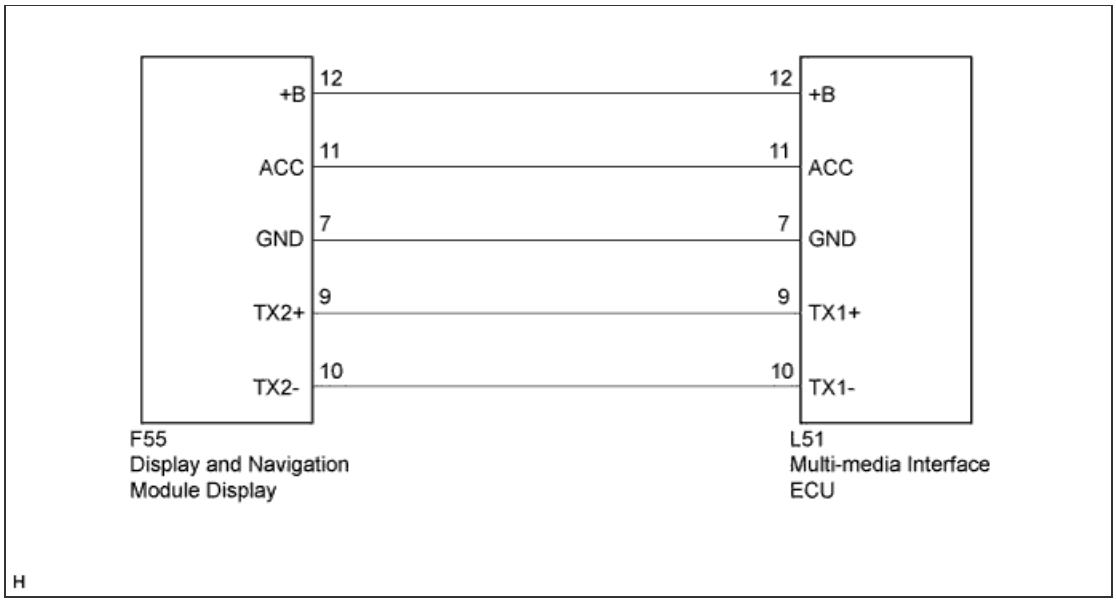
The display and navigation module display and multi-media interface ECU are connected by the AVC-LAN communication line.
When an AVC-LAN communication error occurs between the display and navigation module display and the multi-media interface ECU, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B156B*1 | When either condition below is met:<br>• Multi-media interface ECU is/was not connected while the engine switch is on (ON or ACC).<br>• Communication between the master unit and multi-media interface ECU is not possible when the engine is started. | • Multi-media interface ECU power source circuit<br>• AVC-LAN circuit between display and navigation module display and multi-media interface ECU<br>• Multi-media interface ECU<br>• Display and navigation module display |
| B156E | Within the time-out period, there was no response from the display and navigation module display to the following requests from the master unit:<br>• System inspection request<br>• System inspection result request<br>• Diagnostic memory request | |

**HINT:**

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

### WIRING DIAGRAM




### INSPECTION PROCEDURE

#### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| | |

| | |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect AVC-LAN communication.**
- **This DTC may be stored when an AVC-LAN communication error occurs due to electrical noise.**

**B** → Go to step 3

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

**NG** → Go to step 4

**OK**

**END**

## 4.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU POWER SOURCE)

a. Disconnect the L51 multi-media interface ECU connector.

b. Measure the resistance according to the value(s) in the table below.

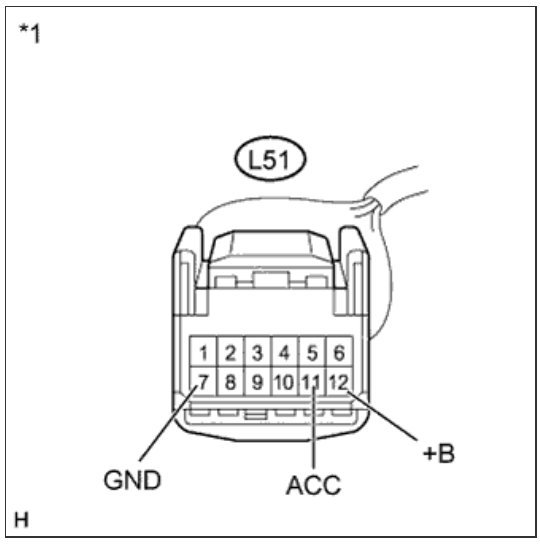
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-7 (GND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| L51-12 (+B) - L51-7 (GND) | Always | 11 to 14 V |
| L51-11 (ACC) - L51-7 (GND) | Engine switch on (ACC) | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| | Front view of wire harness connector |

| | |
|---|---|
| *1 | (to Multi-media Interface ECU) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

**5.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU - DISPLAY AND NAVIGATION MODULE DISPLAY)**

a. Disconnect the L51 multi-media interface ECU connector.

b. Disconnect the F55 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-9 (TX1+) - F55-9 (TX2+) | Always | Below 1 Ω |
| L51-10 (TX1-) - F55-10 (TX2-) | Always | Below 1 Ω |
| L51-9 (TX1+) - Body ground | Always | 10 kΩ or higher |
| L51-10 (TX1-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

**6.REPLACE MULTI-MEDIA INTERFACE ECU**

a. Replace the multi-media interface ECU (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK ↓

END

# DTC B15B0 Display Screen Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when a malfunction occurs in the display and navigation module display.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15B0 | Picture circuit (TFT unit) malfunction | Display and navigation module display |

## INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTC and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC B156B Multi-media Interface ECU Disconnected

## DTC B156E No Response from Multi-media Interface ECU

**for Preparation** Click here

### DESCRIPTION

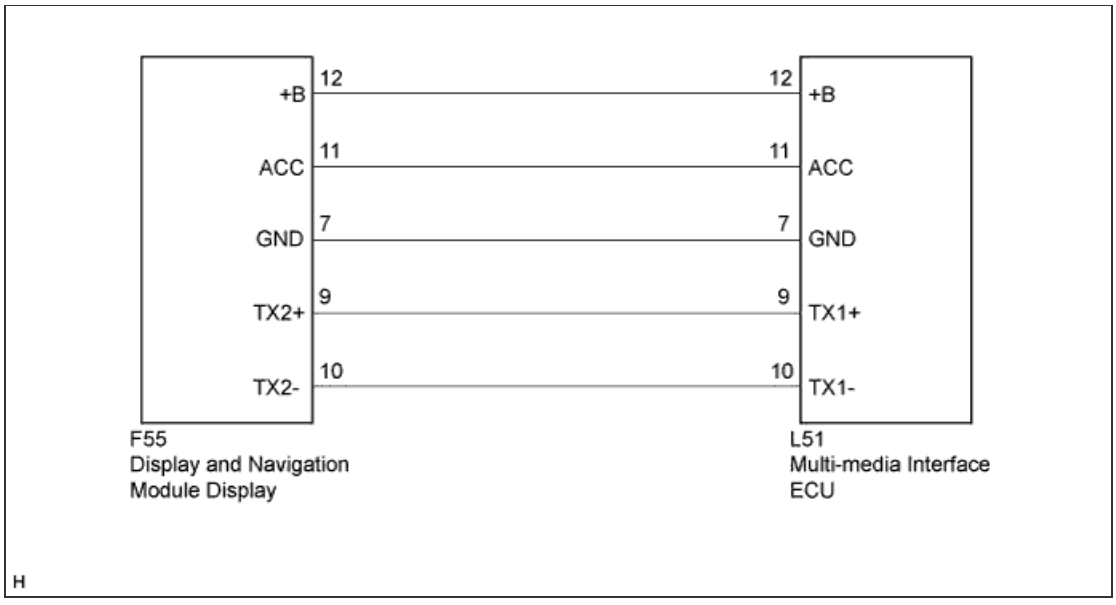
The display and navigation module display and multi-media interface ECU are connected by the AVC-LAN communication line.
When an AVC-LAN communication error occurs between the display and navigation module display and the multi-media interface ECU, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B156B*1 | When either condition below is met:<br>• Multi-media interface ECU is/was not connected while the engine switch is on (ON or ACC).<br>• Communication between the master unit and multi-media interface ECU is not possible when the engine is started. | • Multi-media interface ECU power source circuit<br>• AVC-LAN circuit between display and navigation module display and multi-media interface ECU<br>• Multi-media interface ECU<br>• Display and navigation module display |
| B156E | Within the time-out period, there was no response from the display and navigation module display to the following requests from the master unit:<br>• System inspection request<br>• System inspection result request<br>• Diagnostic memory request | |

**HINT:**

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

### WIRING DIAGRAM




### INSPECTION PROCEDURE

#### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| | |

| | |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect AVC-LAN communication.**
- **This DTC may be stored when an AVC-LAN communication error occurs due to electrical noise.**

**B** → Go to step 3

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

**NG** → Go to step 4

**OK**

**END**

## 4.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU POWER SOURCE)

a. Disconnect the L51 multi-media interface ECU connector.

b. Measure the resistance according to the value(s) in the table below.

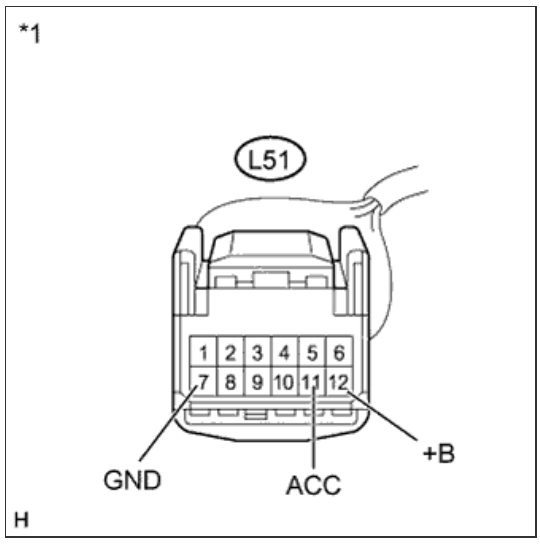
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-7 (GND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| L51-12 (+B) - L51-7 (GND) | Always | 11 to 14 V |
| L51-11 (ACC) - L51-7 (GND) | Engine switch on (ACC) | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| | Front view of wire harness connector |

| | |
|---|---|
| *1 | (to Multi-media Interface ECU) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

**5.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU - DISPLAY AND NAVIGATION MODULE DISPLAY)**

a. Disconnect the L51 multi-media interface ECU connector.

b. Disconnect the F55 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-9 (TX1+) - F55-9 (TX2+) | Always | Below 1 Ω |
| L51-10 (TX1-) - F55-10 (TX2-) | Always | Below 1 Ω |
| L51-9 (TX1+) - Body ground | Always | 10 kΩ or higher |
| L51-10 (TX1-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

**6.REPLACE MULTI-MEDIA INTERFACE ECU**

a. Replace the multi-media interface ECU (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK ↓

END

## DTC B15D0 MOST Communication Malfunction

**for Preparation** Click here

### DESCRIPTION

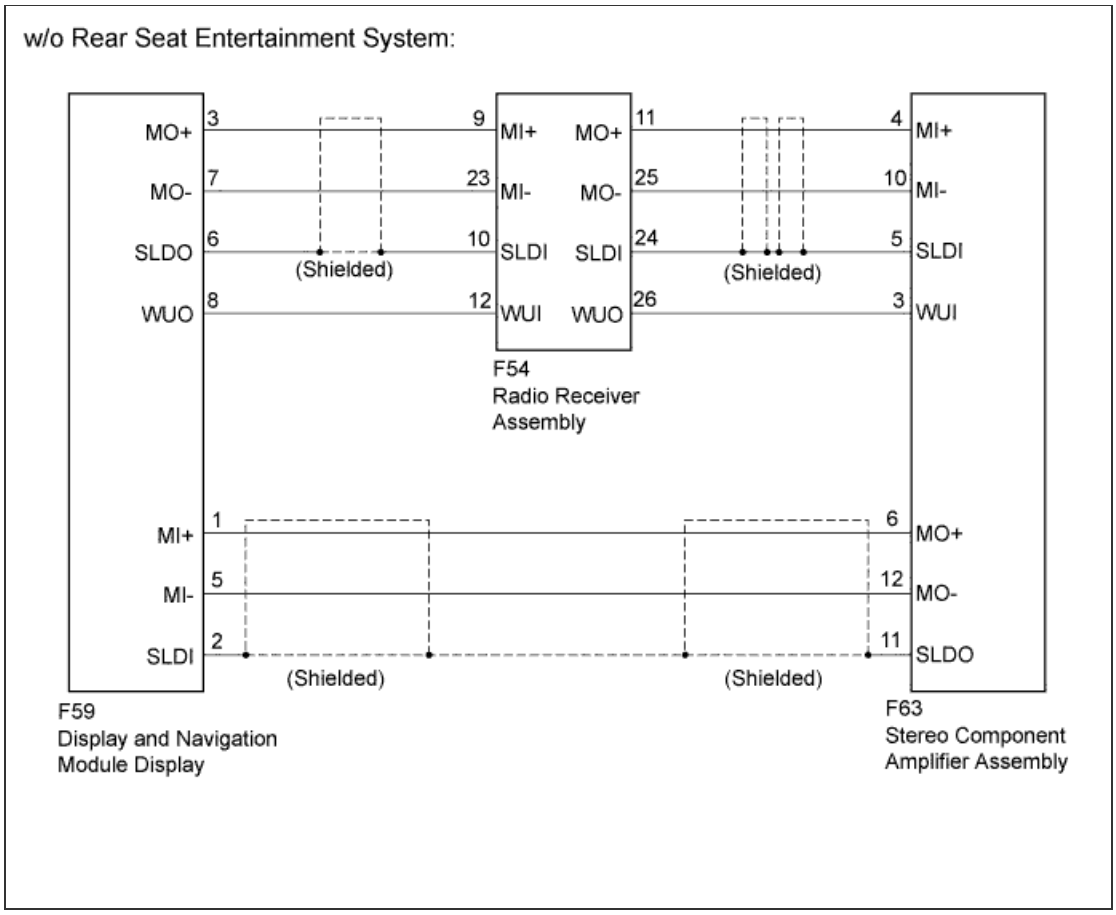
This DTC is stored when the MOST network cannot be established after the master unit is activated.

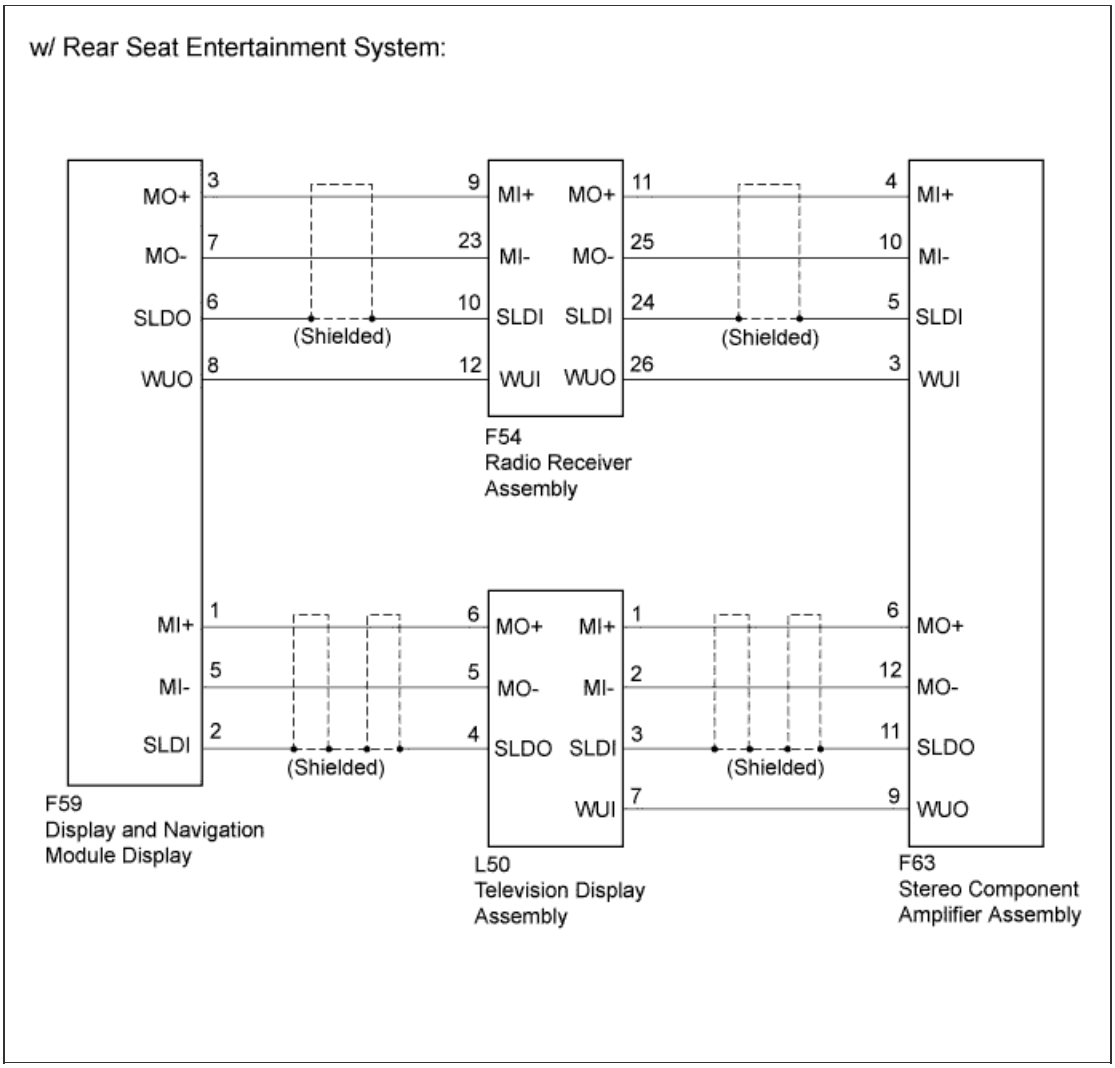
| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15D0 | MOST network cannot be established. | • MOST line check<br>• MOST communication line connector<br>• Wire harness and connector<br>• MOST communication line<br>• Radio receiver assembly<br>• Stereo component amplifier assembly<br>• Television display assembly (w/ Rear Seat Entertainment System)<br>• Display and navigation module display |

**HINT:**

- **The display and navigation module display is the master unit for the MOST network.**
- **Errors may occur in MOST communication between devices due to problems such as electrical noise.**

### WIRING DIAGRAM





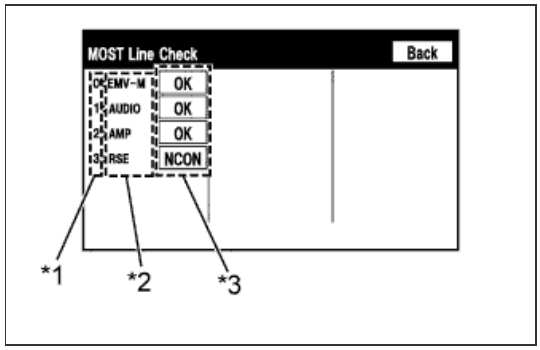

## INSPECTION PROCEDURE

### 1.PERFORM MOST LINE CHECK

a. Display the "MOST Line Check" screen ( Click here).

**Text in Illustration**

| | |
|---|---|
| *1 | Node position number for devices that use MOST communication |
| *2 | Device Name |
| *3 | Result |




b. Check the result on the "MOST Line Check" screen.

**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "AUDIO". | A |
| "NCON" is displayed for "AMP". | B |
| "NCON" is displayed for "RSE" (w/ rear seat entertainment system). | C |
| "OK" is displayed for all items. | D |

**HINT:**

- **When "NCON" is displayed for more than 1 item, proceed to the step for the device that has the smallest node position number.**
- **The "MOST Line Check" screen can be displayed only when DTC B15D0 is stored.**

| | |
|---|---|
| B | Go to step 5 |

C → Go to step 8

D → Go to step 11

A

## 2.CHECK MOST COMMUNICATION CONNECTOR

a. Check MOST communication line connector.

i. Check if a MOST communication line connector between the display and navigation module display and radio receiver assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "AUDIO". | A |
| The screen cannot be changed to the "MOST Line Check" screen. | B |

**HINT:**

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

B → END

A

## 3.CHECK HARNESS AND CONNECTOR (WAKE UP SIGNAL)

a. Disconnect the F54 radio receiver assembly connector.

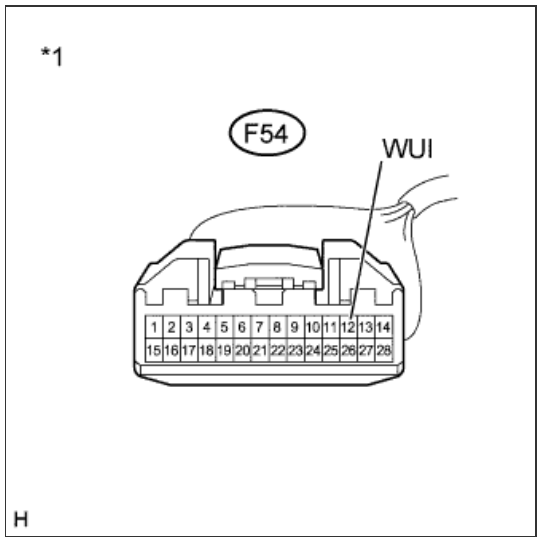
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F54-12 (WUI) - Body ground | Engine switch on (ACC) | 4.5 V or higher |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Radio Receiver Assembly) |




NG → Go to step 4

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

## 4.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-12 (WUI) - F59-8 (WUO) | Always | Below 1 Ω |
| F54-12 (WUI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

## 5.CHECK MOST COMMUNICATION CONNECTOR

a. Check MOST communication line connector.

i. Check if a MOST communication line connector between the radio receiver assembly and stereo component amplifier assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "AMP". | A |
| The screen cannot be changed to the "MOST Line Check" screen. | B |

**HINT:**

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

B → END

A

## 6.CHECK HARNESS AND CONNECTOR (WAKE UP SIGNAL)

a. Disconnect the F63 stereo component amplifier assembly connector.

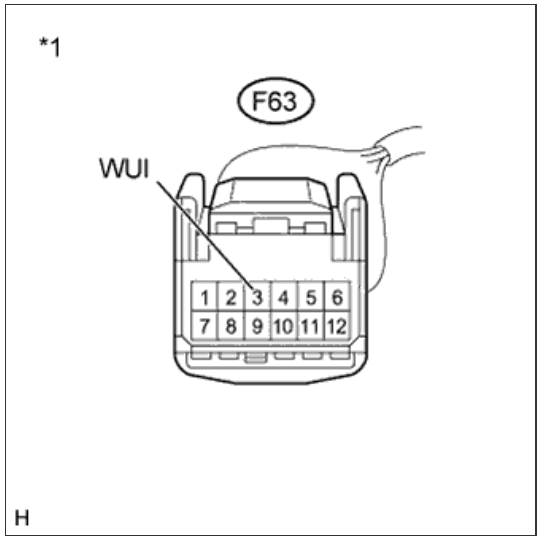
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F63-3 (WUI) - Body ground | Engine switch on (ACC) | 4.5 V or higher |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |




NG → Go to step 7

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 7.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - RADIO RECEIVER ASSEMBLY)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-3 (WUI) - F54-26 (WUO) | Always | Below 1 Ω |
| F63-3 (WUI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

## 8.CHECK MOST COMMUNICATION CONNECTOR

a. Check MOST communication line connector.

i. Check if a MOST communication line connector between the stereo component amplifier assembly and television display assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "RSE". | A |
| The screen cannot be changed to the "MOST Line Check" screen. | B |

**HINT:**

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

B → END

A

## 9.CHECK HARNESS AND CONNECTOR (WAKE UP SIGNAL)

a. Disconnect the L50 television display assembly connector.

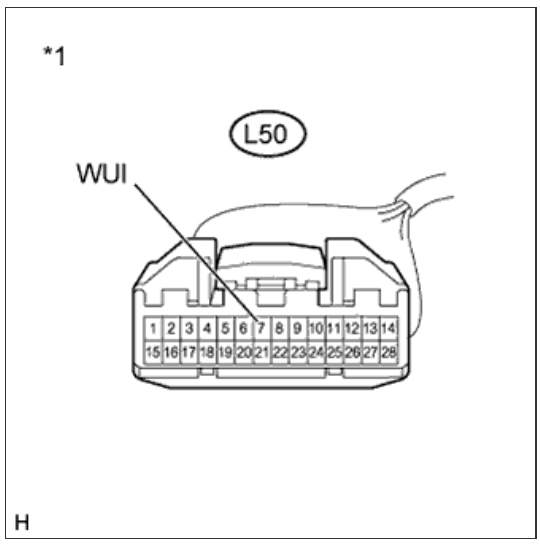
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| L50-7 (WUI) - Body ground | Engine switch on (ACC) | 4.5 V or higher |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Television Display assembly) |



NG → Go to step 10

OK

REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

10.CHECK AND REPLACE HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY - STEREO COMPONENT AMPLIFIER ASSEMBLY)

a. Disconnect the L50 television display assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-7 (WUI) - F63-9 (WUO) | Always | Below 1 Ω |
| L50-7 (WUI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

11.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - RADIO RECEIVER ASSEMBLY)

a. Disconnect the F59 display and navigation module display connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F59-3 (MO+) - F54-9 (MI+) | Always | Below 1 Ω |
| F59-7 (MO-) - F54-23 (MI-) | Always | Below 1 Ω |
| F59-6 (SLDO) - F54-10 (SLDI) | Always | Below 1 Ω |
| F59-8 (WUO) - F54-12 (WUI) | Always | Below 1 Ω |
| F59-3 (MO+) - Body ground | Always | 10 kΩ or higher |
| F59-7 (MO-) - Body ground | Always | 10 kΩ or higher |
| F59-6 (SLDO) - Body ground | Always | 10 kΩ or higher |
| F59-8 (WUO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

12.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY - STEREO COMPONENT AMPLIFIER ASSEMBLY)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-11 (MO+) - F63-4 (MI+) | Always | Below 1 Ω |
| F54-25 (MO-) - F63-10 (MI-) | Always | Below 1 Ω |
| F54-24 (SLDI) - F63-5 (SLDI) | Always | Below 1 Ω |
| F54-26 (WUO) - F63-3 (WUI) | Always | Below 1 Ω |
| F54-11 (MO+) - Body ground | Always | 10 kΩ or higher |
| F54-25 (MO-) - Body ground | Always | 10 kΩ or higher |
| F54-24 (SLDI) - Body ground | Always | 10 kΩ or higher |
| F54-26 (WUO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 13.CONFIRM MODEL

a. Choose the model to be inspected.

**Result**

| Result | Proceed to |
|---|---|
| w/o Rear Seat Entertainment System | A |
| w/ Rear Seat Entertainment System | B |

B → Go to step 16

A

## 14.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

15.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → USE SIMULATION METHOD TO CHECK (Click here)

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

16.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - TELEVISION DISPLAY ASSEMBLY)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the L50 television display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - L50-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - L50-2 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - L50-3 (SLDI) | Always | Below 1 Ω |
| F63-9 (WUO) - L50-7 (WUI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |
| F63-9 (WUO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

17.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the L50 television display assembly.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| L50-5 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |

| | | |
|---|---|---|
| L50-4 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| L50-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| L50-5 (MO-) - Body ground | Always | 10 kΩ or higher |
| L50-4 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**18.CHECK DTC**

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC B156B Multi-media Interface ECU Disconnected

## DTC B156E No Response from Multi-media Interface ECU

**for Preparation** Click here

### DESCRIPTION

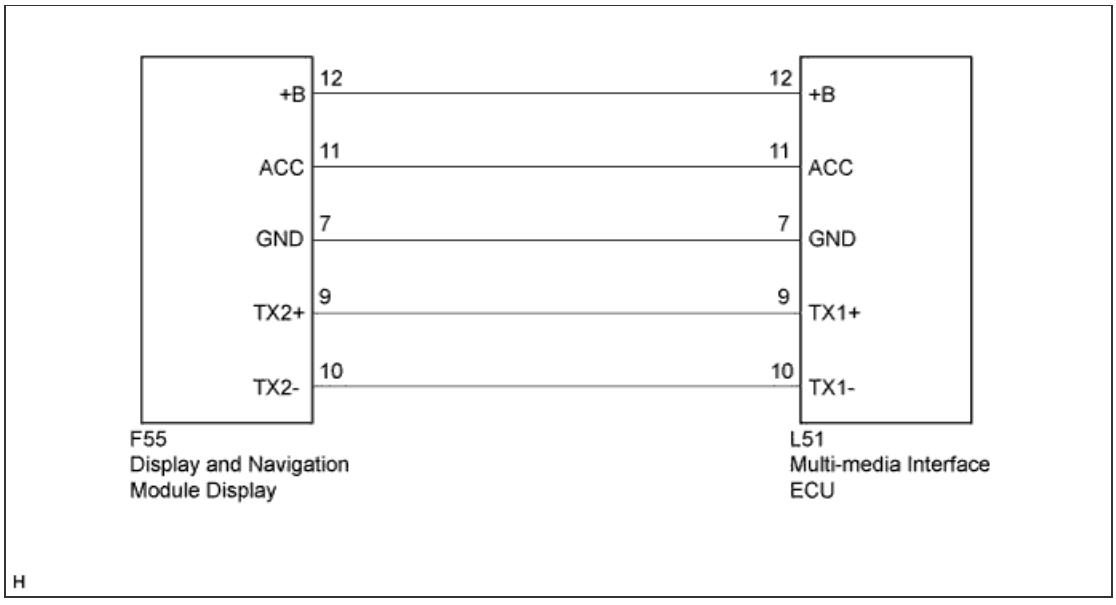
The display and navigation module display and multi-media interface ECU are connected by the AVC-LAN communication line.
When an AVC-LAN communication error occurs between the display and navigation module display and the multi-media interface ECU, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B156B*1 | When either condition below is met:<br>• Multi-media interface ECU is/was not connected while the engine switch is on (ON or ACC).<br>• Communication between the master unit and multi-media interface ECU is not possible when the engine is started. | • Multi-media interface ECU power source circuit<br>• AVC-LAN circuit between display and navigation module display and multi-media interface ECU<br>• Multi-media interface ECU<br>• Display and navigation module display |
| B156E | Within the time-out period, there was no response from the display and navigation module display to the following requests from the master unit:<br>• System inspection request<br>• System inspection result request<br>• Diagnostic memory request | |

**HINT:**

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

### WIRING DIAGRAM




### INSPECTION PROCEDURE

#### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| | |

| | |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect AVC-LAN communication.**
- **This DTC may be stored when an AVC-LAN communication error occurs due to electrical noise.**

**B** → Go to step 3

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

**NG** → Go to step 4

**OK**

**END**

## 4.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU POWER SOURCE)

a. Disconnect the L51 multi-media interface ECU connector.

b. Measure the resistance according to the value(s) in the table below.

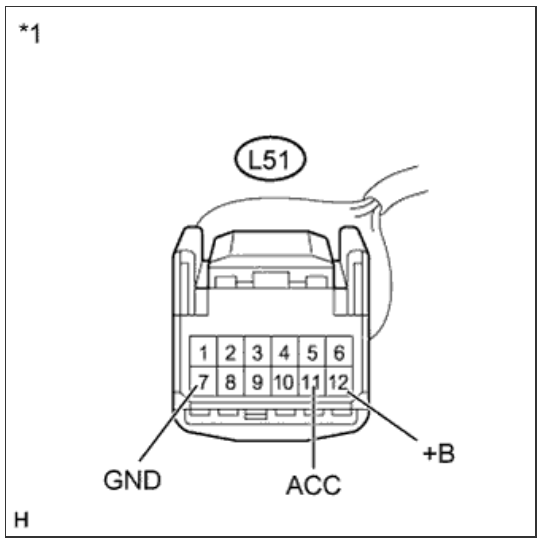
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-7 (GND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| L51-12 (+B) - L51-7 (GND) | Always | 11 to 14 V |
| L51-11 (ACC) - L51-7 (GND) | Engine switch on (ACC) | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| | Front view of wire harness connector |

| | |
|---|---|
| *1 | (to Multi-media Interface ECU) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

**5.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU - DISPLAY AND NAVIGATION MODULE DISPLAY)**

a. Disconnect the L51 multi-media interface ECU connector.

b. Disconnect the F55 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-9 (TX1+) - F55-9 (TX2+) | Always | Below 1 Ω |
| L51-10 (TX1-) - F55-10 (TX2-) | Always | Below 1 Ω |
| L51-9 (TX1+) - Body ground | Always | 10 kΩ or higher |
| L51-10 (TX1-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

**6.REPLACE MULTI-MEDIA INTERFACE ECU**

a. Replace the multi-media interface ECU (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK ↓

END

## DTC B15D0 MOST Communication Malfunction

**for Preparation** Click here

### DESCRIPTION

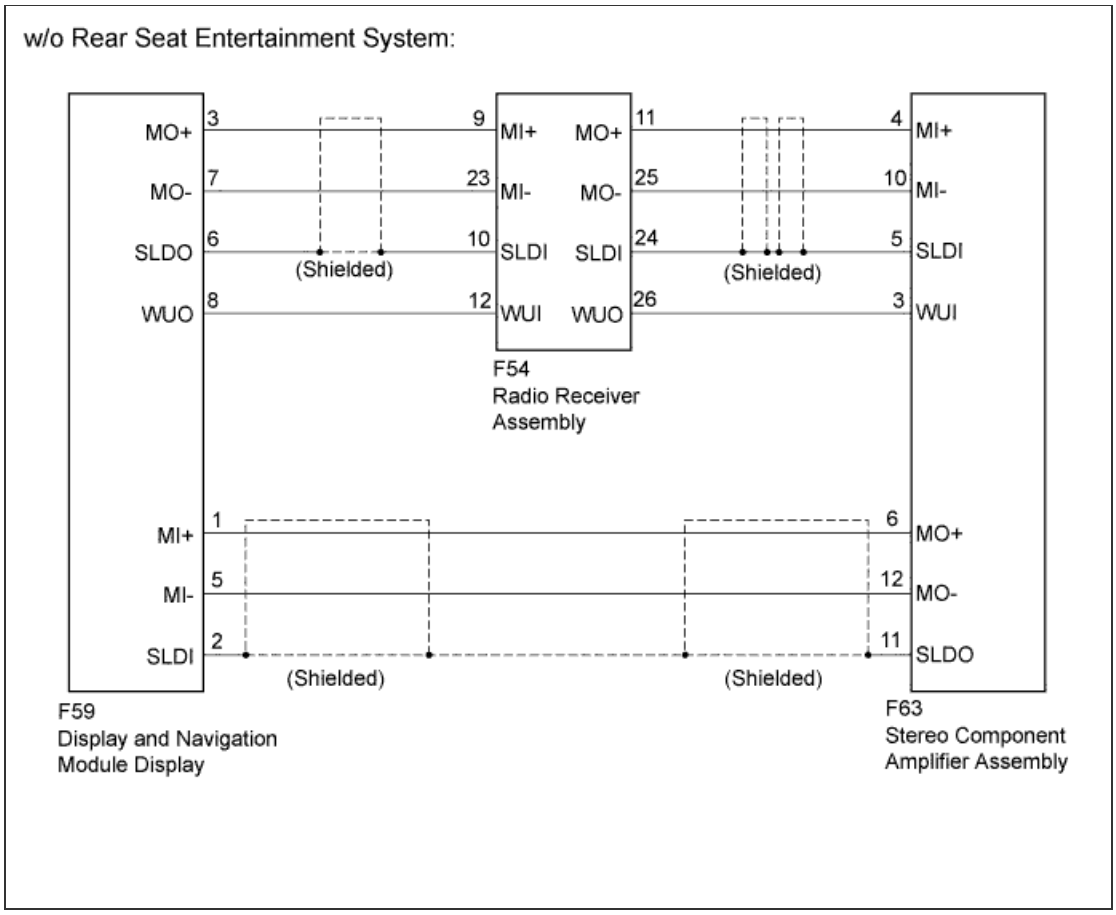
This DTC is stored when the MOST network cannot be established after the master unit is activated.

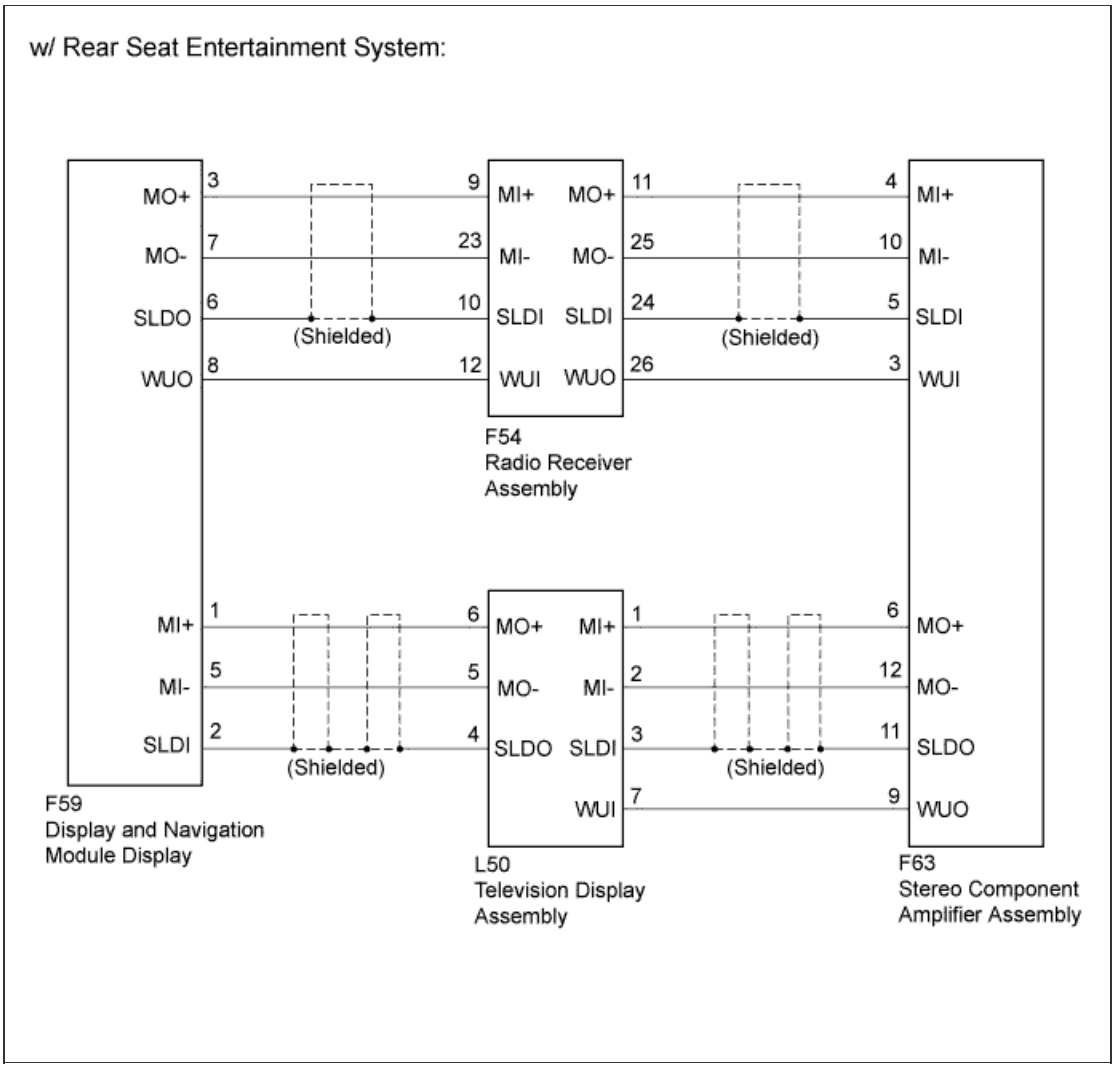
| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15D0 | MOST network cannot be established. | • MOST line check<br>• MOST communication line connector<br>• Wire harness and connector<br>• MOST communication line<br>• Radio receiver assembly<br>• Stereo component amplifier assembly<br>• Television display assembly (w/ Rear Seat Entertainment System)<br>• Display and navigation module display |

**HINT:**

- **The display and navigation module display is the master unit for the MOST network.**
- **Errors may occur in MOST communication between devices due to problems such as electrical noise.**

### WIRING DIAGRAM





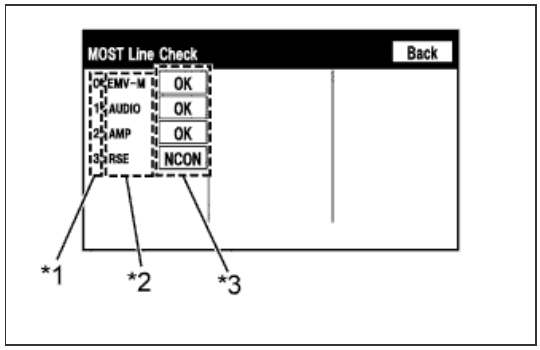

## INSPECTION PROCEDURE

### 1.PERFORM MOST LINE CHECK

a. Display the "MOST Line Check" screen ( Click here).

**Text in Illustration**

| | |
|---|---|
| *1 | Node position number for devices that use MOST communication |
| *2 | Device Name |
| *3 | Result |




b. Check the result on the "MOST Line Check" screen.

**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "AUDIO". | A |
| "NCON" is displayed for "AMP". | B |
| "NCON" is displayed for "RSE" (w/ rear seat entertainment system). | C |
| "OK" is displayed for all items. | D |

**HINT:**

- **When "NCON" is displayed for more than 1 item, proceed to the step for the device that has the smallest node position number.**
- **The "MOST Line Check" screen can be displayed only when DTC B15D0 is stored.**

| | |
|---|---|
| B | Go to step 5 |

C → Go to step 8

D → Go to step 11

A

## 2.CHECK MOST COMMUNICATION CONNECTOR

a. Check MOST communication line connector.

i. Check if a MOST communication line connector between the display and navigation module display and radio receiver assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "AUDIO". | A |
| The screen cannot be changed to the "MOST Line Check" screen. | B |

**HINT:**

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

B → END

A

## 3.CHECK HARNESS AND CONNECTOR (WAKE UP SIGNAL)

a. Disconnect the F54 radio receiver assembly connector.

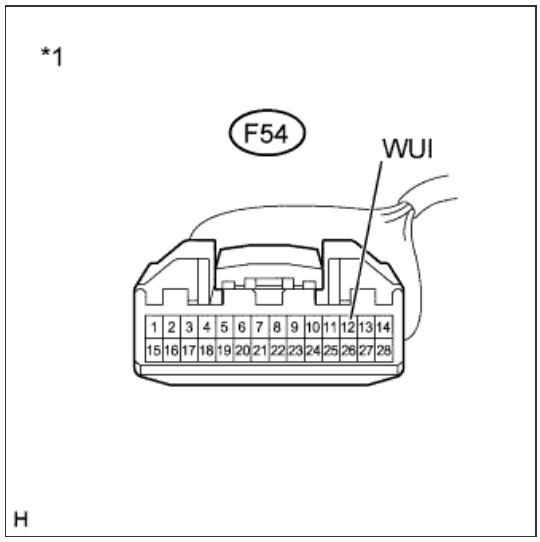
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F54-12 (WUI) - Body ground | Engine switch on (ACC) | 4.5 V or higher |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Radio Receiver Assembly) |




NG → Go to step 4

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

## 4.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-12 (WUI) - F59-8 (WUO) | Always | Below 1 Ω |
| F54-12 (WUI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

## 5.CHECK MOST COMMUNICATION CONNECTOR

a. Check MOST communication line connector.

i. Check if a MOST communication line connector between the radio receiver assembly and stereo component amplifier assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "AMP". | A |
| The screen cannot be changed to the "MOST Line Check" screen. | B |

**HINT:**

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

B → END

A

## 6.CHECK HARNESS AND CONNECTOR (WAKE UP SIGNAL)

a. Disconnect the F63 stereo component amplifier assembly connector.

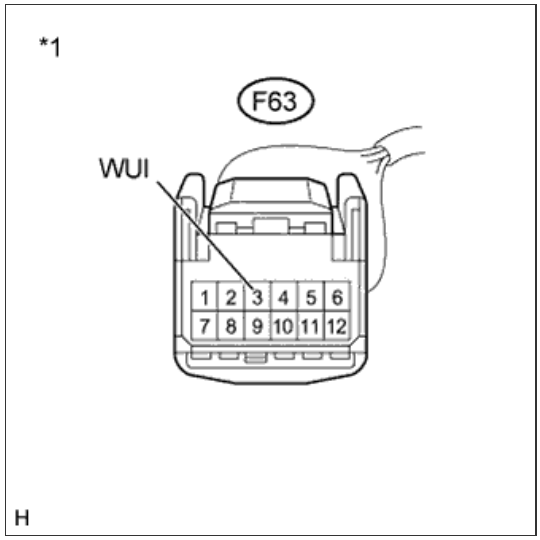
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F63-3 (WUI) - Body ground | Engine switch on (ACC) | 4.5 V or higher |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |




NG → Go to step 7

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

## 7.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - RADIO RECEIVER ASSEMBLY)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-3 (WUI) - F54-26 (WUO) | Always | Below 1 Ω |
| F63-3 (WUI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

## 8.CHECK MOST COMMUNICATION CONNECTOR

a. Check MOST communication line connector.

i. Check if a MOST communication line connector between the stereo component amplifier assembly and television display assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "NCON" is displayed for "RSE". | A |
| The screen cannot be changed to the "MOST Line Check" screen. | B |

**HINT:**

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

B → END

A

## 9.CHECK HARNESS AND CONNECTOR (WAKE UP SIGNAL)

a. Disconnect the L50 television display assembly connector.

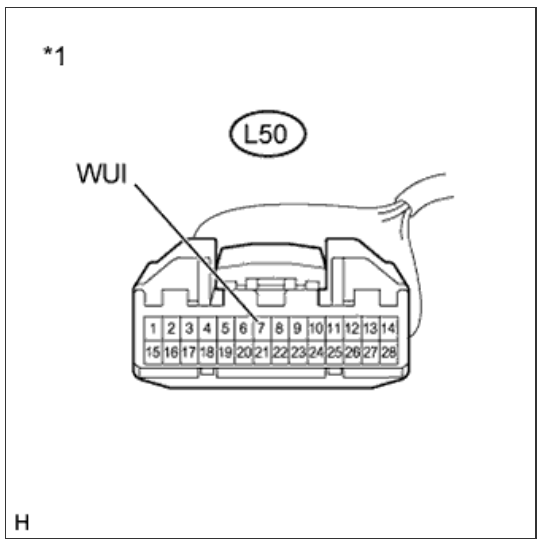
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| L50-7 (WUI) - Body ground | Engine switch on (ACC) | 4.5 V or higher |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Television Display assembly) |



NG → Go to step 10

OK

REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

10.CHECK AND REPLACE HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY - STEREO COMPONENT AMPLIFIER ASSEMBLY)

a. Disconnect the L50 television display assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-7 (WUI) - F63-9 (WUO) | Always | Below 1 Ω |
| L50-7 (WUI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

11.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - RADIO RECEIVER ASSEMBLY)

a. Disconnect the F59 display and navigation module display connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F59-3 (MO+) - F54-9 (MI+) | Always | Below 1 Ω |
| F59-7 (MO-) - F54-23 (MI-) | Always | Below 1 Ω |
| F59-6 (SLDO) - F54-10 (SLDI) | Always | Below 1 Ω |
| F59-8 (WUO) - F54-12 (WUI) | Always | Below 1 Ω |
| F59-3 (MO+) - Body ground | Always | 10 kΩ or higher |
| F59-7 (MO-) - Body ground | Always | 10 kΩ or higher |
| F59-6 (SLDO) - Body ground | Always | 10 kΩ or higher |
| F59-8 (WUO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

12.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY - STEREO COMPONENT AMPLIFIER ASSEMBLY)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-11 (MO+) - F63-4 (MI+) | Always | Below 1 Ω |
| F54-25 (MO-) - F63-10 (MI-) | Always | Below 1 Ω |
| F54-24 (SLDI) - F63-5 (SLDI) | Always | Below 1 Ω |
| F54-26 (WUO) - F63-3 (WUI) | Always | Below 1 Ω |
| F54-11 (MO+) - Body ground | Always | 10 kΩ or higher |
| F54-25 (MO-) - Body ground | Always | 10 kΩ or higher |
| F54-24 (SLDI) - Body ground | Always | 10 kΩ or higher |
| F54-26 (WUO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 13.CONFIRM MODEL

a. Choose the model to be inspected.

**Result**

| Result | Proceed to |
|---|---|
| w/o Rear Seat Entertainment System | A |
| w/ Rear Seat Entertainment System | B |

B → Go to step 16

A

## 14.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

15.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → USE SIMULATION METHOD TO CHECK (Click here)

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

16.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - TELEVISION DISPLAY ASSEMBLY)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the L50 television display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - L50-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - L50-2 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - L50-3 (SLDI) | Always | Below 1 Ω |
| F63-9 (WUO) - L50-7 (WUI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |
| F63-9 (WUO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

17.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the L50 television display assembly.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L50-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| L50-5 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |

| | | |
|---|---|---|
| L50-4 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| L50-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| L50-5 (MO-) - Body ground | Always | 10 kΩ or higher |
| L50-4 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**18.CHECK DTC**

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC B156B Multi-media Interface ECU Disconnected

## DTC B156E No Response from Multi-media Interface ECU

**for Preparation** Click here

### DESCRIPTION

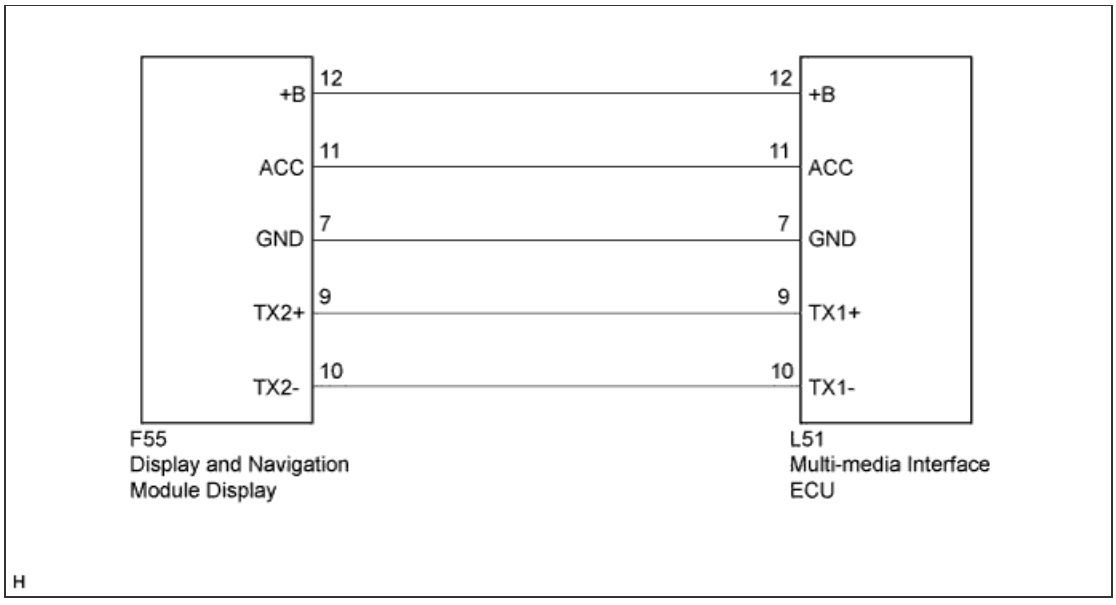
The display and navigation module display and multi-media interface ECU are connected by the AVC-LAN communication line.
When an AVC-LAN communication error occurs between the display and navigation module display and the multi-media interface ECU, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B156B*1 | When either condition below is met:<br>• Multi-media interface ECU is/was not connected while the engine switch is on (ON or ACC).<br>• Communication between the master unit and multi-media interface ECU is not possible when the engine is started. | • Multi-media interface ECU power source circuit<br>• AVC-LAN circuit between display and navigation module display and multi-media interface ECU<br>• Multi-media interface ECU<br>• Display and navigation module display |
| B156E | Within the time-out period, there was no response from the display and navigation module display to the following requests from the master unit:<br>• System inspection request<br>• System inspection result request<br>• Diagnostic memory request | |

**HINT:**

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

### WIRING DIAGRAM




### INSPECTION PROCEDURE

#### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| | |

| | |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect AVC-LAN communication.**
- **This DTC may be stored when an AVC-LAN communication error occurs due to electrical noise.**

**B** → Go to step 3

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

**NG** → Go to step 4

**OK**

**END**

## 4.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU POWER SOURCE)

a. Disconnect the L51 multi-media interface ECU connector.

b. Measure the resistance according to the value(s) in the table below.

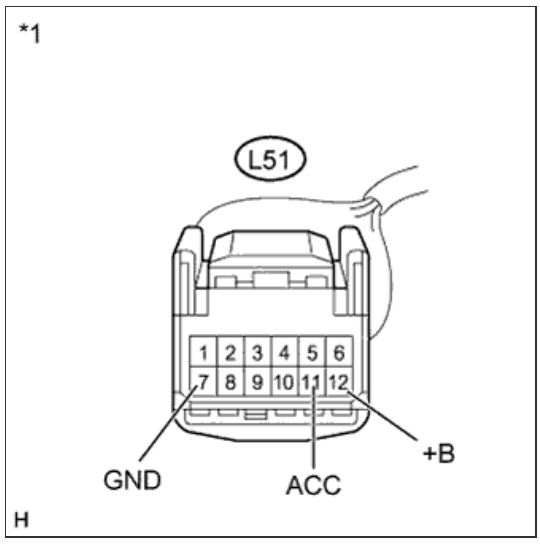
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-7 (GND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| L51-12 (+B) - L51-7 (GND) | Always | 11 to 14 V |
| L51-11 (ACC) - L51-7 (GND) | Engine switch on (ACC) | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| | Front view of wire harness connector |

| | |
|---|---|
| *1 | (to Multi-media Interface ECU) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

**5.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU - DISPLAY AND NAVIGATION MODULE DISPLAY)**

a. Disconnect the L51 multi-media interface ECU connector.

b. Disconnect the F55 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| L51-9 (TX1+) - F55-9 (TX2+) | Always | Below 1 Ω |
| L51-10 (TX1-) - F55-10 (TX2-) | Always | Below 1 Ω |
| L51-9 (TX1+) - Body ground | Always | 10 kΩ or higher |
| L51-10 (TX1-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

**6.REPLACE MULTI-MEDIA INTERFACE ECU**

a. Replace the multi-media interface ECU (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK ↓

END

# DTC B15F5 A/C ECU Vehicle Information Reading/Writing Processor Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when items controlled by the A/C ECU (air conditioning amplifier assembly) cannot be customized via the electro multi vision system vehicle customization screen.

**HINT:**

The A/C ECU (air conditioning amplifier assembly) controls the air conditioning system related items that are customizable via the electro multi vision system screen.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15F5 | A/C ECU (air conditioning amplifier assembly) vehicle setting processing error. | • CAN communication system<br>• Air conditioning system<br>• A/C ECU (air conditioning amplifier assembly)<br>• Display and navigation module display |

## INSPECTION PROCEDURE

### 1.CHECK CAN COMMUNICATION SYSTEM

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

**HINT:**

- **for LHD (Click here)**
- **for RHD (Click here)**

**OK:**

**CAN communication DTC is not output.**

Result

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

### 2.CHECK AIR CONDITIONING SYSTEM

a. Check if the air conditioning system is malfunctioning (Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the air conditioning system.

**OK:**

**No malfunctions are present in the air conditioning system.**

NG → GO TO AIR CONDITIONING SYSTEM (Click here)

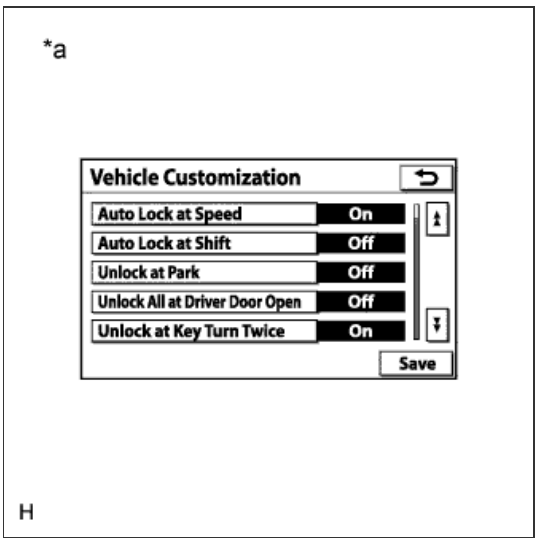
OK

### 3.CHECK CUSTOMIZE ITEMS

a. Display the "Vehicle Customization" screen.

**Text in Illustration**

| | |
|---|---|
| *a | Example: |




b. Make a note of the customizable items for the air conditioning system.

**HINT:**

These air conditioning system items shown as customizable via the electro multi vision system vehicle customization screen can also be changed using the intelligent tester. In the following steps, the intelligent tester will be used.

i. To match-up the items in the electro multi vision display with the items on the intelligent tester, check the customize parameters list for the air conditioning system related items that can be customized via the electro multi vision system screen (Click here).

c. Using the intelligent tester, confirm that it is possible to change the settings of the air conditioning system related customize parameters that are shown as customizable via the electro multi vision system screen.

**OK:**

**The items available for customization via the electro multi vision system screen can be customized successfully using the intelligent tester.**

NG → REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY (Click here)

OK → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

## DTC B1591 No Response from Audio HU

## DTC B15D1 Audio HU Disconnected

**for Preparation** Click here

### DESCRIPTION

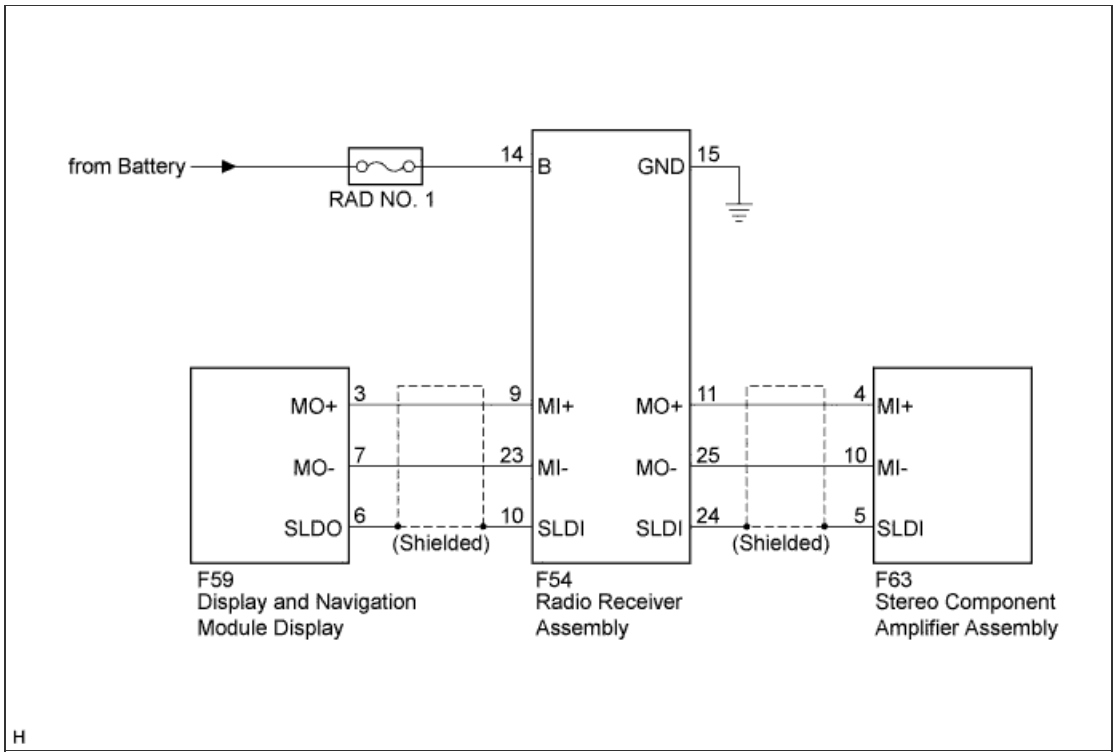
The display and navigation module display and radio receiver assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and the radio receiver assembly, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1591 | Within the time-out period, there was no response from the radio receiver assembly to the following requests from the master unit:<br>• System inspection request<br>• System inspection result request<br>• Diagnostic memory request | • Radio receiver assembly power source circuit<br>• MOST circuit between display and navigation module display and radio receiver assembly<br>• MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>• Radio receiver assembly<br>• Display and navigation module display |
| B15D1*1 | When either of the conditions below is met:<br>• Radio receiver assembly is/was not connected while the engine switch is on (IG or ACC).<br>• Communication between the master unit and the radio receiver assembly is not possible when the engine is started. | |

**HINT:**

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

## 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

**B** → **Go to step 3**

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

**NG** → **Go to step 4**

**OK**

## END

## 4.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY POWER SOURCE)

a. Disconnect the F54 radio receiver assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-15 (GND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

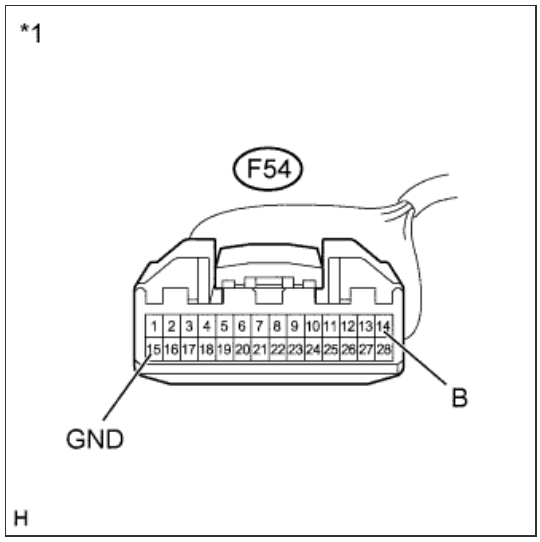
**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| F54-14 (B) - F54-15 (GND) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Radio Receiver Assembly) |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.CHECK HARNESS AND CONNECTOR (MOST COMMUNICATION LINE)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Disconnect the F59 display and navigation module display connector.

d. Measure the resistance between the display and navigation module display and the radio receiver assembly according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F59-3 (MO+) - F54-9 (MI+) | Always | Below 1 Ω |
| F59-7 (MO-) - F54-23 (MI-) | Always | Below 1 Ω |
| F59-6 (SLDO) - F54-10 (SLDI) | Always | Below 1 Ω |
| F59-3 (MO+) - Body ground | Always | 10 kΩ or higher |
| F59-7 (MO-) - Body ground | Always | 10 kΩ or higher |
| F59-6 (SLDO) - Body ground | Always | 10 kΩ or higher |

e. Measure the resistance between the radio receiver assembly and the stereo component amplifier assembly according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-11 (MO+) - F63-4 (MI+) | Always | Below 1 Ω |
| F54-25 (MO-) - F63-10 (MI-) | Always | Below 1 Ω |
| F54-24 (SLDI) - F63-5 (SLDI) | Always | Below 1 Ω |
| F54-11 (MO+) - Body ground | Always | 10 kΩ or higher |
| F54-25 (MO-) - Body ground | Always | 10 kΩ or higher |
| F54-24 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**6.REPLACE RADIO RECEIVER ASSEMBLY**

a. Replace the radio receiver assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**END**

# DTC B15F6 Main Body ECU Vehicle Information Reading/Writing Process Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when items controlled by the main body ECU (cowl side junction block LH) cannot be customized via the electro multi vision system vehicle customization screen.

**HINT:**

**The main body ECU (cowl side junction block LH) controls the items for the following systems that are customizable via the electro multi vision system screen:**

- **Power door lock control system**
- **Wireless door lock control system**
- **Lighting system**

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15F6 | Main body ECU (cowl side junction block LH) vehicle setting processing error. | • CAN communication system<br>• Power door lock control system<br>• Wireless door lock control system<br>• Lighting system<br>• Main body ECU (cowl side junction block LH)<br>• Display and navigation module display |

## INSPECTION PROCEDURE

### 1.CHECK CAN COMMUNICATION SYSTEM

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

**HINT:**

- **for LHD (Click here)**
- **for RHD (Click here)**

**OK:**

**CAN communication DTC is not output.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**B** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**C** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**A**

### 2.CHECK POWER DOOR LOCK CONTROL SYSTEM

a. Check if the power door lock control system is malfunctioning ( Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the power door lock control system.

**OK:**

**No malfunctions are present in the power door lock control system.**

**NG** → GO TO POWER DOOR LOCK CONTROL SYSTEM (Click here)

**OK**

### 3.CHECK WIRELESS DOOR LOCK CONTROL SYSTEM

a. Check if the wireless door lock control system is malfunctioning ( Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the wireless door lock control system.

**OK:**
**No malfunctions are present in the wireless door lock control system.**

NG → GO TO WIRELESS DOOR LOCK CONTROL SYSTEM ( **Click here**)

OK

### 4.CHECK LIGHTING SYSTEM

a. Check if the lighting system is malfunctioning ( Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the lighting system.

**OK:**
**No malfunctions are present in the lighting system.**

NG → GO TO LIGHTING SYSTEM (**Click here**)

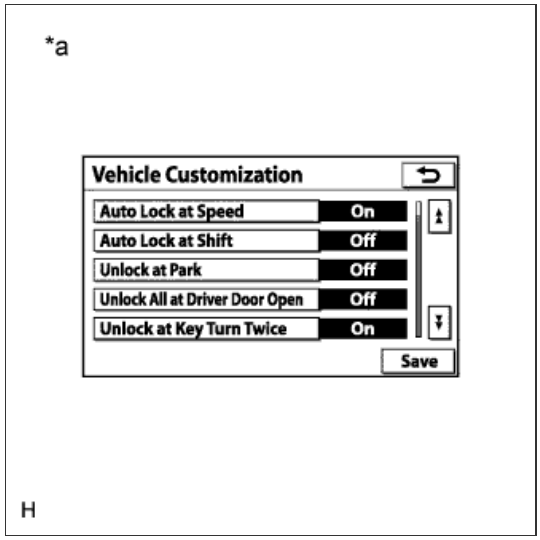
OK

### 5.CHECK CUSTOMIZE ITEMS

a. Display the "Vehicle Customization" screen.

**Text in Illustration**

| | |
|---|---|
| *a | Example: |




b. Make a note of the customizable items for each main body ECU (cowl side junction block LH) related system.

**HINT:**

These items shown as customizable via the electro multi vision system vehicle customization screen can also be changed using the intelligent tester. In a following step, the intelligent tester will be used.

i. To match-up the items in the electro multi vision display with the items on the intelligent tester, check the customize parameters list for the power door lock control system related items that can be customized via the electro multi vision system screen (Click here).

ii. To match-up the items in the electro multi vision display with the items on the intelligent tester, check the customize parameters list for the wireless door lock control system related items that can be customized via the electro multi vision system screen (Click here).

iii. To match-up the items in the electro multi vision display with the items on the intelligent tester, check the customize parameters list for the lighting system related items that can be customized via the electro multi vision system screen (Click here).

c. Using the intelligent tester, confirm that it is possible to change the settings of the customize parameters that are available for customization via the electro multi vision system screen.

**OK:**
**The items available for customization via the electro multi vision system screen can be customized successfully using the intelligent tester.**

NG → REPLACE MAIN BODY ECU (COWL SIDE JUNCTION BLOCK LH)

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

## DTC B1591 No Response from Audio HU

## DTC B15D1 Audio HU Disconnected

**for Preparation** Click here

### DESCRIPTION

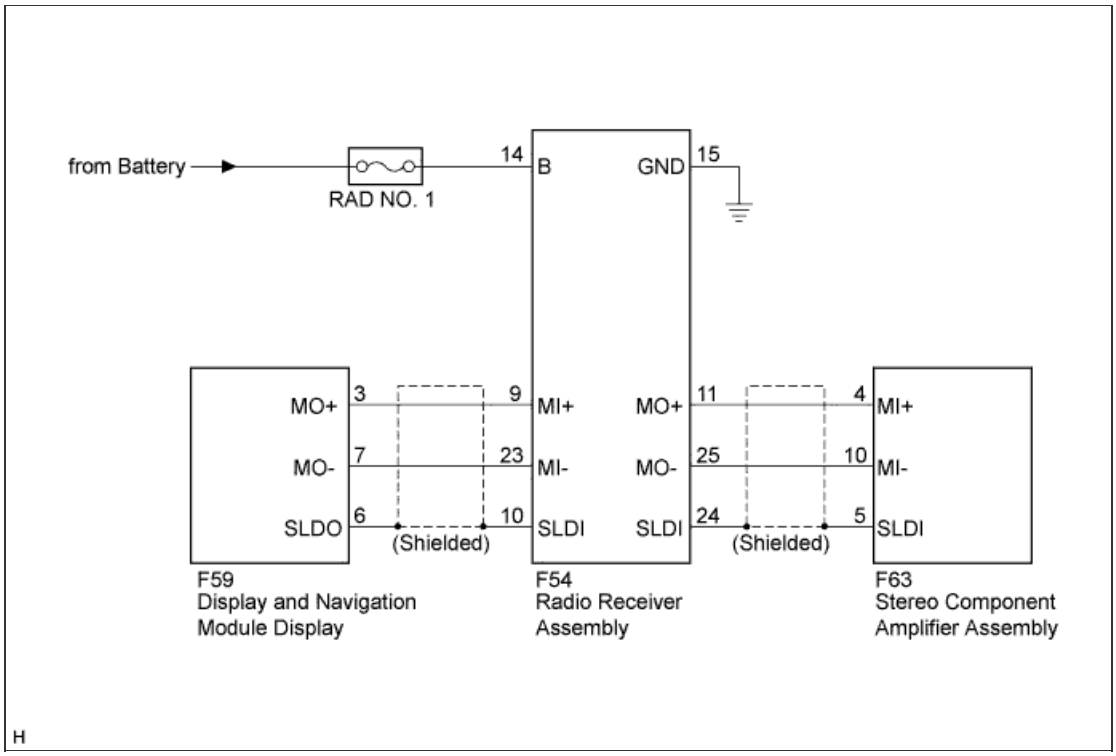
The display and navigation module display and radio receiver assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and the radio receiver assembly, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1591 | Within the time-out period, there was no response from the radio receiver assembly to the following requests from the master unit:<br>• System inspection request<br>• System inspection result request<br>• Diagnostic memory request | • Radio receiver assembly power source circuit<br>• MOST circuit between display and navigation module display and radio receiver assembly<br>• MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>• Radio receiver assembly<br>• Display and navigation module display |
| B15D1*1 | When either of the conditions below is met:<br>• Radio receiver assembly is/was not connected while the engine switch is on (IG or ACC).<br>• Communication between the master unit and the radio receiver assembly is not possible when the engine is started. | |

**HINT:**

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

## 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

**B** → **Go to step 3**

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

**NG** → **Go to step 4**

**OK**

## END

## 4.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY POWER SOURCE)

a. Disconnect the F54 radio receiver assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-15 (GND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

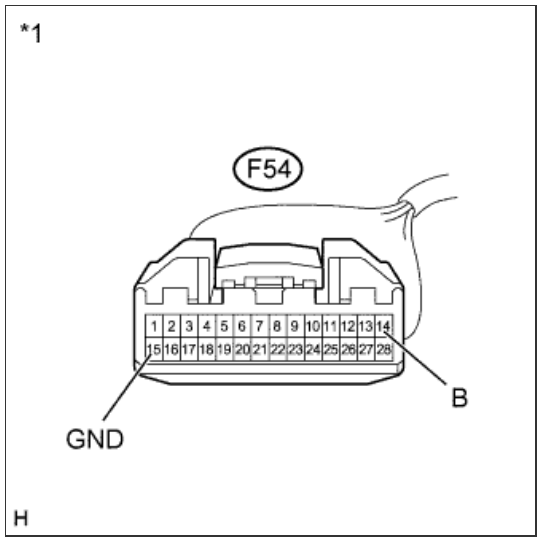
**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| F54-14 (B) - F54-15 (GND) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Radio Receiver Assembly) |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.CHECK HARNESS AND CONNECTOR (MOST COMMUNICATION LINE)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Disconnect the F59 display and navigation module display connector.

d. Measure the resistance between the display and navigation module display and the radio receiver assembly according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F59-3 (MO+) - F54-9 (MI+) | Always | Below 1 Ω |
| F59-7 (MO-) - F54-23 (MI-) | Always | Below 1 Ω |
| F59-6 (SLDO) - F54-10 (SLDI) | Always | Below 1 Ω |
| F59-3 (MO+) - Body ground | Always | 10 kΩ or higher |
| F59-7 (MO-) - Body ground | Always | 10 kΩ or higher |
| F59-6 (SLDO) - Body ground | Always | 10 kΩ or higher |

e. Measure the resistance between the radio receiver assembly and the stereo component amplifier assembly according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-11 (MO+) - F63-4 (MI+) | Always | Below 1 Ω |
| F54-25 (MO-) - F63-10 (MI-) | Always | Below 1 Ω |
| F54-24 (SLDI) - F63-5 (SLDI) | Always | Below 1 Ω |
| F54-11 (MO+) - Body ground | Always | 10 kΩ or higher |
| F54-25 (MO-) - Body ground | Always | 10 kΩ or higher |
| F54-24 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**6.REPLACE RADIO RECEIVER ASSEMBLY**

a. Replace the radio receiver assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**END**

# DTC B15F7 Certification ECU Vehicle Information Reading/Writing Process Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when items controlled by the certification ECU (smart key ECU assembly) cannot be customized via the electro multi vision system vehicle customization screen.

**HINT:**

**The certification ECU (smart key ECU assembly) controls the items for the following systems that are customizable via the electro multi vision system screen:**

- **Smart access system with push-button start (for Entry Function)**
- **Smart access system with push-button start (for Start Function)**

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15F7 | Certification ECU (smart key ECU assembly) vehicle setting processing error. | • CAN communication system<br>• Smart access system with push-button start (for Entry Function)<br>• Smart access system with push-button start (for Start Function)<br>• Certification ECU (smart key ECU assembly)<br>• Display and navigation module display |

## INSPECTION PROCEDURE

### 1.CHECK CAN COMMUNICATION SYSTEM

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

**HINT:**

- **for LHD (Click here)**
- **for RHD (Click here)**

**OK:**

**CAN communication DTC is not output.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**B** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**C** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**A**

### 2.CHECK SMART ACCESS SYSTEM WITH PUSH-BUTTON START (for Entry Function)

a. Check if the smart access system with push-button start (for entry function) is malfunctioning ( Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the smart access system with push-button start (for entry function).

**OK:**

**No malfunctions are present in the smart access system with push-button start (for entry function).**

**NG** → GO TO SMART ACCESS SYSTEM WITH PUSH-BUTTON START (for Entry Function) (Click here)

**OK**

### 3.CHECK SMART ACCESS SYSTEM WITH PUSH-BUTTON START (for Start Function)

a. Check if the smart access system with push-button start (for start function) is malfunctioning ( Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the smart access system with push-button start (for start function).

**OK:**

**No malfunctions are present in the smart access system with push-button start (for start function).**

NG → GO TO SMART ACCESS SYSTEM WITH PUSH-BUTTON START (for Start Function) (**Click here**)

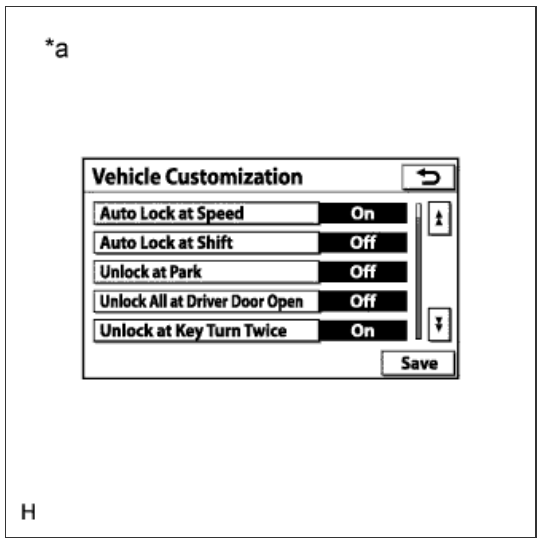
OK

### 4.CHECK CUSTOMIZE ITEMS

a. Display the "Vehicle Customization" screen.

**Text in Illustration**

| | |
|---|---|
| *a | Example: |




b. Make a note of the customizable items for each certification ECU related system.

**HINT:**

These items shown as customizable via the electro multi vision system vehicle customization screen can also be changed using the intelligent tester. In a following step, the intelligent tester will be used.

i. To match-up the items in the electro multi vision display with the items on the intelligent tester, check the customize parameters list for the smart access system with push button start (for entry function) related items that can be customized via the electro multi vision system screen (Click here).

ii. To match-up the items in the electro multi vision display with the items on the intelligent tester, check the customize parameters list for the smart access system with push button start (for start function) related items that can be customized via the electro multi vision system screen (Click here).

c. Using the intelligent tester, confirm that it is possible to change the settings of the customize parameters that are available for customization via the electro multi vision system screen.

**OK:**

**The items available for customization via the electro multi vision system screen can be customized successfully using the intelligent tester.**

NG → REPLACE SMART KEY ECU ASSEMBLY

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

## DTC B1591 No Response from Audio HU

## DTC B15D1 Audio HU Disconnected

**for Preparation** Click here

### DESCRIPTION

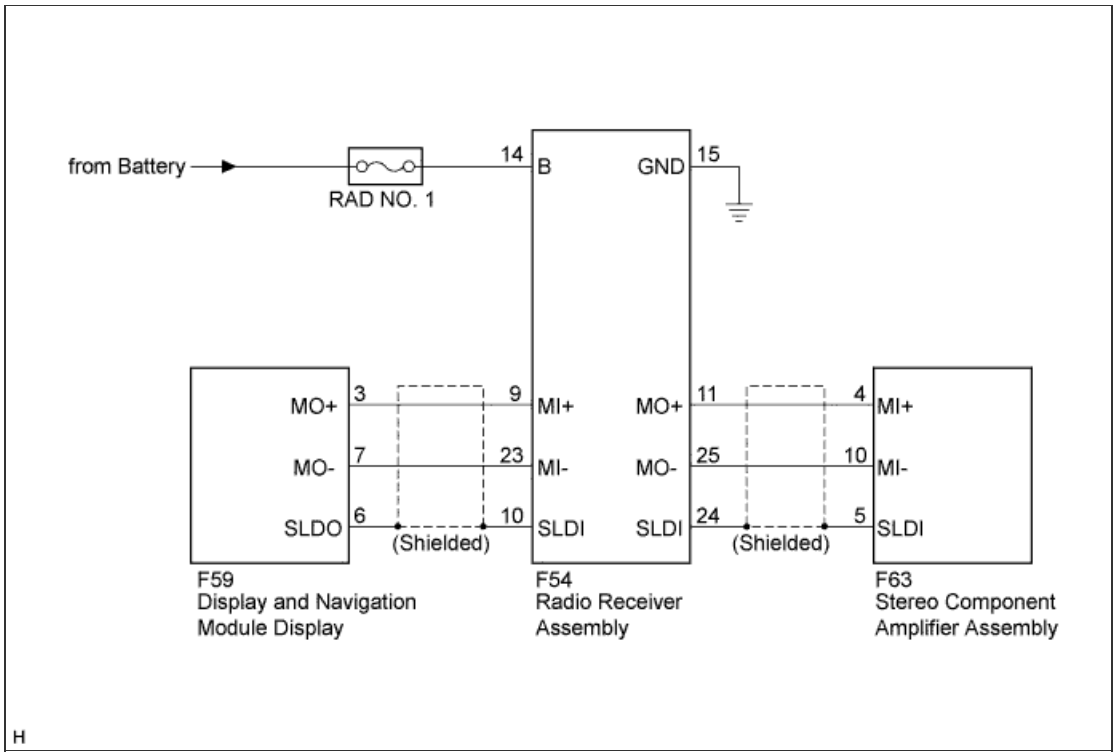
The display and navigation module display and radio receiver assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and the radio receiver assembly, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1591 | Within the time-out period, there was no response from the radio receiver assembly to the following requests from the master unit:<br>• System inspection request<br>• System inspection result request<br>• Diagnostic memory request | • Radio receiver assembly power source circuit<br>• MOST circuit between display and navigation module display and radio receiver assembly<br>• MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>• Radio receiver assembly<br>• Display and navigation module display |
| B15D1*1 | When either of the conditions below is met:<br>• Radio receiver assembly is/was not connected while the engine switch is on (IG or ACC).<br>• Communication between the master unit and the radio receiver assembly is not possible when the engine is started. | |

**HINT:**

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

## 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

**B** → **Go to step 3**

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

**NG** → **Go to step 4**

**OK**

## END

## 4.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY POWER SOURCE)

a. Disconnect the F54 radio receiver assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-15 (GND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

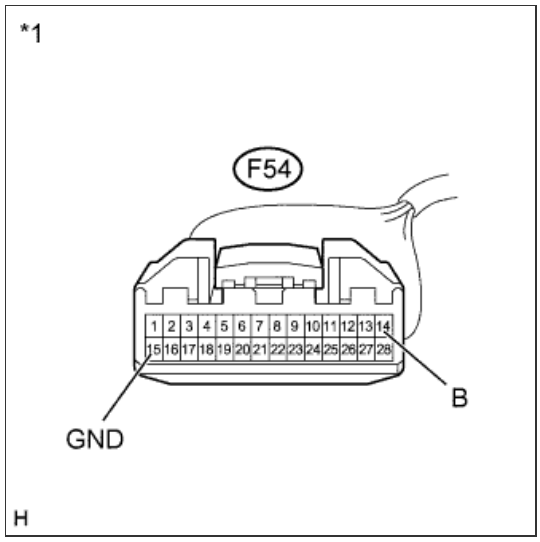
**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| F54-14 (B) - F54-15 (GND) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Radio Receiver Assembly) |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.CHECK HARNESS AND CONNECTOR (MOST COMMUNICATION LINE)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Disconnect the F59 display and navigation module display connector.

d. Measure the resistance between the display and navigation module display and the radio receiver assembly according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F59-3 (MO+) - F54-9 (MI+) | Always | Below 1 Ω |
| F59-7 (MO-) - F54-23 (MI-) | Always | Below 1 Ω |
| F59-6 (SLDO) - F54-10 (SLDI) | Always | Below 1 Ω |
| F59-3 (MO+) - Body ground | Always | 10 kΩ or higher |
| F59-7 (MO-) - Body ground | Always | 10 kΩ or higher |
| F59-6 (SLDO) - Body ground | Always | 10 kΩ or higher |

e. Measure the resistance between the radio receiver assembly and the stereo component amplifier assembly according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-11 (MO+) - F63-4 (MI+) | Always | Below 1 Ω |
| F54-25 (MO-) - F63-10 (MI-) | Always | Below 1 Ω |
| F54-24 (SLDI) - F63-5 (SLDI) | Always | Below 1 Ω |
| F54-11 (MO+) - Body ground | Always | 10 kΩ or higher |
| F54-25 (MO-) - Body ground | Always | 10 kΩ or higher |
| F54-24 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**6.REPLACE RADIO RECEIVER ASSEMBLY**

a. Replace the radio receiver assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**END**

# DTC B15F7 Certification ECU Vehicle Information Reading/Writing Process Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when items controlled by the certification ECU (smart key ECU assembly) cannot be customized via the electro multi vision system vehicle customization screen.

**HINT:**

**The certification ECU (smart key ECU assembly) controls the items for the following systems that are customizable via the electro multi vision system screen:**

- **Smart access system with push-button start (for Entry Function)**
- **Smart access system with push-button start (for Start Function)**

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15F7 | Certification ECU (smart key ECU assembly) vehicle setting processing error. | • CAN communication system<br>• Smart access system with push-button start (for Entry Function)<br>• Smart access system with push-button start (for Start Function)<br>• Certification ECU (smart key ECU assembly)<br>• Display and navigation module display |

## INSPECTION PROCEDURE

### 1.CHECK CAN COMMUNICATION SYSTEM

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

**HINT:**

- **for LHD (Click here)**
- **for RHD (Click here)**

**OK:**

**CAN communication DTC is not output.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**B** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**C** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**A**

### 2.CHECK SMART ACCESS SYSTEM WITH PUSH-BUTTON START (for Entry Function)

a. Check if the smart access system with push-button start (for entry function) is malfunctioning ( Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the smart access system with push-button start (for entry function).

**OK:**

**No malfunctions are present in the smart access system with push-button start (for entry function).**

**NG** → GO TO SMART ACCESS SYSTEM WITH PUSH-BUTTON START (for Entry Function) (Click here)

**OK**

### 3.CHECK SMART ACCESS SYSTEM WITH PUSH-BUTTON START (for Start Function)

a. Check if the smart access system with push-button start (for start function) is malfunctioning ( Click here).

**HINT:**

Customization may not be possible depending on the malfunction in the smart access system with push-button start (for start function).

**OK:**

**No malfunctions are present in the smart access system with push-button start (for start function).**

NG → GO TO SMART ACCESS SYSTEM WITH PUSH-BUTTON START (for Start Function) (**Click here**)

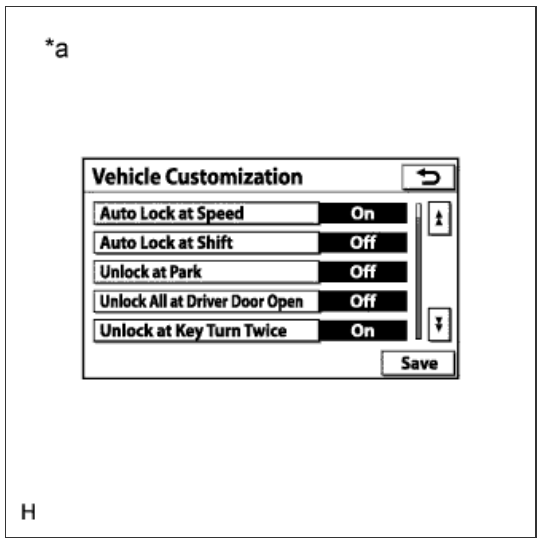
OK

### 4.CHECK CUSTOMIZE ITEMS

a. Display the "Vehicle Customization" screen.

**Text in Illustration**

| | |
|---|---|
| *a | Example: |




b. Make a note of the customizable items for each certification ECU related system.

**HINT:**

These items shown as customizable via the electro multi vision system vehicle customization screen can also be changed using the intelligent tester. In a following step, the intelligent tester will be used.

i. To match-up the items in the electro multi vision display with the items on the intelligent tester, check the customize parameters list for the smart access system with push button start (for entry function) related items that can be customized via the electro multi vision system screen (Click here).

ii. To match-up the items in the electro multi vision display with the items on the intelligent tester, check the customize parameters list for the smart access system with push button start (for start function) related items that can be customized via the electro multi vision system screen (Click here).

c. Using the intelligent tester, confirm that it is possible to change the settings of the customize parameters that are available for customization via the electro multi vision system screen.

**OK:**

**The items available for customization via the electro multi vision system screen can be customized successfully using the intelligent tester.**

NG → REPLACE SMART KEY ECU ASSEMBLY

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

## DTC B1591 No Response from Audio HU

## DTC B15D1 Audio HU Disconnected

**for Preparation** Click here

### DESCRIPTION

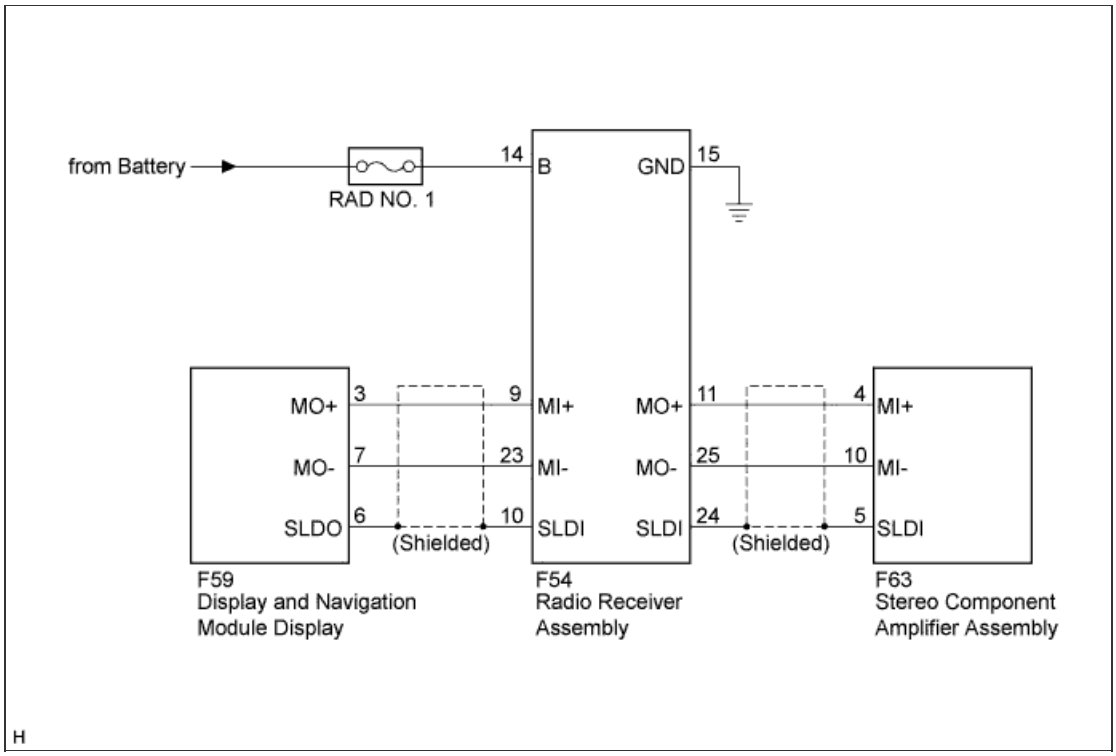
The display and navigation module display and radio receiver assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and the radio receiver assembly, these DTCs will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1591 | Within the time-out period, there was no response from the radio receiver assembly to the following requests from the master unit:<br>• System inspection request<br>• System inspection result request<br>• Diagnostic memory request | • Radio receiver assembly power source circuit<br>• MOST circuit between display and navigation module display and radio receiver assembly<br>• MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>• Radio receiver assembly<br>• Display and navigation module display |
| B15D1*1 | When either of the conditions below is met:<br>• Radio receiver assembly is/was not connected while the engine switch is on (IG or ACC).<br>• Communication between the master unit and the radio receiver assembly is not possible when the engine is started. | |

**HINT:**

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

## 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

**B** → **Go to step 3**

**A**

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

**NEXT**

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

**NG** → **Go to step 4**

**OK**

## END

## 4.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY POWER SOURCE)

a. Disconnect the F54 radio receiver assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-15 (GND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

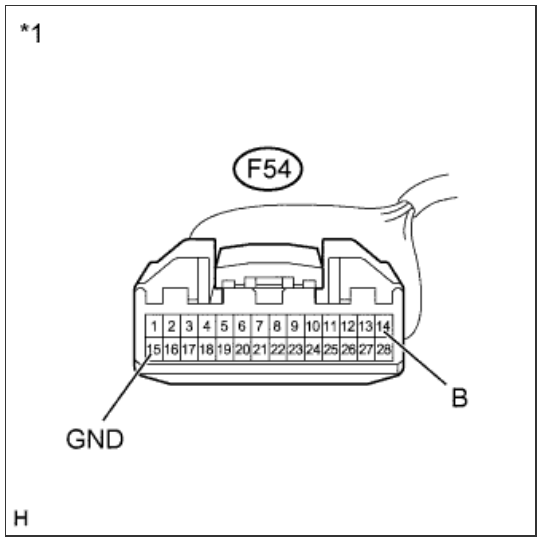
**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| F54-14 (B) - F54-15 (GND) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Radio Receiver Assembly) |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.CHECK HARNESS AND CONNECTOR (MOST COMMUNICATION LINE)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F63 stereo component amplifier assembly connector.

c. Disconnect the F59 display and navigation module display connector.

d. Measure the resistance between the display and navigation module display and the radio receiver assembly according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F59-3 (MO+) - F54-9 (MI+) | Always | Below 1 Ω |
| F59-7 (MO-) - F54-23 (MI-) | Always | Below 1 Ω |
| F59-6 (SLDO) - F54-10 (SLDI) | Always | Below 1 Ω |
| F59-3 (MO+) - Body ground | Always | 10 kΩ or higher |
| F59-7 (MO-) - Body ground | Always | 10 kΩ or higher |
| F59-6 (SLDO) - Body ground | Always | 10 kΩ or higher |

e. Measure the resistance between the radio receiver assembly and the stereo component amplifier assembly according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-11 (MO+) - F63-4 (MI+) | Always | Below 1 Ω |
| F54-25 (MO-) - F63-10 (MI-) | Always | Below 1 Ω |
| F54-24 (SLDI) - F63-5 (SLDI) | Always | Below 1 Ω |
| F54-11 (MO+) - Body ground | Always | 10 kΩ or higher |
| F54-25 (MO-) - Body ground | Always | 10 kΩ or higher |
| F54-24 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**6.REPLACE RADIO RECEIVER ASSEMBLY**

a. Replace the radio receiver assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**END**

## DTC U0073 Control Module Communication Bus Off

## DTC U0155 Lost Communication with Combination Meter

## DTC U0164 Lost Communication with A/C ECU

## DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a malfunction occurs in the CAN communication circuit.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN bus connection error | CAN communication system |
| U0155 | CAN reception error | |
| U0164 | CAN reception error | |
| U1110 | CAN reception error | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**OK:**

**No DTCs are output.**

**B** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**C** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**A**

USE SIMULATION METHOD TO CHECK (Click here)

## DTC B1593 No Response from Stereo Component Amplifier

## DTC B15D3 Stereo Component Amplifier Disconnected

**for Preparation** Click here

### DESCRIPTION

The display and navigation module display and stereo component amplifier assembly are connected by the MOST communication line.
When a MOST communication error occurs between the display and navigation module display and the stereo component amplifier assembly, these DTCs will be stored.

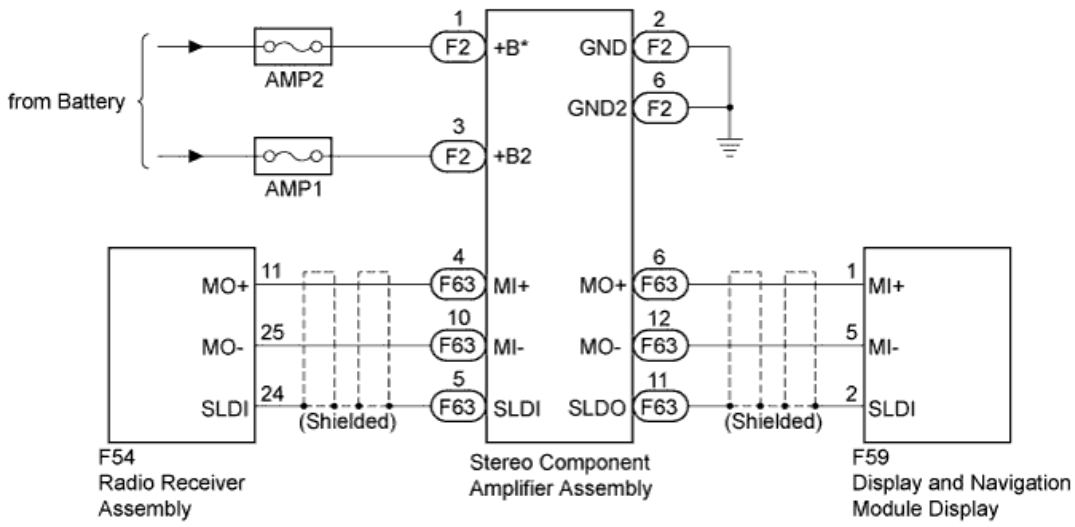
| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1593 | Within the time-out period, there was no response from the stereo component amplifier assembly to the following requests from the master unit:<br>• System inspection request<br>• System inspection result request<br>• Diagnostic memory request | • Stereo component amplifier assembly power source circuit<br>• MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>• MOST circuit between stereo component amplifier assembly and display and navigation module display (w/o Rear Seat Entertainment System)<br>• MOST circuit between stereo component amplifier assembly and television display assembly (w/ Rear Seat Entertainment System)<br>• Stereo component amplifier assembly<br>• Display and navigation module display |
| B15D3*1 | When either of the conditions below is met:<br>• Stereo component amplifier assembly is/was not connected while the engine switch is on (IG or ACC).<br>• Communication between the master unit and the stereo component amplifier assembly is not possible when the engine is started. | |

**HINT:**

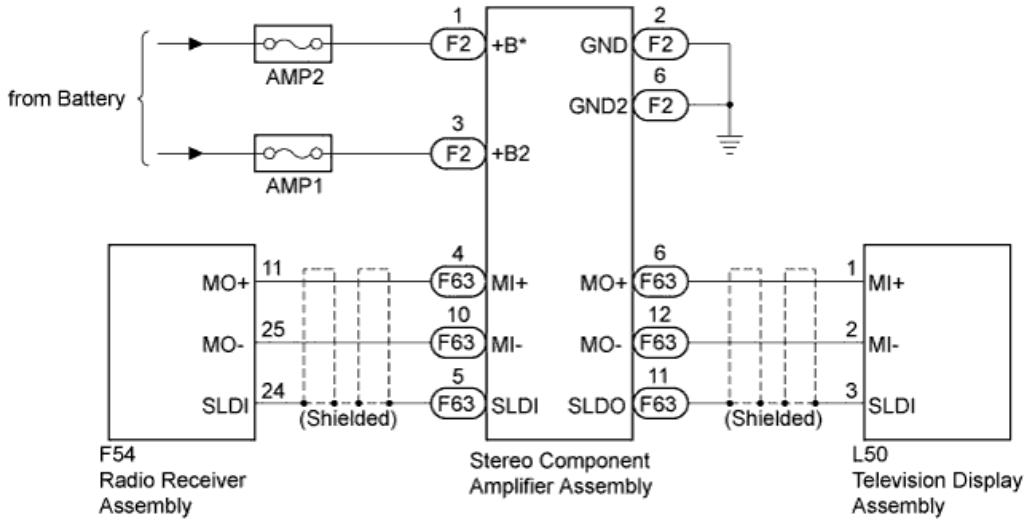
- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

### WIRING DIAGRAM

w/o Rear Seat Entertainment System:




w/ Rear Seat Entertainment System:




*: for 19 Speakers

H

## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

B → Go to step 3

A

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → Go to step 4

OK

END

## 4.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY POWER SOURCE)

a. Disconnect the F2 stereo component amplifier assembly connector.

b. Measure the resistance according to the value(s) in the table below.

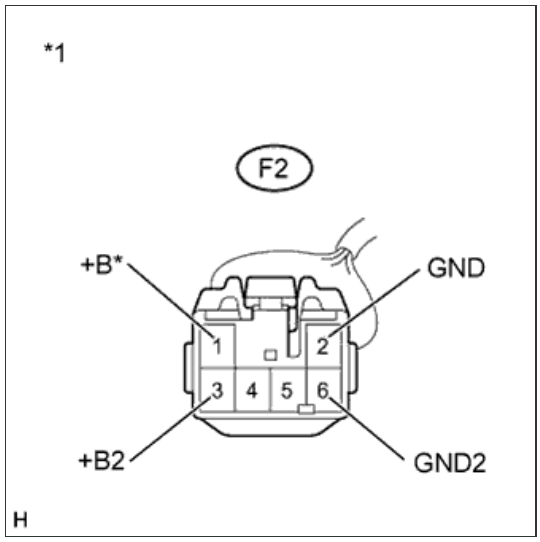
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-2 (GND) - Body ground | Always | Below 1 Ω |
| F2-6 (GND2) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-1 (+B) - F2-2 (GND)* | Always | 11 to 14 V |
| F2-3 (+B2) - F2-2 (GND) | Always | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |

*: for 19 Speakers

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.CHECK HARNESS AND CONNECTOR (MOST COMMUNICATION LINE)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-4 (MI+) - F54-11 (MO+) | Always | Below 1 Ω |
| F63-10 (MI-) - F54-25 (MO-) | Always | Below 1 Ω |
| F63-5 (SLDI) - F54-24 (SLDI) | Always | Below 1 Ω |
| F63-4 (MI+) - Body ground | Always | 10 kΩ or higher |
| F63-10 (MI-) - Body ground | Always | 10 kΩ or higher |
| F63-5 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 6.CONFIRM MODEL

a. Choose the model to be inspected.

**Result:**

| Result | Proceed to |
|---|---|
| w/o Rear Seat Entertainment System | A |
| w/ Rear Seat Entertainment System | B |

B → Go to step 9

A

## 7.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - | | |

| | | |
|---|---|---|
| Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**8.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Replace the stereo component amplifier assembly ( Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**END**

**9.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - TELEVISION DISPLAY ASSEMBLY)**

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the L50 television display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - L50-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - L50-2 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - L50-3 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**10.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Replace the stereo component amplifier assembly ( Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)


OK
END

## DTC U0073 Control Module Communication Bus Off

## DTC U0155 Lost Communication with Combination Meter

## DTC U0164 Lost Communication with A/C ECU

## DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a malfunction occurs in the CAN communication circuit.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN bus connection error | CAN communication system |
| U0155 | CAN reception error | |
| U0164 | CAN reception error | |
| U1110 | CAN reception error | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**OK:**

**No DTCs are output.**

**B** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**C** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**A**

USE SIMULATION METHOD TO CHECK (Click here)

## DTC B1593 No Response from Stereo Component Amplifier

## DTC B15D3 Stereo Component Amplifier Disconnected

**for Preparation** Click here

### DESCRIPTION

The display and navigation module display and stereo component amplifier assembly are connected by the MOST communication line.
When a MOST communication error occurs between the display and navigation module display and the stereo component amplifier assembly, these DTCs will be stored.

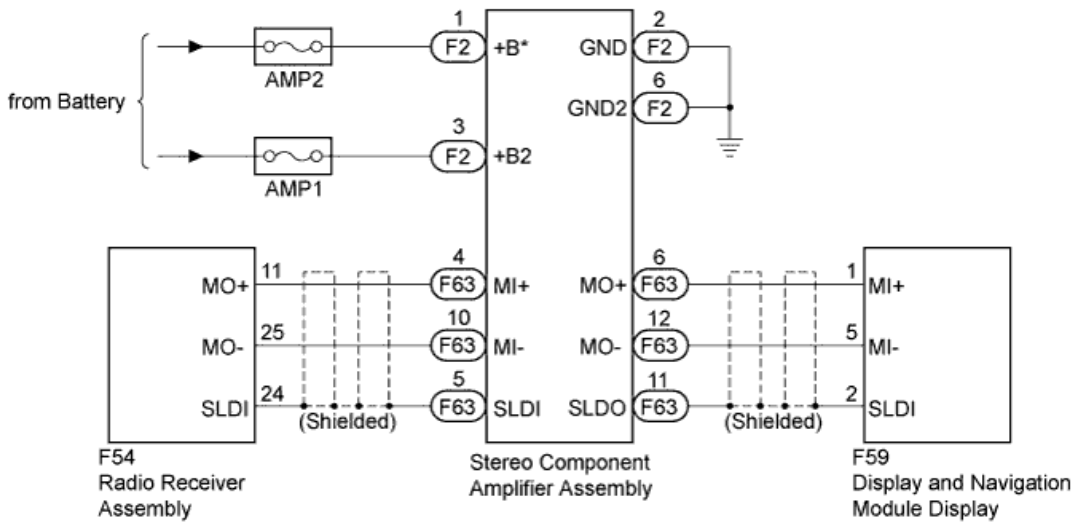
| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1593 | Within the time-out period, there was no response from the stereo component amplifier assembly to the following requests from the master unit:<br>• System inspection request<br>• System inspection result request<br>• Diagnostic memory request | • Stereo component amplifier assembly power source circuit<br>• MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>• MOST circuit between stereo component amplifier assembly and display and navigation module display (w/o Rear Seat Entertainment System)<br>• MOST circuit between stereo component amplifier assembly and television display assembly (w/ Rear Seat Entertainment System)<br>• Stereo component amplifier assembly<br>• Display and navigation module display |
| B15D3*1 | When either of the conditions below is met:<br>• Stereo component amplifier assembly is/was not connected while the engine switch is on (IG or ACC).<br>• Communication between the master unit and the stereo component amplifier assembly is not possible when the engine is started. | |

**HINT:**

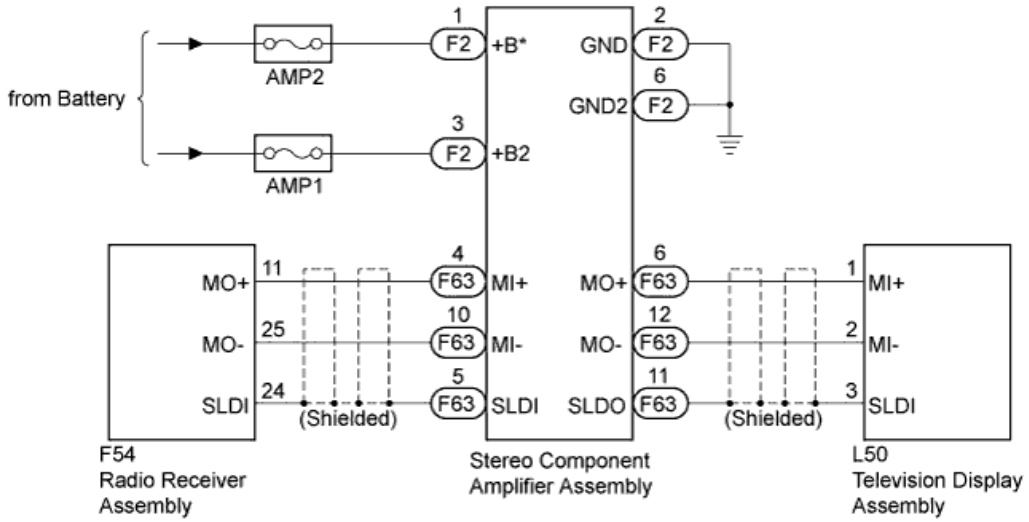
- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

### WIRING DIAGRAM

w/o Rear Seat Entertainment System:




w/ Rear Seat Entertainment System:




*: for 19 Speakers

H

## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

B → Go to step 3

A

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → Go to step 4

OK

END

## 4.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY POWER SOURCE)

a. Disconnect the F2 stereo component amplifier assembly connector.

b. Measure the resistance according to the value(s) in the table below.

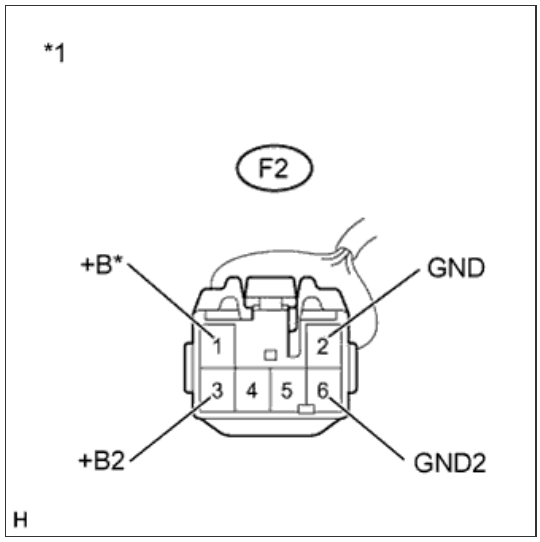
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-2 (GND) - Body ground | Always | Below 1 Ω |
| F2-6 (GND2) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-1 (+B) - F2-2 (GND)* | Always | 11 to 14 V |
| F2-3 (+B2) - F2-2 (GND) | Always | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |

*: for 19 Speakers

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.CHECK HARNESS AND CONNECTOR (MOST COMMUNICATION LINE)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-4 (MI+) - F54-11 (MO+) | Always | Below 1 Ω |
| F63-10 (MI-) - F54-25 (MO-) | Always | Below 1 Ω |
| F63-5 (SLDI) - F54-24 (SLDI) | Always | Below 1 Ω |
| F63-4 (MI+) - Body ground | Always | 10 kΩ or higher |
| F63-10 (MI-) - Body ground | Always | 10 kΩ or higher |
| F63-5 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 6.CONFIRM MODEL

a. Choose the model to be inspected.

**Result:**

| Result | Proceed to |
|---|---|
| w/o Rear Seat Entertainment System | A |
| w/ Rear Seat Entertainment System | B |

B → Go to step 9

A

## 7.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - | | |

| | | |
|---|---|---|
| Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**8.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Replace the stereo component amplifier assembly ( Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**END**

**9.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - TELEVISION DISPLAY ASSEMBLY)**

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the L50 television display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - L50-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - L50-2 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - L50-3 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**10.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Replace the stereo component amplifier assembly ( Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)


OK
END

## DTC U0073 Control Module Communication Bus Off

## DTC U0155 Lost Communication with Combination Meter

## DTC U0164 Lost Communication with A/C ECU

## DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a malfunction occurs in the CAN communication circuit.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN bus connection error | CAN communication system |
| U0155 | CAN reception error | |
| U0164 | CAN reception error | |
| U1110 | CAN reception error | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**OK:**

**No DTCs are output.**

**B** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**C** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**A**

USE SIMULATION METHOD TO CHECK (Click here)

## DTC B1593 No Response from Stereo Component Amplifier

## DTC B15D3 Stereo Component Amplifier Disconnected

**for Preparation** Click here

### DESCRIPTION

The display and navigation module display and stereo component amplifier assembly are connected by the MOST communication line.
When a MOST communication error occurs between the display and navigation module display and the stereo component amplifier assembly, these DTCs will be stored.

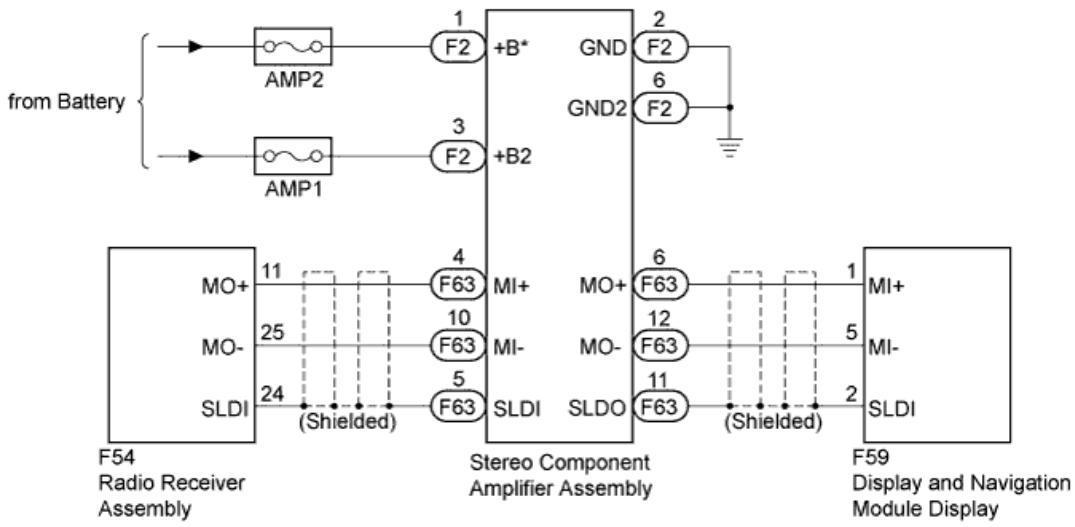
| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1593 | Within the time-out period, there was no response from the stereo component amplifier assembly to the following requests from the master unit:<br>• System inspection request<br>• System inspection result request<br>• Diagnostic memory request | • Stereo component amplifier assembly power source circuit<br>• MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>• MOST circuit between stereo component amplifier assembly and display and navigation module display (w/o Rear Seat Entertainment System)<br>• MOST circuit between stereo component amplifier assembly and television display assembly (w/ Rear Seat Entertainment System)<br>• Stereo component amplifier assembly<br>• Display and navigation module display |
| B15D3*1 | When either of the conditions below is met:<br>• Stereo component amplifier assembly is/was not connected while the engine switch is on (IG or ACC).<br>• Communication between the master unit and the stereo component amplifier assembly is not possible when the engine is started. | |

**HINT:**

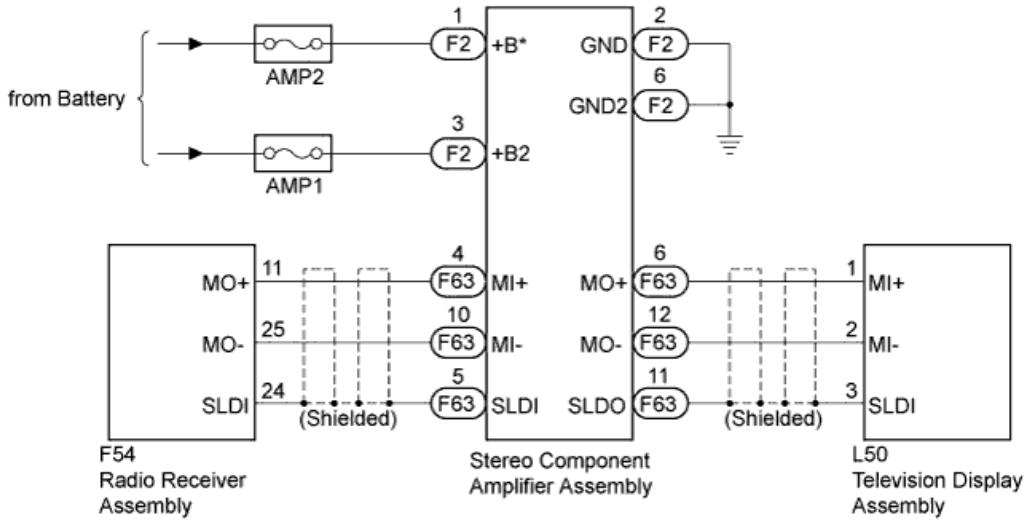
- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

### WIRING DIAGRAM

w/o Rear Seat Entertainment System:




w/ Rear Seat Entertainment System:




*: for 19 Speakers

H

## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

B → Go to step 3

A

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → Go to step 4

OK

END

## 4.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY POWER SOURCE)

a. Disconnect the F2 stereo component amplifier assembly connector.

b. Measure the resistance according to the value(s) in the table below.

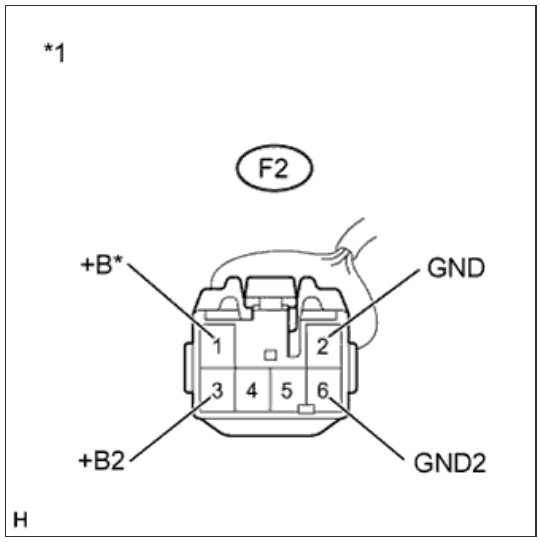
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-2 (GND) - Body ground | Always | Below 1 Ω |
| F2-6 (GND2) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-1 (+B) - F2-2 (GND)* | Always | 11 to 14 V |
| F2-3 (+B2) - F2-2 (GND) | Always | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |

*: for 19 Speakers

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.CHECK HARNESS AND CONNECTOR (MOST COMMUNICATION LINE)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-4 (MI+) - F54-11 (MO+) | Always | Below 1 Ω |
| F63-10 (MI-) - F54-25 (MO-) | Always | Below 1 Ω |
| F63-5 (SLDI) - F54-24 (SLDI) | Always | Below 1 Ω |
| F63-4 (MI+) - Body ground | Always | 10 kΩ or higher |
| F63-10 (MI-) - Body ground | Always | 10 kΩ or higher |
| F63-5 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 6.CONFIRM MODEL

a. Choose the model to be inspected.

**Result:**

| Result | Proceed to |
|---|---|
| w/o Rear Seat Entertainment System | A |
| w/ Rear Seat Entertainment System | B |

B → Go to step 9

A

## 7.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - | | |

| | | |
|---|---|---|
| Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**8.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Replace the stereo component amplifier assembly ( Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**END**

**9.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - TELEVISION DISPLAY ASSEMBLY)**

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the L50 television display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - L50-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - L50-2 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - L50-3 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**10.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Replace the stereo component amplifier assembly ( Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)


OK
END

## DTC U0073 Control Module Communication Bus Off

## DTC U0155 Lost Communication with Combination Meter

## DTC U0164 Lost Communication with A/C ECU

## DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a malfunction occurs in the CAN communication circuit.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN bus connection error | CAN communication system |
| U0155 | CAN reception error | |
| U0164 | CAN reception error | |
| U1110 | CAN reception error | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**OK:**

**No DTCs are output.**

**B** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**C** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**A**

USE SIMULATION METHOD TO CHECK (Click here)

## DTC B1593 No Response from Stereo Component Amplifier

## DTC B15D3 Stereo Component Amplifier Disconnected

**for Preparation** Click here

### DESCRIPTION

The display and navigation module display and stereo component amplifier assembly are connected by the MOST communication line.
When a MOST communication error occurs between the display and navigation module display and the stereo component amplifier assembly, these DTCs will be stored.

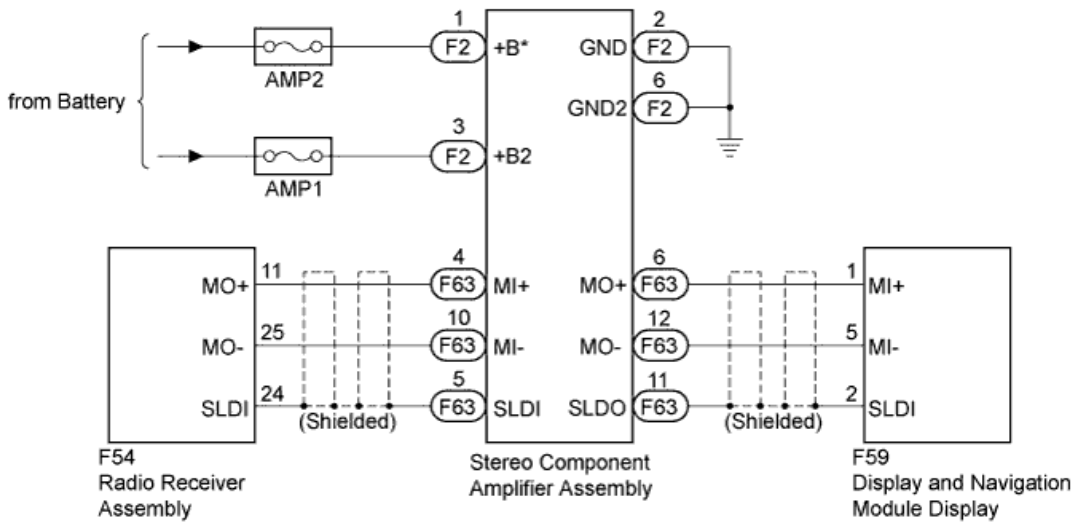
| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1593 | Within the time-out period, there was no response from the stereo component amplifier assembly to the following requests from the master unit:<br>• System inspection request<br>• System inspection result request<br>• Diagnostic memory request | • Stereo component amplifier assembly power source circuit<br>• MOST circuit between radio receiver assembly and stereo component amplifier assembly<br>• MOST circuit between stereo component amplifier assembly and display and navigation module display (w/o Rear Seat Entertainment System)<br>• MOST circuit between stereo component amplifier assembly and television display assembly (w/ Rear Seat Entertainment System)<br>• Stereo component amplifier assembly<br>• Display and navigation module display |
| B15D3*1 | When either of the conditions below is met:<br>• Stereo component amplifier assembly is/was not connected while the engine switch is on (IG or ACC).<br>• Communication between the master unit and the stereo component amplifier assembly is not possible when the engine is started. | |

**HINT:**

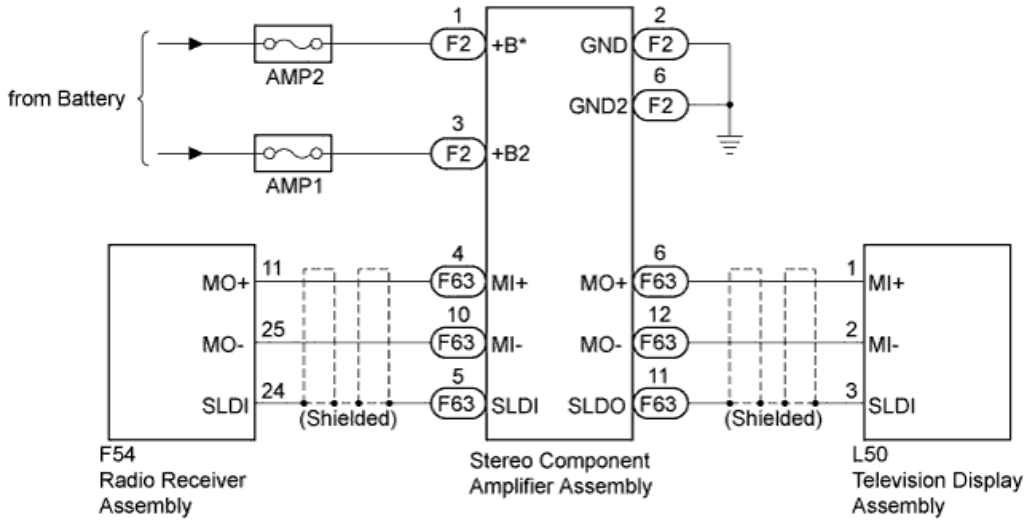
- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

### WIRING DIAGRAM

w/o Rear Seat Entertainment System:




w/ Rear Seat Entertainment System:




*: for 19 Speakers

H

## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

**Result**

| Result | Proceed to |
|---|---|
| Optional components (including associated wiring) are installed. | A |
| Optional components (including associated wiring) are not installed. | B |

**HINT:**

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

B → Go to step 3

A

## 2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

**NOTICE:**

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

## 3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → Go to step 4

OK

END

## 4.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY POWER SOURCE)

a. Disconnect the F2 stereo component amplifier assembly connector.

b. Measure the resistance according to the value(s) in the table below.

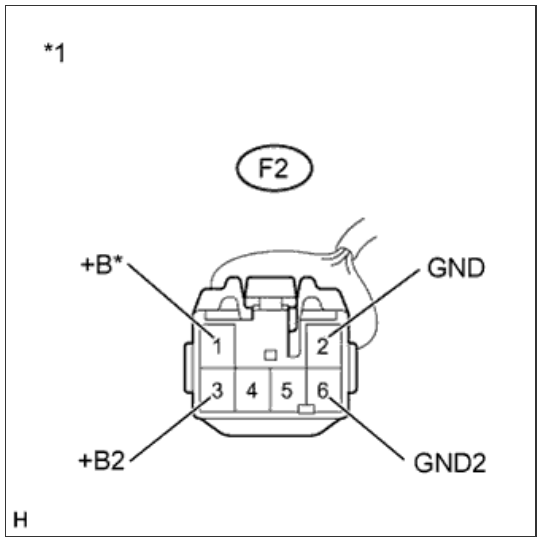
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-2 (GND) - Body ground | Always | Below 1 Ω |
| F2-6 (GND2) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F2-1 (+B) - F2-2 (GND)* | Always | 11 to 14 V |
| F2-3 (+B2) - F2-2 (GND) | Always | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Stereo Component Amplifier Assembly) |

*: for 19 Speakers

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.CHECK HARNESS AND CONNECTOR (MOST COMMUNICATION LINE)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F54 radio receiver assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-4 (MI+) - F54-11 (MO+) | Always | Below 1 Ω |
| F63-10 (MI-) - F54-25 (MO-) | Always | Below 1 Ω |
| F63-5 (SLDI) - F54-24 (SLDI) | Always | Below 1 Ω |
| F63-4 (MI+) - Body ground | Always | 10 kΩ or higher |
| F63-10 (MI-) - Body ground | Always | 10 kΩ or higher |
| F63-5 (SLDI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 6.CONFIRM MODEL

a. Choose the model to be inspected.

**Result:**

| Result | Proceed to |
|---|---|
| w/o Rear Seat Entertainment System | A |
| w/ Rear Seat Entertainment System | B |

B → Go to step 9

A

## 7.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the F59 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - F59-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - F59-5 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - F59-2 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - | | |

| | | |
|---|---|---|
| Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**8.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Replace the stereo component amplifier assembly ( Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

**END**

**9.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - TELEVISION DISPLAY ASSEMBLY)**

a. Disconnect the F63 stereo component amplifier assembly connector.

b. Disconnect the L50 television display assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F63-6 (MO+) - L50-1 (MI+) | Always | Below 1 Ω |
| F63-12 (MO-) - L50-2 (MI-) | Always | Below 1 Ω |
| F63-11 (SLDO) - L50-3 (SLDI) | Always | Below 1 Ω |
| F63-6 (MO+) - Body ground | Always | 10 kΩ or higher |
| F63-12 (MO-) - Body ground | Always | 10 kΩ or higher |
| F63-11 (SLDO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**10.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

a. Replace the stereo component amplifier assembly ( Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)


OK
END

## DTC U0073 Control Module Communication Bus Off

## DTC U0155 Lost Communication with Combination Meter

## DTC U0164 Lost Communication with A/C ECU

## DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a malfunction occurs in the CAN communication circuit.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN bus connection error | CAN communication system |
| U0155 | CAN reception error | |
| U0164 | CAN reception error | |
| U1110 | CAN reception error | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**OK:**

**No DTCs are output.**

**B** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**C** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**A**

USE SIMULATION METHOD TO CHECK (Click here)

# DTC B15A0 LAN Master Malfunction

**for Preparation** Click here

## DESCRIPTION

These DTCs are stored when a malfunction occurs in the display and navigation module display.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A0 | When either of the conditions below is met:<br>• Bus malfunction<br>• Sub-microprocessor malfunction | Display and navigation module display |

## INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

**NG** → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC U0073 Control Module Communication Bus Off

## DTC U0155 Lost Communication with Combination Meter

## DTC U0164 Lost Communication with A/C ECU

## DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a malfunction occurs in the CAN communication circuit.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN bus connection error | CAN communication system |
| U0155 | CAN reception error | |
| U0164 | CAN reception error | |
| U1110 | CAN reception error | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**OK:**

**No DTCs are output.**

**B** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**C** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**A**

USE SIMULATION METHOD TO CHECK (Click here)

# DTC B15A0 LAN Master Malfunction

**for Preparation** Click here

## DESCRIPTION

These DTCs are stored when a malfunction occurs in the display and navigation module display.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A0 | When either of the conditions below is met:<br>• Bus malfunction<br>• Sub-microprocessor malfunction | Display and navigation module display |

## INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTCs are output.**

**NG** → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC U0073 Control Module Communication Bus Off

## DTC U0155 Lost Communication with Combination Meter

## DTC U0164 Lost Communication with A/C ECU

## DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a malfunction occurs in the CAN communication circuit.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN bus connection error | CAN communication system |
| U0155 | CAN reception error | |
| U0164 | CAN reception error | |
| U1110 | CAN reception error | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**OK:**

**No DTCs are output.**

**B** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**C** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**A**

USE SIMULATION METHOD TO CHECK (Click here)

# DTC B15B0 Display Screen Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when a malfunction occurs in the display and navigation module display.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15B0 | Picture circuit (TFT unit) malfunction | Display and navigation module display |

## INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTC and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC U0073 Control Module Communication Bus Off

## DTC U0155 Lost Communication with Combination Meter

## DTC U0164 Lost Communication with A/C ECU

## DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a malfunction occurs in the CAN communication circuit.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | CAN bus connection error | CAN communication system |
| U0155 | CAN reception error | |
| U0164 | CAN reception error | |
| U1110 | CAN reception error | |

### INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

**OK:**

**No DTCs are output.**

**B** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**C** → GO TO CAN COMMUNICATION SYSTEM (Click here)

**A**

USE SIMULATION METHOD TO CHECK (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

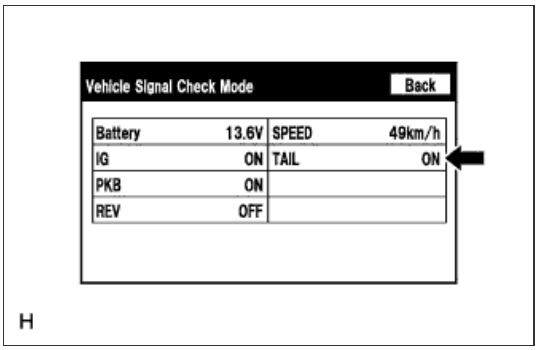
### 1.CHECK VEHICLE SIGNAL (OPERATION CHECK)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check (Click here).

b. Cover the automatic light control sensor on the instrument panel with a cloth.

c. Set the instrument panel light control to less than the maximum (to activate the dimmer function that works when the light control switch is in the TAIL position).

d. Check that the display changes between ON and OFF according to the light control switch operation.




**OK:**

| Light Control Switch Condition | Display Condition |
|---|---|
| TAIL or HEAD | ON |
| OFF | OFF |

**HINT:**

This display is updated once per second. As a result, it is normal for the display to lag behind the actual switch operation.

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

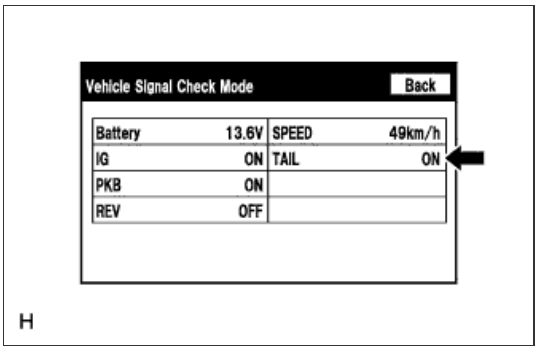
### 1.CHECK VEHICLE SIGNAL (OPERATION CHECK)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check (Click here).

b. Cover the automatic light control sensor on the instrument panel with a cloth.

c. Set the instrument panel light control to less than the maximum (to activate the dimmer function that works when the light control switch is in the TAIL position).

d. Check that the display changes between ON and OFF according to the light control switch operation.




**OK:**

| Light Control Switch Condition | Display Condition |
|---|---|
| TAIL or HEAD | ON |
| OFF | OFF |

**HINT:**

This display is updated once per second. As a result, it is normal for the display to lag behind the actual switch operation.

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK IMAGE QUALITY SETTING

a. Enter the display adjustment screen by pressing the "DISP" switch.

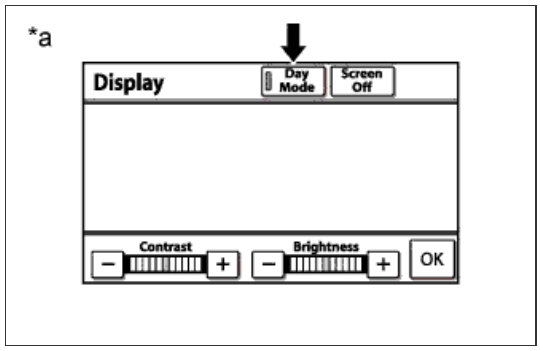
b. Turn the light control switch to the TAIL position.

c. Check if "Day Mode" on the display adjustment is on.

**OK:**
**"Day Mode" is on.**

**Text in Illustration**

| | |
|---|---|
| *a | Example: |




NG → Go to step 2

OK →

### TURN "Day Mode" SETTING OFF

### 2.CHECK VEHICLE SIGNAL (OPERATION CHECK)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check (Click here).

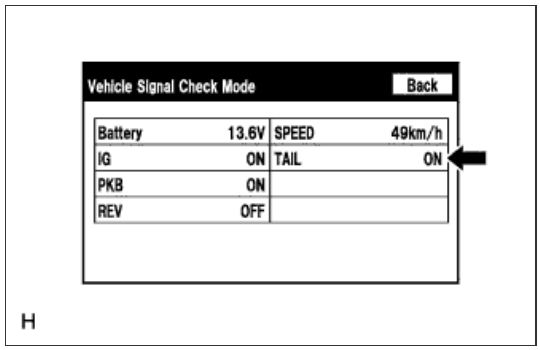
b. Cover the automatic light control sensor on the instrument panel with a cloth.

c. Set the instrument panel light control to less than the maximum (to activate the dimmer function that works when the light control switch is in the TAIL position).

d. Check that the display changes between ON and OFF according to the light control switch operation.

**OK:**

| Light Control Switch Condition | Display Condition |
|---|---|
| TAIL or HEAD | ON |
| OFF | OFF |




**HINT:**

The display is updated once per second. It is normal for the display to lag behind the actual switch operation.

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK →

### REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK IMAGE QUALITY SETTING

a. Enter the display adjustment screen by pressing the "DISP" switch.

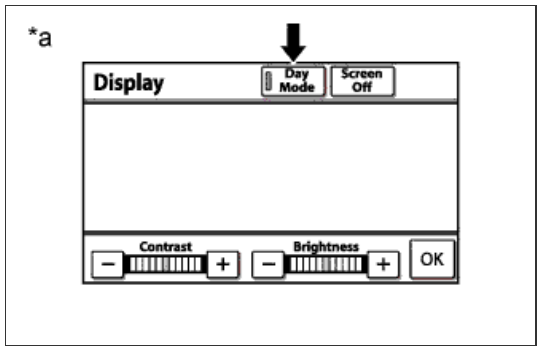
b. Turn the light control switch to the TAIL position.

c. Check if "Day Mode" on the display adjustment is on.

**OK:**
**"Day Mode" is on.**

**Text in Illustration**

| | |
|---|---|
| *a | Example: |




NG → Go to step 2

OK →

### TURN "Day Mode" SETTING OFF

### 2.CHECK VEHICLE SIGNAL (OPERATION CHECK)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check (Click here).

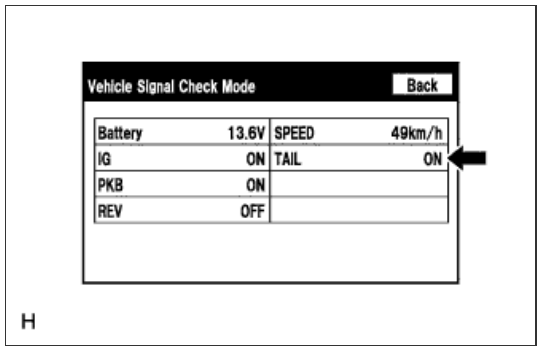
b. Cover the automatic light control sensor on the instrument panel with a cloth.

c. Set the instrument panel light control to less than the maximum (to activate the dimmer function that works when the light control switch is in the TAIL position).

d. Check that the display changes between ON and OFF according to the light control switch operation.

**OK:**

| Light Control Switch Condition | Display Condition |
|---|---|
| TAIL or HEAD | ON |
| OFF | OFF |




**HINT:**

The display is updated once per second. It is normal for the display to lag behind the actual switch operation.

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK →

### REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK PANEL SWITCH

a. Check for foreign matter around the switches that might prevent operation.

**OK:**
**No foreign matter is found.**

NG → REMOVE ANY FOREIGN MATTER FOUND

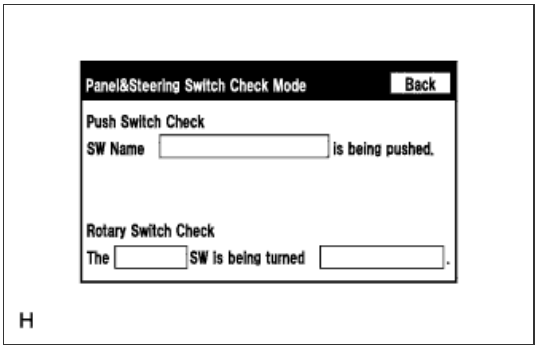
OK ↓

### 2.CHECK PANEL SWITCH (OPERATION CHECK)

a. Enter the "Panel & Steering Switch Check Mode" screen. Refer to Check Panel & Steering Switch in Operation Check (Click here).

b. Operate the abnormal switch and check if the switch name and status are correctly displayed.

**OK:**
**The switch name and status are correctly displayed as operated.**




NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK ↓

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK PANEL SWITCH

a. Check for foreign matter around the switches that might prevent operation.

**OK:**
**No foreign matter is found.**

NG → REMOVE ANY FOREIGN MATTER FOUND

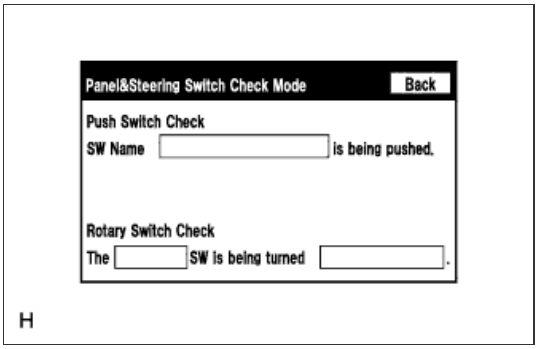
OK ↓

### 2.CHECK PANEL SWITCH (OPERATION CHECK)

a. Enter the "Panel & Steering Switch Check Mode" screen. Refer to Check Panel & Steering Switch in Operation Check (Click here).

b. Operate the abnormal switch and check if the switch name and status are correctly displayed.

**OK:**
**The switch name and status are correctly displayed as operated.**




NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK ↓

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK TOUCH PANEL

a. Check for foreign matter on the display.

**OK:**
**The display is clean.**

NG → CLEAN DISPLAY AND RECHECK TOUCH PANEL

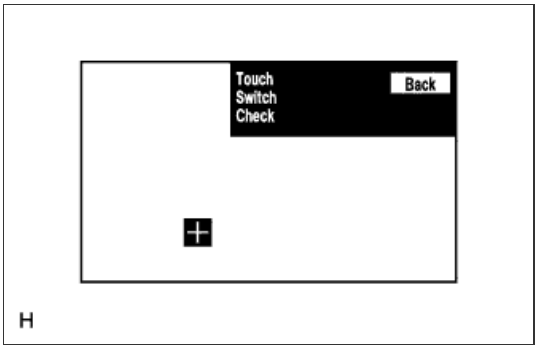
OK

### 2.CHECK TOUCH SWITCH (OPERATION CHECK)

a. Enter the "Touch Switch Check" screen. Refer to Check Touch Switch in Operation Check (Click here).

b. Touch the display in the area where the switch malfunction occurs.

**OK:**
**A "+" mark appears at the touched position.**




NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK TOUCH PANEL

a. Check for foreign matter on the display.

**OK:**
**The display is clean.**

NG → CLEAN DISPLAY AND RECHECK TOUCH PANEL

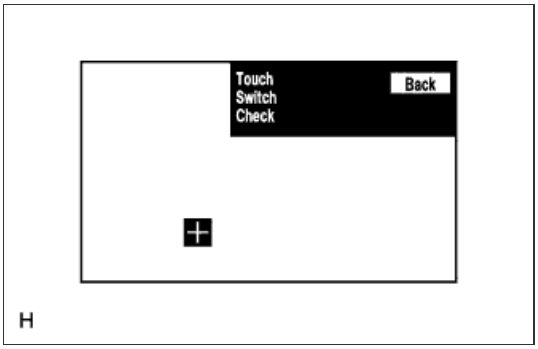
OK

### 2.CHECK TOUCH SWITCH (OPERATION CHECK)

a. Enter the "Touch Switch Check" screen. Refer to Check Touch Switch in Operation Check (Click here).

b. Touch the display in the area where the switch malfunction occurs.

**OK:**
**A "+" mark appears at the touched position.**




NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

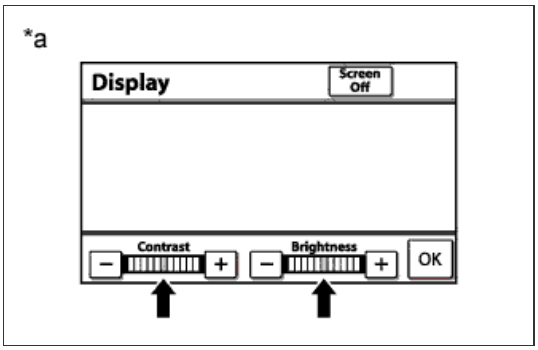
## INSPECTION PROCEDURE

### 1.CHECK DISPLAY SETTING

a. Enter the display adjustment screen by pressing the "DISP" switch.

b. Reset display settings (contrast, brightness) and check that the screen appears normal.

**OK:**
**The display returns to normal.**




Text in Illustration

| | |
|---|---|
| *a | Example: |

NG → Go to step 2

OK →

### END

### 2.CHECK CABIN

a. Check that the temperature in the cabin is neither -20°C (-4°F) or lower nor 65°C (149°F) or higher.

**HINT:**

The electro multi vision system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.

**OK:**
**Temperature in the cabin is between -20°C (-4°F) and 65°C (149°F).**

NG → SET CABIN TO APPROPRIATE TEMPERATURE

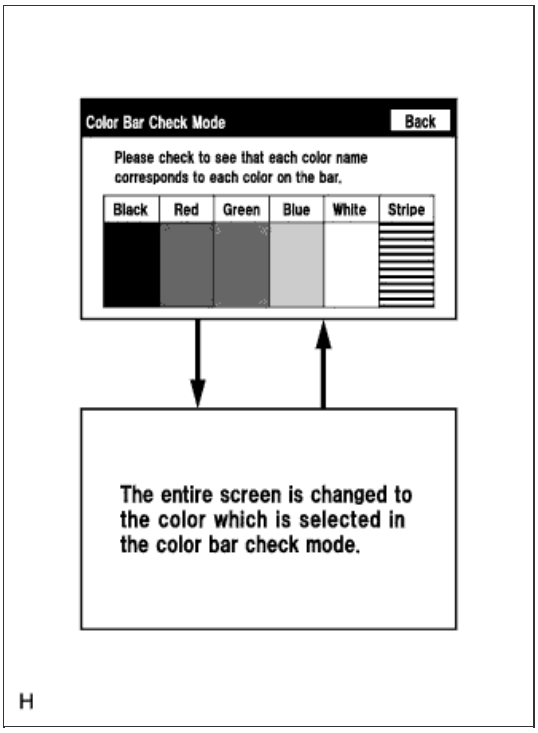
OK →

### 3.CHECK COLOR BAR (OPERATION CHECK)

a. Enter the "Color Bar Check Mode" screen. Refer to Check Color Bar in Operation Check (Click here).

b. Check that the color bars match the displayed names.

**OK:**
**Color bars match the displayed names.**




NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

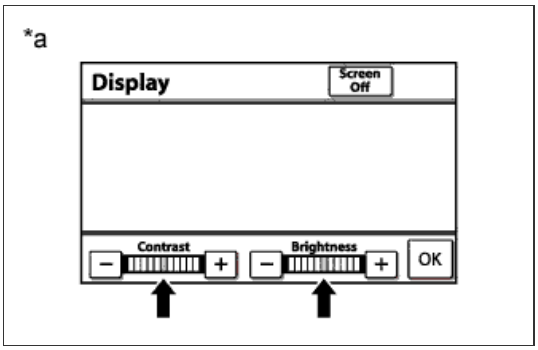
## INSPECTION PROCEDURE

### 1.CHECK DISPLAY SETTING

a. Enter the display adjustment screen by pressing the "DISP" switch.

b. Reset display settings (contrast, brightness) and check that the screen appears normal.

**OK:**
**The display returns to normal.**




Text in Illustration

| | |
|---|---|
| *a | Example: |

NG → Go to step 2

OK →

### END

### 2.CHECK CABIN

a. Check that the temperature in the cabin is neither -20°C (-4°F) or lower nor 65°C (149°F) or higher.

**HINT:**

The electro multi vision system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.

**OK:**
**Temperature in the cabin is between -20°C (-4°F) and 65°C (149°F).**

NG → SET CABIN TO APPROPRIATE TEMPERATURE

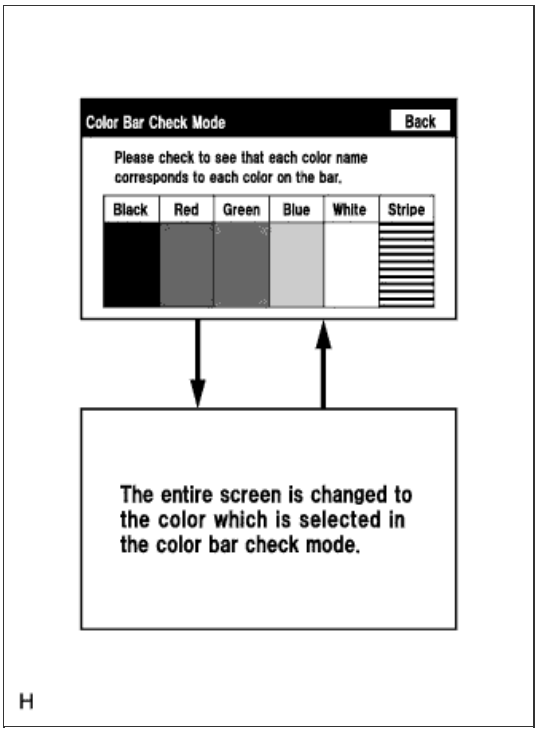
OK →

### 3.CHECK COLOR BAR (OPERATION CHECK)

a. Enter the "Color Bar Check Mode" screen. Refer to Check Color Bar in Operation Check (Click here).

b. Check that the color bars match the displayed names.

**OK:**
**Color bars match the displayed names.**




NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CURRENT CONDITIONS

a. Proceed to the next step according to the table below.

**Result**

| Result | Proceed to |
|---|---|
| Another "Bluetooth" compatible cellular phone is present. | A |
| Another "Bluetooth" compatible vehicle is present. | B |
| None of the above | C |

B → Go to step 3

C → Go to step 4

A

### 2.CHECK USING ANOTHER CELLULAR PHONE

a. Check if the system functions using another "Bluetooth" compatible cellular phone.

**HINT:**

- **Confirm that either the same or a different version of another "Bluetooth" compatible cellular phone complies with the system.**
- **Depending on the version, some "Bluetooth" compatible cellular phones cannot be used.**

**OK:**
**The system functions.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

### USE A "Bluetooth" COMPATIBLE CELLULAR PHONE

### 3.CHECK USING ANOTHER "Bluetooth" COMPATIBLE VEHICLE

a. Register the cellular phone with another vehicle and check if the system functions normally.

**HINT:**

Depending on the version, some "Bluetooth" compatible cellular phones cannot be used.

**OK:**
**The system functions.**

NG → REPAIR OR REPLACE CELLULAR PHONE

OK

### REPLACE RADIO RECEIVER ASSEMBLY (Click here)

### 4.CHECK CELLULAR PHONE

a. Check if the cellular phone is "Bluetooth" compatible.

**HINT:**

Some versions of "Bluetooth" compatible cellular phones may not function.

**OK:**

**The phone is "Bluetooth" compatible.**

NG → USE A "Bluetooth" COMPATIBLE CELLULAR PHONE

OK ↓

5.CHECK CELLULAR PHONE

a. Check if a call can be made from the cellular phone.

**HINT:**

When the battery is low, registration or directory transfer cannot be done.

**OK:**

**A call can be made from the cellular phone.**

NG → REPAIR OR REPLACE CELLULAR PHONE

OK ↓

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK "Bluetooth" SETTINGS

a. Check if the "Bluetooth" settings are correct.

**OK:**
**"Bluetooth" settings are correct.**

NG → SET SETTINGS CORRECTLY

OK

### 2.CHECK CELLULAR PHONE

a. Check if the cellular phone is "Bluetooth" compatible.

**HINT:**

Some versions of "Bluetooth" compatible cellular phones may not function.

**OK:**
**The phone is "Bluetooth" compatible.**

NG → END (ONLY A "Bluetooth" COMPATIBLE CELLULAR PHONE CAN BE USED)

OK

### 3.CHECK SETTINGS

a. Check if the cellular phone functions.

**HINT:**

The cellular phone is unable to call under any of the following conditions:

- **The cellular phone is locked.**
- **The directory is being transferred.**
- **The line is crossed.**
- **Outside service range**
- **The power is off.**
- **The cellular phone is not connected to "Bluetooth" ("BT" is displayed while connected).**

**OK:**
**None of the above conditions exist.**

NG → SET SETTINGS CORRECTLY

OK

### 4.CHECK CELLULAR PHONE

a. Check if the cellular phone can make a call.

**HINT:**

When the battery is low, calls cannot be made or received.

**OK:**
**Cellular phone can make a call.**

NG → REPAIR OR REPLACE CELLULAR PHONE

OK

5.CHECK RECEPTION

a. Set the cellular phone so that it can receive calls.

b. Place the cellular phone close to the radio receiver assembly.

c. Check if the cellular phone has reception according to the radio receiver assembly.

**OK:**
**The cellular phone has reception.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK "Bluetooth" SETTINGS

a. Check if the "Bluetooth" settings are correct.

**OK:**
**"Bluetooth" settings are correct.**

NG → SET SETTINGS CORRECTLY

OK

### 2.CHECK CELLULAR PHONE

a. Check if the cellular phone is "Bluetooth" compatible.

**HINT:**

Some versions of "Bluetooth" compatible cellular phones may not function.

**OK:**
**The phone is "Bluetooth" compatible.**

NG → END (ONLY A "Bluetooth" COMPATIBLE CELLULAR PHONE CAN BE USED)

OK

### 3.CHECK SETTINGS

a. Check if the cellular phone functions.

**HINT:**

The cellular phone is unable to call under any of the following conditions:

- **The cellular phone is locked.**
- **The directory is being transferred.**
- **The line is crossed.**
- **Outside service range**
- **The power is off.**
- **The cellular phone is not connected to "Bluetooth" ("BT" is displayed while connected).**

**OK:**
**None of the above conditions exist.**

NG → SET SETTINGS CORRECTLY

OK

### 4.CHECK CELLULAR PHONE

a. Check if the cellular phone can make a call.

**HINT:**

When the battery is low, calls cannot be made or received.

**OK:**
**Cellular phone can make a call.**

NG → REPAIR OR REPLACE CELLULAR PHONE

OK

5.CHECK RECEPTION

a. Set the cellular phone so that it can receive calls.

b. Place the cellular phone close to the radio receiver assembly.

c. Check if the cellular phone has reception according to the radio receiver assembly.

**OK:**
**The cellular phone has reception.**

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK SURROUNDING CONDITIONS

a. Check if the cellular phone can make calls in a certain place.

**OK:**
**It can make calls.**

NG → END (CELLULAR PHONES CAN ONLY FUNCTION IN CELLULAR SERVICE AREAS)

OK

### 2.CHECK RECEPTION

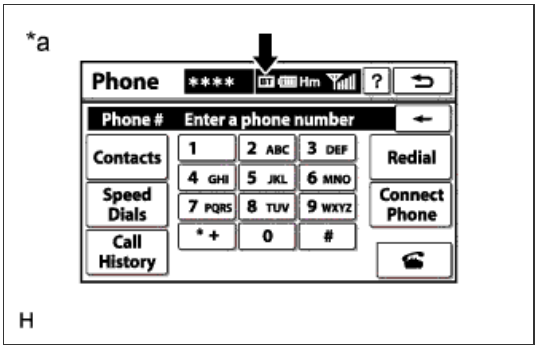
a. Display the "Phone" screen and check the "Bluetooth" connection indicator ("BT" indicator).

**Text in Illustration**

| | |
|---|---|
| *a | Example: |

**Result**

| Result | Proceed to |
|---|---|
| "BT" indicator color is yellow. | A |
| "BT" indicator color is blue. | B |
| No connection mark is displayed. | C |




B → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

C → SELECT A REGISTERED CELLULAR PHONE OR REGISTER "Bluetooth" COMPATIBLE PHONE

A

MOVE CELLULAR PHONE TO LOCATION WHERE "BT" MARK TURNS BLUE

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CELLULAR PHONE

a. Check if the voice on the other side can be heard using a cellular phone.

**OK:**
**Voice can be heard.**

NG → REPAIR OR REPLACE CELLULAR PHONE

OK

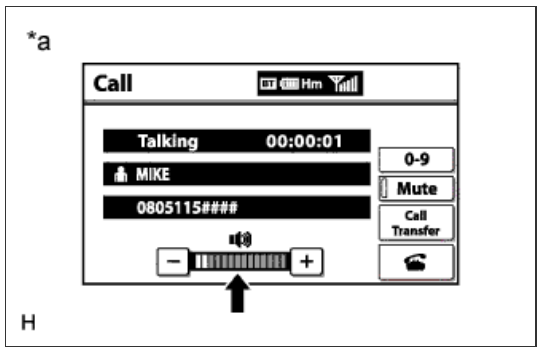
### 2.CHECK SETTINGS

a. Check if the volume level is set to low on the "Call" screen.

**OK:**
**The level is not set low.**

**Text in Illustration**

| | |
|---|---|
| *a | Example: |




NG → SET VOLUME TO HIGH

OK

### 3.CHECK SETTINGS (OPERATION CHECK)

a. Enter the "Hands-free Volume Setting" screen. Refer to Check Hands-free Volume Setting in Operation Check (Click here).

b. Check if the receive voice level is set to "0".

**HINT:**

The receive voice level can be set to 11 different levels, -5 to +5, with a 3 dB difference.

c. Check if the receive voice level is set to the minimum or maximum level.

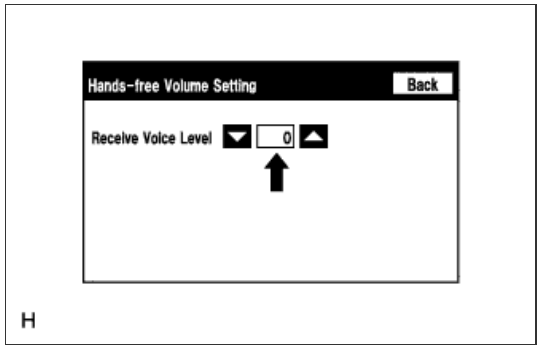
**HINT:**

When the receive voice level is set to the minimum or maximum level, the sound may be distorted.

**NOTICE:**

"Voice Quality Type" should not be changed.

**OK:**
**The receive voice level is set to "0".**




NG → SET RECEIVE VOICE LEVEL TO "0"

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CELLULAR PHONE

a. Check if the voice on the other side can be heard using a cellular phone.

**OK:**
**Voice can be heard.**

NG → REPAIR OR REPLACE CELLULAR PHONE

OK

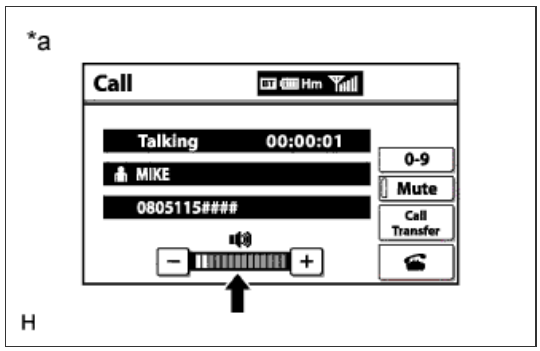
### 2.CHECK SETTINGS

a. Check if the volume level is set to low on the "Call" screen.

**OK:**
**The level is not set low.**

**Text in Illustration**

| | |
|---|---|
| *a | Example: |




NG → SET VOLUME TO HIGH

OK

### 3.CHECK SETTINGS (OPERATION CHECK)

a. Enter the "Hands-free Volume Setting" screen. Refer to Check Hands-free Volume Setting in Operation Check (Click here).

b. Check if the receive voice level is set to "0".

**HINT:**

The receive voice level can be set to 11 different levels, -5 to +5, with a 3 dB difference.

c. Check if the receive voice level is set to the minimum or maximum level.

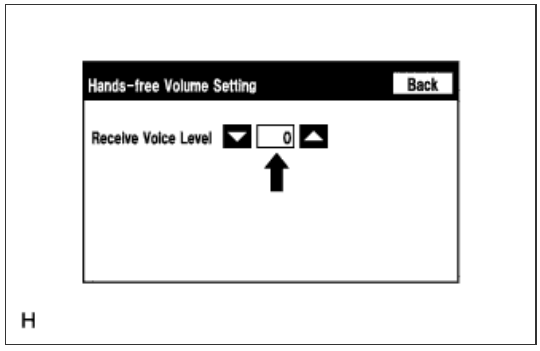
**HINT:**

When the receive voice level is set to the minimum or maximum level, the sound may be distorted.

**NOTICE:**

"Voice Quality Type" should not be changed.

**OK:**
**The receive voice level is set to "0".**




NG → SET RECEIVE VOICE LEVEL TO "0"

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CELLULAR PHONE

a. Check if the other caller can hear your voice correctly.

**OK:**
**Your voice can be heard correctly.**

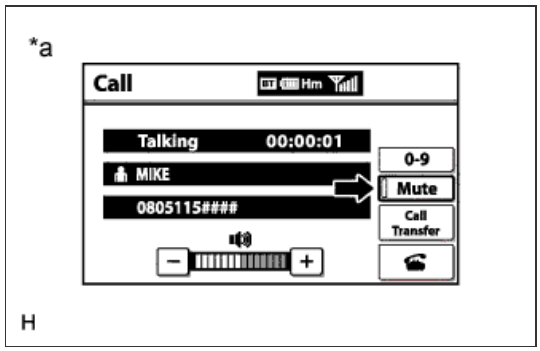
NG → REPLACE CELLULAR PHONE

OK

### 2.CHECK SETTINGS

a. Check if the mute switch is set to on.

**OK:**
**Mute switch is not set to on.**




Text in Illustration

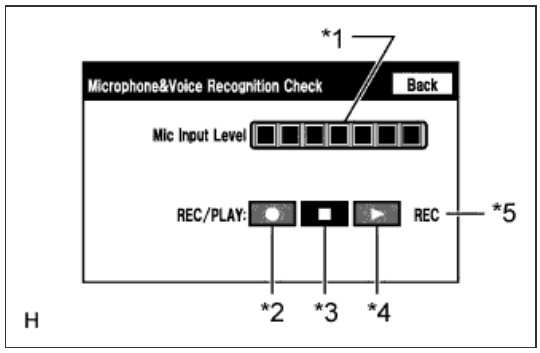
| | |
|---|---|
| *a | Example: |

NG → TURN MUTE SWITCH OFF

OK

### 3.CHECK MICROPHONE (OPERATION CHECK)

a. Enter the "Microphone & Voice Recognition Check" screen. Refer to Check Mic & Voice Recognition in Operation Check (Click here).




Text in Illustration

| | |
|---|---|
| *1 | Microphone Input Level Meter |
| *2 | Recording Switch |
| *3 | Stop Switch |
| *4 | Play Switch |
| *5 | Recording Indicator |

b. When voice is input into the microphone, check that the microphone input level meter changes according to the input voice.

c. Push the recording switch and perform voice recording.

**HINT:**

Voice can be recorded up to 5 seconds.

d. Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.

**OK:**
**All check results are normal.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

**4.REPLACE RADIO RECEIVER ASSEMBLY**

a. Replace the radio receiver assembly ( Click here).

b. Check symptoms again.

**OK:**
**The other caller can hear your voice loud enough without noise or distortion.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

**END**

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK CELLULAR PHONE

a. Check if the other caller can hear your voice correctly.

**OK:**
**Your voice can be heard correctly.**

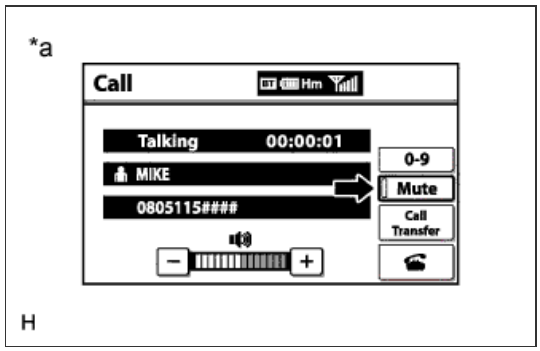
NG → REPLACE CELLULAR PHONE

OK

### 2.CHECK SETTINGS

a. Check if the mute switch is set to on.

**OK:**
**Mute switch is not set to on.**




Text in Illustration

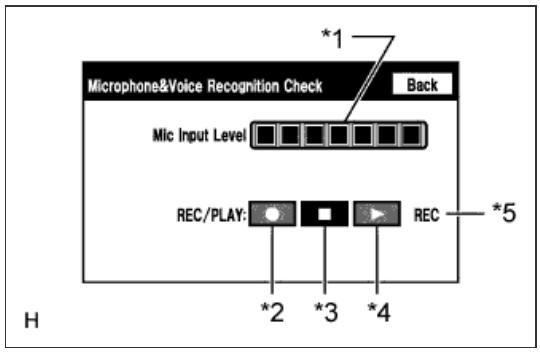
| | |
|---|---|
| *a | Example: |

NG → TURN MUTE SWITCH OFF

OK

### 3.CHECK MICROPHONE (OPERATION CHECK)

a. Enter the "Microphone & Voice Recognition Check" screen. Refer to Check Mic & Voice Recognition in Operation Check (Click here).




Text in Illustration

| | |
|---|---|
| *1 | Microphone Input Level Meter |
| *2 | Recording Switch |
| *3 | Stop Switch |
| *4 | Play Switch |
| *5 | Recording Indicator |

b. When voice is input into the microphone, check that the microphone input level meter changes according to the input voice.

c. Push the recording switch and perform voice recording.

**HINT:**

Voice can be recorded up to 5 seconds.

d. Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.

**OK:**
**All check results are normal.**

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

**4.REPLACE RADIO RECEIVER ASSEMBLY**

a. Replace the radio receiver assembly ( Click here).

b. Check symptoms again.

**OK:**
**The other caller can hear your voice loud enough without noise or distortion.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

**END**

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK DISPLAY SETTING

a. Check that the display is not in "Screen Off" mode.

**OK:**
**The display setting is not in "Screen Off" mode.**

NG → CHANGE SCREEN TO "Screen On" MODE

OK ↓

### 2.CHECK IMAGE QUALITY SETTING

a. Check that the screen color quality can be set.

**OK:**
**Setting is possible.**

NG → Go to step 3

OK ↓

PRESS PANEL SWITCH "DISP" AND SET SCREEN COLOR QUALITY TO NORMAL

### 3.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

**HINT:**

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The electro multi vision system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

**OK:**
**Condensation is not likely being produced and the temperature is not high or extremely low.**

NG → SET CABIN TO APPROPRIATE TEMPERATURE

OK ↓

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK DISPLAY SETTING

a. Check that the display is not in "Screen Off" mode.

**OK:**
**The display setting is not in "Screen Off" mode.**

NG → CHANGE SCREEN TO "Screen On" MODE

OK ↓

### 2.CHECK IMAGE QUALITY SETTING

a. Check that the screen color quality can be set.

**OK:**
**Setting is possible.**

NG → Go to step 3

OK ↓

PRESS PANEL SWITCH "DISP" AND SET SCREEN COLOR QUALITY TO NORMAL

### 3.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

**HINT:**

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The electro multi vision system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

**OK:**
**Condensation is not likely being produced and the temperature is not high or extremely low.**

NG → SET CABIN TO APPROPRIATE TEMPERATURE

OK ↓

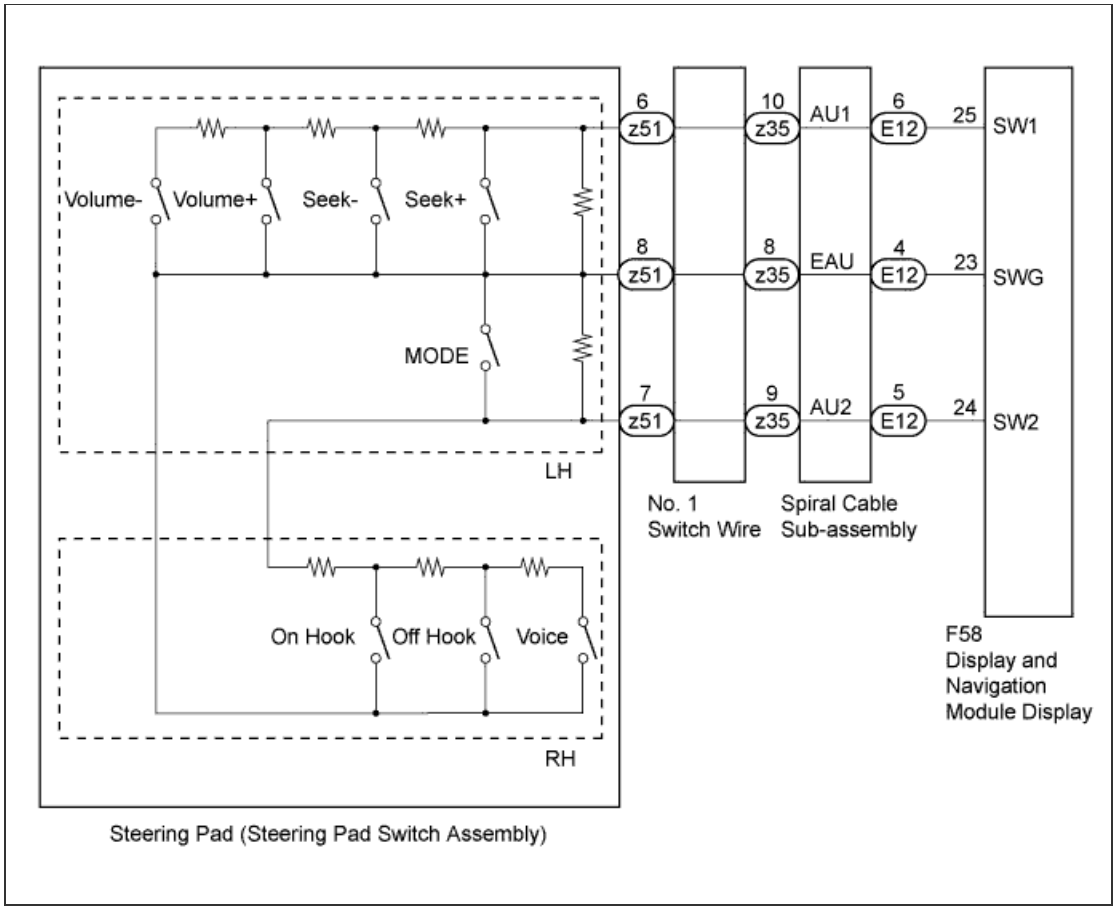
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit sends an operation signal from the steering pad (steering pad switch assembly) to the radio receiver assembly.
If there is an open in the circuit, the electro multi vision system cannot be operated using the steering pad (steering pad switch assembly).
If there is a short in the circuit, the resulting condition is the same as if the switch were continuously depressed. Therefore, the electro multi vision system cannot be operated using the steering pad (steering pad switch assembly), and the electro multi vision system itself cannot function.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

The vehicle is equipped with an SRS (Supplemental Restraint System) which includes components such as airbags. Before servicing (including removal or installation of parts), be sure to read the Precaution in the Supplemental Restraint System (Click here).

### 1.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - SPIRAL CABLE)

a. Disconnect the F58 display and navigation module display connector.

b. Disconnect the E12 cable connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-24 (SW2) - E12-5 (AU2) | Always | Below 1 Ω |
| F58-23 (SWG) - E12-4 (EAU) | Always | Below 1 Ω |
| F58-25 (SW1) - E12-6 (AU1) | Always | Below 1 Ω |
| | | |

| | | |
|---|---|---|
| F58-24 (SW2) - Body ground | Always | 10 kΩ or higher |
| F58-23 (SWG) - Body ground | Always | 10 kΩ or higher |
| F58-25 (SW1) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 2.CHECK NO. 1 SWITCH WIRE

a. Disconnect the z35 cable connector.

b. Disconnect the z51 steering pad switch connector.

c. Measure the resistance according to the value(s) in the table below.

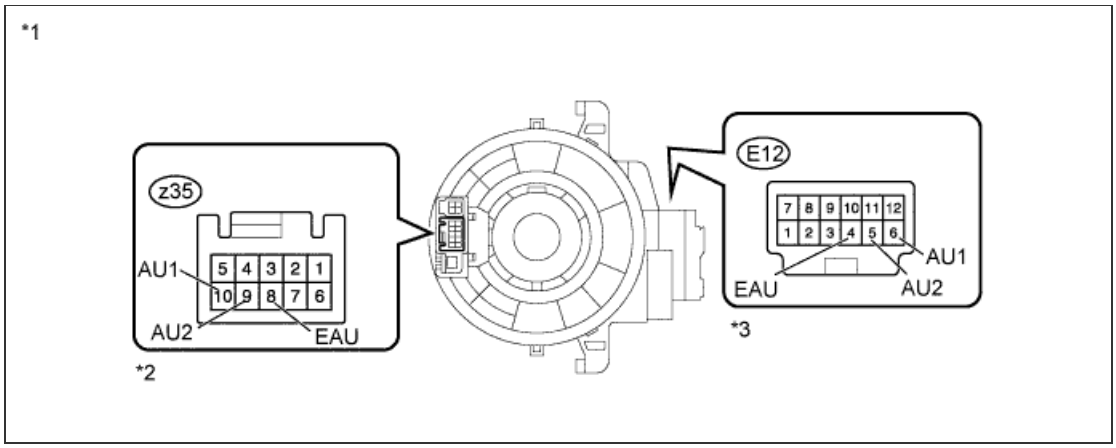
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| z35-10 - z51-6 | Always | Below 1 Ω |
| z35-9 - z51-7 | Always | Below 1 Ω |
| z35-8 - z51-8 | Always | Below 1 Ω |
| z35-10 - Body ground | Always | 10 kΩ or higher |
| z35-9 - Body ground | Always | 10 kΩ or higher |
| z35-8 - Body ground | Always | 10 kΩ or higher |

NG → REPLACE NO. 1 SWITCH WIRE

OK

## 3.INSPECT SPIRAL CABLE SUB-ASSEMBLY




**Text in Illustration**

| | | | |
|---|---|---|---|
| *1 | Component without harness connected (Spiral Cable Sub-assembly) | *2 | Steering Pad Switch Assembly Side |
| *3 | Vehicle Side | - | - |

a. Disconnect the z35 and E12 cable connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E12-4 (EAU) - z35-8 (EAU) | Spiral cable is turned 2.5 rotations counterclockwise | Below 3 Ω |
| | Spiral cable is centered | |
| | Spiral cable is turned 2.5 rotations clockwise | |
| E12-5 (AU2) - z35-9 (AU2) | Spiral cable is turned 2.5 rotations counterclockwise | Below 3 Ω |
| | Spiral cable is centered | |
| | Spiral cable is turned 2.5 rotations clockwise | |
| E12-6 (AU1) - z35-10 (AU1) | Spiral cable is turned 2.5 rotations counterclockwise | Below 3 Ω |
| | Spiral cable is centered | |
| | Spiral cable is turned 2.5 rotations clockwise | |

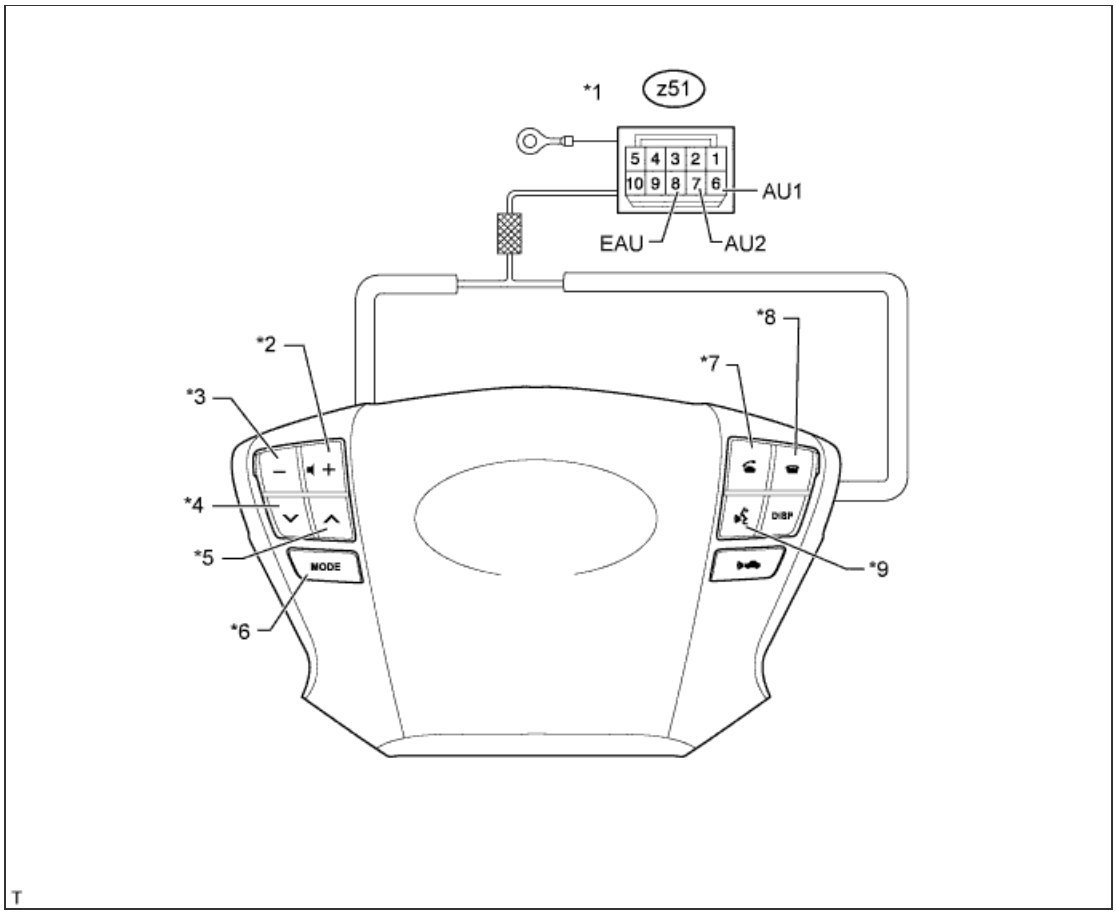
**NOTICE:**

The spiral cable is an important part of the SRS airbag system. Incorrect removal or installation of the spiral cable may prevent the airbag from deploying. Be sure to read the Precaution for the supplemental restraint system (Click here).

NG → REPLACE SPIRAL CABLE SUB-ASSEMBLY (**Click here**)

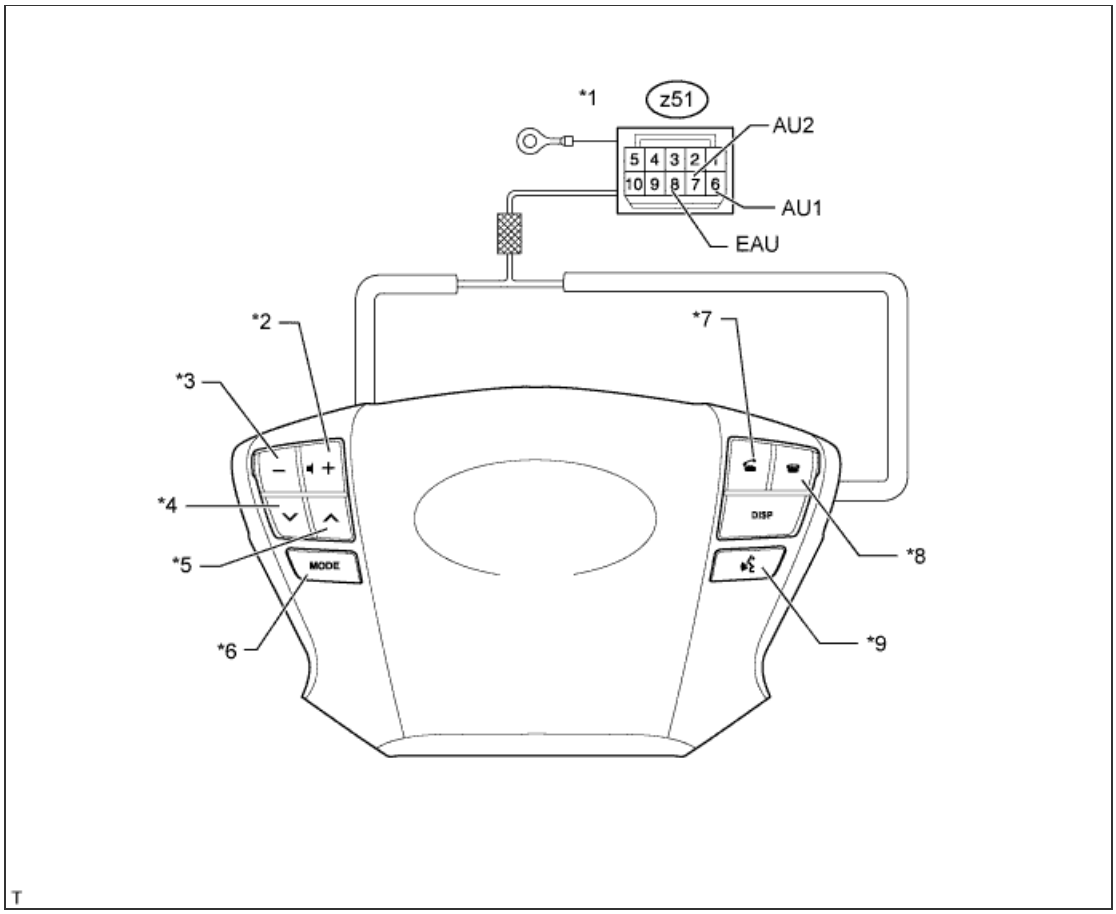
OK

**4.INSPECT STEERING PAD (STEERING PAD SWITCH ASSEMBLY)**




**Text in Illustration (w/ Dynamic Radar Cruise Control System:)**

| | | | |
|---|---|---|---|
| *1 | Component without harness connected<br>(Steering Pad Switch Assembly) | *2 | Volume+ |
| *3 | Volume- | *4 | Seek- |
| *5 | Seek+ | *6 | MODE |
| *7 | Off Hook | *8 | On Hook |
| *9 | Voice Switch | - | - |




**Text in Illustration (w/o Dynamic Radar Cruise Control System:)**

| | | | |
|---|---|---|---|
| *1 | Component without harness connected<br>(Steering Pad Switch Assembly) | *2 | Volume+ |
| *3 | Volume- | *4 | Seek- |
| *5 | Seek+ | *6 | MODE |
| *7 | Off Hook | *8 | On Hook |
| *9 | Voice Switch | - | - |

a. Disconnect the z51 steering pad switch connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| 6 (AU1) - 8 (EAU) | No switch is pushed | 95 to 105 kΩ |
| 6 (AU1) - 8 (EAU) | Seek+ switch pushed | Below 2.5 Ω |
| 6 (AU1) - 8 (EAU) | Seek- switch pushed | 312 to 345 Ω |
| 6 (AU1) - 8 (EAU) | Volume+ switch pushed | 950 to 1050 Ω |
| 6 (AU1) - 8 (EAU) | Volume- switch pushed | 2954 to 3265 Ω |
| 7 (AU2) - 8 (EAU) | No switch is pushed | 95 to 105 kΩ |
| 7 (AU2) - 8 (EAU) | MODE switch pushed | Below 2.5 Ω |
| 7 (AU2) - 8 (EAU) | On hook switch pushed | 312 to 345 Ω |
| 7 (AU2) - 8 (EAU) | Off hook switch pushed | 950 to 1050 Ω |
| 7 (AU2) - 8 (EAU) | Voice switch pushed | 2950 to 3265 Ω |

NG

REPLACE STEERING PAD (STEERING PAD SWITCH ASSEMBLY) (Click here)

OK

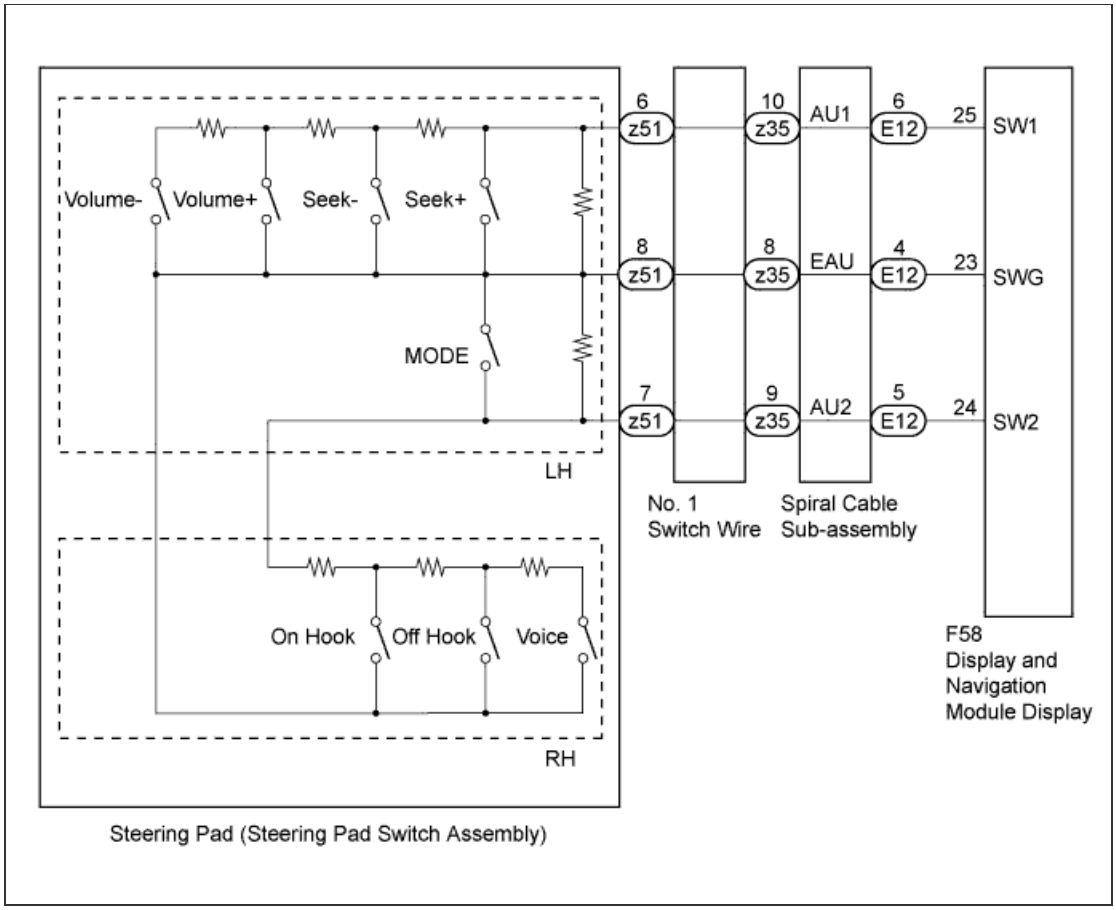
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit sends an operation signal from the steering pad (steering pad switch assembly) to the radio receiver assembly.
If there is an open in the circuit, the electro multi vision system cannot be operated using the steering pad (steering pad switch assembly).
If there is a short in the circuit, the resulting condition is the same as if the switch were continuously depressed. Therefore, the electro multi vision system cannot be operated using the steering pad (steering pad switch assembly), and the electro multi vision system itself cannot function.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

The vehicle is equipped with an SRS (Supplemental Restraint System) which includes components such as airbags. Before servicing (including removal or installation of parts), be sure to read the Precaution in the Supplemental Restraint System (Click here).

### 1.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - SPIRAL CABLE)

a. Disconnect the F58 display and navigation module display connector.

b. Disconnect the E12 cable connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-24 (SW2) - E12-5 (AU2) | Always | Below 1 Ω |
| F58-23 (SWG) - E12-4 (EAU) | Always | Below 1 Ω |
| F58-25 (SW1) - E12-6 (AU1) | Always | Below 1 Ω |
| | | |

| | | |
|---|---|---|
| F58-24 (SW2) - Body ground | Always | 10 kΩ or higher |
| F58-23 (SWG) - Body ground | Always | 10 kΩ or higher |
| F58-25 (SW1) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 2.CHECK NO. 1 SWITCH WIRE

a. Disconnect the z35 cable connector.

b. Disconnect the z51 steering pad switch connector.

c. Measure the resistance according to the value(s) in the table below.

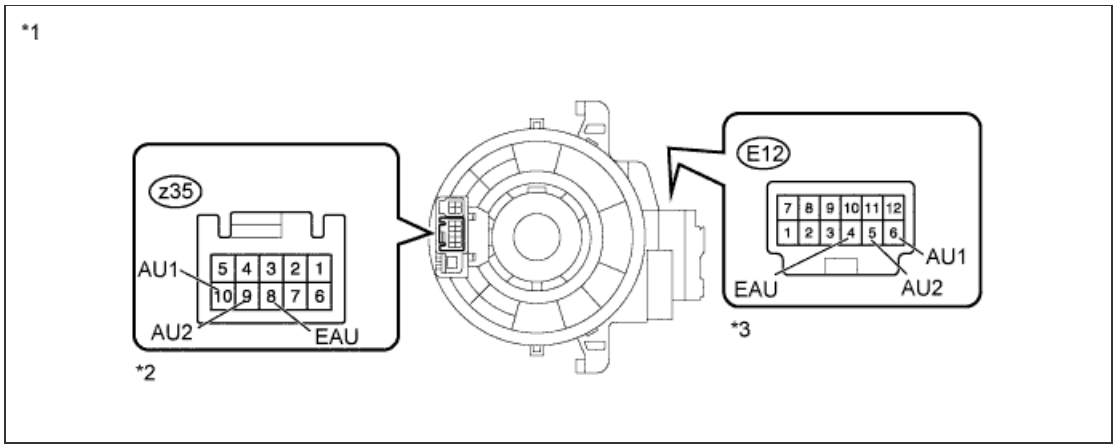
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| z35-10 - z51-6 | Always | Below 1 Ω |
| z35-9 - z51-7 | Always | Below 1 Ω |
| z35-8 - z51-8 | Always | Below 1 Ω |
| z35-10 - Body ground | Always | 10 kΩ or higher |
| z35-9 - Body ground | Always | 10 kΩ or higher |
| z35-8 - Body ground | Always | 10 kΩ or higher |

NG → REPLACE NO. 1 SWITCH WIRE

OK

## 3.INSPECT SPIRAL CABLE SUB-ASSEMBLY




**Text in Illustration**

| | | | |
|---|---|---|---|
| *1 | Component without harness connected (Spiral Cable Sub-assembly) | *2 | Steering Pad Switch Assembly Side |
| *3 | Vehicle Side | - | - |

a. Disconnect the z35 and E12 cable connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E12-4 (EAU) - z35-8 (EAU) | Spiral cable is turned 2.5 rotations counterclockwise | Below 3 Ω |
| | Spiral cable is centered | |
| | Spiral cable is turned 2.5 rotations clockwise | |
| E12-5 (AU2) - z35-9 (AU2) | Spiral cable is turned 2.5 rotations counterclockwise | Below 3 Ω |
| | Spiral cable is centered | |
| | Spiral cable is turned 2.5 rotations clockwise | |
| E12-6 (AU1) - z35-10 (AU1) | Spiral cable is turned 2.5 rotations counterclockwise | Below 3 Ω |
| | Spiral cable is centered | |
| | Spiral cable is turned 2.5 rotations clockwise | |

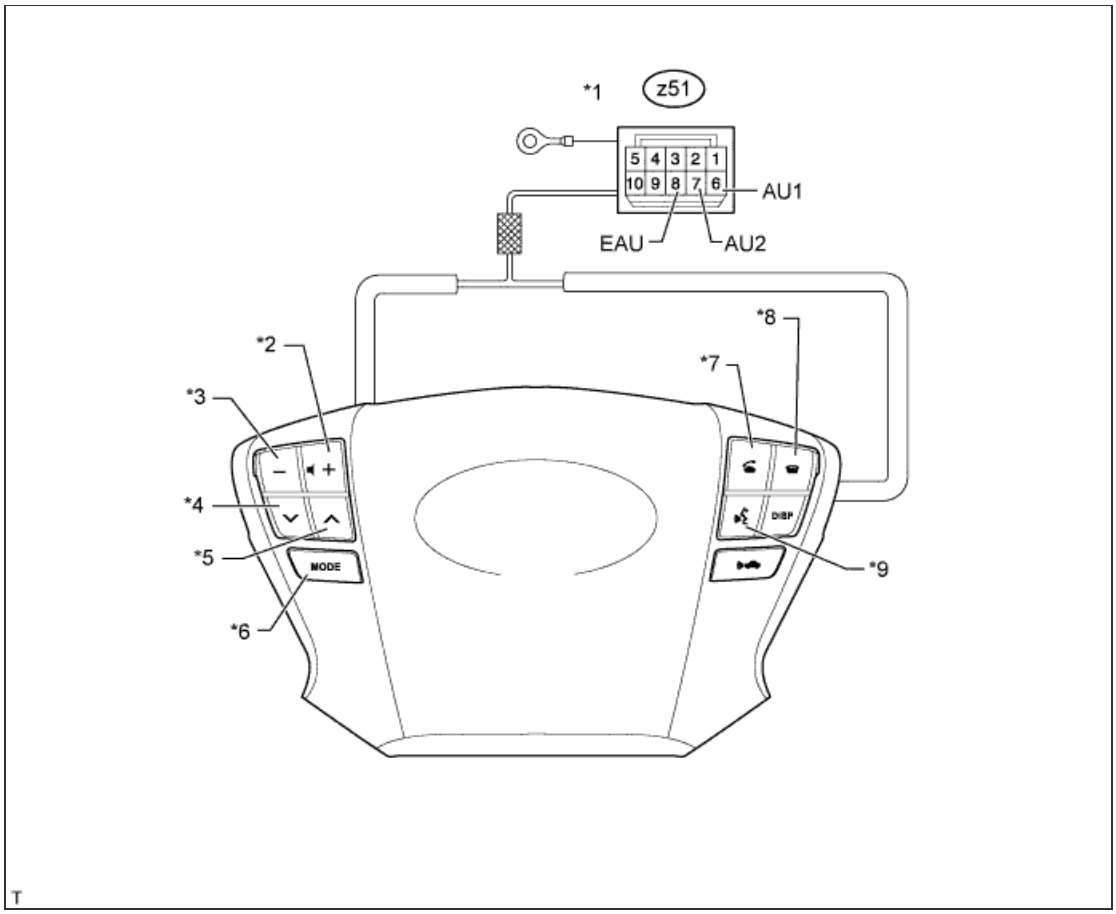
**NOTICE:**

The spiral cable is an important part of the SRS airbag system. Incorrect removal or installation of the spiral cable may prevent the airbag from deploying. Be sure to read the Precaution for the supplemental restraint system (Click here).

NG → REPLACE SPIRAL CABLE SUB-ASSEMBLY (**Click here**)

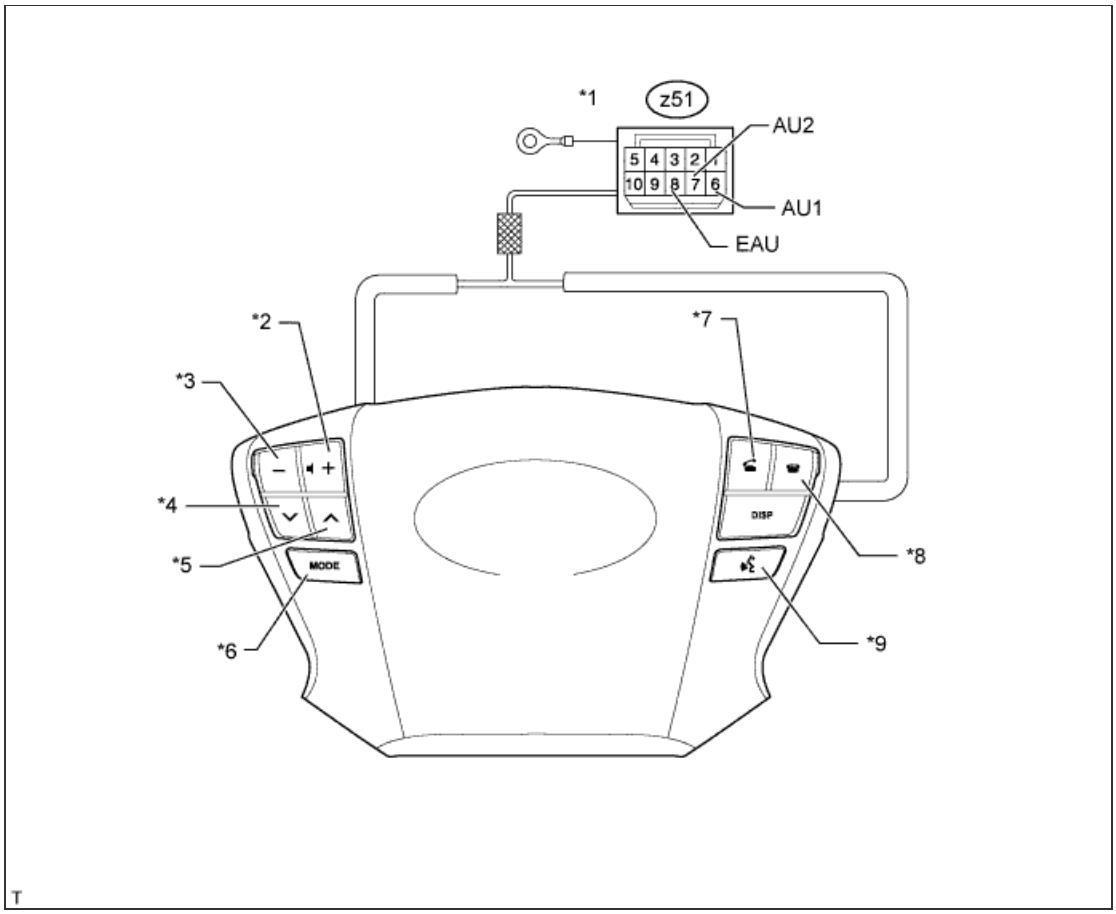
OK

**4.INSPECT STEERING PAD (STEERING PAD SWITCH ASSEMBLY)**




**Text in Illustration (w/ Dynamic Radar Cruise Control System:)**

| | | | |
|---|---|---|---|
| *1 | Component without harness connected<br>(Steering Pad Switch Assembly) | *2 | Volume+ |
| *3 | Volume- | *4 | Seek- |
| *5 | Seek+ | *6 | MODE |
| *7 | Off Hook | *8 | On Hook |
| *9 | Voice Switch | - | - |




**Text in Illustration (w/o Dynamic Radar Cruise Control System:)**

| | | | |
|---|---|---|---|
| *1 | Component without harness connected<br>(Steering Pad Switch Assembly) | *2 | Volume+ |
| *3 | Volume- | *4 | Seek- |
| *5 | Seek+ | *6 | MODE |
| *7 | Off Hook | *8 | On Hook |
| *9 | Voice Switch | - | - |

a. Disconnect the z51 steering pad switch connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| 6 (AU1) - 8 (EAU) | No switch is pushed | 95 to 105 kΩ |
| 6 (AU1) - 8 (EAU) | Seek+ switch pushed | Below 2.5 Ω |
| 6 (AU1) - 8 (EAU) | Seek- switch pushed | 312 to 345 Ω |
| 6 (AU1) - 8 (EAU) | Volume+ switch pushed | 950 to 1050 Ω |
| 6 (AU1) - 8 (EAU) | Volume- switch pushed | 2954 to 3265 Ω |
| 7 (AU2) - 8 (EAU) | No switch is pushed | 95 to 105 kΩ |
| 7 (AU2) - 8 (EAU) | MODE switch pushed | Below 2.5 Ω |
| 7 (AU2) - 8 (EAU) | On hook switch pushed | 312 to 345 Ω |
| 7 (AU2) - 8 (EAU) | Off hook switch pushed | 950 to 1050 Ω |
| 7 (AU2) - 8 (EAU) | Voice switch pushed | 2950 to 3265 Ω |

NG

REPLACE STEERING PAD (STEERING PAD SWITCH ASSEMBLY) (Click here)

OK

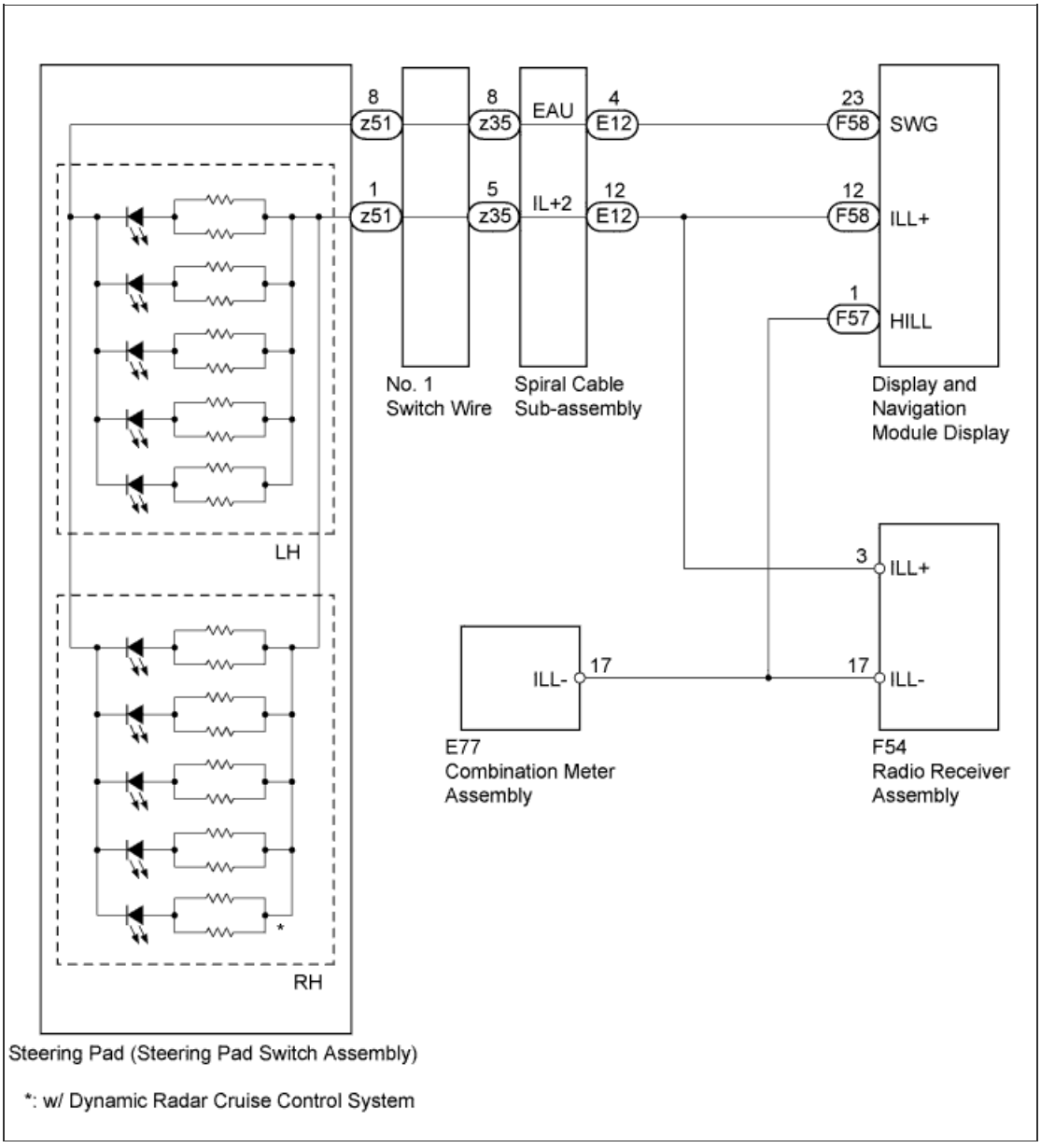
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

Power is supplied to the display and navigation module display, radio receiver and steering pad (steering pad switch assembly) illumination when the light control switch is in the TAIL or HEAD position.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

The vehicle is equipped with an SRS (Supplemental Restraint System) which includes components such as airbags. Before servicing (including removal or installation of parts), be sure to read the Precaution in the Supplemental Restraint System (Click here).

### 1.CHECK ILLUMINATION

a. Check if the illumination for the display and navigation module display, steering pad switch, glove box light, cigarette lighter, or other parts (seat heater switch, front seat memory switch, etc.) comes on when the light control switch is turned to the HEAD or TAIL position.

**Result**

| Result | Proceed to |
|---|---|
| Illumination comes on for all components except | A |

| | |
|---|---|
| steering pad switch. | |
| Illumination comes on for all components except radio receiver. | B |
| Illumination comes on for all components except display and navigation assembly. | C |
| No illumination comes on for all components. | D |

B → Go to step 7

C → Go to step 8

D → GO TO LIGHTING SYSTEM (Click here)

A

## 2.CHECK HARNESS AND CONNECTOR (BATTERY - SPIRAL CABLE)

a. Disconnect the E12 cable connector.

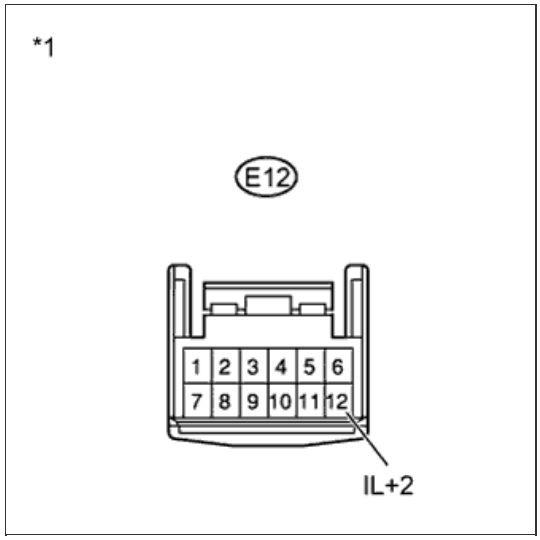
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E12-12 (IL+2) - Body ground | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Spiral Cable) |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 3.CHECK NO. 1 SWITCH WIRE

a. Disconnect the z35 cable connector.

b. Disconnect the z51 steering pad switch connector.

c. Measure the resistance according to the valvue(s) in the table below.

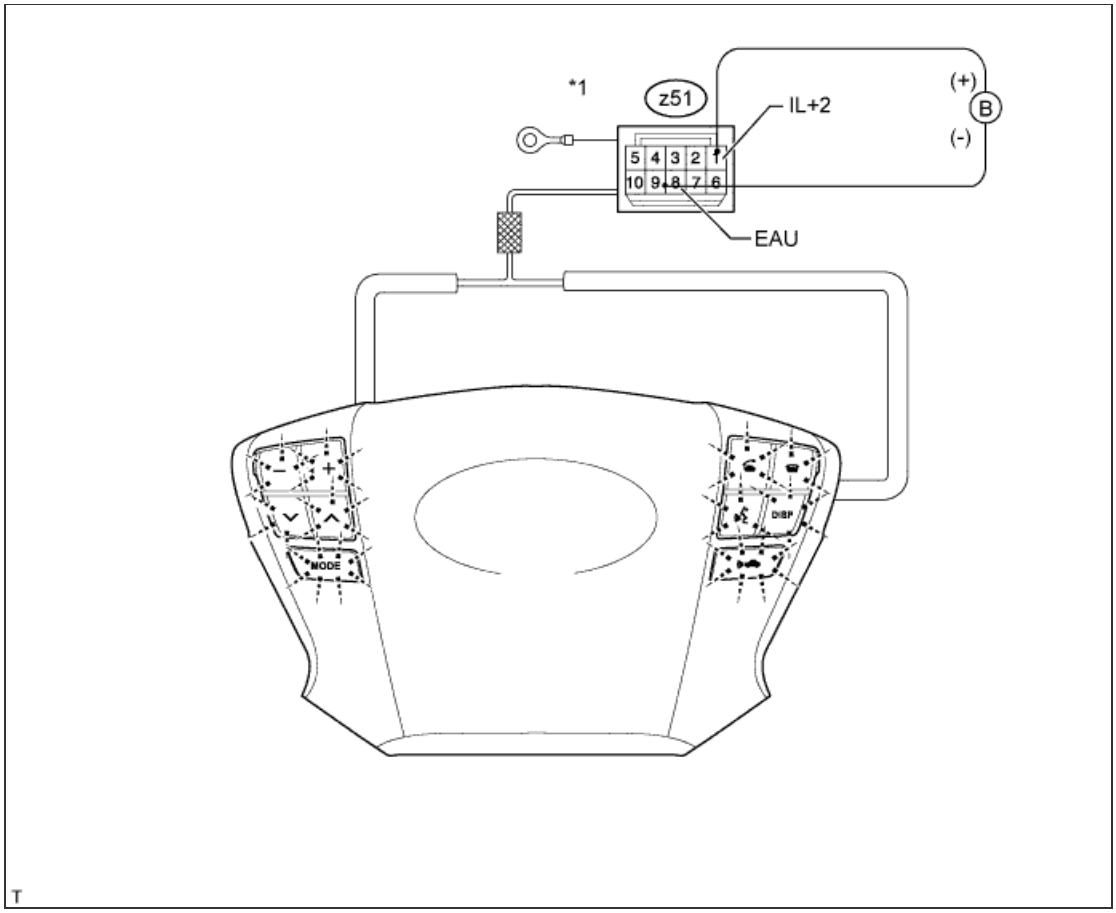
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| z35-8 - z51-8 | Always | Below 1 Ω |
| z35-5 - z51-1 | Always | Below 1 Ω |
| z35-8 - Body ground | Always | 10 kΩ or higher |
| z35-5 - Body ground | Always | 10 kΩ or higher |

NG → REPLACE NO. 1 SWITCH WIRE

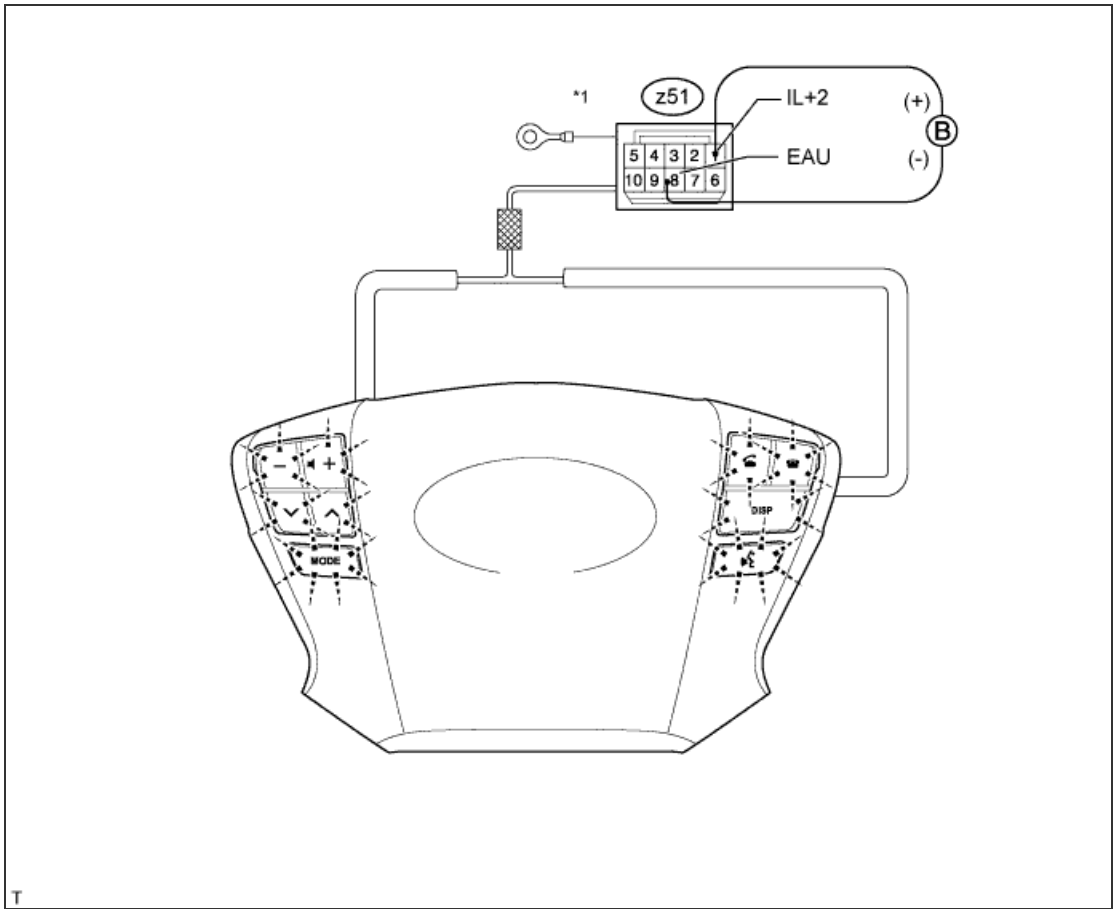
OK

## 4.INSPECT STEERING PAD (STEERING PAD SWITCH ASSEMBLY)




**Text in Illustration (w/ Dynamic Radar Cruise Control System:)**

| | | | |
|---|---|---|---|
| *1 | Component without harness connected<br>(Steering Pad Switch Assembly) | - | - |




**Text in Illustration (w/o Dynamic Radar Cruise Control System:)**

| | | | |
|---|---|---|---|
| *1 | Component without harness connected<br>(Steering Pad Switch Assembly) | - | - |

a. Disconnect the z51 steering pad switch connector.

b. Connect the positive (+) lead to terminal 1 (IL+2) and the negative (-) lead to terminal 8 (EAU) of the steering pad switch connector.

c. Check if the illumination for the steering pad switch comes on.

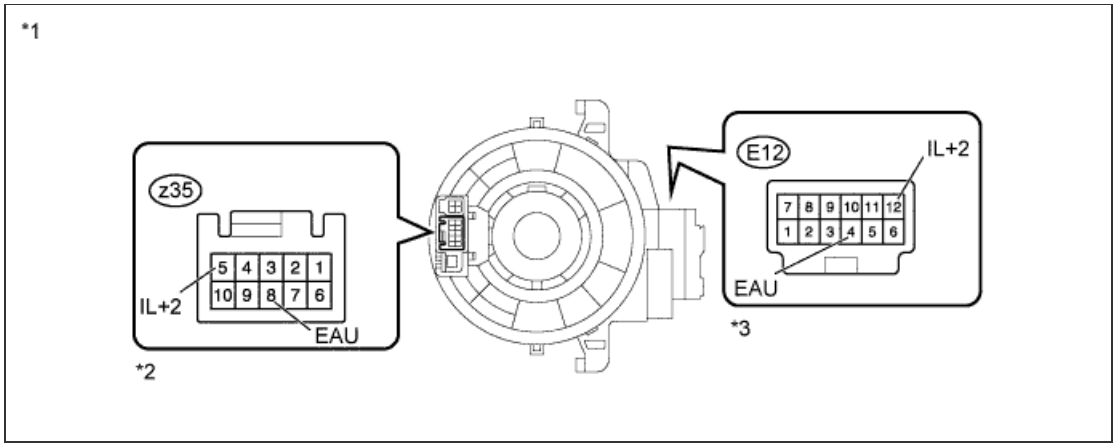
**OK:**

**Illumination for the steering pad switch comes on.**

NG → REPLACE STEERING PAD (STEERING PAD SWITCH ASSEMBLY) (Click here)

OK

## 5.INSPECT SPIRAL CABLE SUB-ASSEMBLY




**Text in Illustration**

| | | | |
|---|---|---|---|
| *1 | Component without harness connected<br>(Spiral Cable Sub-assembly) | *2 | Steering Pad Switch Assembly Side |
| *3 | Vehicle Side | - | - |

a. Disconnect the cable connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Spiral Cable Position | Specified Condition |
|---|---|---|
| E12-12 (IL+2) - z35-5 (IL+2) | 2.5 rotations to left | Below 3 Ω |
| | Center | |
| | 2.5 rotations to right | |
| E12-4 (EAU) - z35-8 (EAU) | 2.5 rotations to left | Below 3 Ω |
| | Center | |
| | 2.5 rotations to right | |

**NOTICE:**

The spiral cable is an important part of the SRS airbag system. Incorrect removal or installation of the spiral cable may prevent the airbag from deploying. Be sure to read the Precaution for the supplemental restraint system (Click here).

NG → REPLACE SPIRAL CABLE SUB-ASSEMBLY (Click here)

OK

## 6.CHECK HARNESS AND CONNECTOR (SPIRAL CABLE - DISPLAY AND NAVIGATION MODULE DISPLAY AND RADIO RECEIVER)

a. Disconnect the E12 spiral cable connector.

b. Disconnect the F54 receiver connector.

c. Disconnect the F57 and F58 display and navigation module display connectors.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E12-12 (IL+2) - F58-12 (ILL+) | Always | Below 1 Ω |
| E12-12 (IL+2) - F54-3 (ILL+) | Always | Below 1 Ω |
| E12-4 (EAU) - F58-23 (SWG) | Always | Below 1 Ω |
| E12-12 (IL+2) - Body ground | Always | 10 kΩ or higher |
| E12-4 (EAU) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

7.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - COMBINATION METER)

a. Disconnect the F54 receiver connector.

b. Disconnect the E77 meter connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-17 (ILL-) - E77-17 (ILL-) | Always | Below 1 Ω |
| F54-17 (ILL-) - Body ground | Always | 10 kΩ or higher |

d. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F54-3 (ILL+) - Body ground | Light control Switch TAIL or HEAD | 11 to 14 V |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

8.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - BATTERY AND COMBINATION METER)

a. Disconnect the F57 and F58 display and navigation module display connectors.

b. Disconnect the E77 meter connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F57-1 (HILL) - E77-17 (ILL-) | Always | Below 1 Ω |
| F57-1 (HILL) - Body ground | Always | 10 kΩ or higher |

d. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F58-12 (ILL+) - Body ground | Light control switch TAIL or HEAD | 11 to 14 V |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

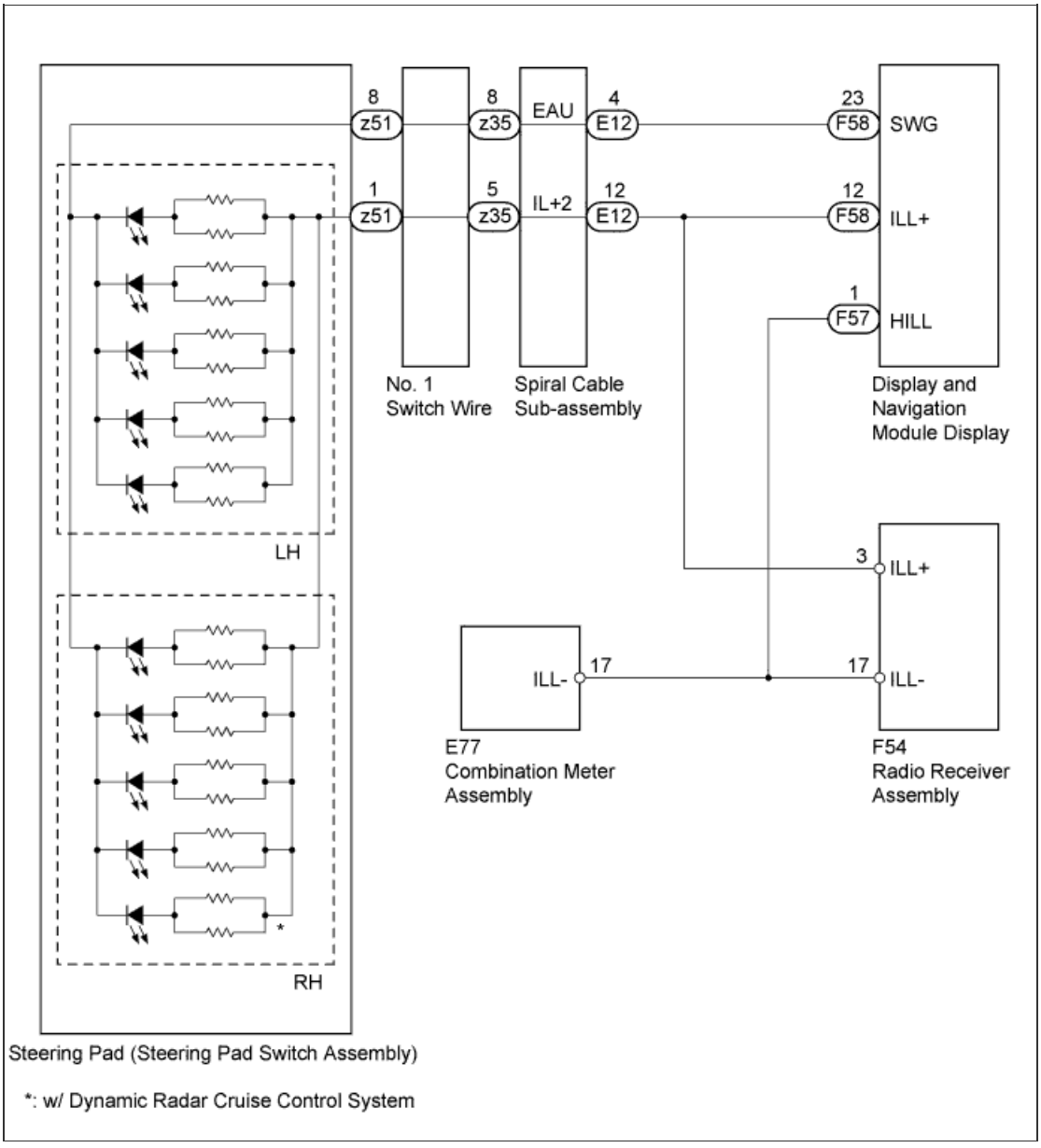
REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## DESCRIPTION

Power is supplied to the display and navigation module display, radio receiver and steering pad (steering pad switch assembly) illumination when the light control switch is in the TAIL or HEAD position.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

The vehicle is equipped with an SRS (Supplemental Restraint System) which includes components such as airbags. Before servicing (including removal or installation of parts), be sure to read the Precaution in the Supplemental Restraint System (Click here).

### 1.CHECK ILLUMINATION

a. Check if the illumination for the display and navigation module display, steering pad switch, glove box light, cigarette lighter, or other parts (seat heater switch, front seat memory switch, etc.) comes on when the light control switch is turned to the HEAD or TAIL position.

**Result**

| Result | Proceed to |
|---|---|
| Illumination comes on for all components except | A |

| | |
|---|---|
| steering pad switch. | |
| Illumination comes on for all components except radio receiver. | B |
| Illumination comes on for all components except display and navigation assembly. | C |
| No illumination comes on for all components. | D |

B → Go to step 7

C → Go to step 8

D → GO TO LIGHTING SYSTEM (Click here)

A

## 2.CHECK HARNESS AND CONNECTOR (BATTERY - SPIRAL CABLE)

a. Disconnect the E12 cable connector.

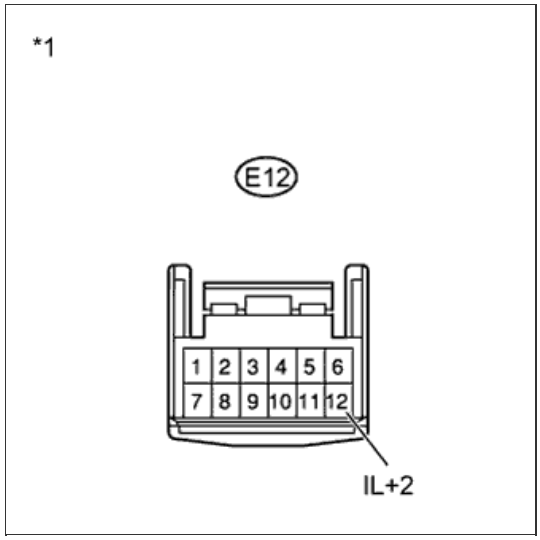
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E12-12 (IL+2) - Body ground | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Spiral Cable) |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 3.CHECK NO. 1 SWITCH WIRE

a. Disconnect the z35 cable connector.

b. Disconnect the z51 steering pad switch connector.

c. Measure the resistance according to the valvue(s) in the table below.

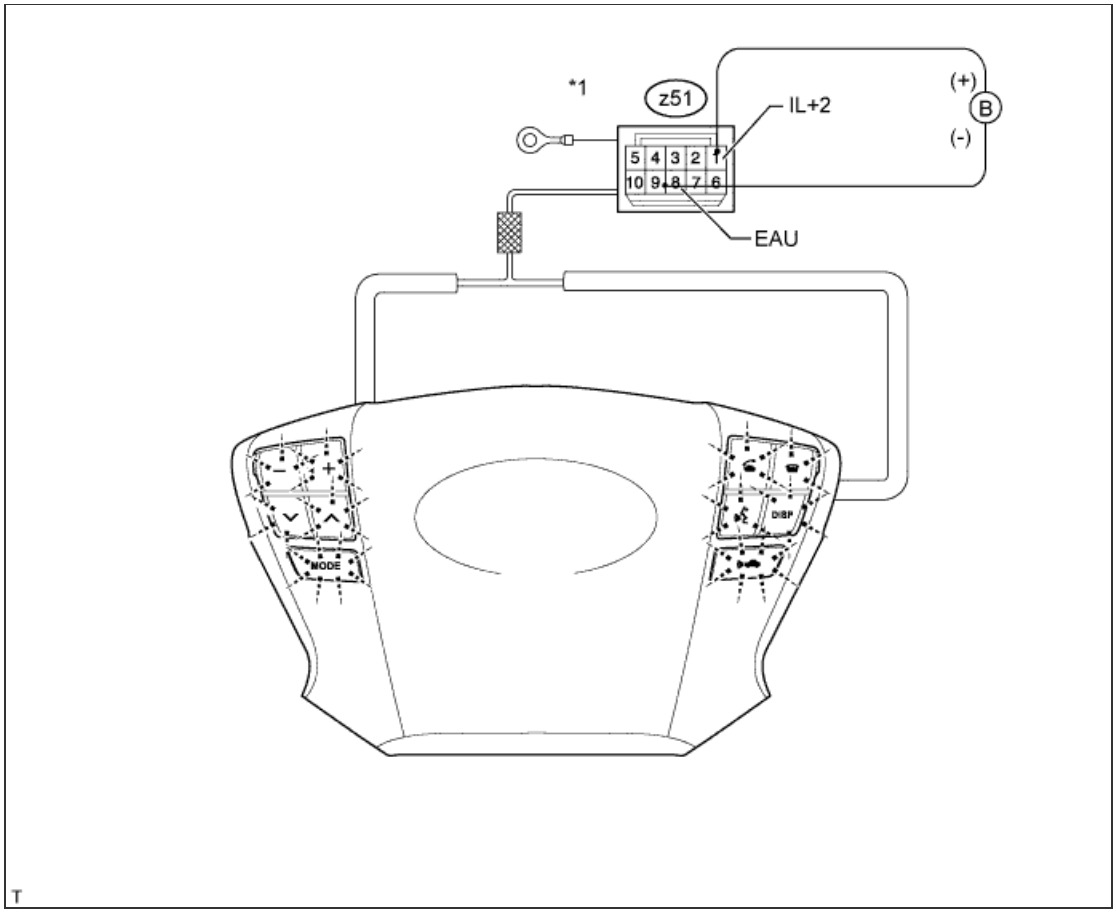
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| z35-8 - z51-8 | Always | Below 1 Ω |
| z35-5 - z51-1 | Always | Below 1 Ω |
| z35-8 - Body ground | Always | 10 kΩ or higher |
| z35-5 - Body ground | Always | 10 kΩ or higher |

NG → REPLACE NO. 1 SWITCH WIRE

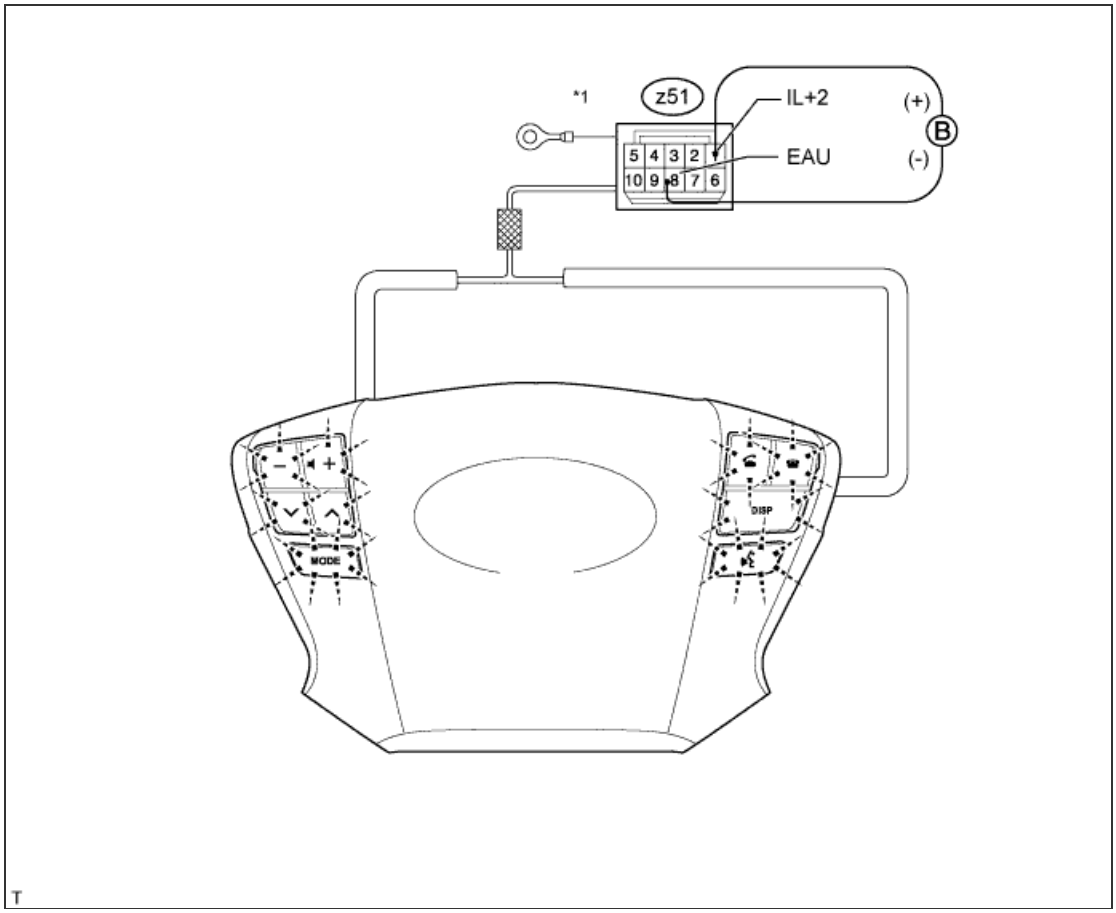
OK

## 4.INSPECT STEERING PAD (STEERING PAD SWITCH ASSEMBLY)




**Text in Illustration (w/ Dynamic Radar Cruise Control System:)**

| | | | |
|---|---|---|---|
| *1 | Component without harness connected<br>(Steering Pad Switch Assembly) | - | - |




**Text in Illustration (w/o Dynamic Radar Cruise Control System:)**

| | | | |
|---|---|---|---|
| *1 | Component without harness connected<br>(Steering Pad Switch Assembly) | - | - |

a. Disconnect the z51 steering pad switch connector.

b. Connect the positive (+) lead to terminal 1 (IL+2) and the negative (-) lead to terminal 8 (EAU) of the steering pad switch connector.

c. Check if the illumination for the steering pad switch comes on.

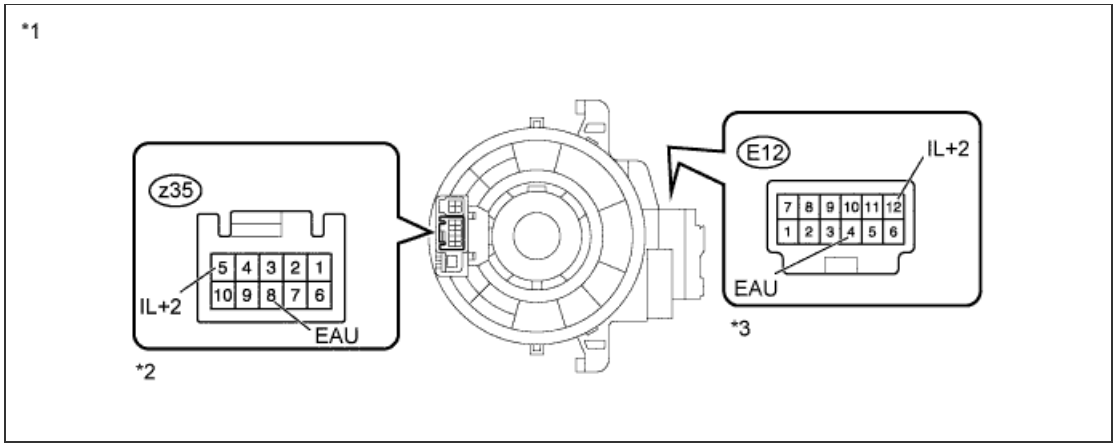
**OK:**

**Illumination for the steering pad switch comes on.**

NG → REPLACE STEERING PAD (STEERING PAD SWITCH ASSEMBLY) (Click here)

OK

## 5.INSPECT SPIRAL CABLE SUB-ASSEMBLY




**Text in Illustration**

| | | | |
|---|---|---|---|
| *1 | Component without harness connected<br>(Spiral Cable Sub-assembly) | *2 | Steering Pad Switch Assembly Side |
| *3 | Vehicle Side | - | - |

a. Disconnect the cable connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Spiral Cable Position | Specified Condition |
|---|---|---|
| E12-12 (IL+2) - z35-5 (IL+2) | 2.5 rotations to left | Below 3 Ω |
| | Center | |
| | 2.5 rotations to right | |
| E12-4 (EAU) - z35-8 (EAU) | 2.5 rotations to left | Below 3 Ω |
| | Center | |
| | 2.5 rotations to right | |

**NOTICE:**

The spiral cable is an important part of the SRS airbag system. Incorrect removal or installation of the spiral cable may prevent the airbag from deploying. Be sure to read the Precaution for the supplemental restraint system (Click here).

NG → REPLACE SPIRAL CABLE SUB-ASSEMBLY (Click here)

OK

## 6.CHECK HARNESS AND CONNECTOR (SPIRAL CABLE - DISPLAY AND NAVIGATION MODULE DISPLAY AND RADIO RECEIVER)

a. Disconnect the E12 spiral cable connector.

b. Disconnect the F54 receiver connector.

c. Disconnect the F57 and F58 display and navigation module display connectors.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E12-12 (IL+2) - F58-12 (ILL+) | Always | Below 1 Ω |
| E12-12 (IL+2) - F54-3 (ILL+) | Always | Below 1 Ω |
| E12-4 (EAU) - F58-23 (SWG) | Always | Below 1 Ω |
| E12-12 (IL+2) - Body ground | Always | 10 kΩ or higher |
| E12-4 (EAU) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

7.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - COMBINATION METER)

a. Disconnect the F54 receiver connector.

b. Disconnect the E77 meter connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-17 (ILL-) - E77-17 (ILL-) | Always | Below 1 Ω |
| F54-17 (ILL-) - Body ground | Always | 10 kΩ or higher |

d. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F54-3 (ILL+) - Body ground | Light control Switch TAIL or HEAD | 11 to 14 V |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

8.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - BATTERY AND COMBINATION METER)

a. Disconnect the F57 and F58 display and navigation module display connectors.

b. Disconnect the E77 meter connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F57-1 (HILL) - E77-17 (ILL-) | Always | Below 1 Ω |
| F57-1 (HILL) - Body ground | Always | 10 kΩ or higher |

d. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F58-12 (ILL+) - Body ground | Light control switch TAIL or HEAD | 11 to 14 V |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

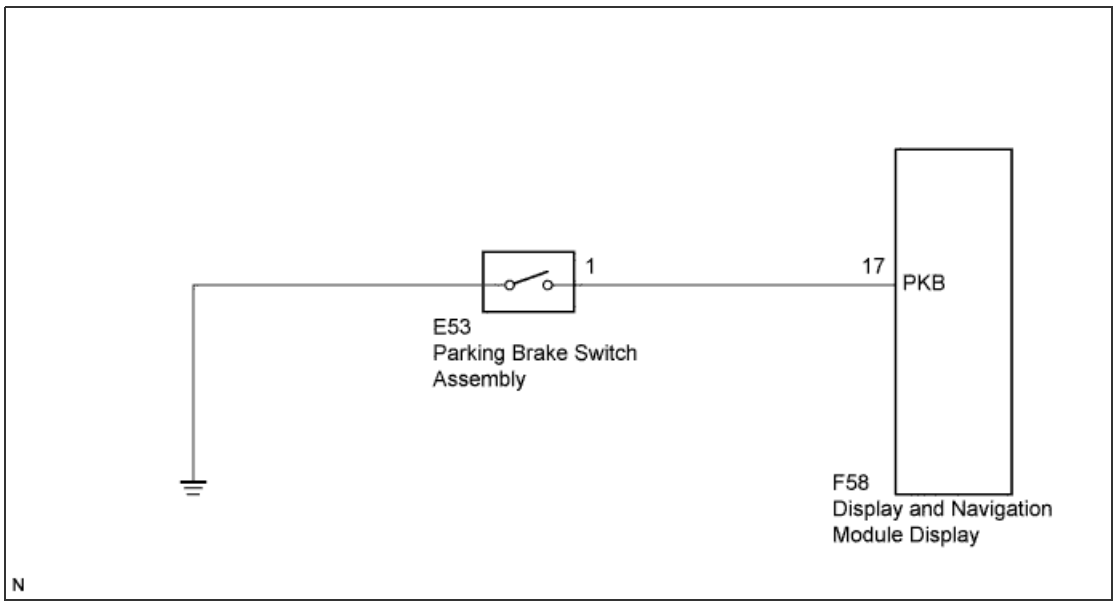
REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit is from the parking brake switch assembly to the display and navigation module display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK BRAKE WARNING LIGHT

a. Check that the brake warning light comes on when the parking brake is applied and goes off when it is released.

**OK:**
**The brake warning light operates as specified above.**

NG → Go to step 3

OK ↓

### 2.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - PARKING BRAKE SWITCH ASSEMBLY)

a. Disconnect the F58 display and navigation module display connector.

b. Disconnect the E53 parking brake switch assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| F58-17 (PKB) - E53-1 | Always | Below 1 Ω |
| F58-17 (PKB) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

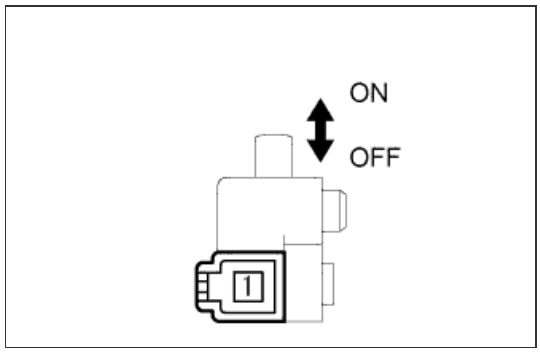
### 3.INSPECT PARKING BRAKE SWITCH ASSEMBLY

a. Disconnect the parking brake switch assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester connection | Switch Condition | Specified condition |
|---|---|---|
| 1 - Switch body | ON (When shaft is not pressed) | Below 1 Ω |
| 1 - Switch body | OFF (When shaft is pressed) | 10 kΩ or higher |




NG → REPLACE PARKING BRAKE SWITCH ASSEMBLY (Click here)

OK

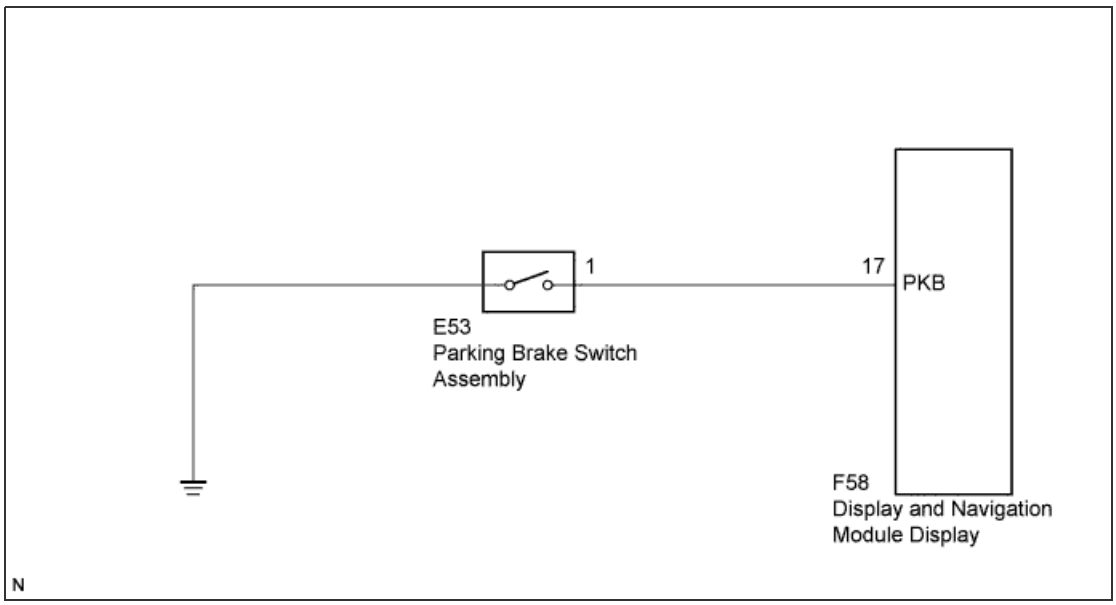
REPAIR OR REPLACE HARNESS OR CONNECTOR (PARKING BRAKE SWITCH - BODY GROUND)

**for Preparation** Click here

## DESCRIPTION

This circuit is from the parking brake switch assembly to the display and navigation module display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK BRAKE WARNING LIGHT

a. Check that the brake warning light comes on when the parking brake is applied and goes off when it is released.

**OK:**
**The brake warning light operates as specified above.**

NG → Go to step 3

OK ↓

### 2.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - PARKING BRAKE SWITCH ASSEMBLY)

a. Disconnect the F58 display and navigation module display connector.

b. Disconnect the E53 parking brake switch assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| F58-17 (PKB) - E53-1 | Always | Below 1 Ω |
| F58-17 (PKB) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

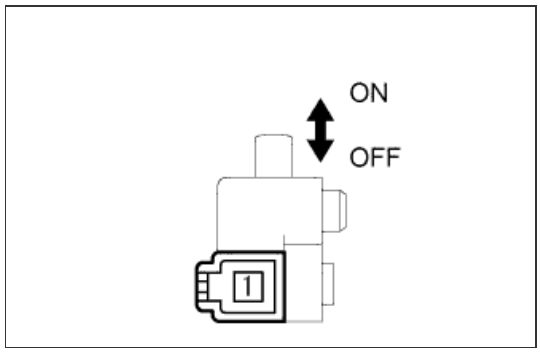
### 3.INSPECT PARKING BRAKE SWITCH ASSEMBLY

a. Disconnect the parking brake switch assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester connection | Switch Condition | Specified condition |
|---|---|---|
| 1 - Switch body | ON (When shaft is not pressed) | Below 1 Ω |
| 1 - Switch body | OFF (When shaft is pressed) | 10 kΩ or higher |




NG → REPLACE PARKING BRAKE SWITCH ASSEMBLY (Click here)

OK

REPAIR OR REPLACE HARNESS OR CONNECTOR (PARKING BRAKE SWITCH - BODY GROUND)

**for Preparation** Click here

## DESCRIPTION

Each unit of the electro multi vision system connected to the AVC-LAN (communication bus) transfers switch signals by the AVC-LAN.
If a short to +B or short to ground occurs in this AVC-LAN, the electro multi vision system will not function normally as communication is stopped.

## INSPECTION PROCEDURE

**NOTICE:**

The display and navigation module display is the master unit.

### 1.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

a. Disconnect the F55 display and navigation module display connector.

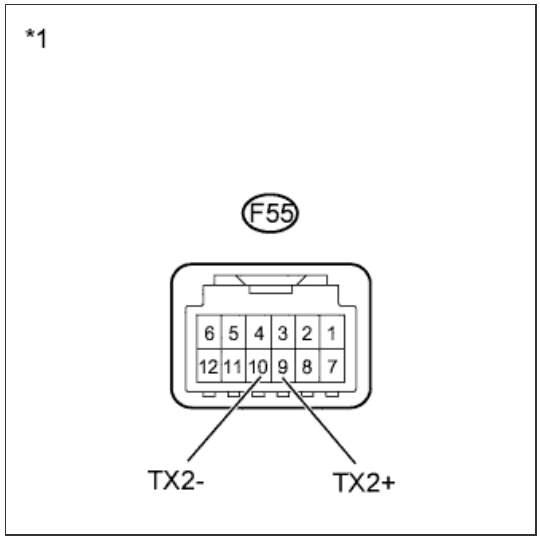
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F55-9 (TX2+) - F55-10 (TX2-) | Always | 60 to 80 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Display and Navigation Module Display) |




NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

### 2.CHECK HARNESS AND CONNECTOR (AVC-LAN CIRCUIT)

**HINT:**

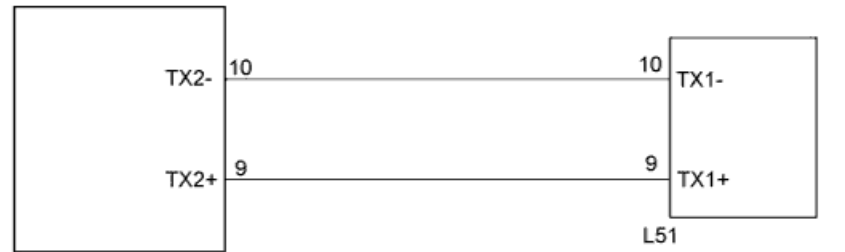
For details of the connectors, refer to Terminals of ECU ( Click here).

a. Referring to the AVC-LAN wiring diagram below, check all AVC-LAN circuits.

i. Disconnect all connectors in all AVC-LAN circuits.

ii. Check for an open or short in all AVC-LAN circuits.

AVC-LAN WIRING DIAGRAM:




*1: Master Unit

*2: Slave Unit

**OK:**

**There is no open or short circuit.**

| | |
|---|---|
| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR |

OK

**3.INSPECT MALFUNCTIONING PARTS**

a. Disconnect and reconnect each slave unit one by one until the master unit returns to normal operation.

**HINT:**

- **Check all slave units.**
- **If disconnecting a slave unit causes the master unit to return to normal operation, the slave unit is defective and should be replaced.**

**OK:**

**Master unit returns to normal operation.**

| | |
|---|---|
| NG | REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here) |

OK

**REPLACE MALFUNCTIONING PARTS**

**for Preparation** Click here

## DESCRIPTION

Each unit of the electro multi vision system connected to the AVC-LAN (communication bus) transfers switch signals by the AVC-LAN.
If a short to +B or short to ground occurs in this AVC-LAN, the electro multi vision system will not function normally as communication is stopped.

## INSPECTION PROCEDURE

**NOTICE:**

The display and navigation module display is the master unit.

### 1.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

a. Disconnect the F55 display and navigation module display connector.

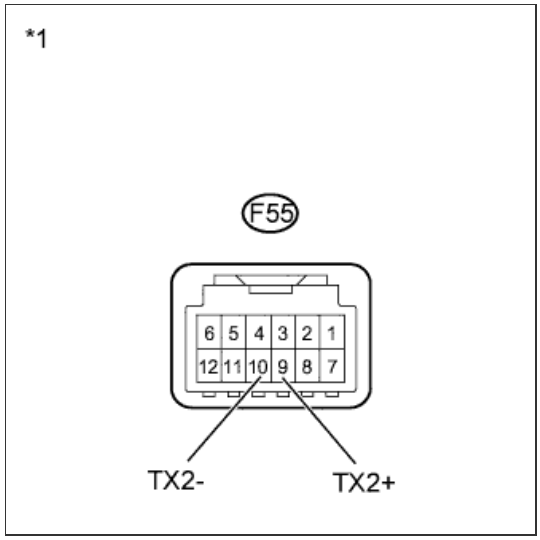
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F55-9 (TX2+) - F55-10 (TX2-) | Always | 60 to 80 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Display and Navigation Module Display) |




NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

### 2.CHECK HARNESS AND CONNECTOR (AVC-LAN CIRCUIT)

**HINT:**

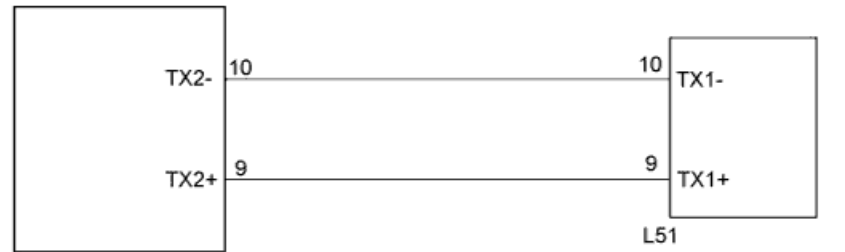
For details of the connectors, refer to Terminals of ECU ( Click here).

a. Referring to the AVC-LAN wiring diagram below, check all AVC-LAN circuits.

i. Disconnect all connectors in all AVC-LAN circuits.

ii. Check for an open or short in all AVC-LAN circuits.

AVC-LAN WIRING DIAGRAM:




*1: Master Unit

*2: Slave Unit

**OK:**

**There is no open or short circuit.**

| | |
|---|---|
| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR |

OK

**3.INSPECT MALFUNCTIONING PARTS**

a. Disconnect and reconnect each slave unit one by one until the master unit returns to normal operation.

**HINT:**

- **Check all slave units.**
- **If disconnecting a slave unit causes the master unit to return to normal operation, the slave unit is defective and should be replaced.**

**OK:**

**Master unit returns to normal operation.**

| | |
|---|---|
| NG | REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here) |

OK

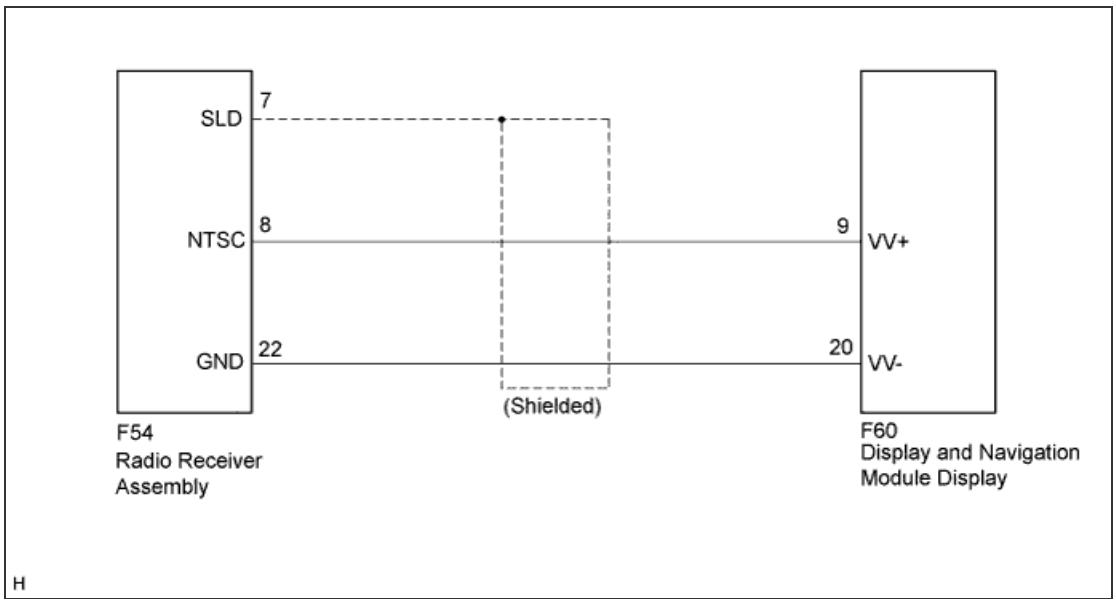
**REPLACE MALFUNCTIONING PARTS**

**for Preparation** Click here

## DESCRIPTION

This circuit sends a DVD image signal from the radio receiver assembly to the display and navigation module display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F60 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-8 (NTSC) - F60-9 (VV+) | Always | Below 1 Ω |
| F54-22 (GND) - F60-20 (VV-) | Always | Below 1 Ω |
| F54-8 (NTSC) - Body ground | Always | 10 kΩ or higher |
| F54-22 (GND) - Body ground | Always | 10 kΩ or higher |
| F54-7 (SLD) - Body ground | Always | 10 kΩ or higher |

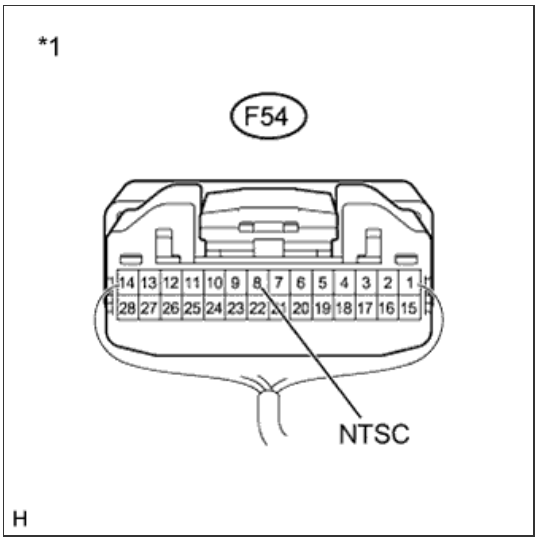
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 2.INSPECT RADIO RECEIVER ASSEMBLY (DVD IMAGE SIGNAL)

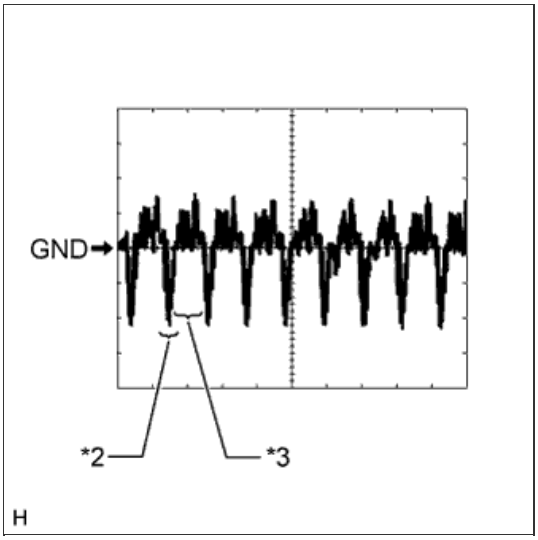
a. Reconnect the F54 radio receiver assembly connector.

b. Check the waveform according to the table below.




c. Oscilloscope waveform

| Item | Content |
|---|---|
| Measurement terminal | F54-8 (NTSC) - Body ground |
| Measurement setting | 200 mV/DIV., 10 µs/DIV. |
| Condition | DVD display is on |




**HINT:**

The video waveform changes according to the image output from the radio receiver assembly to the display and navigation module display, but the synchronization signal does not change.

**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Radio Receiver Assembly) |
| *2 | Synchronization Signal |
| *3 | Video Waveform |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

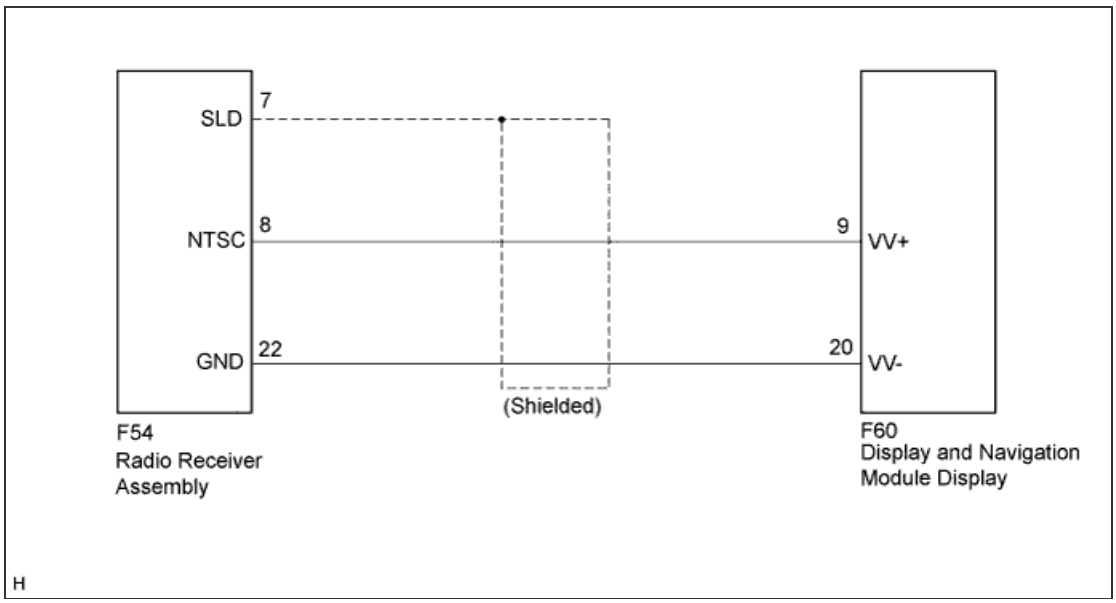
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit sends a DVD image signal from the radio receiver assembly to the display and navigation module display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F54 radio receiver assembly connector.

b. Disconnect the F60 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F54-8 (NTSC) - F60-9 (VV+) | Always | Below 1 Ω |
| F54-22 (GND) - F60-20 (VV-) | Always | Below 1 Ω |
| F54-8 (NTSC) - Body ground | Always | 10 kΩ or higher |
| F54-22 (GND) - Body ground | Always | 10 kΩ or higher |
| F54-7 (SLD) - Body ground | Always | 10 kΩ or higher |

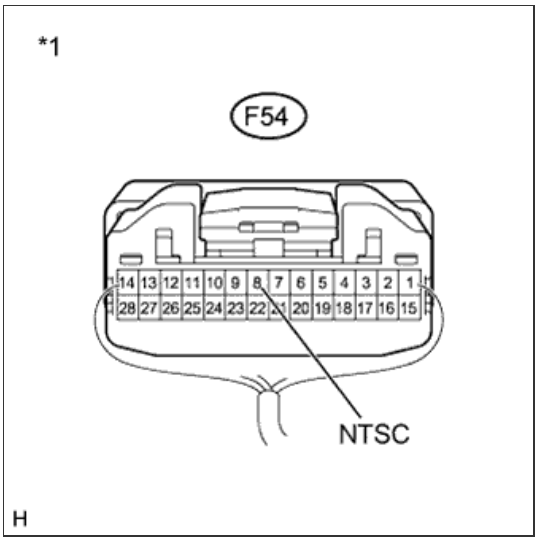
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 2.INSPECT RADIO RECEIVER ASSEMBLY (DVD IMAGE SIGNAL)

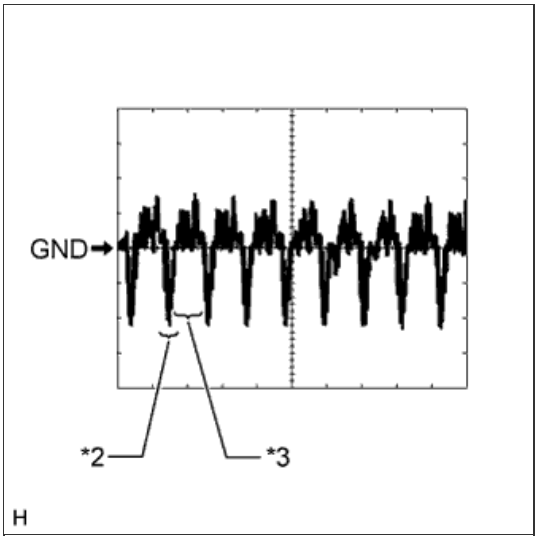
a. Reconnect the F54 radio receiver assembly connector.

b. Check the waveform according to the table below.




c. Oscilloscope waveform

| Item | Content |
|---|---|
| Measurement terminal | F54-8 (NTSC) - Body ground |
| Measurement setting | 200 mV/DIV., 10 µs/DIV. |
| Condition | DVD display is on |




**HINT:**

The video waveform changes according to the image output from the radio receiver assembly to the display and navigation module display, but the synchronization signal does not change.

**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Radio Receiver Assembly) |
| *2 | Synchronization Signal |
| *3 | Video Waveform |

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

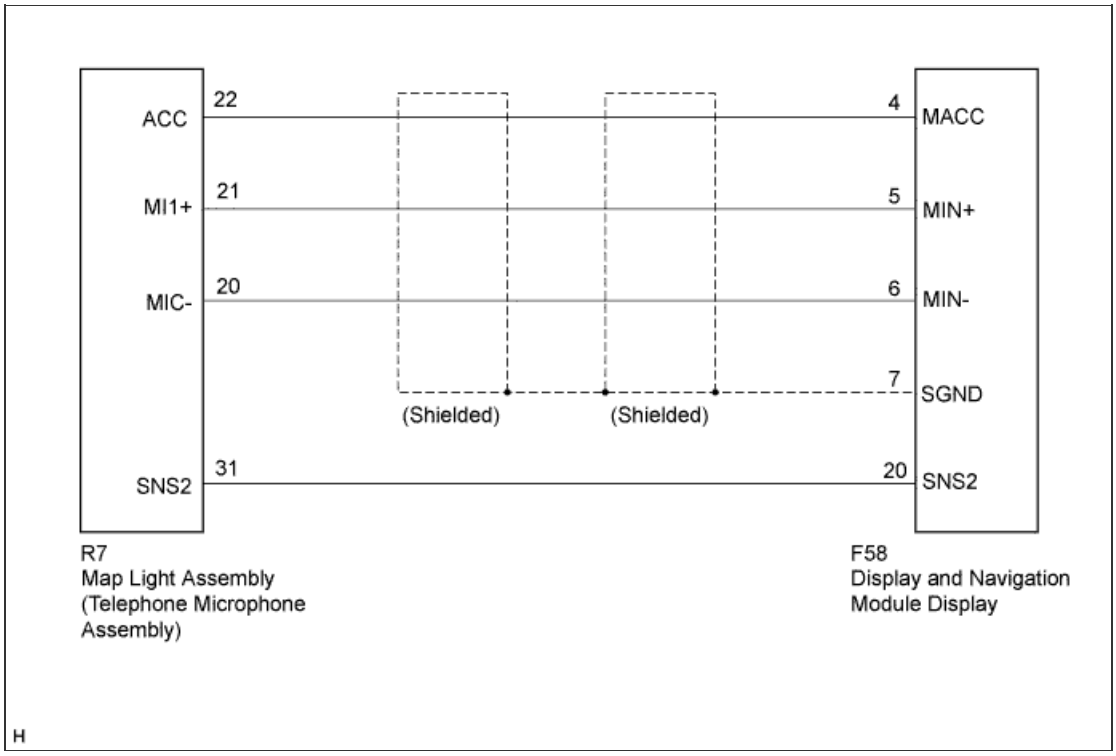
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit sends a microphone signal from the map light assembly (telephone microphone assembly) to the display and navigation module display. It also supplies power from the display and navigation module display to the map light assembly (telephone microphone assembly).

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - MAP LIGHT ASSEMBLY)

a. Disconnect the F58 display and navigation module display connector.

b. Disconnect the R7 map light assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-20 (SNS2) - R7-31 (SNS2) | Always | Below 1 Ω |
| F58-4 (MACC) - R7-22 (ACC) | Always | Below 1 Ω |
| F58-5 (MIN+) - R7-21 (MI1+) | Always | Below 1 Ω |
| F58-6 (MIN-) - R7-20 (MIC-) | Always | Below 1 Ω |
| F58-20 (SNS2) - Body ground | Always | 10 kΩ or higher |
| F58-4 (MACC) - Body ground | Always | 10 kΩ or higher |
| F58-5 (MIN+) - Body ground | Always | 10 kΩ or higher |
| F58-6 (MIN-) - Body ground | Always | 10 kΩ or higher |
| F58-7 (SGND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 2.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

a. Reconnect the F58 display and navigation module display connector.

b. Measure the voltage according to the value(s) in the table below.

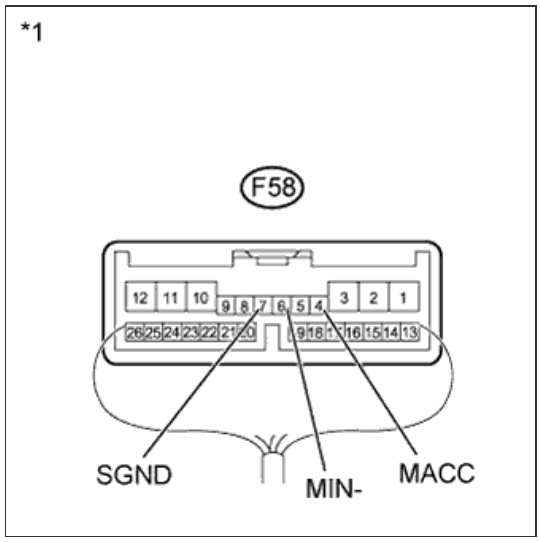
**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F58-4 (MACC) - Body ground | Engine switch on (ACC) | 4 to 6 V |

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-7 (SGND) - Body ground | Always | Below 1 Ω |
| F58-6 (MIN-) - Body ground | Always | Below 1 Ω |




**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Display and Navigation Module Display) |

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

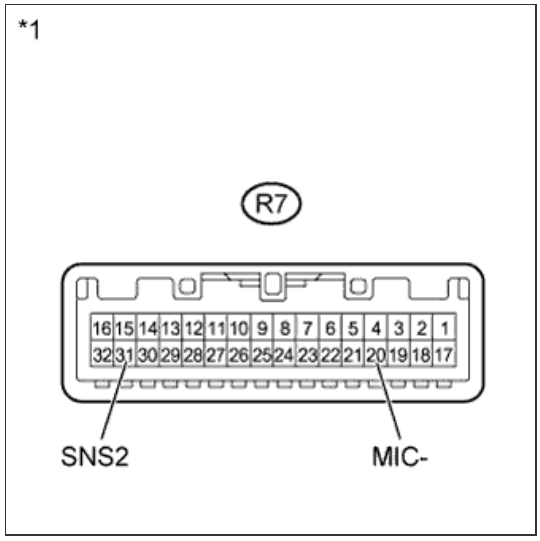
OK

## 3.INSPECT MAP LIGHT ASSEMBLY

a. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| R7-31 (SNS2) - R7-20 (MIC-) | Always | Below 1 Ω |




**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Map Light Assembly) |

NG → Go to step 4

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

4.REPLACE TELEPHONE MICROPHONE ASSEMBLY

a. Replace the telephone microphone assembly ( Click here).

**NOTICE:**

The connector of the telephone microphone assembly is too small to be inspected. Therefore, after replacing the telephone microphone assembly, inspect it using the connector of the map light assembly.

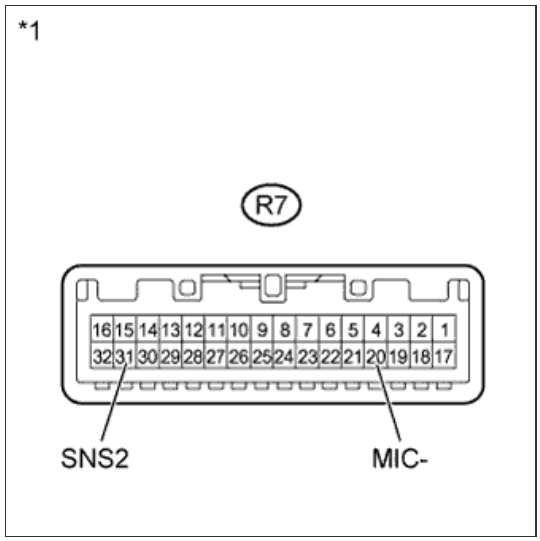
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| R7-31 (SNS2) - R7-20 (MIC-) | Always | Below 1 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Map Light Assembly) |




NG → REPLACE MAP LIGHT ASSEMBLY (Click here)

OK

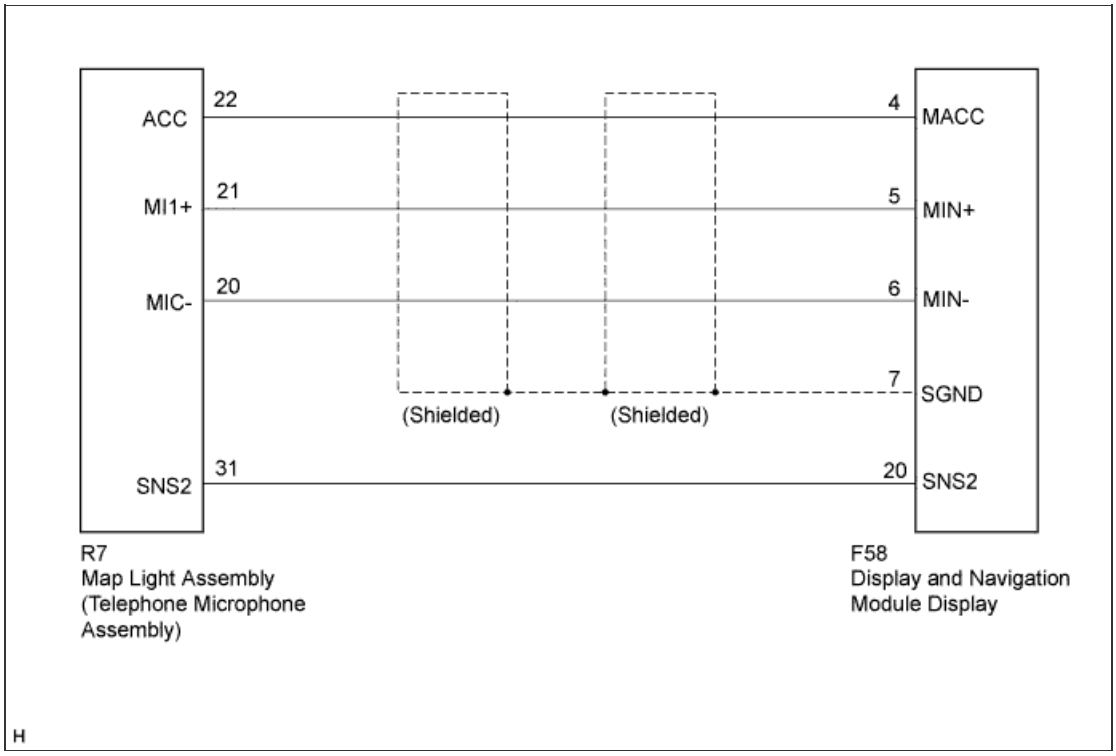
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit sends a microphone signal from the map light assembly (telephone microphone assembly) to the display and navigation module display. It also supplies power from the display and navigation module display to the map light assembly (telephone microphone assembly).

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - MAP LIGHT ASSEMBLY)

a. Disconnect the F58 display and navigation module display connector.

b. Disconnect the R7 map light assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-20 (SNS2) - R7-31 (SNS2) | Always | Below 1 Ω |
| F58-4 (MACC) - R7-22 (ACC) | Always | Below 1 Ω |
| F58-5 (MIN+) - R7-21 (MI1+) | Always | Below 1 Ω |
| F58-6 (MIN-) - R7-20 (MIC-) | Always | Below 1 Ω |
| F58-20 (SNS2) - Body ground | Always | 10 kΩ or higher |
| F58-4 (MACC) - Body ground | Always | 10 kΩ or higher |
| F58-5 (MIN+) - Body ground | Always | 10 kΩ or higher |
| F58-6 (MIN-) - Body ground | Always | 10 kΩ or higher |
| F58-7 (SGND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 2.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

a. Reconnect the F58 display and navigation module display connector.

b. Measure the voltage according to the value(s) in the table below.

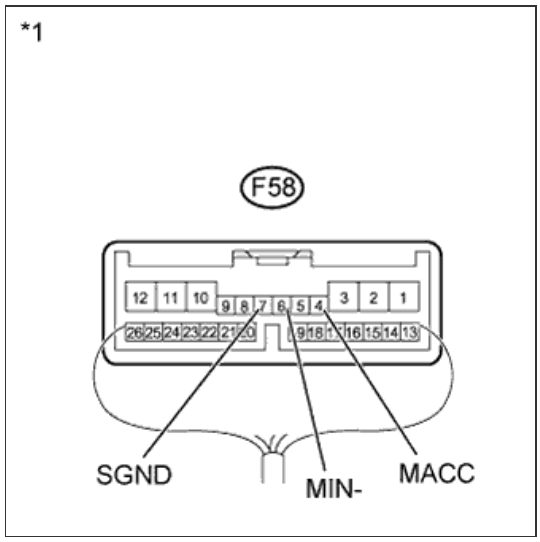
**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F58-4 (MACC) - Body ground | Engine switch on (ACC) | 4 to 6 V |

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-7 (SGND) - Body ground | Always | Below 1 Ω |
| F58-6 (MIN-) - Body ground | Always | Below 1 Ω |




**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Display and Navigation Module Display) |

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

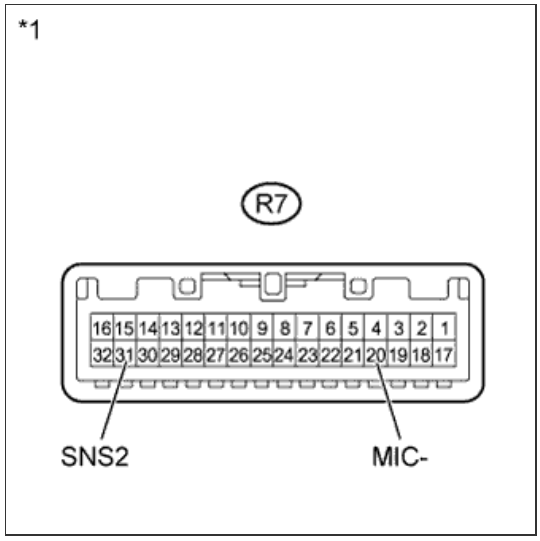
OK

## 3.INSPECT MAP LIGHT ASSEMBLY

a. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| R7-31 (SNS2) - R7-20 (MIC-) | Always | Below 1 Ω |




**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Map Light Assembly) |

NG → Go to step 4

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

4.REPLACE TELEPHONE MICROPHONE ASSEMBLY

a. Replace the telephone microphone assembly ( Click here).

**NOTICE:**

The connector of the telephone microphone assembly is too small to be inspected. Therefore, after replacing the telephone microphone assembly, inspect it using the connector of the map light assembly.

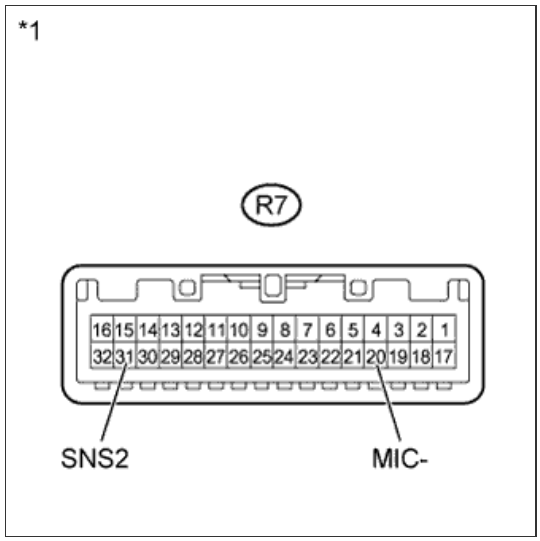
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| R7-31 (SNS2) - R7-20 (MIC-) | Always | Below 1 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Map Light Assembly) |




NG → REPLACE MAP LIGHT ASSEMBLY (Click here)

OK

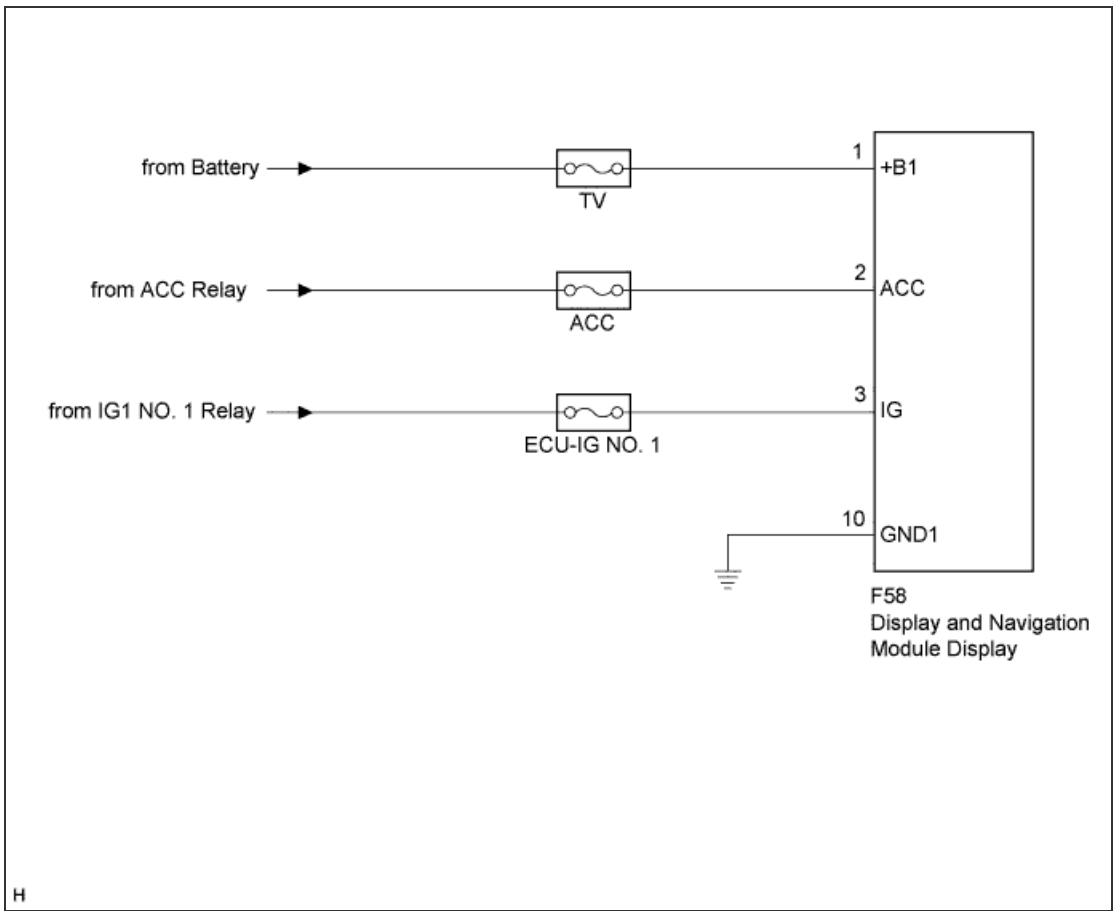
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This is the power source circuit to operate the display and navigation module display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY POWER SOURCE)

a. Disconnect the F58 display and navigation module display connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-10 (GND1) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

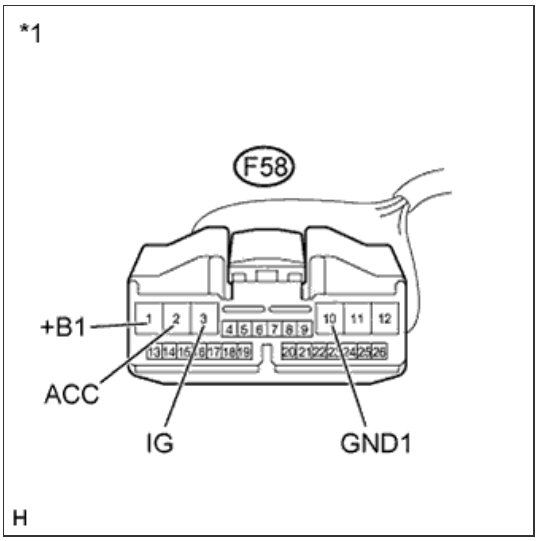
**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F58-1 (+B1) - F58-10 (GND1) | Always | 11 to 14 V |

| | | |
|---|---|---|
| F58-2 (ACC) - F58-10 (GND1) | Engine switch on (ACC) | 11 to 14 V |
| F58-3 (IG) - F58-10 (GND1) | Engine switch on (IG) | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Display and Navigation Module Display) |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

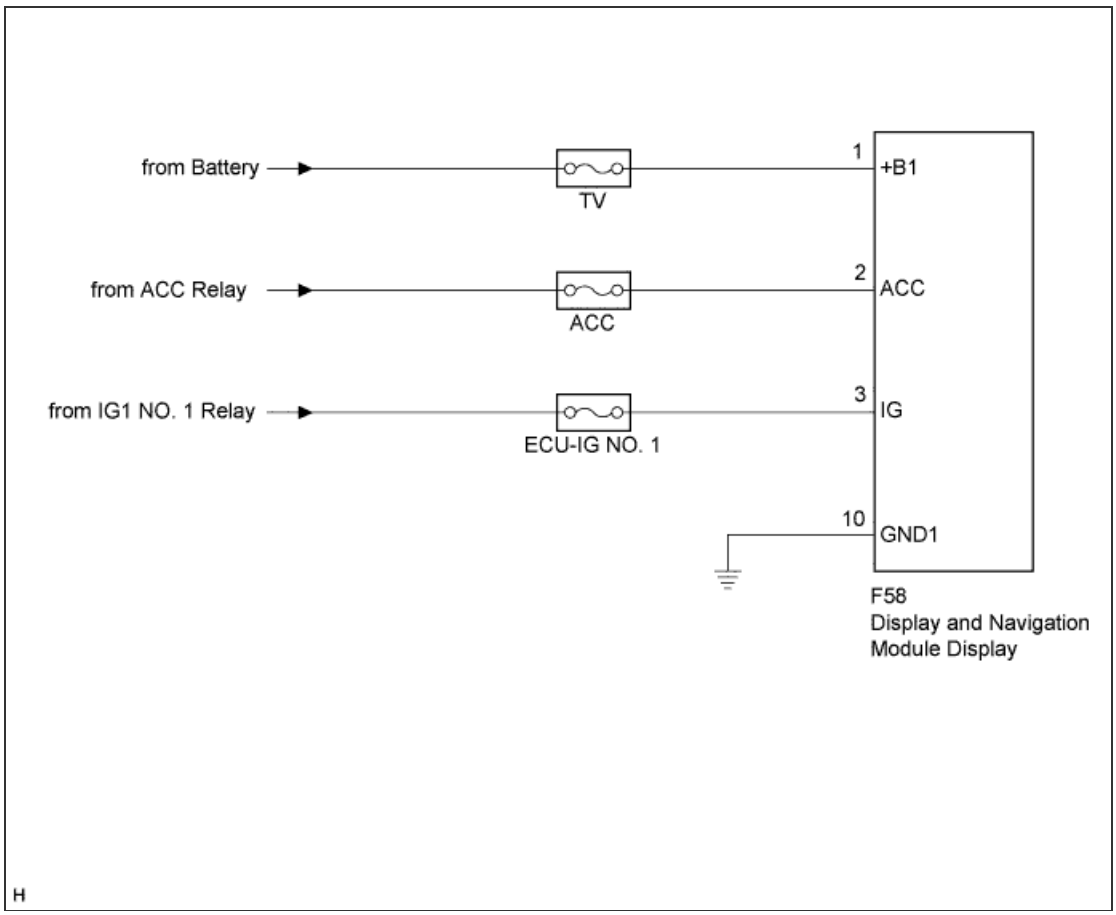
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This is the power source circuit to operate the display and navigation module display.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY POWER SOURCE)

a. Disconnect the F58 display and navigation module display connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-10 (GND1) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

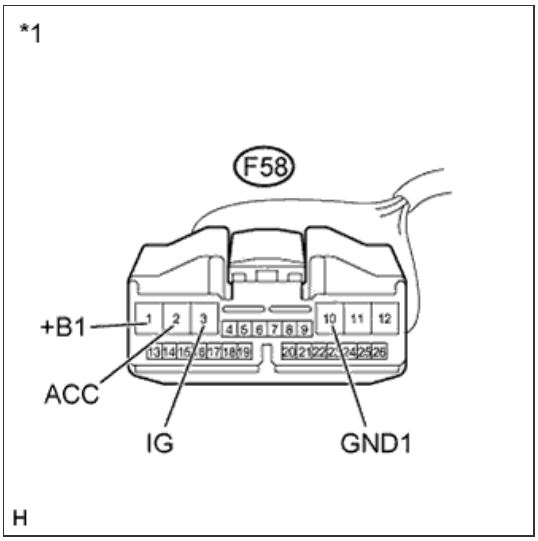
**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F58-1 (+B1) - F58-10 (GND1) | Always | 11 to 14 V |

| | | |
|---|---|---|
| F58-2 (ACC) - F58-10 (GND1) | Engine switch on (ACC) | 11 to 14 V |
| F58-3 (IG) - F58-10 (GND1) | Engine switch on (IG) | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Display and Navigation Module Display) |

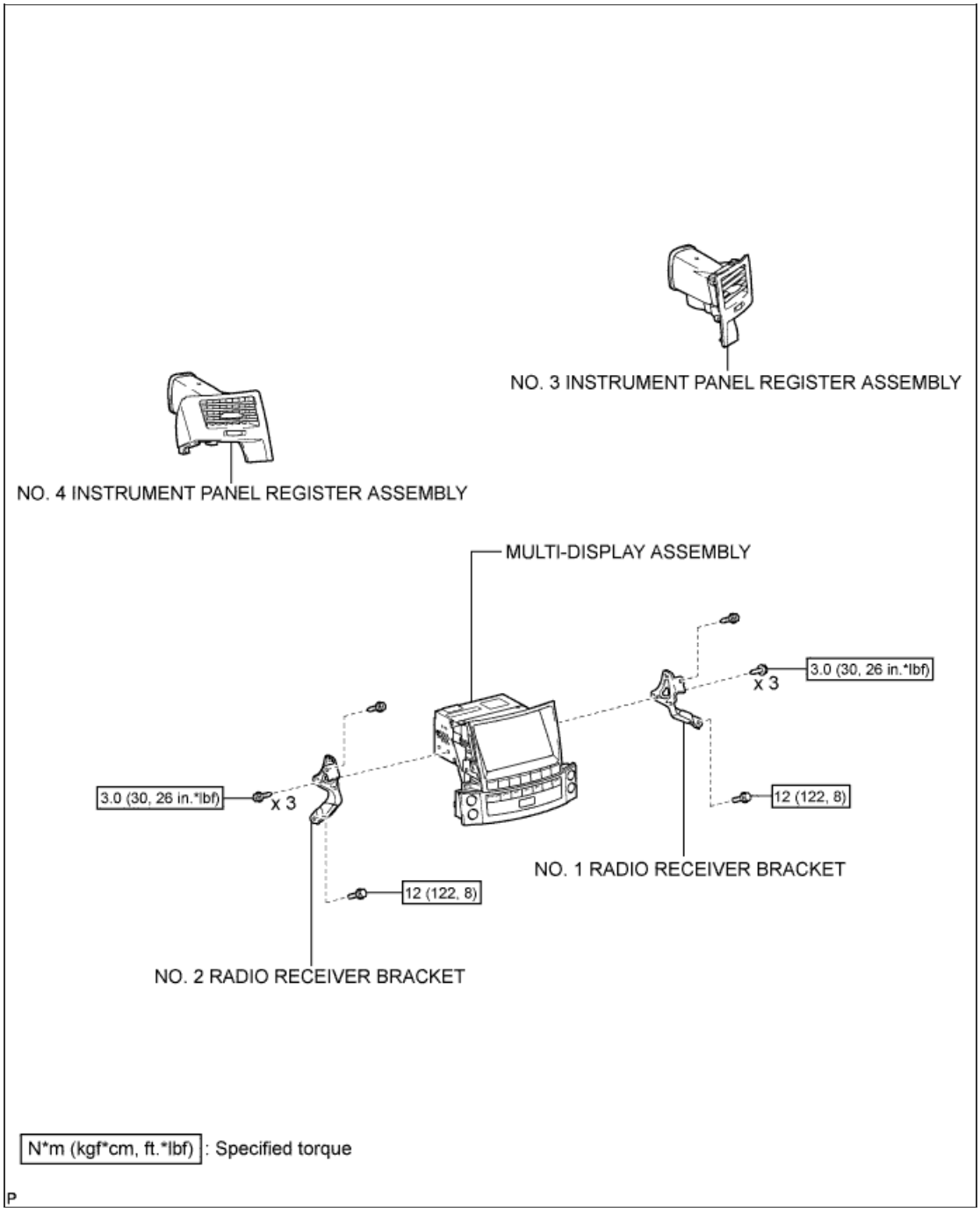



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

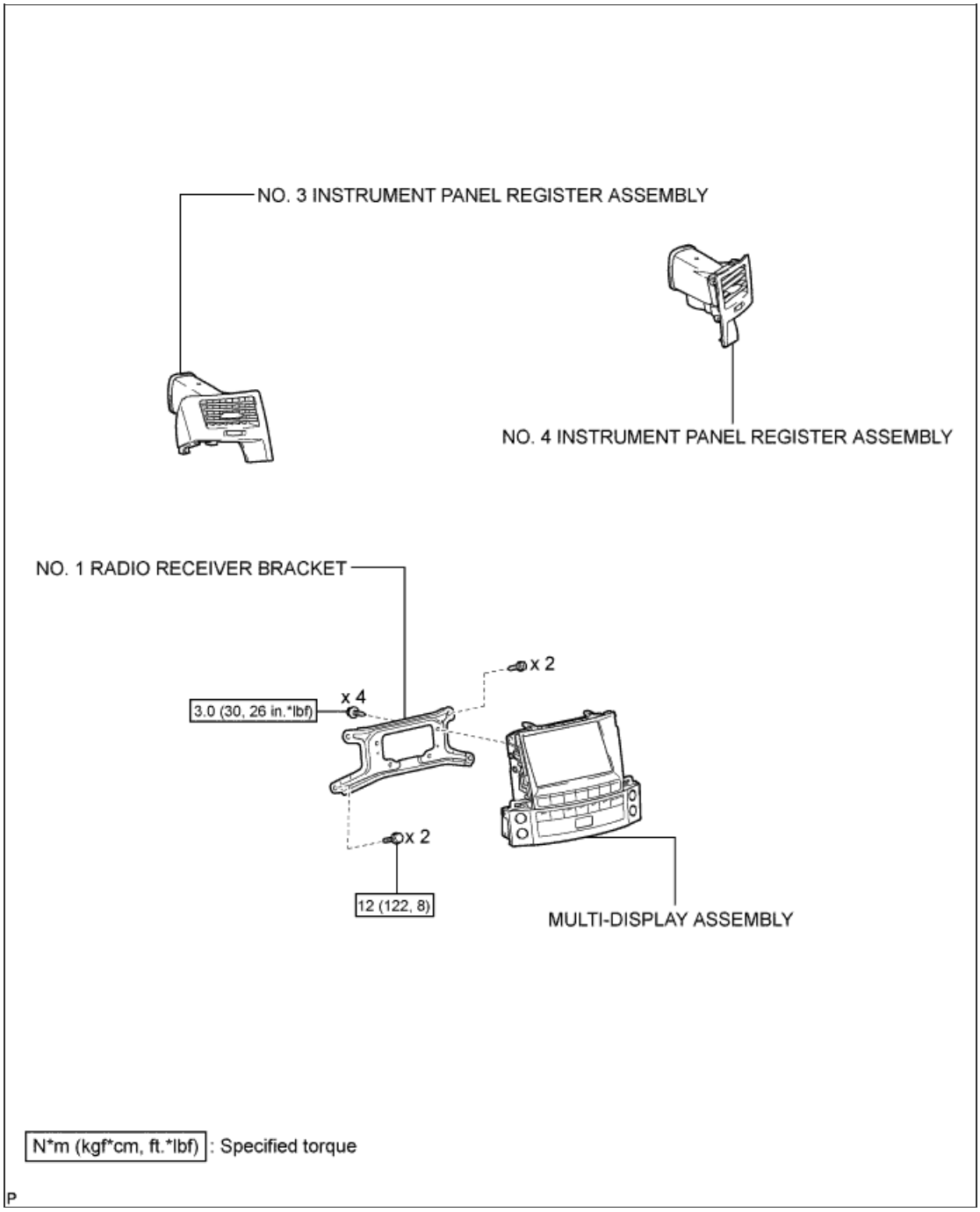
OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here



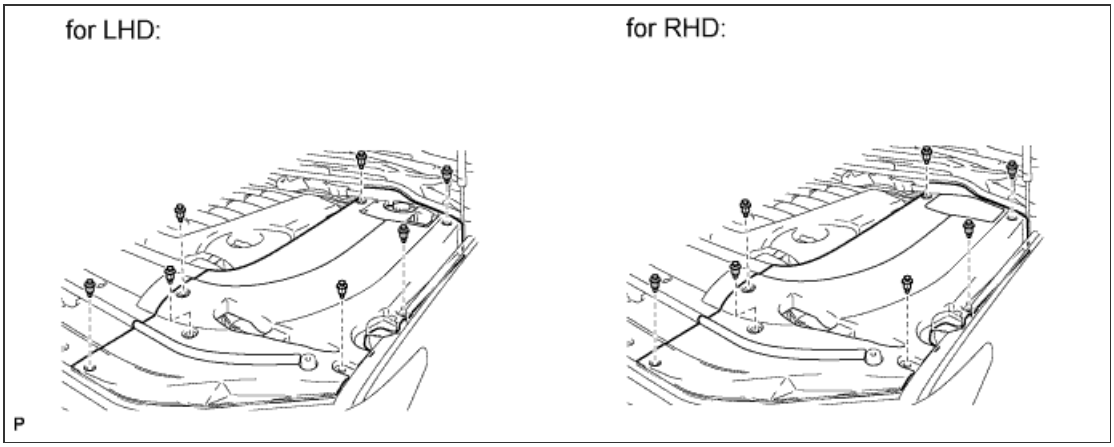
**for Preparation** Click here



**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover.



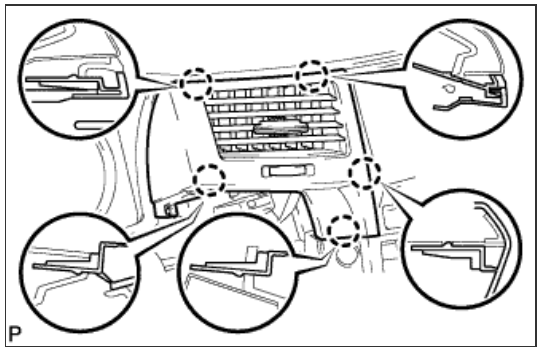

## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

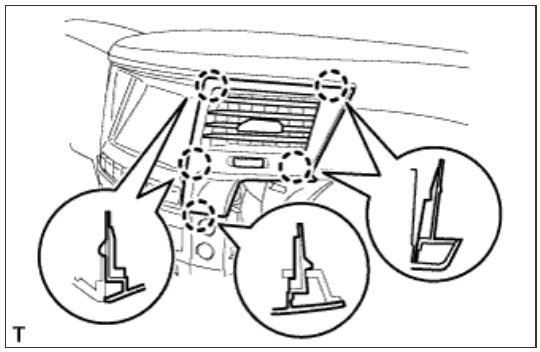
## 3. REMOVE NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Detach the 5 claws and remove the register.



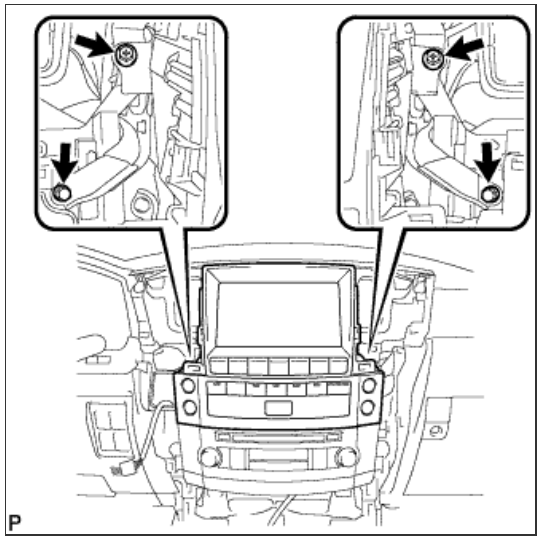

## 4. REMOVE NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Detach the 5 claws and remove the register.



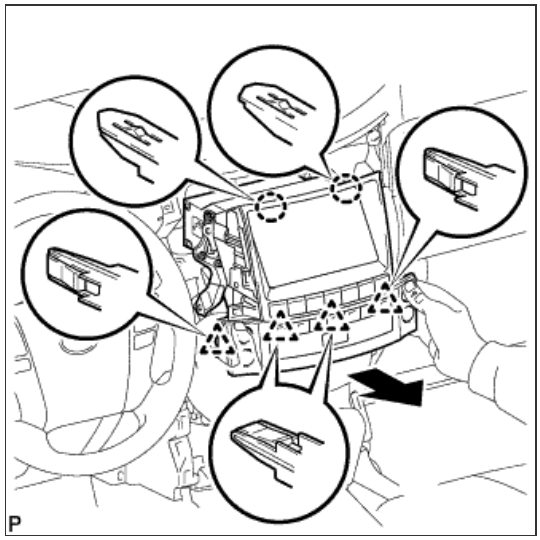

## 5. REMOVE MULTI-DISPLAY ASSEMBLY

a. Remove the 2 screws and 2 bolts.



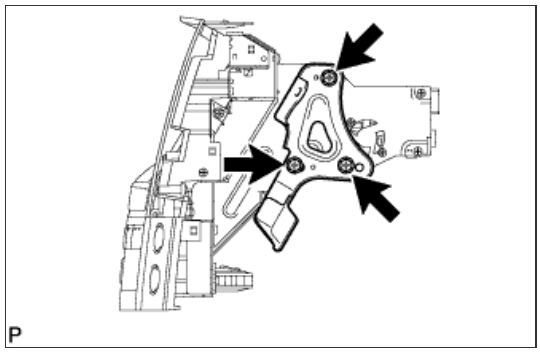

b. Pull the radio receiver to detach the 2 claws and 4 clips on the backside of the display.

c. Disconnect the connectors and remove the display.



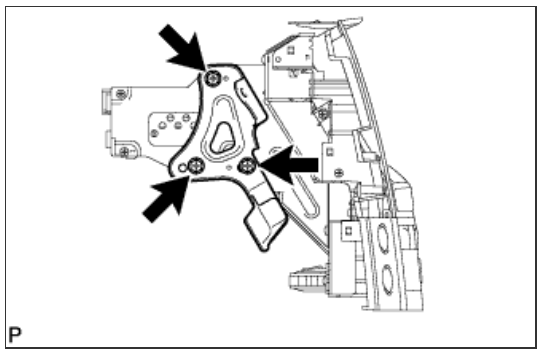

## 6. REMOVE NO. 1 RADIO RECEIVER BRACKET

a. Remove the 3 bolts and bracket.




### 7. REMOVE NO. 2 RADIO RECEIVER BRACKET

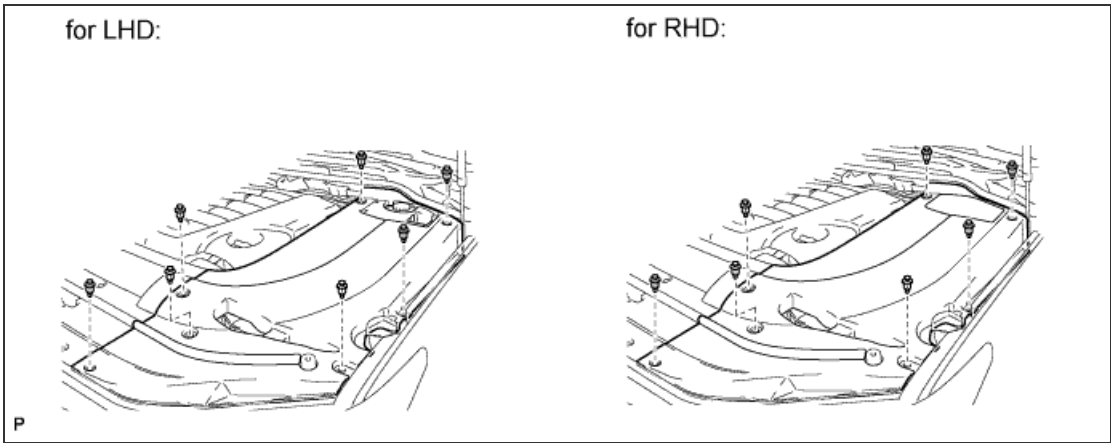
a. Remove the 3 bolts and bracket.



**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover LH.



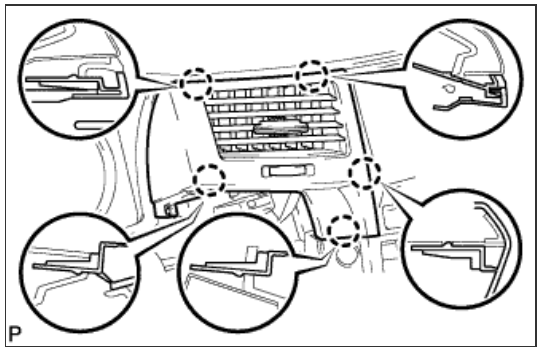

## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

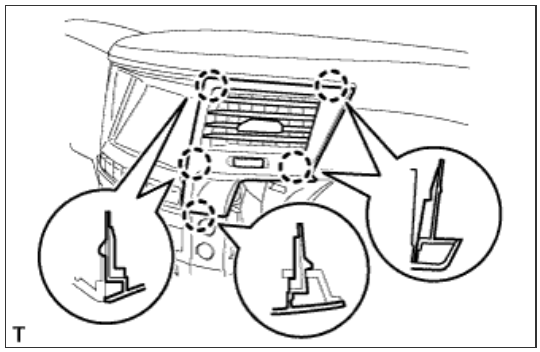
## 3. REMOVE NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Detach the 5 claws and remove the register.



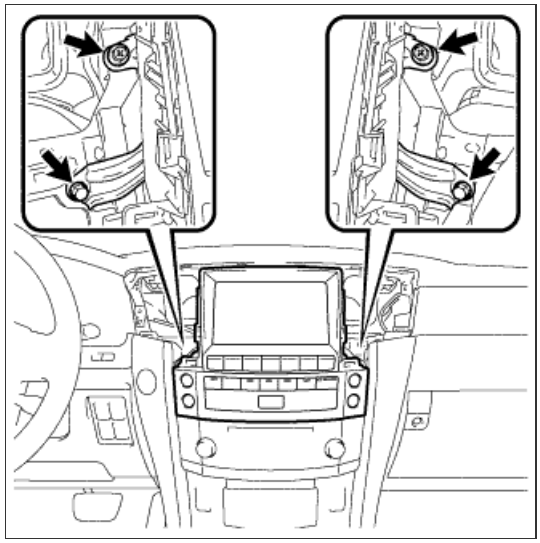

## 4. REMOVE NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Detach the 5 claws and remove the register.



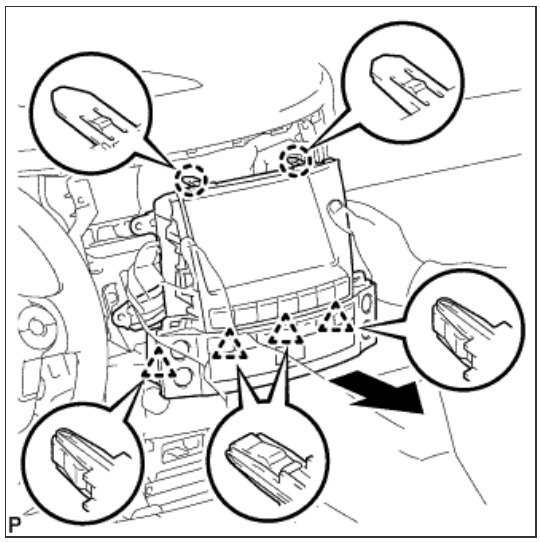

## 5. REMOVE MULTI-DISPLAY ASSEMBLY WITH BRACKET

a. Remove the 2 screws and 2 bolts.



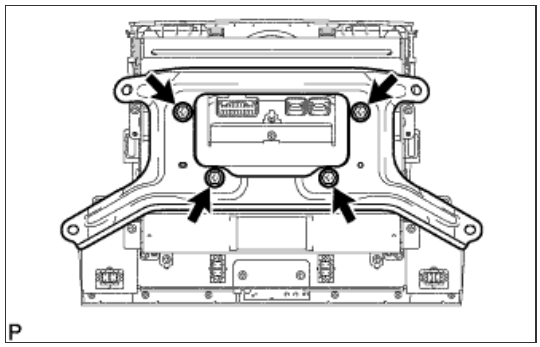
b. Pull the radio receiver to detach the 2 claws and 4 clips on the backside of the display.

c. Disconnect the connectors and remove the display.




## 6. REMOVE NO. 1 RADIO RECEIVER BRACKET

a. Remove the 3 bolts and bracket.

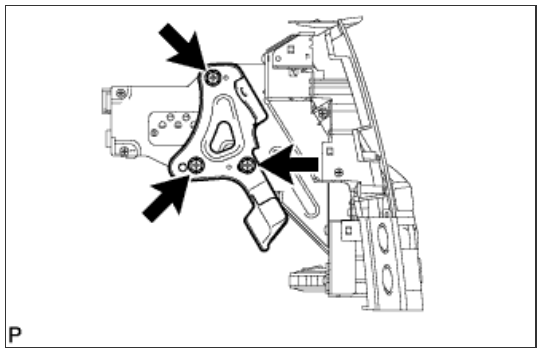

P

**for Preparation** Click here

## 1. INSTALL NO. 2 RADIO RECEIVER BRACKET

a. Install the bracket with the 3 bolts.

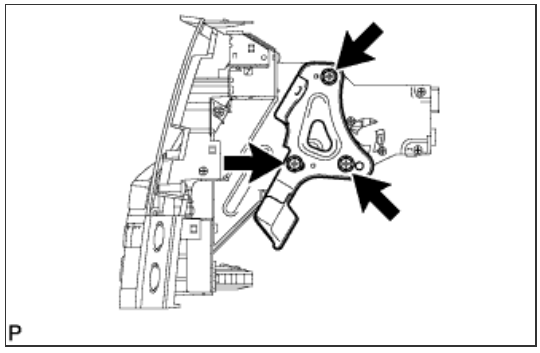
**Torque:**
**3.0 N*m{ 30 kgf*cm , 26 in.*lbf }**




## 2. INSTALL NO. 1 RADIO RECEIVER BRACKET

a. Install the bracket with the 3 bolts.

**Torque:**
**3.0 N*m{ 30 kgf*cm , 26 in.*lbf }**



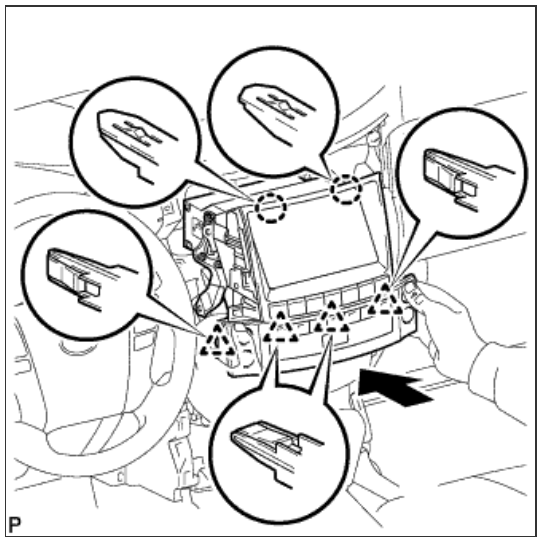

## 3. INSTALL MULTI-DISPLAY ASSEMBLY

a. Connect the connectors.

b. Insert the display and attach the 2 claws and 4 clips on its backside.

**NOTICE:**

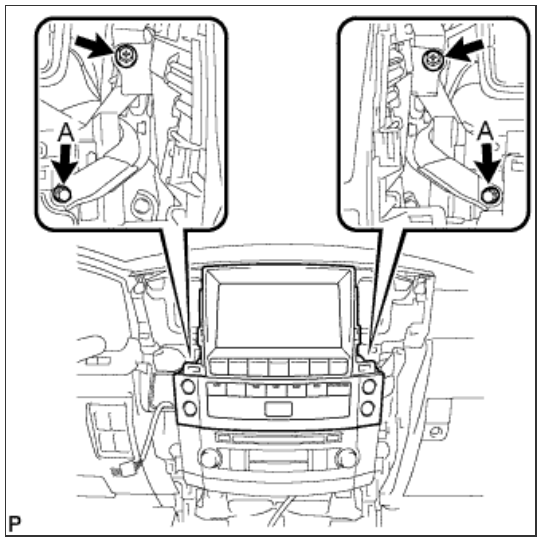
When inserting the display, do not press the knobs on it.




c. Install the display with the 2 screws and 2 bolts.

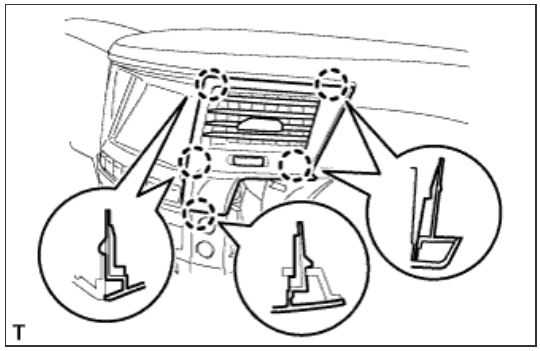
c. Install the display with the 2 screws and 2 bolts.

**Torque:**
**for bolts labeled A:**
**12 N*m{ 122 kgf*cm , 8 ft.*lbf }**



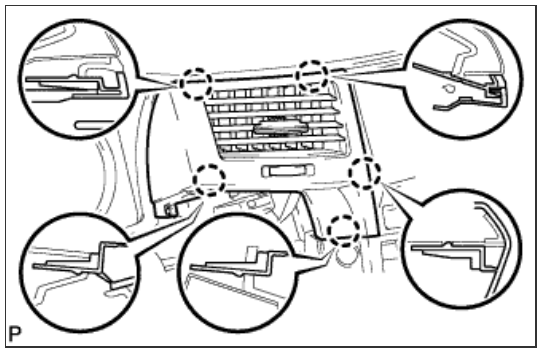

## 4. INSTALL NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Attach the 5 claws to install the register.




## 5. INSTALL NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Attach the 5 claws to install the register.




## 6. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

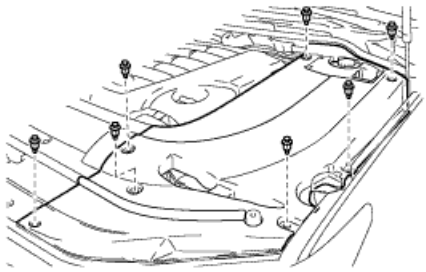
**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

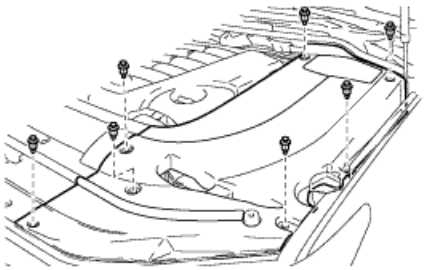
## 7. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover with the 7 clips.

for LHD:



for RHD:



P

**for Preparation** Click here

## 1. INSTALL NO. 1 RADIO RECEIVER BRACKET

a. Install the No. 1 radio receiver bracket with the 3 bolts.

**Torque:**
**3.0 N*m{ 30 kgf*cm , 26 in.*lbf }**

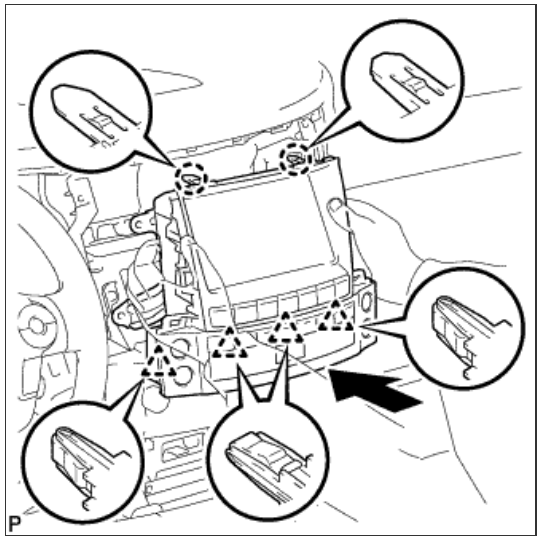
## 2. INSTALL MULTI-DISPLAY ASSEMBLY WITH BRACKET

a. Connect the connectors.

b. Insert the multi-display assembly with bracket and attach the 2 claws and 4 clips on its backside.

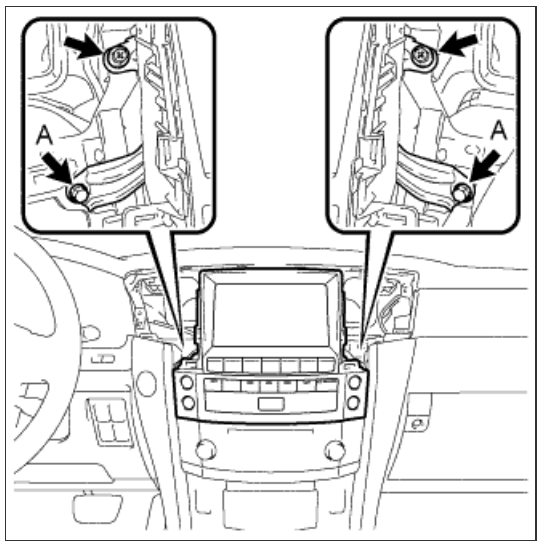
**NOTICE:**

When inserting the multi-display assembly, do not press the knobs on it.



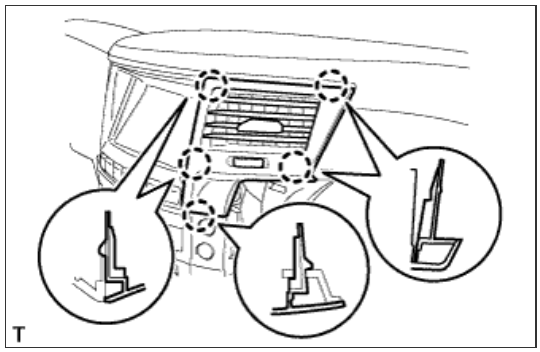

c. Install the multi-display assembly with the 2 screws and 2 bolts.

**Torque:**
**for bolts labeled A:**
**12 N*m{ 122 kgf*cm , 8 ft.*lbf }**



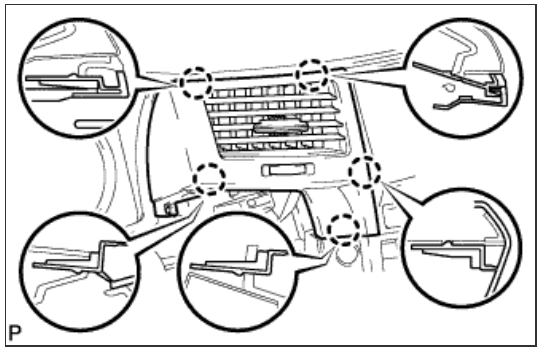

## 3. INSTALL NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Attach the 5 claws to install the register.




## 4. INSTALL NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Attach the 5 claws to install the register.




## 5. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

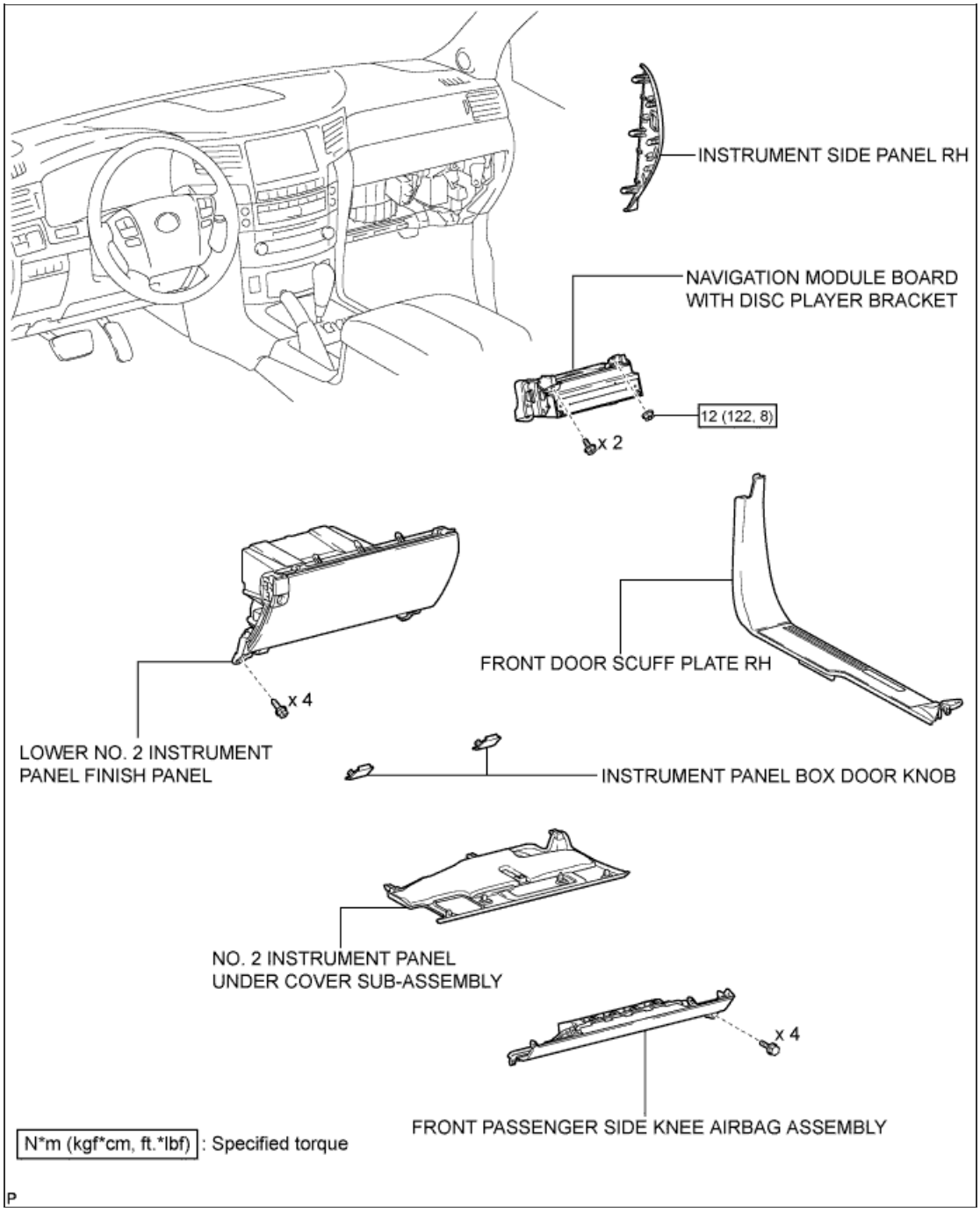
**NOTICE:**

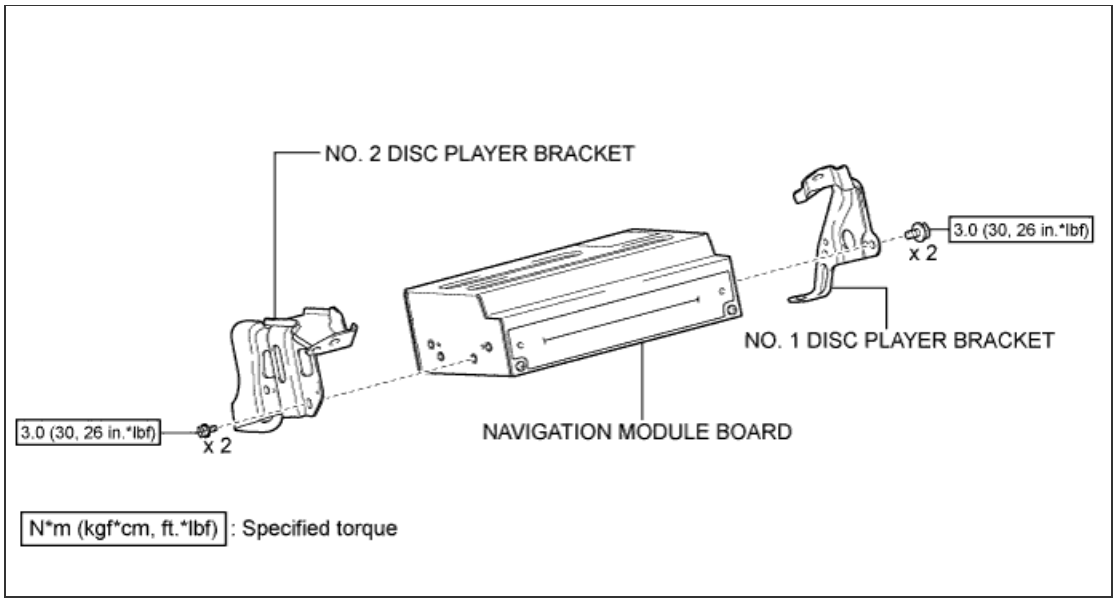
When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 6. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover LH with the 7 clips.

**for Preparation** Click here




NO. 2 DISC PLAYER BRACKET
3.0 (30, 26 in.*lbf)
x 2
NO. 1 DISC PLAYER BRACKET
3.0 (30, 26 in.*lbf)
x 2
NAVIGATION MODULE BOARD
N*m (kgf*cm, ft.*lbf) : Specified torque

**for Preparation** Click here

**HINT:**

- **Use the same procedures for LHD and RHD vehicles.**
- **The procedures listed below are for LHD vehicles.**

## 1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**CAUTION:**

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 2. REMOVE INSTRUMENT SIDE PANEL RH

a. w/o Airbag Cut Off Switch:

i. Place protective tape as shown in the illustration.

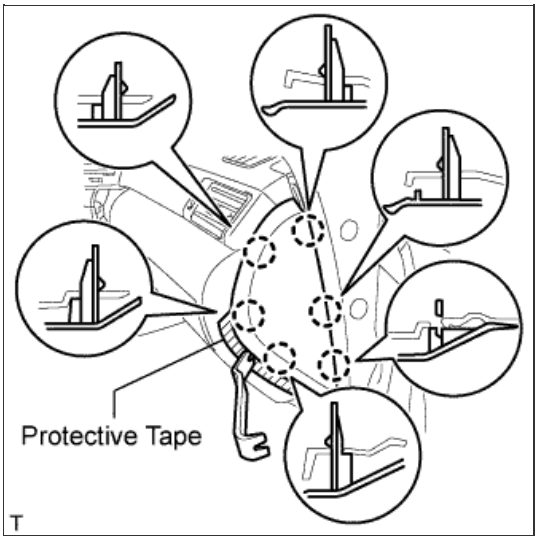
ii. Using a moulding remover, detach the 6 claws and remove the side panel.

b. w/ Airbag Cut Off Switch:

i. Place protective tape as shown in the illustration.

ii. Using a moulding remover, detach the 6 claws.

iii. Remove the side panel and disconnect the connector.




## 3. REMOVE FRONT DOOR SCUFF PLATE RH

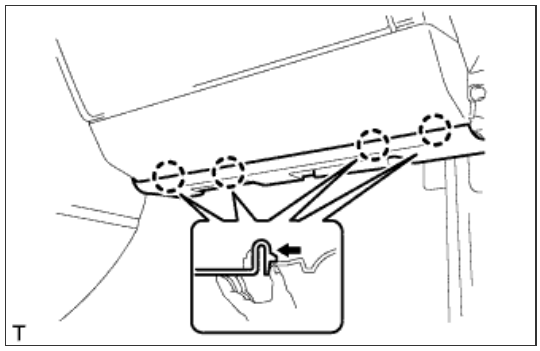
**HINT:**

Use the same procedures described for the LH side.

## 4. REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Detach the 4 claws.

b. Remove the under cover and disconnect the connector.




## 5. REMOVE FRONT PASSENGER SIDE KNEE AIRBAG ASSEMBLY

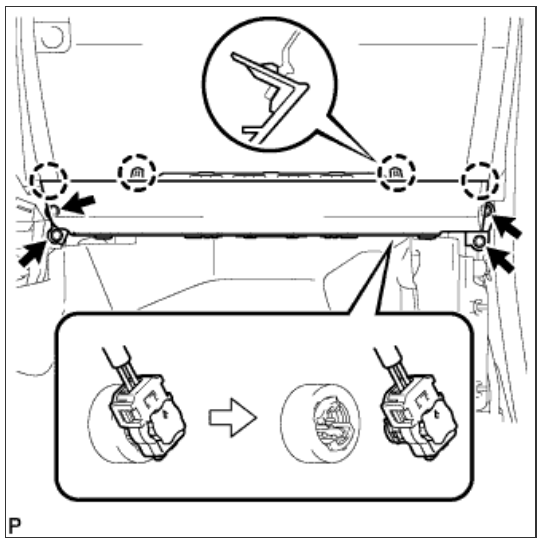
a. Remove the 4 bolts.

b. Detach the 4 claws and remove the front passenger side knee airbag.

c. Disconnect the connector.

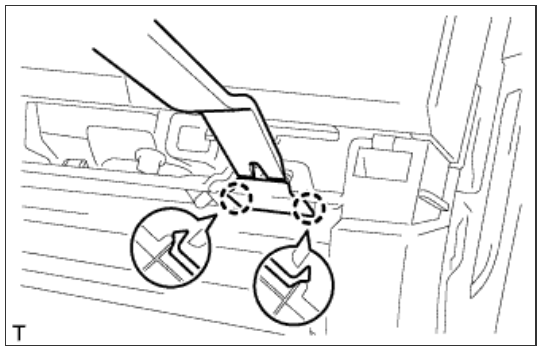
**NOTICE:**

When handling the airbag connector, take care not to damage the airbag wire harness.




## 6. REMOVE INSTRUMENT PANEL BOX DOOR KNOB

a. Using a moulding remover, detach the 2 claws and remove the knob.

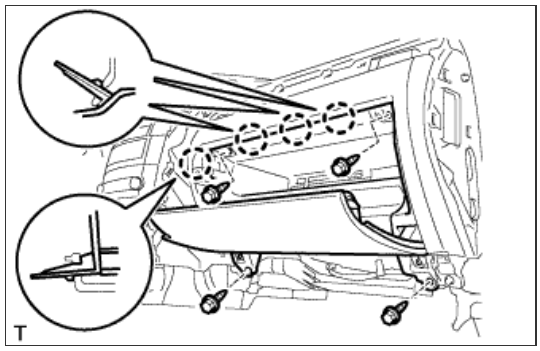



## 7. REMOVE LOWER NO. 2 INSTRUMENT PANEL FINISH PANEL

a. Remove the 4 bolts.

b. Detach the 4 claws.

c. Remove the finish panel and then disconnect the connector.

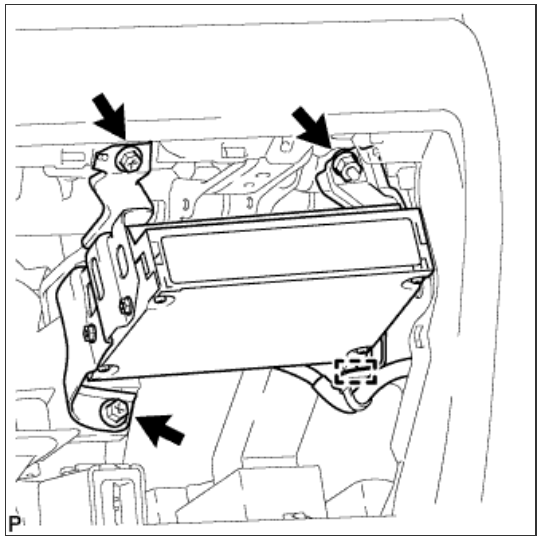



## 8. REMOVE NAVIGATION MODULE BOARD WITH DISC PLAYER BRACKET

a. Detach the clamp.

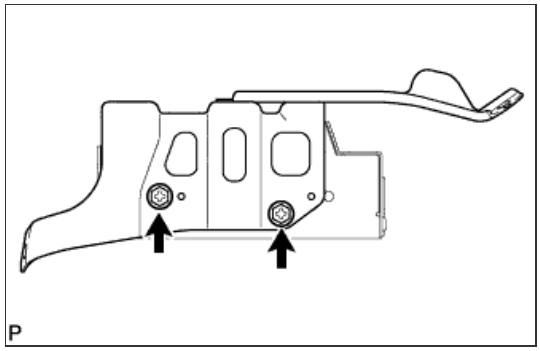
b. Remove the 2 screws and nut.

c. Disconnect the navigation module board connectors and remove the navigation module board with disc player bracket.



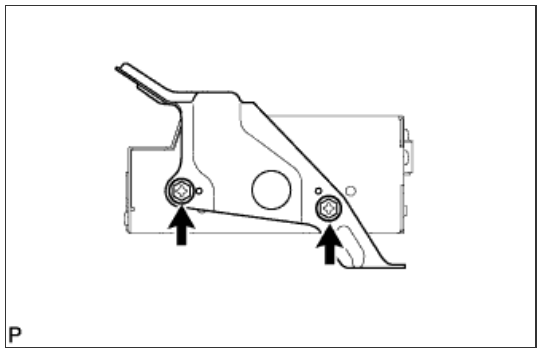

## 9. REMOVE NO. 2 DISC PLAYER BRACKET

a. Remove the 2 screws and bracket.




## 10. REMOVE NO. 1 DISC PLAYER BRACKET

a. Remove the 2 screws and bracket.


P

**for Preparation** Click here

**HINT:**

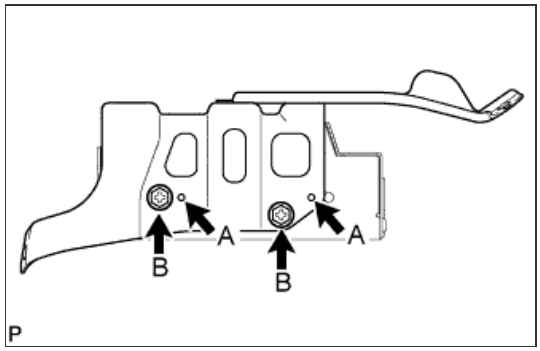
- **Use the same procedures for LHD and RHD vehicles.**
- **The procedures listed below are for LHD vehicles.**
- **A bolt without a torque specification is shown in the standard bolt chart ( Click here).**

## 1. INSTALL NO. 2 DISC PLAYER BRACKET

a. Align the protrusions of the bracket, labeled A, with the indentations of the navigation module board.

b. Install the bracket with the 2 screws labeled B.

**Torque:**
**3.0 N*m{ 30 kgf*cm , 26 in.*lbf }**

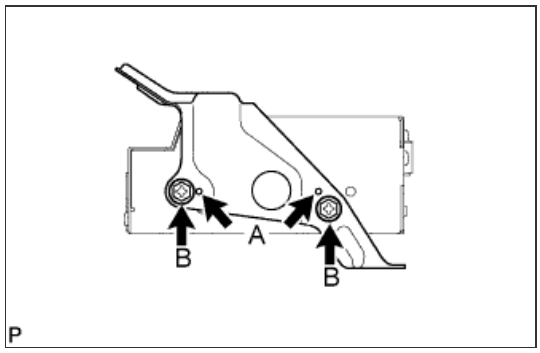



## 2. INSTALL NO. 1 DISC PLAYER BRACKET

a. Align the protrusions of the bracket, labeled A, with the indentations of the navigation module board.

b. Install the bracket with the 2 screws labeled B.

**Torque:**
**3.0 N*m{ 30 kgf*cm , 26 in.*lbf }**



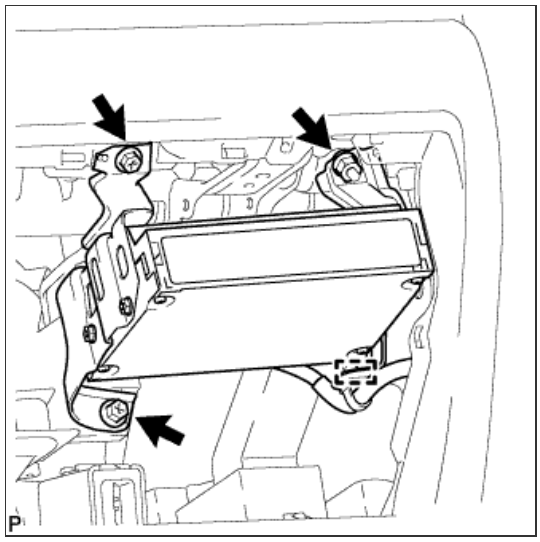

## 3. INSTALL NAVIGATION MODULE BOARD WITH DISC PLAYER BRACKET

a. Connect the navigation module board connectors.

b. Install the navigation module board with disc player bracket with the nut and 2 screws.

**Torque:**
**Nut:**
**12 N*m{ 122 kgf*cm , 8 ft.*lbf }**

c. Attach the clamp.

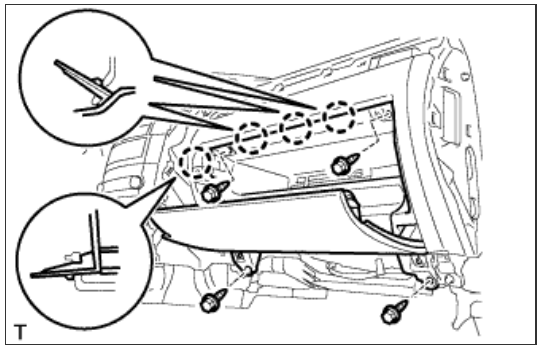



### 4. INSTALL LOWER NO. 2 INSTRUMENT PANEL FINISH PANEL

a. Connect the connector.

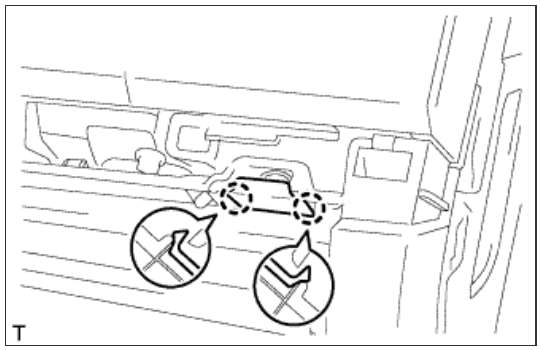
b. Attach the 4 claws to install the finish panel.

c. Install the 4 bolts.




### 5. INSTALL INSTRUMENT PANEL BOX DOOR KNOB

a. Attach the 2 claws to install the knob.




### 6. INSTALL FRONT PASSENGER SIDE KNEE AIRBAG ASSEMBLY

a. Connect the connector.

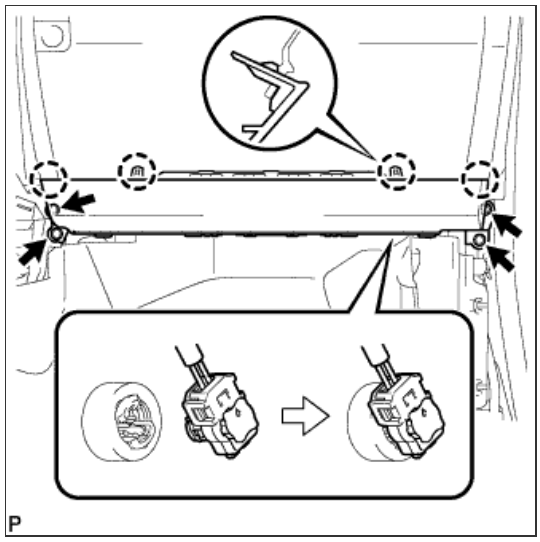
**NOTICE:**

When handling the airbag connector, take care not to damage the airbag wire harness.

b. Attach the 4 claws to install the front passenger side knee airbag.

c. Install the 4 bolts.

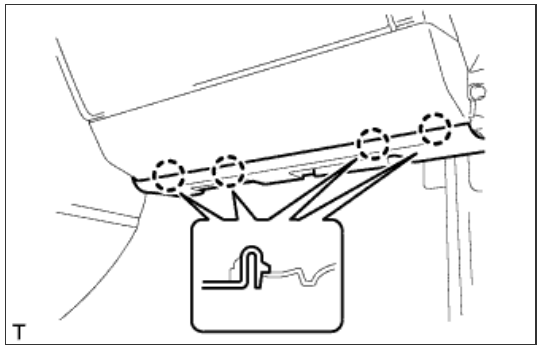
**Torque:**
**10 N*m{ 102 kgf*cm , 7 ft.*lbf }**




## 7. INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Connect the connector.

b. Attach the 4 claws to install the under cover.




## 8. INSTALL FRONT DOOR SCUFF PLATE RH

**HINT:**

Use the same procedures described for the LH side.

## 9. INSTALL INSTRUMENT SIDE PANEL RH

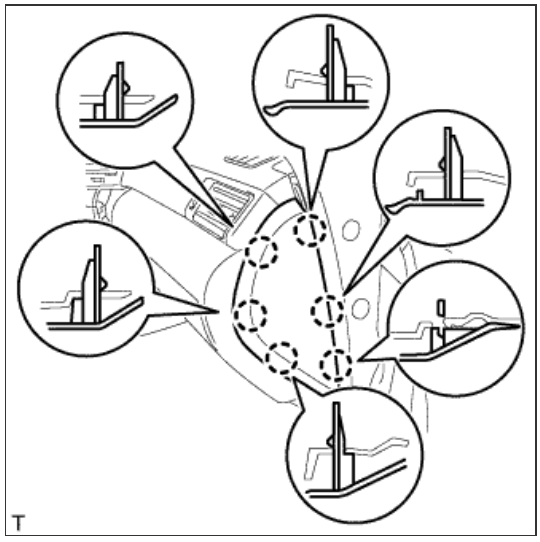
a. w/o Airbag Cut Off Switch:

i. Attach the 6 claws to install the side panel.

b. w/ Airbag Cut Off Switch:

i. Connect the connector.

ii. Attach the 6 claws to install the side panel.




## 10. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

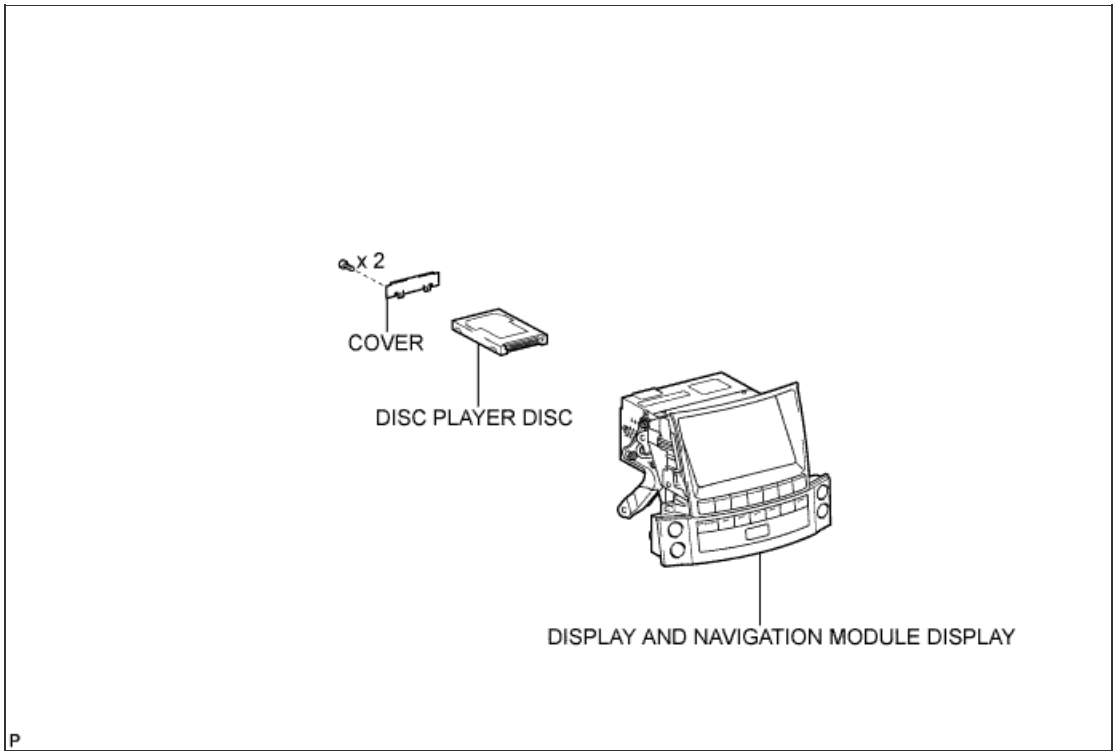
**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

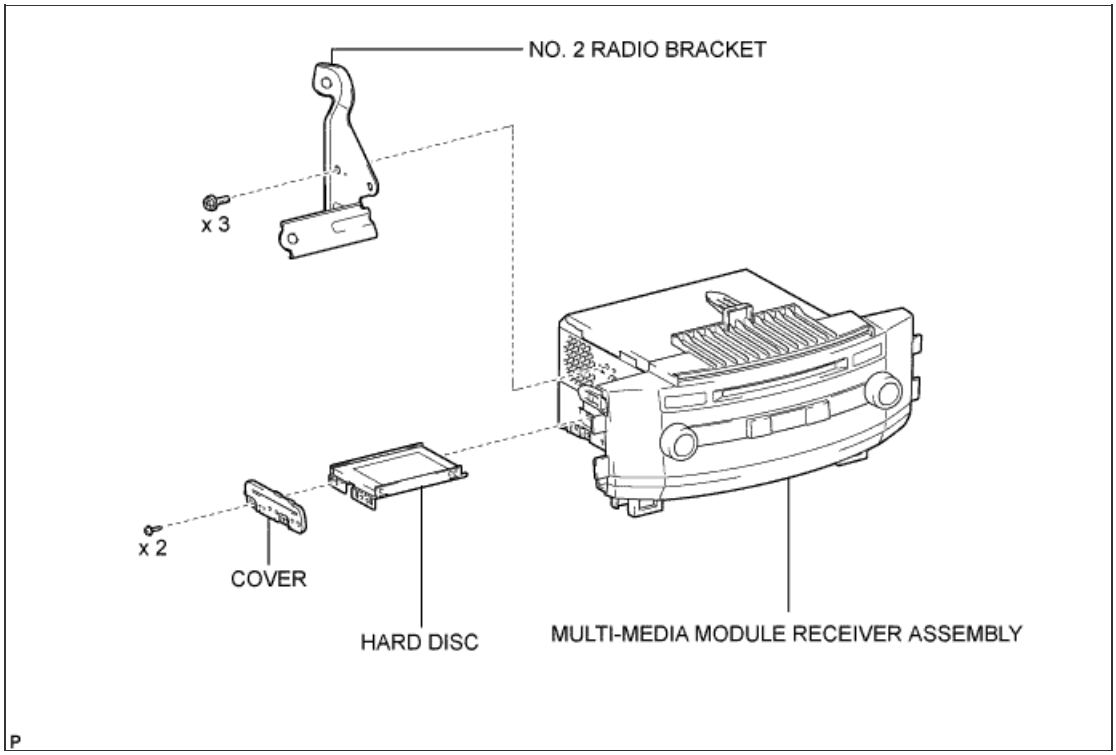
## 11. CHECK SRS WARNING LIGHT

a. Check the SRS warning light (Click here).

**for Preparation** Click here



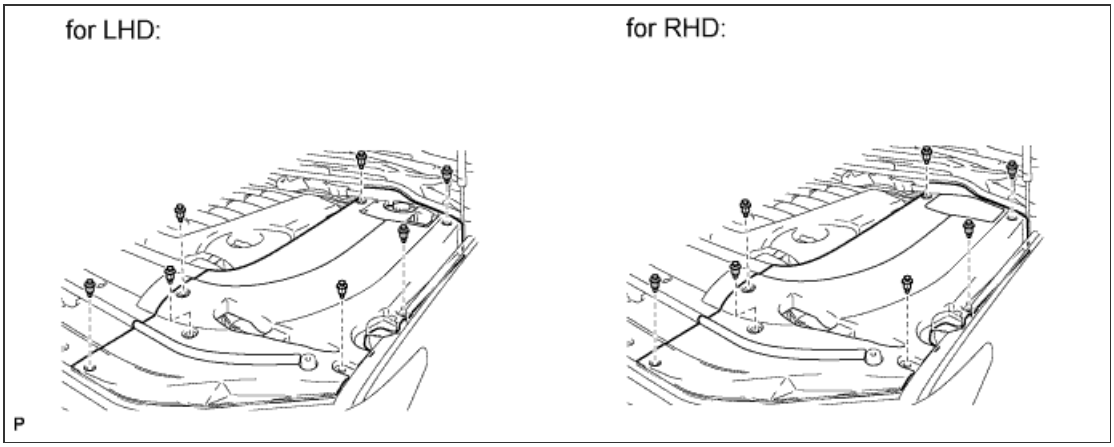
**for Preparation** Click here



**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover.




## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

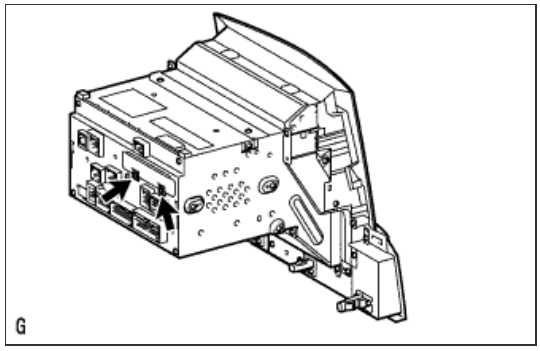
- **After the engine switch is turned off, the HDD navigation system requires approximately 6 minutes to record various types of memory and settings. As a result, after turning the engine switch off, wait 6 minutes or more before disconnecting the cable from the negative (-) battery terminal.**
- **When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).**

## 3. REMOVE DISPLAY AND NAVIGATION MODULE DISPLAY

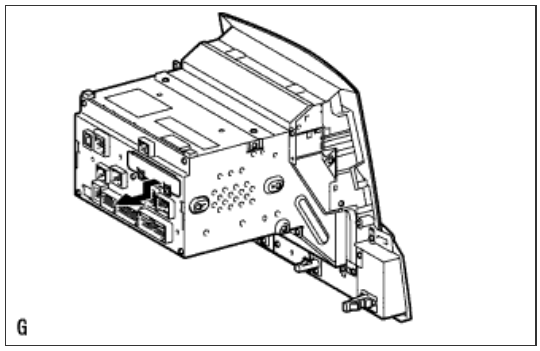
a. Remove the display and navigation module display (Click here).

## 4. REMOVE DISC PLAYER DISC

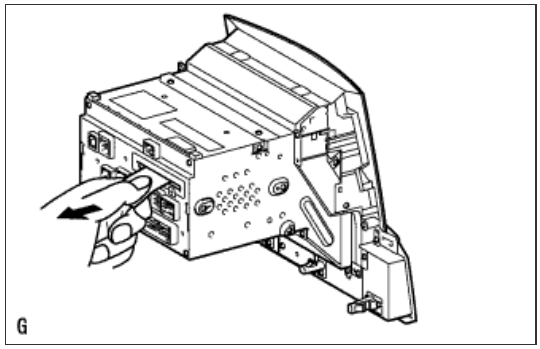
a. Remove the 2 screws.




b. Move the cover in the direction of the arrow shown in the illustration to remove it.



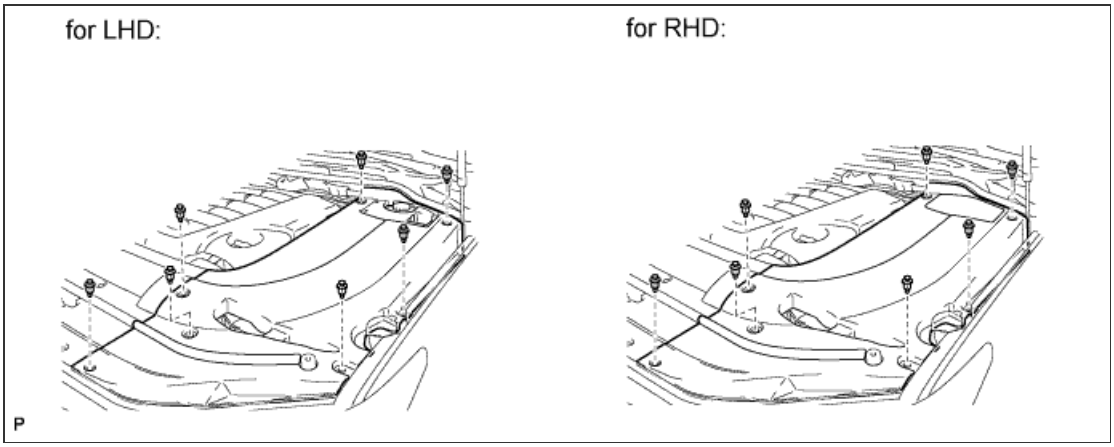

c. Remove the disc player disc in the direction of the arrow shown in the illustration.



**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover LH.




## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

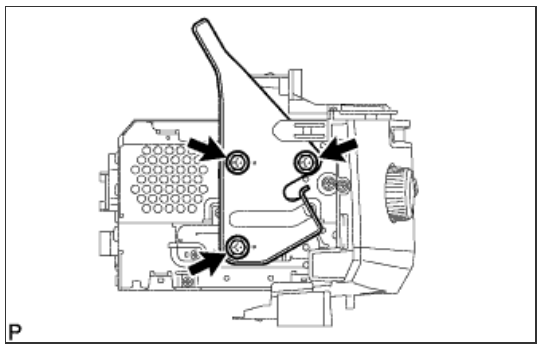
- **After the engine switch is turned off, the HDD navigation system requires approximately 6 minutes to record various types of memory and settings. As a result, after turning the engine switch off, wait 6 minutes or more before disconnecting the cable from the negative (-) battery terminal.**
- **When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).**

## 3. REMOVE MULTI-MEDIA MODULE RECEIVER ASSEMBLY WITH BRACKET

(Click here)

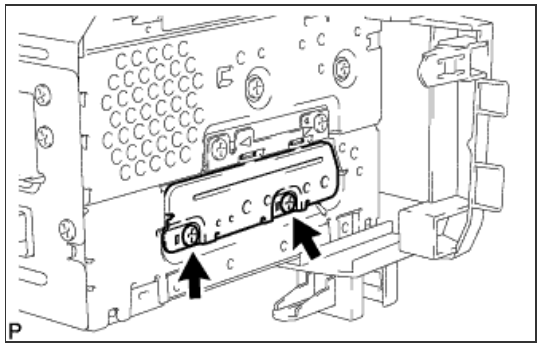
## 4. REMOVE NO. 2 RADIO BRACKET

a. Remove the 3 bolts and No. 2 radio bracket.

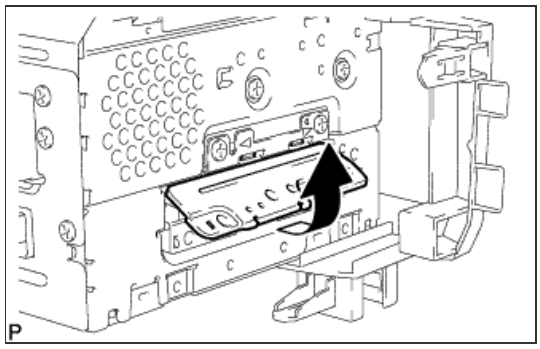



## 5. REMOVE HARD DISC

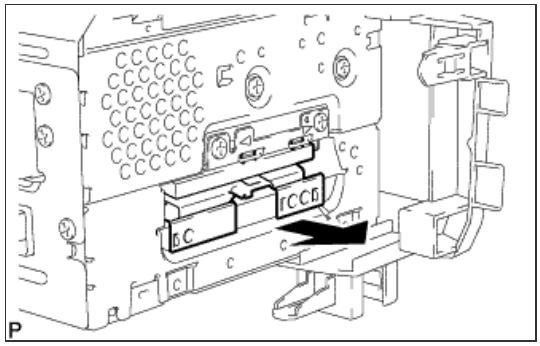
a. Remove the 2 screws.



b. Move the cover in the direction of the arrow shown in the illustration to remove it.



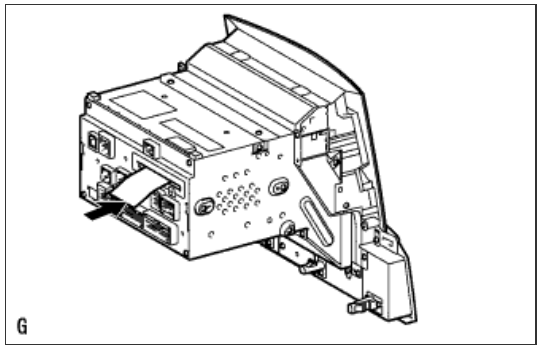
c. Remove the hard disc in the direction of the arrow shown in the illustration.



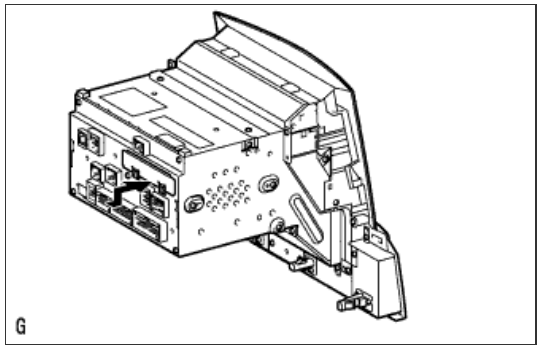
**for Preparation** Click here

## 1. INSTALL DISC PLAYER DISC

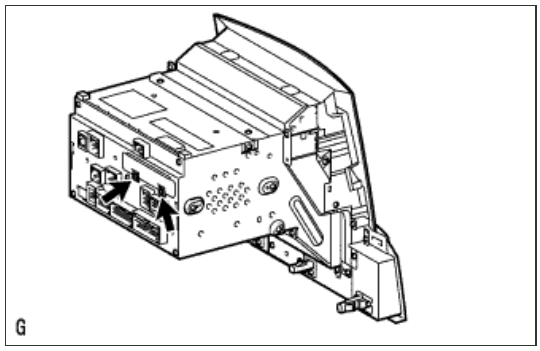
a. Push the disc player disc in the direction of the arrow shown in the illustration to install it.




b. Install the cover in the direction of the arrow shown in the illustration.




c. Install the 2 screws.




## 2. INSTALL DISPLAY AND NAVIGATION MODULE DISPLAY

a. Install the display and navigation module display ( Click here).

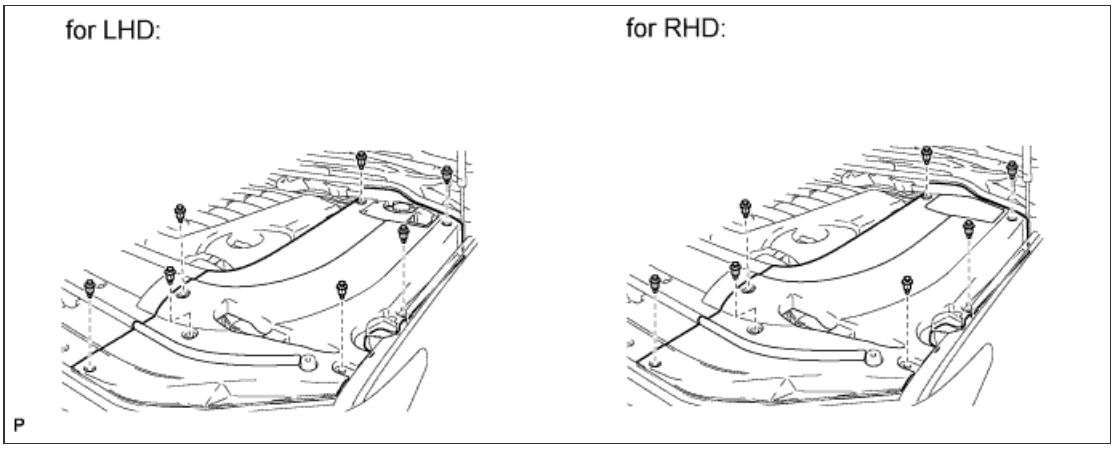
## 3. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 4. INSTALL ENGINE ROOM SIDE COVER LH

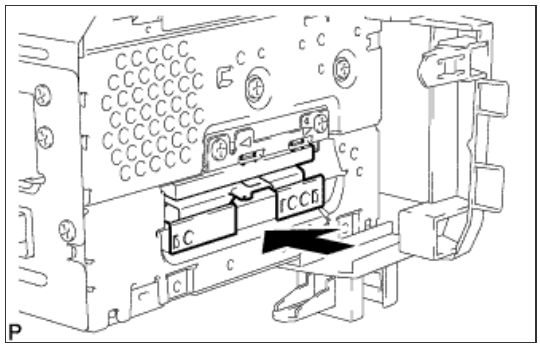
a. Install the engine room side cover with the 7 clips.



**for Preparation** Click here

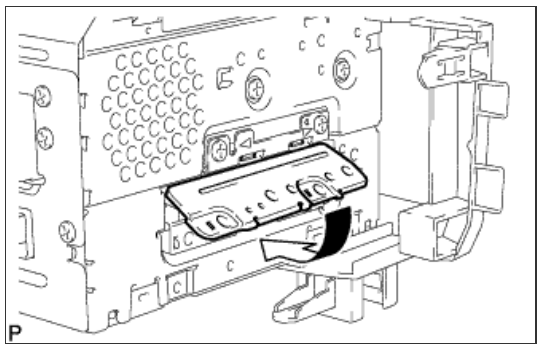
## 1. INSTALL HARD DISC

a. Push the hard disc in the direction of the arrow shown in the illustration to install it.



b. Install the cover in the direction of the arrow shown in the illustration.

c. Install the 2 screws.



## 2. INSTALL NO. 2 RADIO BRACKET

a. Install the No. 2 radio bracket with the 3 bolts.

**Torque:**
**3.0 N*m{ 30 kgf*cm , 26 in.*lbf }**

## 3. INSTALL MULTI-MEDIA MODULE RECEIVER ASSEMBLY WITH BRACKET

(Click here)

## 4. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**NOTICE:**

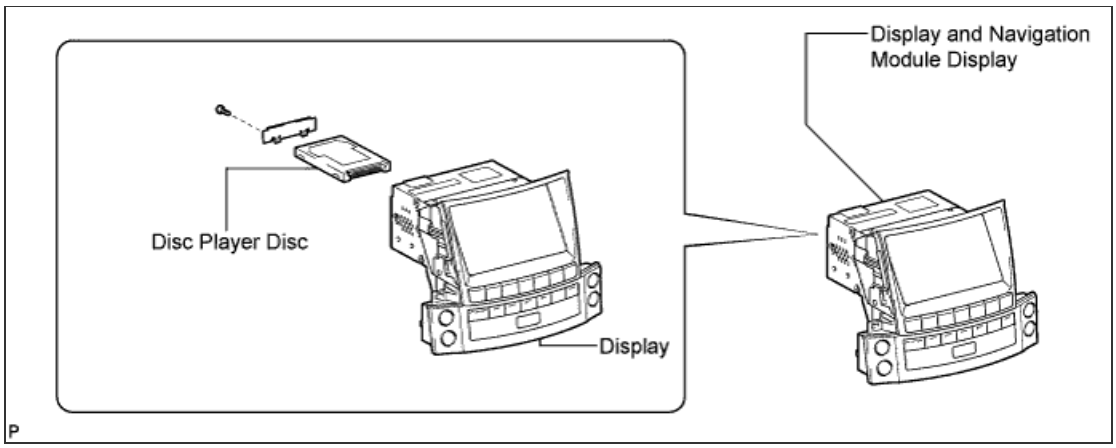
When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 5. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover LH with the 7 clips.

**for Preparation** Click here

## 1.PRECAUTION FOR DISPLAY AND NAVIGATION ASSEMBLY

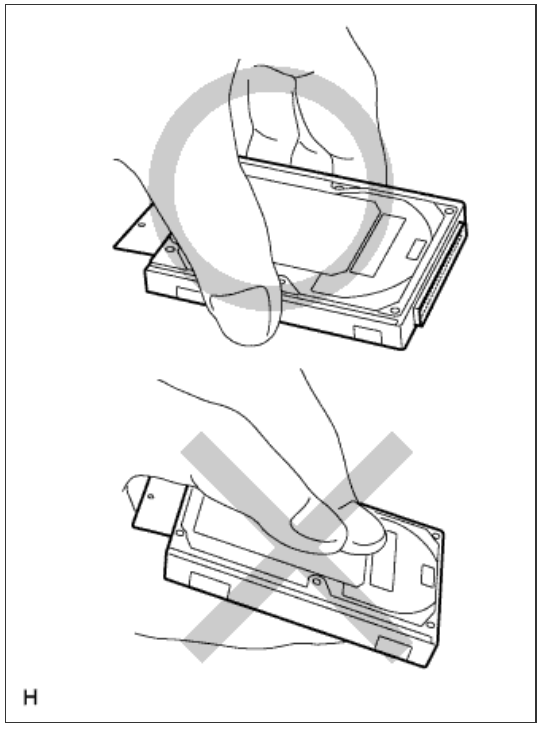



a. The disc player disc has a built-in hard disk drive (HDD) for storing maps and other data used by the navigation system. When handling the disc player disc, follow the precautions below.

i. Do not touch cover of the HDD

**NOTICE:**

When removing or installing the disc player disc, hold it as shown in the illustration.




ii. Avoid vibrations and impacts

**NOTICE:**

- **Do not drop or strike the disc player disc. Do not use a disc player disc that has been dropped or struck.**
- **Prepare a new disc player disc before removing the disc player disc.**

iii. Avoid condensation

**NOTICE:**

- **Introducing the disc player disc to sudden temperature changes may cause condensation to form inside it, and may lead to malfunctions in the HDD.**
- **The removed display and navigation module display must be stored in an environment where the temperature, humidity, etc. is the same as the vehicle interior, and the disc player disc must not be removed.**
- **If transporting the disc player disc from its storage area to a location where the temperature, humidity, etc. is different, allow it some time to adapt to the surrounding environment.**

iv. Avoid static electricity

**NOTICE:**

- **Touching the connector terminals may transmit static electricity to the inner circuits and may lead to malfunctions in the HDD.**
- **When installing or removing the disc player disc, observe all precautions to prevent damage to the system by electrostatic discharge (ESD).**

v. Keep away from magnetic items

**NOTICE:**

Keep speakers, motors, magnetized tools, etc. away from the disc player disc.

b. When replacing the disc player disc, follow the precaution below.

i. After removing and installing the disc player disc, use the HDD information screen to perform the SMART inspection and confirm that there are no malfunctions in the HDD (Click here).

## 2.PRECAUTIONS DURING REPLACEMENT

**NOTICE:**

When replacing electronic parts, if there is a possibility that your body may contact a circuit board, etc., use the recommended tools and observe all precautions to prevent damage to the system by electrostatic discharge (ESD).

a. Procedures where static electricity countermeasures are necessary

i. Disc player disc replacement.

ii. Internal wiring connection/disconnection, inspection, and replacement.

b. Precautions during procedures

i. Before performing any procedures, touch an unpainted metal part or ground bolt of the vehicle to eliminate any static electricity.

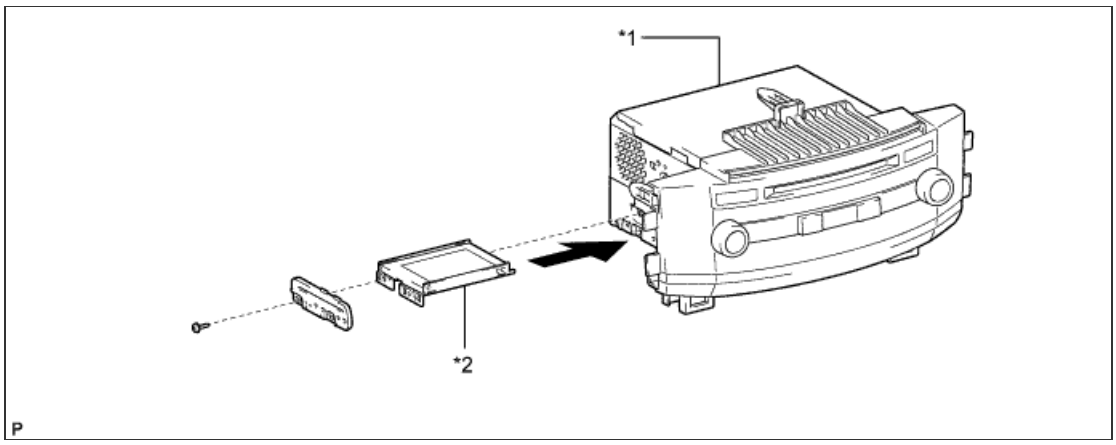
ii. To prevent damage to electrical equipment, disconnect the battery's power supply before installing and removing electrical equipment.

iii. Never touch the electronic parts of a circuit board, or the pins of an integrated circuit.

iv. When performing procedures, do not allow clothing to come near or contact parts.

**for Preparation** Click here

## 1.PRECAUTION FOR MULTI-MEDIA MODULE RECEIVER ASSEMBLY




**Text in Illustration**

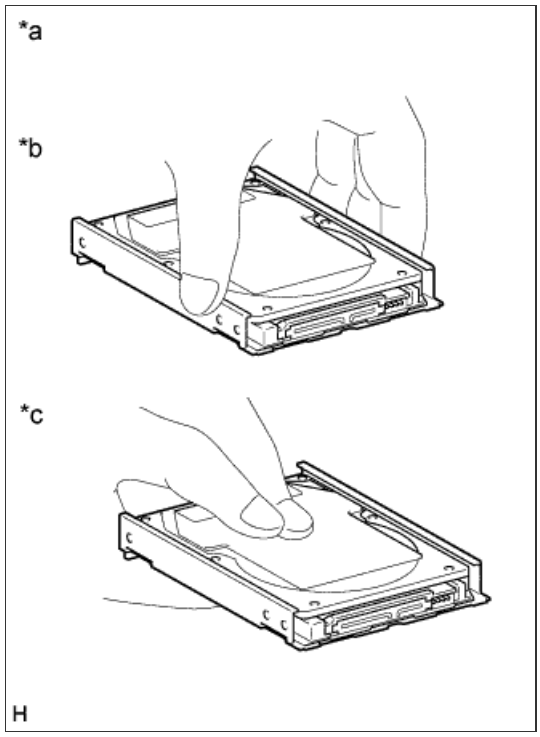
| | | | |
|---|---|---|---|
| *1 | Hard disc | *2 | Multi-media module receiver assembly |

a. The hard disc has a built-in hard disk drive (HDD) for storing maps and other data used by the navigation system. When handling the hard disc, follow the precautions below.

i. Do not touch cover of the HDD

**Text in Illustration**

| | |
|---|---|
| *a | Example |
| *b | CORRECT |
| *c | INCORRECT |




**NOTICE:**

When removing or installing the hard disc, hold it as shown in the illustration.

ii. Avoid vibrations and impacts

**NOTICE:**

- **Do not drop or strike the hard disc. Do not use a hard disc that has been dropped or struck.**
- **Prepare a new hard disc before removing the hard disc.**

iii. Avoid condensation

**NOTICE:**

- **Introducing the hard disc to sudden temperature changes may cause condensation to form inside it, and may lead to malfunctions in the HDD.**
- **The removed multi-media module receiver assembly must be stored in an environment where the temperature, humidity, etc. is the same as the vehicle interior, and the hard disc must not be removed.**
- **If transporting the hard disc from its storage area to a location where the temperature, humidity, etc. is different, allow it some time to adapt to the surrounding environment.**

iv. Avoid static electricity

**NOTICE:**

- **Touching the connector terminals may transmit static electricity to the inner circuits and may lead to malfunctions in the HDD.**
- **When installing or removing the hard disc, observe all precautions to prevent damage to the system by electrostatic discharge (ESD).**

v. Keep away from magnetic items

**NOTICE:**

Keep speakers, motors, magnetized tools, etc. away from the hard disc.

b. When replacing the hard disc, follow the precaution below.

i. After removing and installing the hard disc, use the HDD information screen to perform the SMART inspection and confirm that there are no malfunctions in the HDD (Click here).

## 2.PRECAUTIONS DURING REPLACEMENT

**NOTICE:**

When replacing electronic parts, if there is a possibility that your body may contact a circuit board, etc., use the recommended tools and observe all precautions to prevent damage to the system by electrostatic discharge (ESD).

a. Procedures where static electricity countermeasures are necessary

i. Hard disc replacement.

ii. Internal wiring connection/disconnection, inspection, and replacement.

b. Precautions during procedures

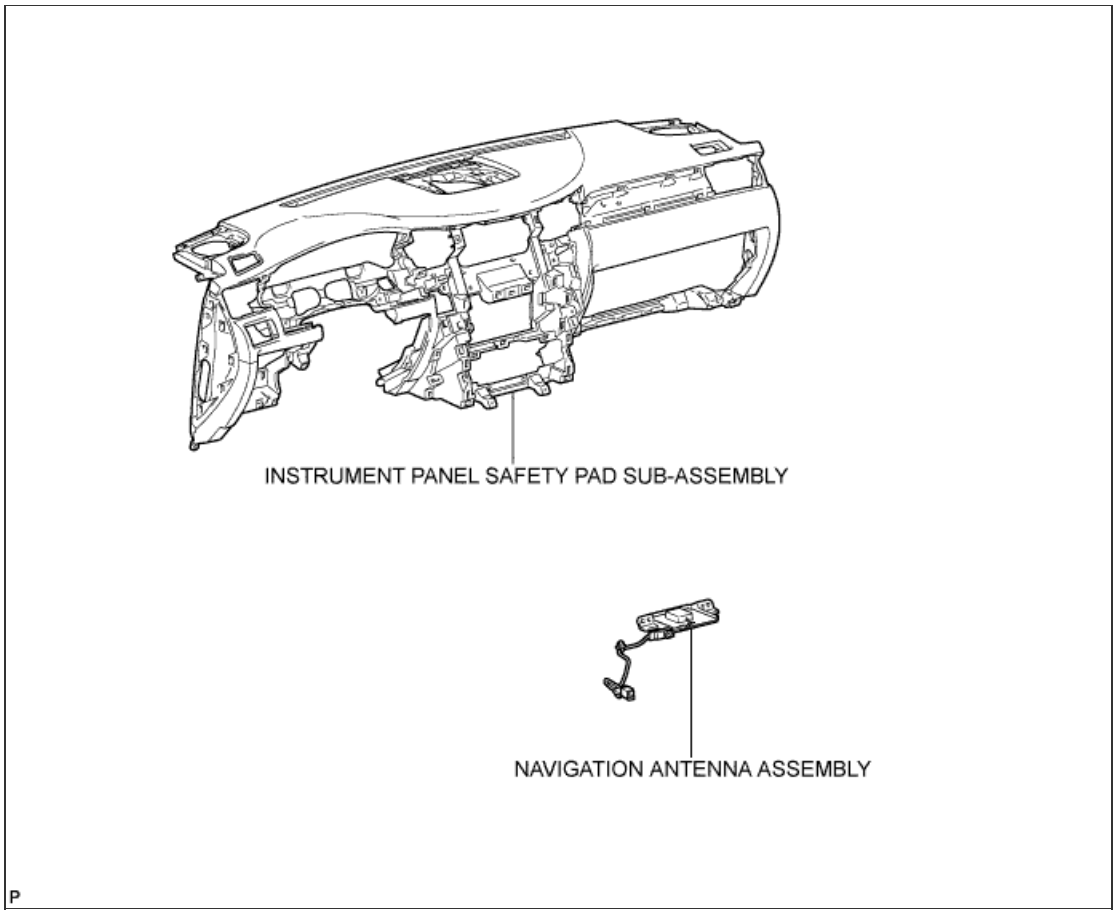
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ii. To prevent damage to electrical equipment, disconnect the battery's power supply before installing and removing electrical equipment.

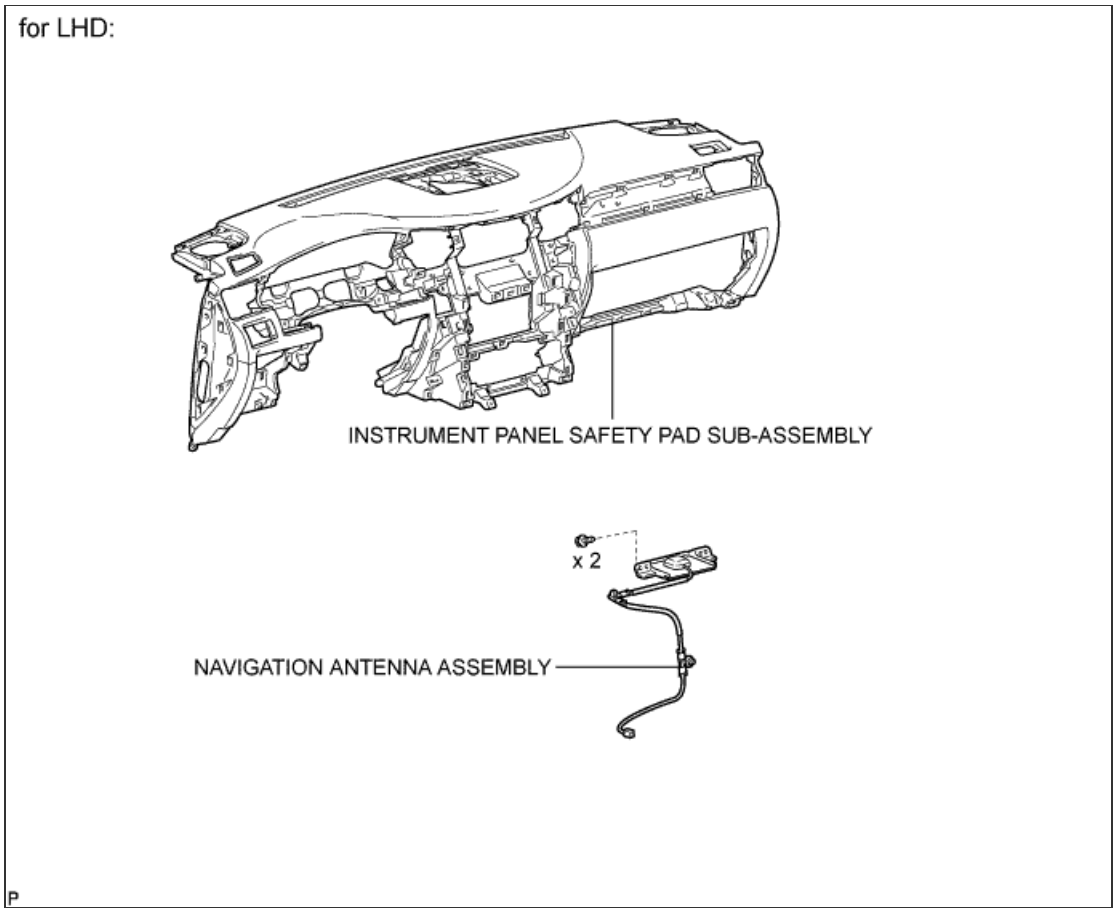
iii. Never touch the electronic parts of a circuit board, or the pins of an integrated circuit.

iv. When performing procedures, do not allow clothing to come near or contact parts.

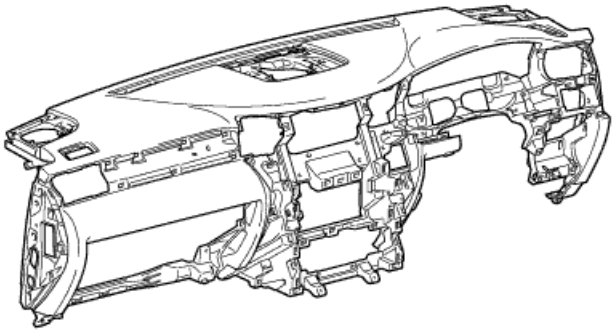
**for Preparation** Click here

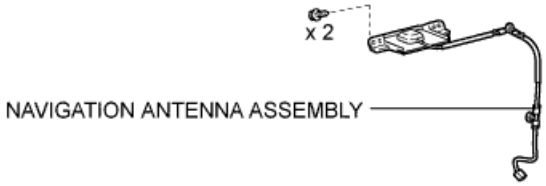


**for Preparation** Click here



for RHD:






P

# NAVIGATION ANTENNA > REMOVAL

**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**CAUTION:**

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

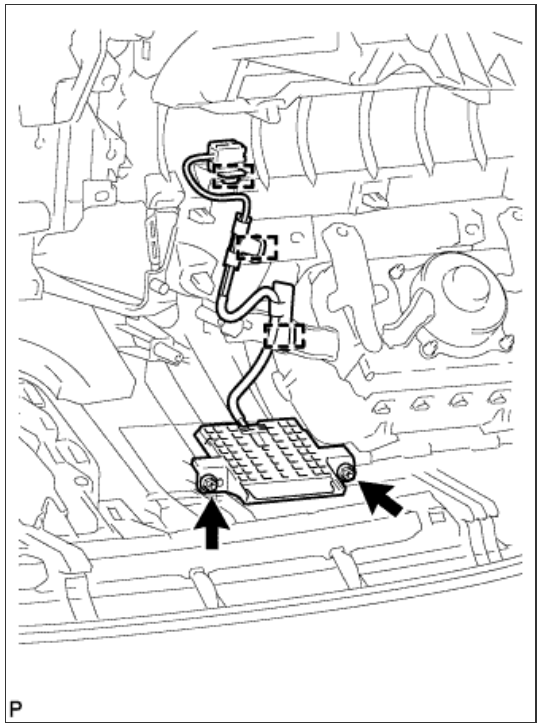
## 3. REMOVE INSTRUMENT PANEL SAFETY PAD SUB-ASSEMBLY

a. Remove the instrument panel safety pad ( Click here).

## 4. REMOVE NAVIGATION ANTENNA ASSEMBLY

a. Detach the 3 clamps.

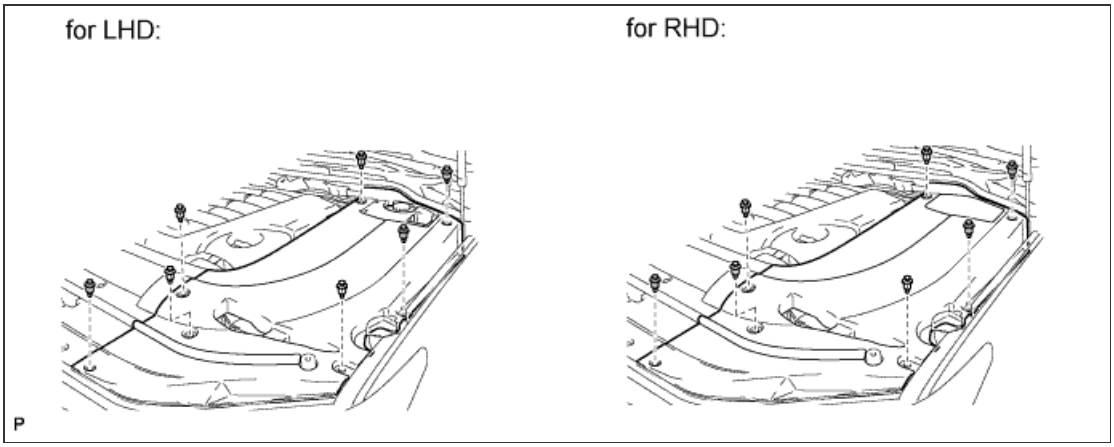
b. Remove the 2 screws and antenna.



**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover LH.




## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**CAUTION:**

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 3. REMOVE INSTRUMENT PANEL SAFETY PAD SUB-ASSEMBLY

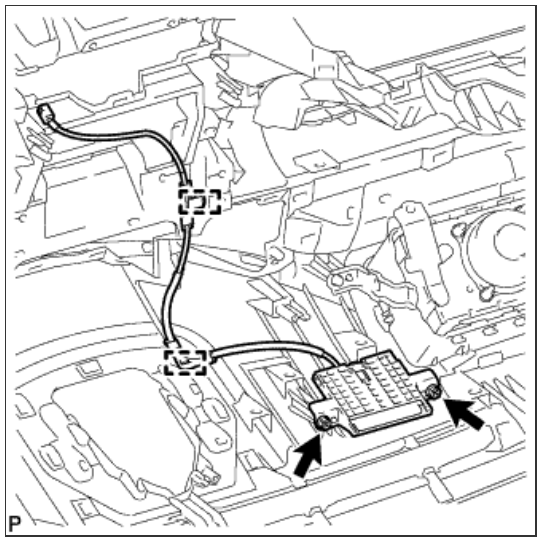
a. Remove the instrument panel safety pad ( Click here).

## 4. REMOVE NAVIGATION ANTENNA ASSEMBLY

a. for LHD:

i. Detach the 2 clamps.

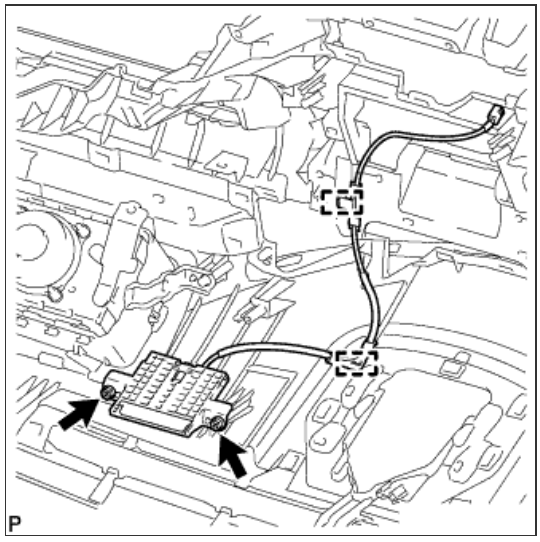
ii. Remove the 2 screws and navigation antenna assembly.




**b.** for RHD:

**i.** Detach the 2 clamps.

**ii.** Remove the 2 screws and navigation antenna assembly.



**for Preparation** Click here

## 1. INSPECT NAVIGATION ANTENNA ASSEMBLY

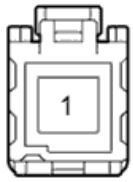
a. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - Shield | Always | 50 to 500 Ω |

If the result is not as specified, replace the navigation antenna assembly.

Component without harness connected:
(Navigation Antenna)

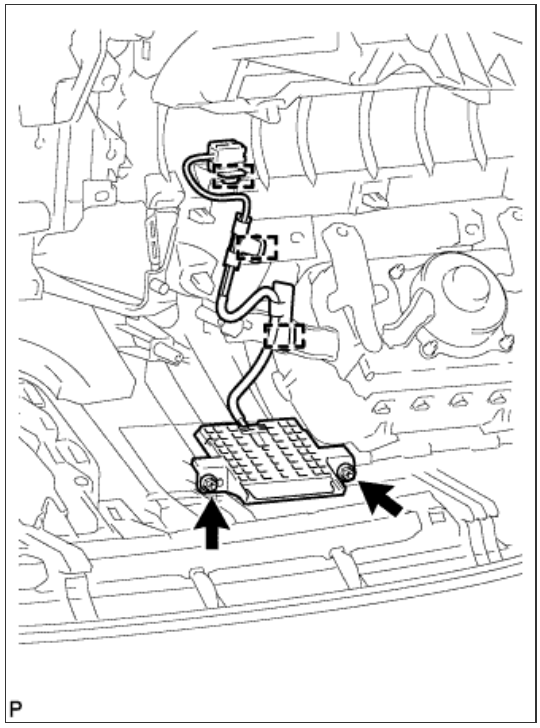


**for Preparation** Click here

## 1. INSTALL NAVIGATION ANTENNA ASSEMBLY

a. Install the antenna with the 2 screws.

b. Attach the 3 clamps.




## 2. INSTALL INSTRUMENT PANEL SAFETY PAD SUB-ASSEMBLY

a. Install the instrument panel safety pad ( Click here).

## 3. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 4. INSTALL ENGINE ROOM SIDE COVER LH

## 5. CHECK SRS WARNING LIGHT

a. Check the SRS warning light (Click here).

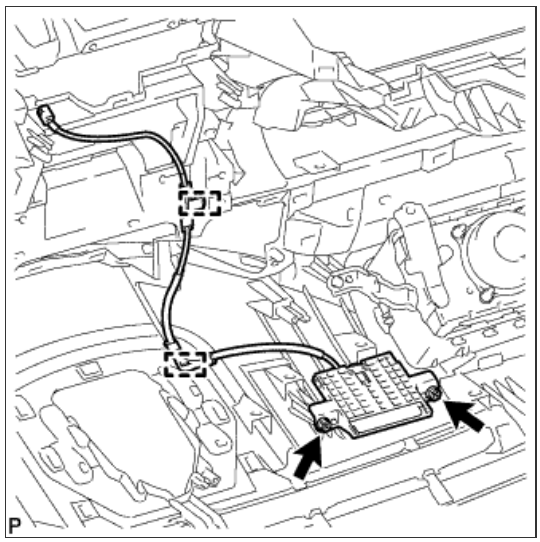
**for Preparation** Click here

## 1. INSTALL NAVIGATION ANTENNA ASSEMBLY

a. for LHD:

i. Install the antenna with the 2 screws.

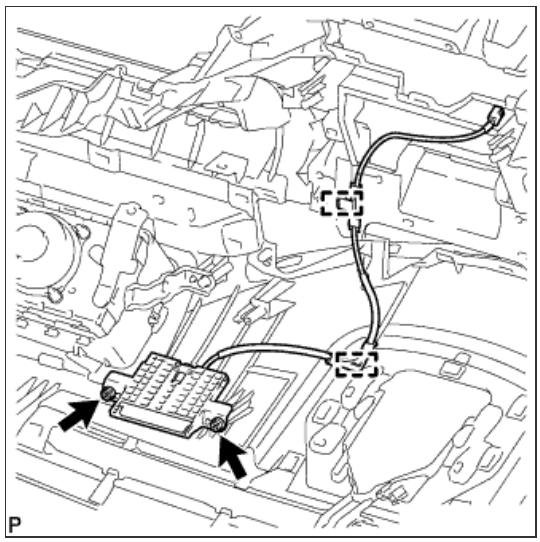
ii. Attach the 2 clamps.




b. for RHD:

i. Install the antenna with the 2 screws.

ii. Attach the 2 clamps.




## 2. INSTALL INSTRUMENT PANEL SAFETY PAD SUB-ASSEMBLY

a. Install the instrument panel safety pad ( Click here).

## 3. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

### 4. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover LH with the 7 clips.

### 5. CHECK SRS WARNING LIGHT

a. Check the SRS warning light (Click here).

**for Preparation** Click here

## 1.WARNING NOTIFICATION FUNCTION

**NOTICE:**

- **Before performing inspections or repairs which may cause warning messages or DTC to occur, such as a simulation test or road test, it is necessary to activate warning notification restraint mode so that the G-BOOK center does not recognize the warnings as real ones.**
- **Warning notification restraint mode can be entered by using the intelligent tester or operating the multi-display.**

**HINT:**

The warning notification function sends a warning ON signal, received from the combination meter assembly via CAN communication, to the G-BOOK center using the G-BOOK device if a warning is displayed due to a vehicle malfunction.

a. Warning notification restraint mode

**HINT:**

- **Performing the following procedure will select warning notification restraint mode.**
- **After warning notification restraint mode is entered, driving the vehicle 10 km (6 miles) will cancel the mode.**

i. Warning notification restraint mode (Using the intelligent tester)

1. Turn the engine switch off.
2. Connect the intelligent tester to the DLC3.
3. Start the engine.
4. Turn the tester on.
5. Enter the following menus: Powertrain / Engine / DTC.

ii. Warning notification restraint mode (Operating the multi-display)

1. Enter diagnostic mode of the navigation system (for HDD) (Click here).

## 2.STRICT PROHIBITION OF MANUAL EMERGENCY CALL USING EMERGENCY CALL SERVICE

a. Do not make an emergency call when not in emergency situations. For inspections, use the manual maintenance check.

**NOTICE:**

- **If the emergency call service is used to connect to the G-BOOK center when not in an emergency situation, an unnecessary workload will be generated at the G-BOOK center. This may cause a delayed response by the G-BOOK center to other emergency calls.**
- **If emergency vehicles are dispatched due to an accidental operation of the emergency call switch, you may be charged for the dispatch of the vehicle or punished according to related laws.**

b. If an accidental operation of the emergency call switch is made:

i. If an accidental operation of the emergency call switch is made, contact the G-BOOK center to tell that the call was made by mistake.

ii. The emergency call cannot be halted or finished from the vehicle. Only the G-BOOK center can halt or finish the call.

iii. If the G-BOOK center cannot be informed that the call was made by mistake, the center will report to authorities, emergency facilities and dealerships in compliance with its agreements. As a result, emergency vehicles may be dispatched.

## 3.PRECAUTIONS FOR G-BOOK

a. After replacing the display and navigation module display or the telematics transceiver and performing the vehicle contract setting, perform the procedure to resume the G-BOOK service and to start the emergency call service (Click here).

b. On this model, the display and navigation module display functions as the G-BOOK device and has the G-BOOK ID.

## 4.INSPECTION PROCEDURE FOR TELEMATICS TRANSCEIVER (DATA COMMUNICATION MODULE (DCM))

a. The telematics transceiver uses a CDMA2000 1X type radio wave signal. The radio signals and communication lines may occasionally be

unstable depending on time or location factors. Therefore, network access errors may occur intermittently because of radio signal conditions. To determine if there is a problem, it may be necessary to make a judgment based on frequency of the phenomenon or by making a comparison with a comparable type of cell phone.

b. The display and navigation module display and the telematics transceiver have a one-to-one relationship on the registered G-BOOK system. Therefore, if the display and navigation module display or the telematics transceiver is replaced, a network access cannot be made unless the vehicle contract setting is performed. Use of a substitute component is also not possible to confirm network access.

c. It is not permitted to disassemble the telematics transceiver (the case cannot be opened). If the telematics transceiver malfunctions, replace it.

## 5.PRECAUTIONS FOR DISPLAY AND NAVIGATION MODULE DISPLAY

a. An HDD is built into the display and navigation module display to store map data etc. which will be used for the navigation system. Therefore, care must be taken for the following points when handling:

i. Do not apply any vibration or shock to the display and navigation module display.

**NOTICE:**

- **Do not drop or subject the display and navigation module display to severe impacts.**
- **Do not use the display and navigation module display if it has been dropped or subjected to a severe impact.**

ii. Do not remove the display and navigation module display if there is a risk that condensation may occur.

**NOTICE:**

If the temperature of the display and navigation module display changes rapidly, condensation may occur inside the unit. This may cause a malfunction of the HDD. Therefore, when the display and navigation module display is removed from the instrument panel, it needs to be kept inside the vehicle or in an environment with an equivalent temperature and humidity.

iii. Take measures to prevent static electricity.

**NOTICE:**

Touching the terminals of a connector can cause static electricity to be transmitted to the internal circuits. This may cause a malfunction of the HDD.

iv. Keep the display and navigation module display away from magnets or magnetized items.

**NOTICE:**

Keep the display and navigation module display away from speakers, motors, magnetized tools and other magnetic items.

## 6.PRECAUTIONS FOR HARD DISK DRIVE (HDD)

a. The map data for the navigation system is stored on the Hard Disk Drive (HDD). Make sure to follow the following instructions when replacing the HDD:

**NOTICE:**

Data recorded by the customer may be stored on the HDD. (w/ Sound Library Function) This data will be lost when the HDD is replaced. Make sure to warn the customer that their data will be lost and obtain their consent prior to replacing the HDD.

i. The HDD must only be replaced with a new one. Do not attempt to install a used HDD from another vehicle.

**NOTICE:**

The display and navigation module display can only recognize a new HDD.

ii. Do not touch the HDD cover.

**NOTICE:**

When removing or installing the HDD, only hold it by the areas shown in the illustration.

iii. Do not apply any vibration or shock to the HDD.

**NOTICE:**

- **Do not drop or allow anything to strike the HDD.**
- **Never use an HDD that has been dropped or struck.**

iv. Do not remove the HDD if there is a risk that condensation may occur.

**NOTICE:**

If the temperature of the HDD changes rapidly, condensation may occur inside the unit. This may cause a malfunction of the HDD. Therefore, when the display and navigation module display is removed from the instrument panel, it needs to be kept inside the vehicle or in an environment with an equivalent temperature and humidity.

v. Take measures to prevent static electricity.

**NOTICE:**

Touching the terminals of a connector can cause static electricity to be transmitted to the internal circuits. This may cause a malfunction of the HDD.

vi. Keep the HDD away from magnets or magnetized items.

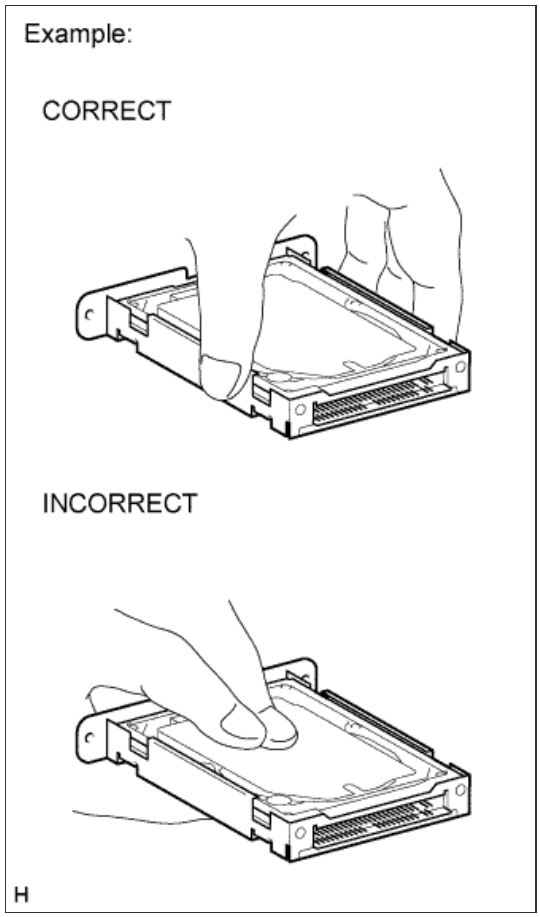
**NOTICE:**

Keep the HDD away from speakers, motors, magnetized tools and other magnetic items.

vii. Inspection after HDD replacement.

**NOTICE:**

Make sure to perform Check Hard Disk Drive in Operation Check to confirm that there are no HDD abnormalities after removal or installation (Click here).




## 7.PRECAUTIONS FOR EMERGENCY CALL SERVICE

a. Depending on the content of troubleshooting, a manual maintenance check may be performed.

**HINT:**

Communication charges are not incurred for the manual maintenance check because the telematics transceiver is used for communication (the communication cost is included in the G-BOOK service cost).

b. The telematics transceiver functions as the emergency call service device and it has the mayday ID.

## 8.AUTOMATIC MAINTENANCE CHECK FOR EMERGENCY CALL SERVICE

a. The emergency call system regularly performs an automatic maintenance check and communication test with the G-BOOK center so that the emergency call service can always function correctly. There are no operations required to initiate an automatic maintenance check. The automatic maintenance check is performed as follows:

- The automatic maintenance check ends 1 to 2 minutes after it starts.
- During the automatic maintenance check, a telephone call or network access is not possible using G-BOOK system. In this case, wait several minutes before trying again.
- If communication is interrupted for some reason after the automatic maintenance check has started, the automatic maintenance check will resume the next time the engine switch is turned on (ACC).
- There are no communication charges incurred for the manual and automatic maintenance check because the telematics transceiver is used for communication (the communication cost is included in the G-BOOK service cost).

## 9.IF EMERGENCY CALL CANNOT BE MADE

a. The emergency call service may not be available, or its quality may deteriorate in the following cases. (For details, refer to the terms of service and operation manual for the device.)

| Cause | Detail |
|---|---|
| Communication is interrupted due to malfunctions in the G-BOOK device or any other related device. | The G-BOOK device does not operate normally, such as when the device is damaged or malfunctioning due to an impact caused by a collision. |
| Communication is interrupted due to a G- | • The G-BOOK center system may need either periodic or urgent maintenance.<br>• An extreme volume of emergency calls is made to the G-BOOK center due to a large-scale traffic accident or fire. |

| | |
|---|---|
| BOOK center system error. | • Malfunctions or problems with the G-BOOK center system.<br>• The G-BOOK center system is damaged due to a fire.<br>• The emergency call service is suspended or halted due to emergency call provider reasons. |
| Communication is interrupted due to the network used for the emergency call system.*1 | • The registered vehicle is located outside the cellular phone service area used for the emergency call system.<br>• The vehicle is overseas.<br>• The vehicle is in a cellular phone service area where communication is not possible, such as an indoor environment, a basement parking area, mountains, tunnels or beside a building.<br>• Network availability or the time of use is limited, such as when cellular phone networks or public fixed networks (including junction networks) are extremely busy.<br>• Network availability is limited by the communication service provider due to a large-scale disaster.<br>• The cellular phone network or public fixed network (including junction networks) service used for the emergency call system is suspended or halted due to accidents, maintenance or engineering works. |
| The G-BOOK center system cannot determine the vehicle location. | • The vehicle is in the area where the Global Positioning System (GPS) radio waves cannot be received or where it is difficult for radio waves to penetrate, such as indoor environment, a basement parking area, mountains, tunnels or beside a building.<br>• The vehicle location cannot be determined normally or accurately because the vehicle is in the following areas:<br>  • Areas that cause a large error of the location calculation using the GPS, such as in tunnels or a densely built-up area, or after getting off a ferry.<br>  • Areas that cause a large error of map matching due to an old map database.<br>• The GPS system malfunctions. |
| Others | • Although a manual call is made, the situation cannot be confirmed because the user cannot respond to questions from the G-BOOK center.<br>• The G-BOOK contract has not been established, the user fell behind in payments or cancelled the service.<br>• The emergency call service start procedure has not been completed. |

**NOTICE:**

*1: Even when the vehicle is within the cellular phone service area, emergency or phone calls may be difficult to be made due to radio wave signal conditions or busy lines. In this case, it may not be possible to access the G-BOOK center. As a result, no calls can be made to ask for rescue in the event of a traffic accident. If emergency calls cannot be made, use a landline telephone or cellular phone.

## 10.ALARM NOTIFICATION FUNCTION

a. If the vehicle automatic alarm is activated, the G-BOOK center makes a phone call to the customer.

**NOTICE:**

- **When servicing the vehicle, ensure that the vehicle does not experience any conditions that cause a telephone call to be made by a G-BOOK operator.**
- **Before performing inspections or repairs which may activate the alarm notification function, be sure to inform the customer that they may receive a telephone call from a G-BOOK operator.**

**HINT:**

Customers can cancel the alarm notification on the display and navigation module display.

**for Preparation** Click here

## 1.WHEN DISCONNECTING BATTERY CABLE

a. After the engine switch is turned off, the multi-media module receiver assembly requires approximately 6 minutes to record various types of memory and settings. As a result, after turning the engine switch off, wait 6 minutes or more before disconnecting the cable from the negative (-) battery terminal.

## 2.WARNING NOTIFICATION FUNCTION

**NOTICE:**

- **Before performing inspections or repairs which may cause warning messages or DTCs to occur, such as a simulation test or road test, it is necessary to activate warning notification restraint mode so that the G-BOOK center does not recognize the warnings as real ones.**
- **Warning notification restraint mode can be entered by using the intelligent tester or operating the multi-display.**

**HINT:**

The warning notification function sends a warning ON signal, received from the combination meter assembly via CAN communication, to the G-BOOK center using the G-BOOK device if a warning is displayed due to a vehicle malfunction.

a. Warning notification restraint mode

**HINT:**

- **Performing the following procedure will select warning notification restraint mode.**
- **To cancel warning notification restraint mode, turn the engine switch off and on (IG) to display the service mode screen and select "Cancel" button on the screen.**

i. Warning notification restraint mode (Using the intelligent tester)

1. Turn the engine switch off.
2. Connect the intelligent tester to the DLC3.
3. Start the engine.
4. Enter the following menus: Powertrain / Engine / DTC.

ii. Warning notification restraint mode (Operating the multi-display)

1. Enter diagnostic mode of the navigation system (Click here).

## 3.STRICT PROHIBITION OF MANUAL EMERGENCY CALL USING EMERGENCY CALL SERVICE

a. Do not make an emergency call when not in emergency situations. For inspections, use the manual maintenance check.

**NOTICE:**

- **If the emergency call service is used to connect to the G-BOOK center when not in an emergency situation, an unnecessary workload will be generated at the G-BOOK center. This may cause a delayed response by the G-BOOK center to other emergency calls.**
- **If emergency vehicles are dispatched due to an accidental operation of the emergency call switch, you may be charged for the dispatch of the vehicle or punished according to related laws.**

b. If an accidental operation of the emergency call switch is made:

i. If an accidental operation of the emergency call switch is made, contact the G-BOOK center to tell that the call was made by mistake.

ii. The emergency call cannot be halted or finished from the vehicle. Only the G-BOOK center can halt or finish the call.

iii. If the G-BOOK center cannot be informed that the call was made by mistake, the center will report to authorities, emergency facilities and dealerships in compliance with its agreements. As a result, emergency vehicles may be dispatched.

## 4.PRECAUTIONS FOR G-BOOK

a. After replacing the multi-media module receiver assembly or the telematics transceiver and performing the vehicle contract setting, perform the procedure to resume the G-BOOK service and to start the emergency call service (Click here).

b. On this model, the multi-media module receiver assembly functions as the G-BOOK device and has the G-BOOK ID.

c. If the hard disk drive is replaced on vehicles that have a contract for the G-BOOK service, perform "Download necessary data" after installing the new hard disk drive (Click here).

d. Necessary data for the G-BOOK system is stored in the hard disk drive that is built into the multi-media module receiver assembly.

## 5.INSPECTION PROCEDURE FOR TELEMATICS TRANSCEIVER (DATA COMMUNICATION MODULE [DCM])

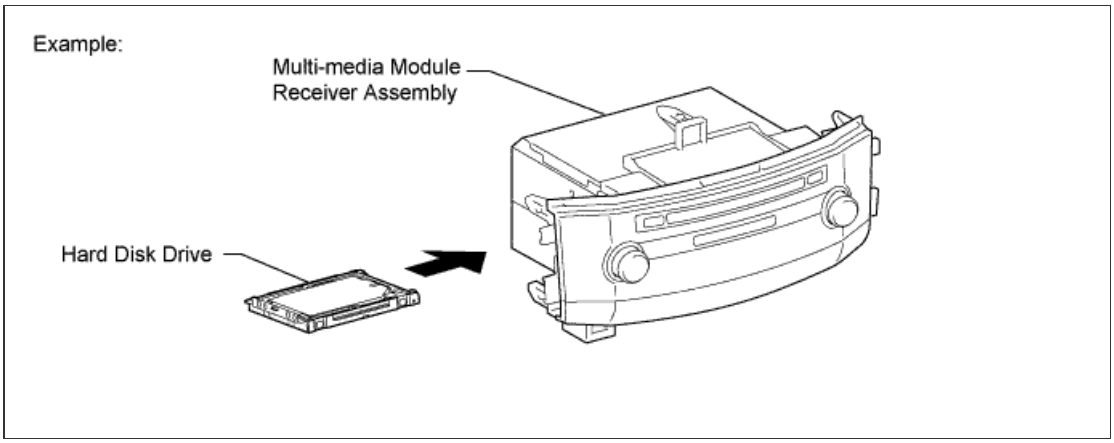
a. The telematics transceiver uses a CDMA2000 1X type radio wave signal. The radio signals and communication lines may occasionally be unstable depending on time or location factors. Therefore, network access errors may occur intermittently because of radio signal conditions. To determine if there is a problem, it may be necessary to make a judgment based on frequency of the phenomenon or by making a comparison with a comparable type of cell phone.

b. The multi-media module receiver assembly and the telematics transceiver have a one-to-one relationship on the registered G-BOOK system. Therefore, if the multi-media module receiver assembly or the telematics transceiver is replaced, a network access cannot be made unless the vehicle contract setting is performed. Use of a substitute component is also not possible to confirm network access.

c. It is not permitted to disassemble the telematics transceiver (the case cannot be opened). If the telematics transceiver malfunctions, replace it.

## 6.PRECAUTIONS FOR MULTI-MEDIA MODULE RECEIVER ASSEMBLY

a. An HDD is built into the multi-media module receiver assembly to store map and other data which are used for the navigation system. Therefore, care must be taken with the following points when handling it.




i. Do not apply any vibration or shock to the multi-media module receiver assembly.

**NOTICE:**

- **Do not drop or subject the multi-media module receiver assembly to severe impacts.**
- **Do not use the multi-media module receiver assembly if it has been dropped or subjected to any severe impacts.**

ii. Do not remove the multi-media module receiver assembly if there is a risk that condensation may occur.

**NOTICE:**

If the temperature of the multi-media module receiver assembly changes rapidly, condensation may occur inside the unit. This may cause a malfunction of the HDD. Therefore, when the multi-media module receiver assembly is removed from the instrument panel, it needs to be kept inside the vehicle or in an environment with an equivalent temperature and humidity.

iii. Take measures to prevent static electricity.

**NOTICE:**

Touching the terminals of a connector can cause static electricity to be transmitted to the internal circuits. This may cause a malfunction of the HDD.

iv. Keep the multi-media module receiver assembly away from magnets or magnetized items.

**NOTICE:**

Keep the multi-media module receiver assembly away from speakers, motors, magnetized tools and other magnetic items.

## 7.PRECAUTIONS FOR HARD DISK DRIVE (HDD)

a. The map data for the navigation system is stored on the Hard Disk Drive (HDD). Make sure to follow the following instructions when replacing the HDD.

**NOTICE:**

Data downloaded by the customer may be stored on the HDD. This data will be lost when the HDD is replaced. Make sure to warn the customer that the data will be lost and obtain their consent prior to replacing the HDD.

i. The HDD must only be replaced with a new one. Do not install a used HDD from another vehicle.

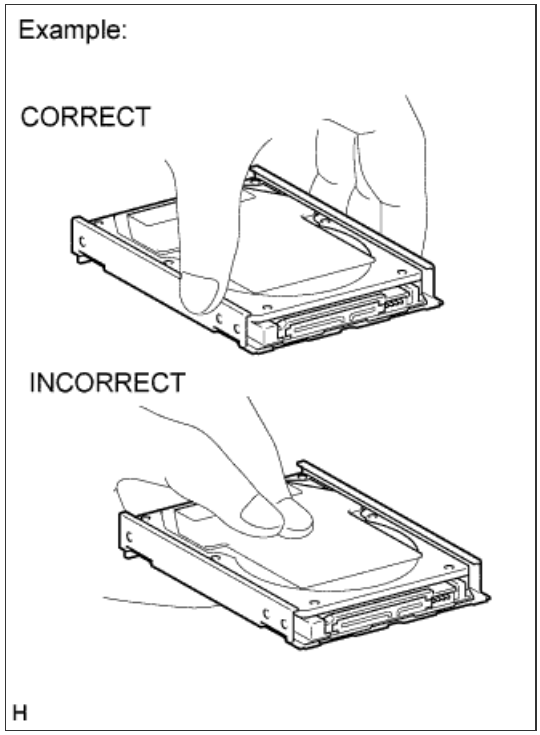
**NOTICE:**

The multi-media module receiver assembly can only recognize a new HDD.

ii. Do not touch the HDD cover.

**NOTICE:**

When removing or installing the HDD, only hold it by the areas shown in the illustration.




iii. Do not apply any vibration or shock to the HDD.

**NOTICE:**

- **Do not drop or allow anything to strike the HDD.**
- **Never use an HDD that has been dropped or struck.**

iv. Do not remove the HDD if there is a risk that condensation may occur.

**NOTICE:**

If the temperature of the HDD changes rapidly, condensation may occur inside the unit. This may cause a malfunction of the HDD. Therefore, when the multi-media module receiver assembly is removed from the instrument panel, it needs to be kept inside the vehicle or in an environment with an equivalent temperature and humidity.

v. Take measures to prevent static electricity.

**NOTICE:**

Touching the terminals of a connector can cause static electricity to be transmitted to the internal circuits. This may cause a malfunction of the HDD.

vi. Keep the HDD away from magnets or magnetized items.

**NOTICE:**

Keep the HDD away from speakers, motors, magnetized tools and other magnetic items.

vii. Inspection after HDD replacement.

**NOTICE:**

Make sure to perform Check Hard Disk Drive in Operation Check to confirm that there are no HDD abnormalities after removal or installation (Click here).

## 8.PRECAUTIONS FOR EMERGENCY CALL SERVICE

a. Depending on the content of troubleshooting, a manual maintenance check may be performed.

**HINT:**

Communication charges are not incurred for the manual maintenance check because the telematics transceiver is used for communication (the communication cost is included in the G-BOOK service cost).

b. The telematics transceiver functions as the emergency call service device and it has the mayday ID.

## 9.AUTOMATIC MAINTENANCE CHECK FOR EMERGENCY CALL SERVICE

a. The emergency call system regularly performs an automatic maintenance check and communication test with the G-BOOK center so that the emergency call service can always function correctly. There are no operations required to initiate an automatic maintenance check. The automatic maintenance check is performed as follows:

- The automatic maintenance check ends 1 to 2 minutes after it starts.
- During the automatic maintenance check, a telephone call or network access is not possible using the G-BOOK system. In this case, wait several minutes before trying again.
- If communication is interrupted for some reason after the automatic maintenance check has started, the automatic maintenance check will resume the next time the engine switch is turned on (ACC).
- There are no communication charges incurred for the manual and automatic maintenance check because the telematics transceiver is used for communication (the communication cost is included in the G-BOOK service cost).

## 10.IF EMERGENCY CALL CANNOT BE MADE

a. The emergency call service may not be available, or its quality may deteriorate in the following cases. (For details, refer to the terms of service and operation manual for the device.)

| Cause | Detail |
|---|---|
| Communication is interrupted due to malfunctions in the G-BOOK device or any other related device. | The G-BOOK device does not operate normally, such as when the device is damaged or malfunctioning due to an impact caused by a collision. |
| Communication is interrupted due to a G-BOOK center system error. | • The G-BOOK center system may need either periodic or urgent maintenance.<br>• An extreme volume of emergency calls is made to the G-BOOK center due to a large-scale traffic accident or fire.<br>• Malfunctions or problems with the G-BOOK center system.<br>• The G-BOOK center system is damaged due to a fire.<br>• The emergency call service is suspended or halted due to emergency call provider reasons. |
| Communication is interrupted due to the network used for the emergency call system.* | • The registered vehicle is located outside the cellular phone service area used for the emergency call system.<br>• The vehicle is overseas.<br>• The vehicle is in a cellular phone service area where communication is not possible, such as an indoor environment, a basement parking area, mountains, tunnels or beside a building.<br>• Network availability or the time of use is limited, such as when cellular phone networks or public fixed networks (including junction networks) are extremely busy.<br>• Network availability is limited by the communication service provider due to a large-scale disaster.<br>• The cellular phone network or public fixed network (including junction networks) service used for the emergency call system is suspended or halted due to accidents, maintenance or construction. |
| The G-BOOK center system cannot determine the vehicle location. | • The vehicle is in an area where the Global Positioning System (GPS) radio waves cannot be received or where it is difficult for radio waves to penetrate, such as an indoor environment, a basement parking area, mountains, tunnels or beside a building.<br>• The vehicle location cannot be determined normally or accurately because the vehicle is in the following areas:<br>  • Areas that cause a large error of the location calculation using the GPS, such as in tunnels or a densely built-up area, or after getting off a ferry.<br>  • Areas that cause a large error of map matching due to an old map database.<br>• The GPS system malfunctions. |
| Others | • Although a manual call is made, the situation cannot be confirmed because the user cannot respond to questions from the G-BOOK center.<br>• The G-BOOK contract has not been established, the user fell behind in payments or cancelled the service.<br>• The emergency call service start procedure has not been completed. |

**NOTICE:**

*: Even when the vehicle is within a cellular phone service area, emergency or phone calls may be difficult to be made due to radio wave signal conditions or busy lines. In this case, it may not be possible to access the G-BOOK center. As a result, no calls can be made to ask for rescue in the event of a traffic accident. If emergency calls cannot be made, use a landline telephone or cellular phone.

## 11.ALARM NOTIFICATION FUNCTION

a. If the vehicle automatic alarm is activated, the G-BOOK center makes a phone call to the customer.

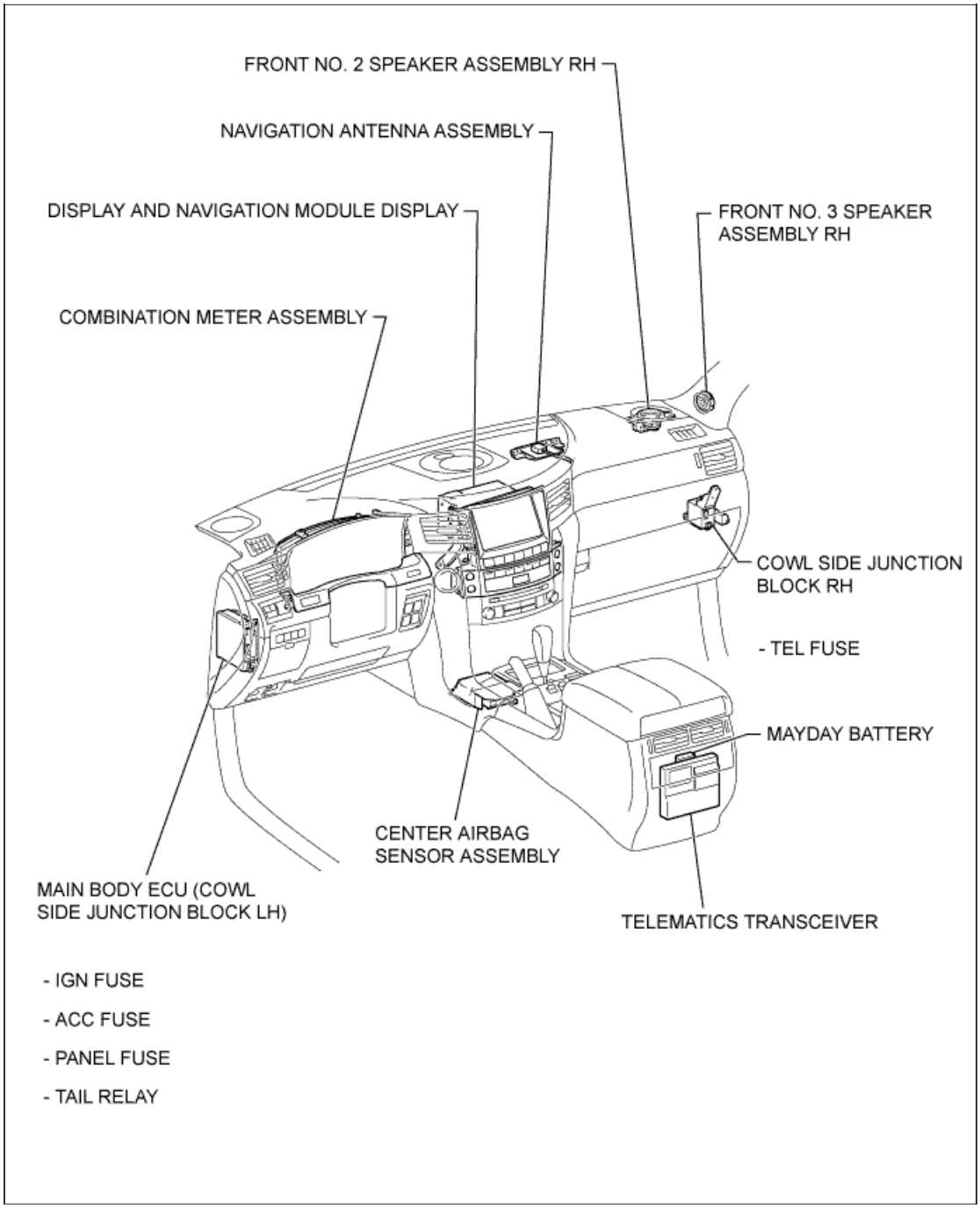
**NOTICE:**

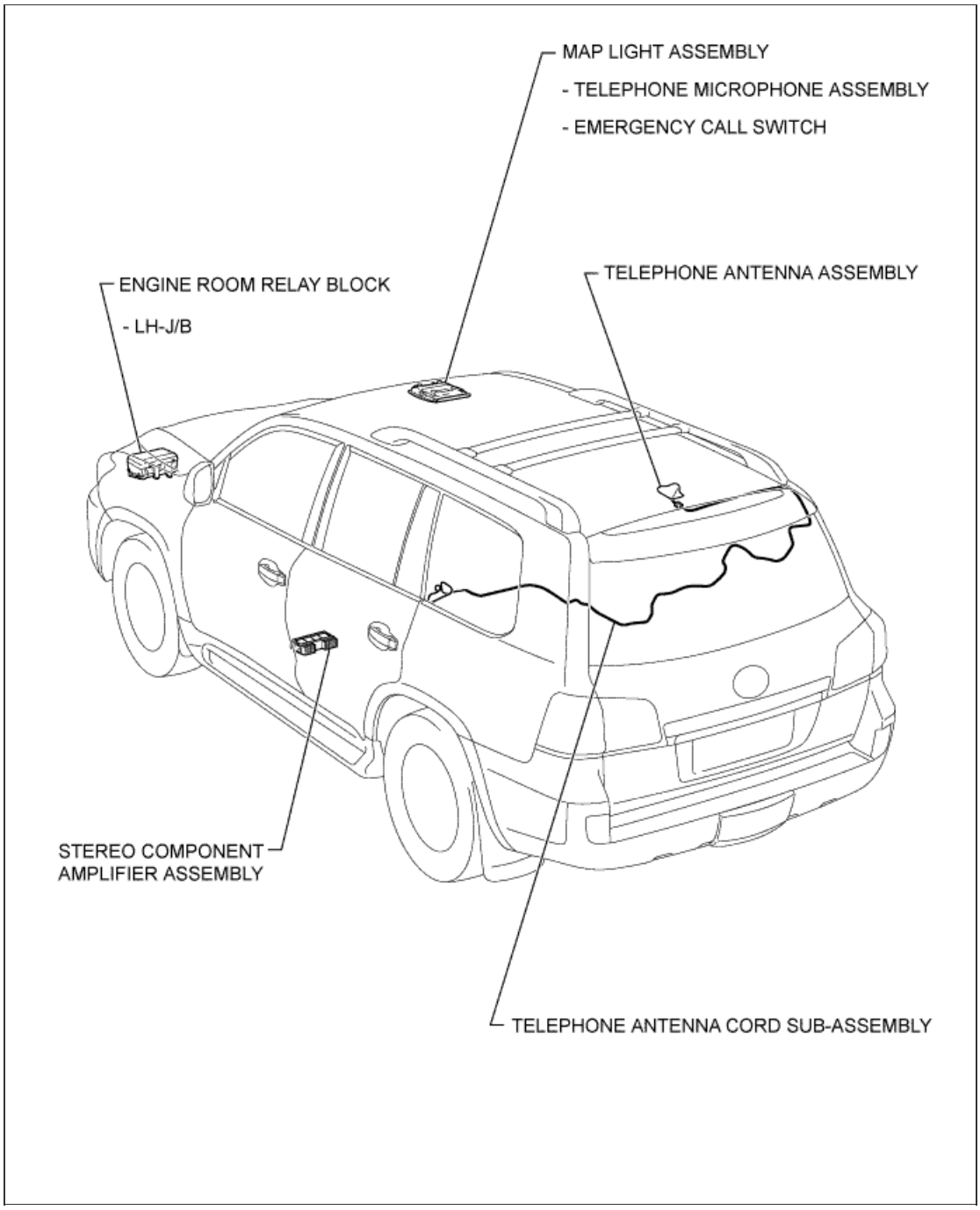
- **When servicing the vehicle, ensure that the vehicle does not experience any conditions that cause a telephone call to be made by a G-BOOK operator.**
- **Before performing inspections or repairs which may activate the alarm notification function, be sure to inform the customer that they may receive a telephone call from a G-BOOK operator.**

**HINT:**

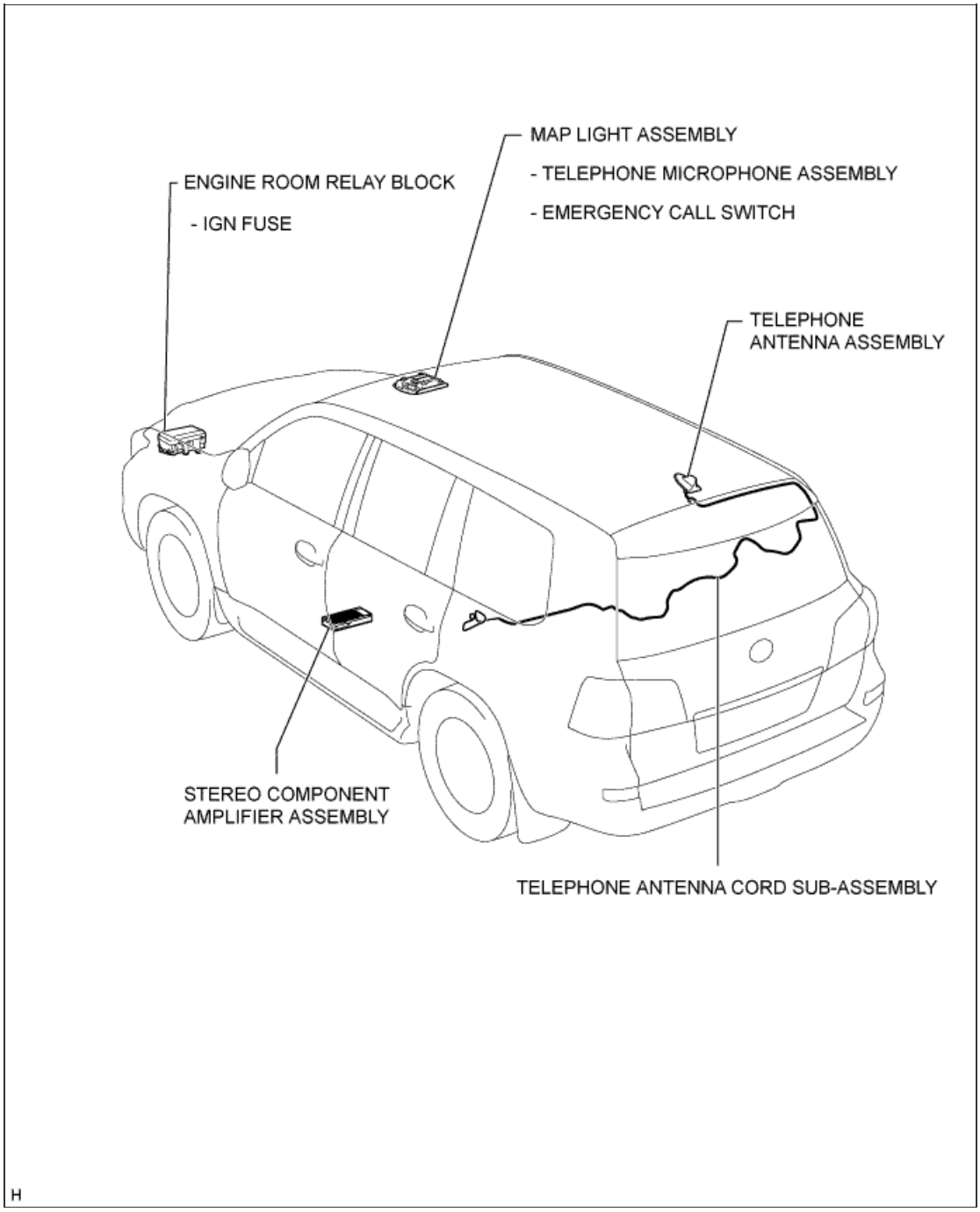
Customers can cancel the alarm notification on the multi-display.

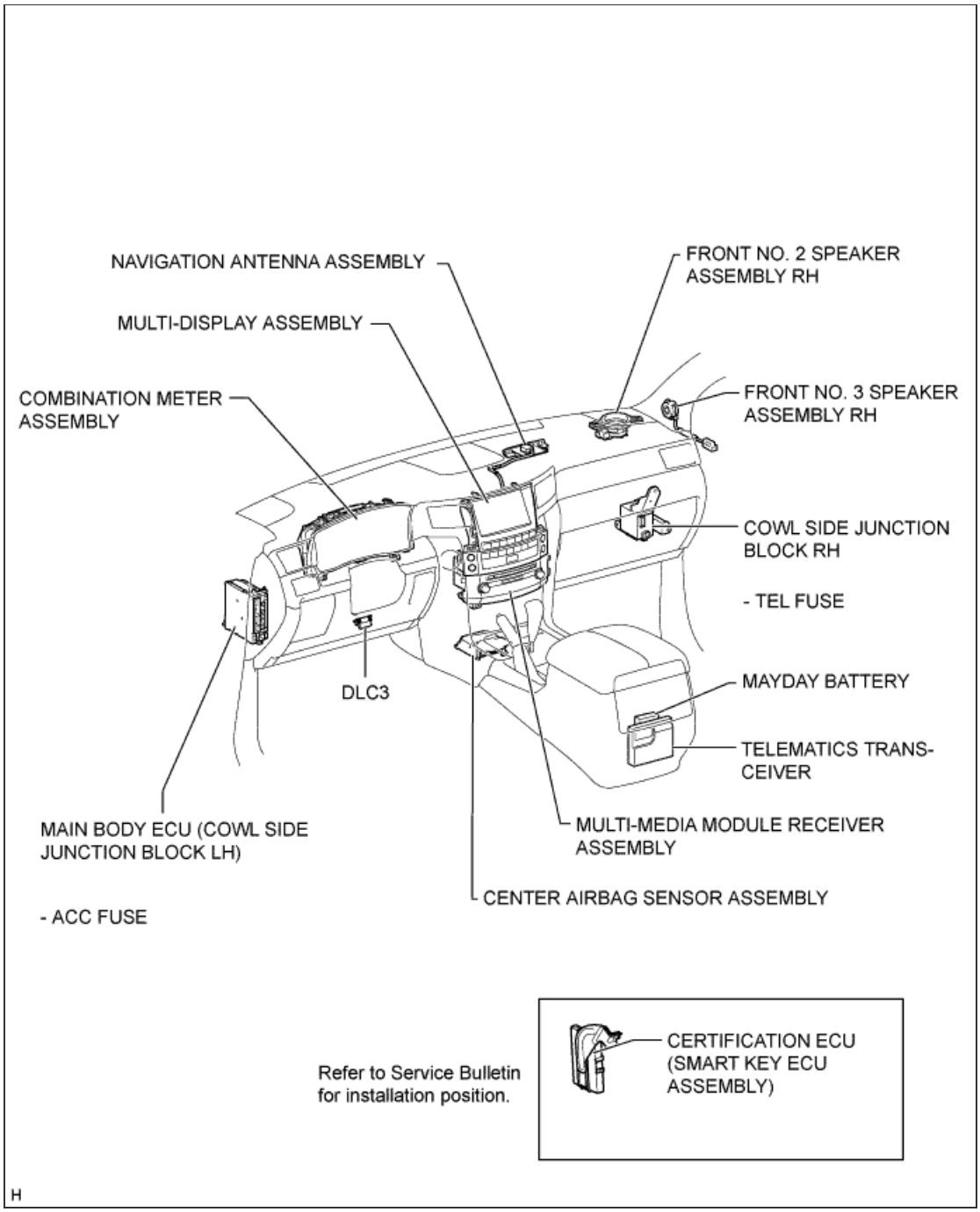
**for Preparation** Click here




MAP LIGHT ASSEMBLY
- TELEPHONE MICROPHONE ASSEMBLY
- EMERGENCY CALL SWITCH
ENGINE ROOM RELAY BLOCK
- LH-J/B
TELEPHONE ANTENNA ASSEMBLY
STEREO COMPONENT AMPLIFIER ASSEMBLY
TELEPHONE ANTENNA CORD SUB-ASSEMBLY

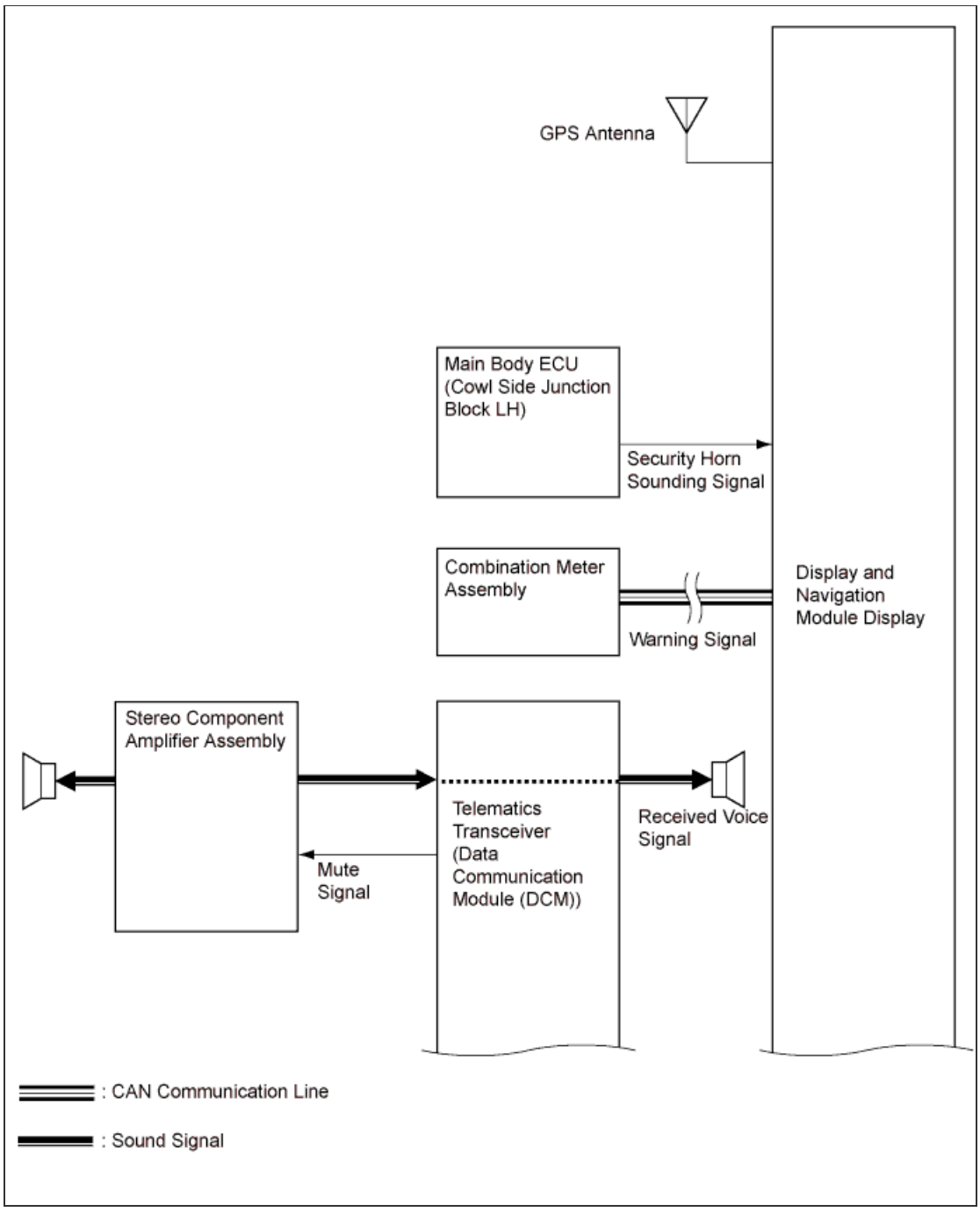
**for Preparation** Click here

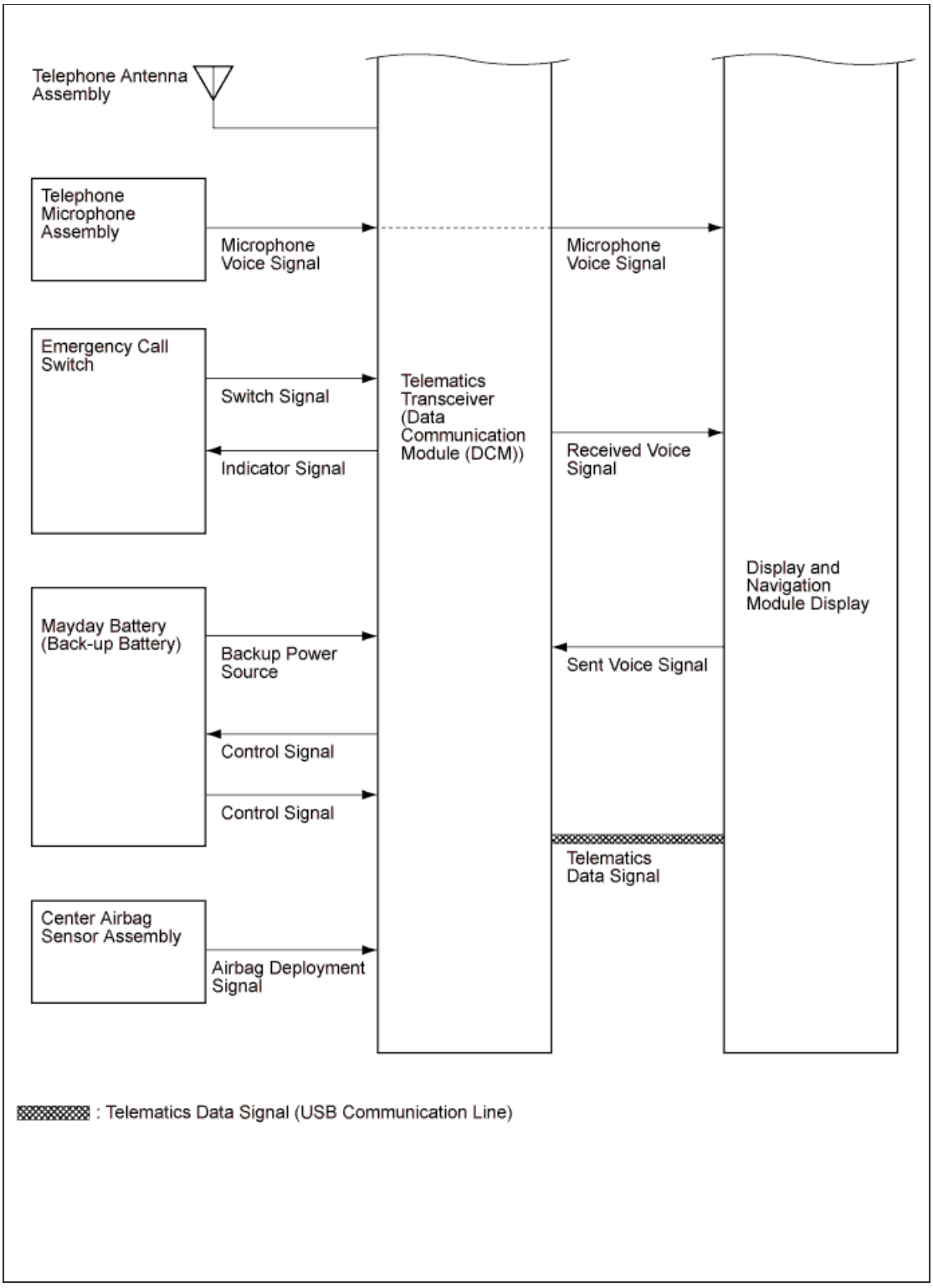



NAVIGATION ANTENNA ASSEMBLY
FRONT NO. 2 SPEAKER ASSEMBLY RH
MULTI-DISPLAY ASSEMBLY
COMBINATION METER ASSEMBLY
FRONT NO. 3 SPEAKER ASSEMBLY RH
COWL SIDE JUNCTION BLOCK RH
- TEL FUSE
DLC3
MAYDAY BATTERY
TELEMATICS TRANS-CEIVER
MAIN BODY ECU (COWL SIDE JUNCTION BLOCK LH)
MULTI-MEDIA MODULE RECEIVER ASSEMBLY
CENTER AIRBAG SENSOR ASSEMBLY
- ACC FUSE
Refer to Service Bulletin for installation position.
CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)
H

**for Preparation** Click here

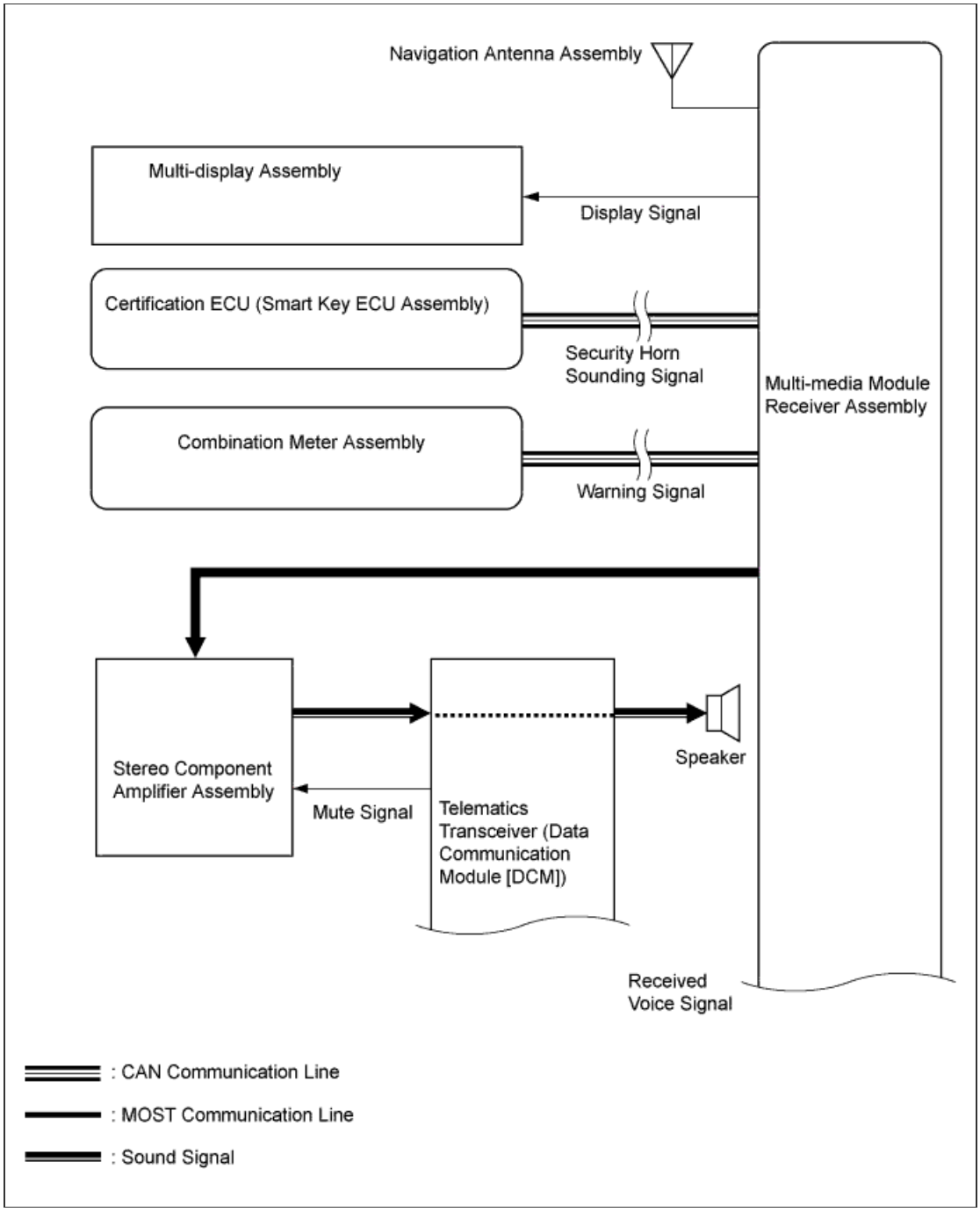
## SYSTEM DIAGRAM

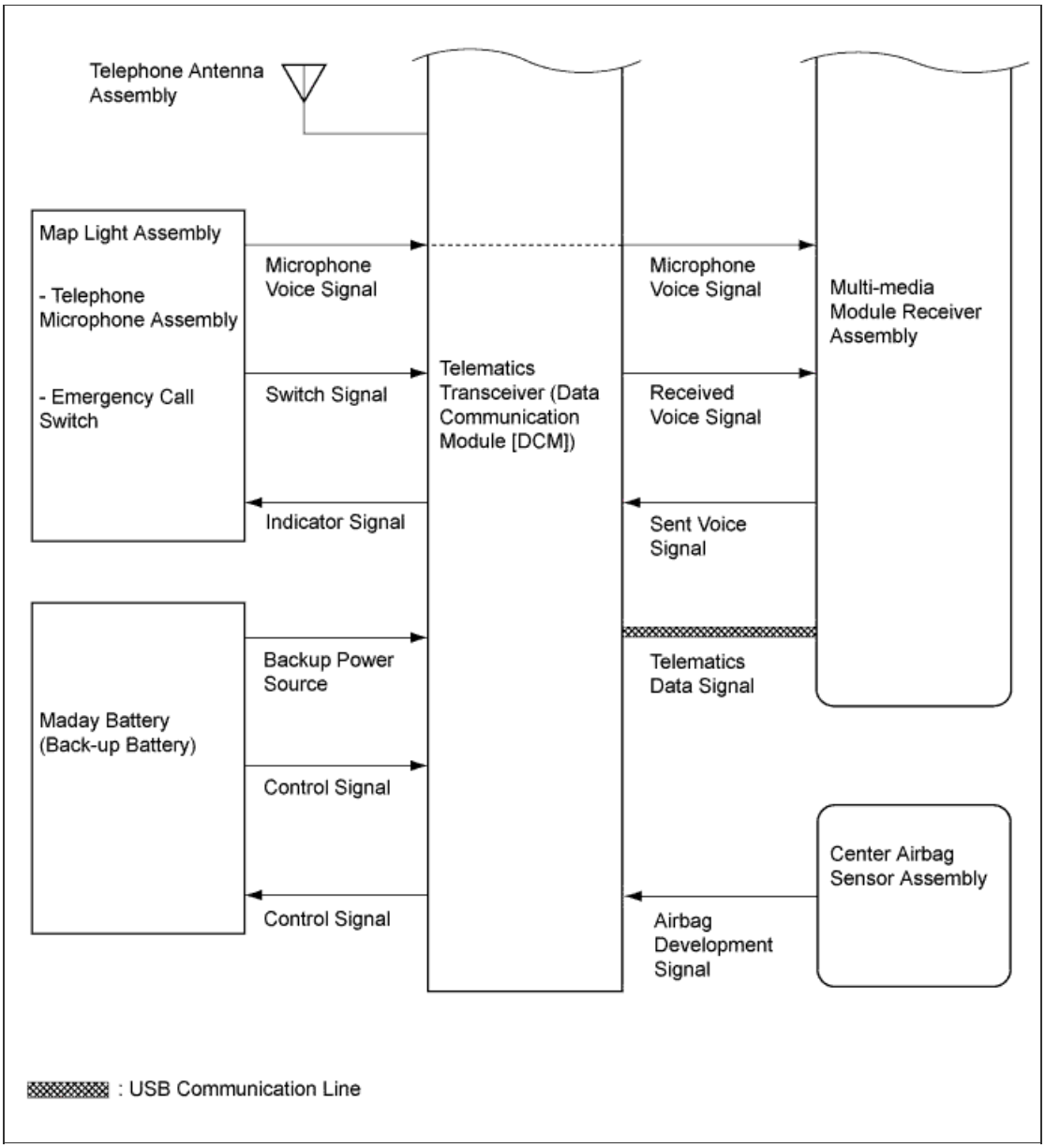



Telephone Antenna Assembly
Telephone Microphone Assembly
Microphone Voice Signal
Microphone Voice Signal
Emergency Call Switch
Switch Signal
Indicator Signal
Telematics Transceiver (Data Communication Module (DCM))
Received Voice Signal
Display and Navigation Module Display
Mayday Battery (Back-up Battery)
Backup Power Source
Sent Voice Signal
Control Signal
Control Signal
Telematics Data Signal
Center Airbag Sensor Assembly
Airbag Deployment Signal
: Telematics Data Signal (USB Communication Line)

**for Preparation** Click here

## SYSTEM DIAGRAM




Telephone Antenna Assembly
Map Light Assembly
- Telephone Microphone Assembly
- Emergency Call Switch
Microphone Voice Signal
Switch Signal
Indicator Signal
Telematics Transceiver (Data Communication Module [DCM])
Microphone Voice Signal
Received Voice Signal
Sent Voice Signal
Multi-media Module Receiver Assembly
Backup Power Source
Control Signal
Control Signal
Maday Battery (Back-up Battery)
Telematics Data Signal
Center Airbag Sensor Assembly
Airbag Development Signal
: USB Communication Line

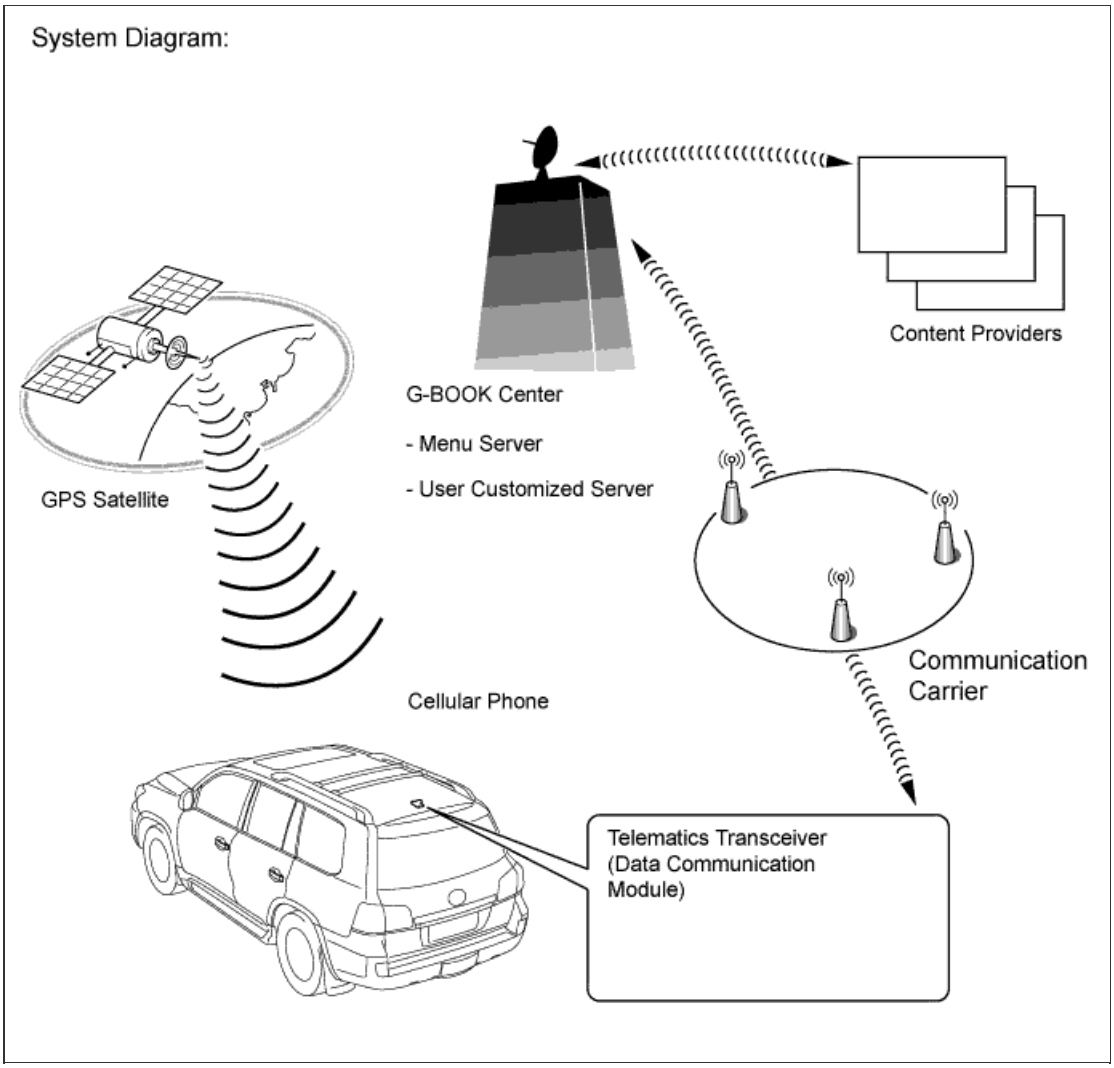
**for Preparation** Click here

## G-BOOK SYSTEM OUTLINE

a. The G-BOOK system is a telematics service that links the vehicle and G-BOOK network (provides information from the G-BOOK center or content providers).

b. To use the G-BOOK system, it is necessary to connect the telematics transceiver (data communication module) to the display and navigation module display.

c. The user needs to follow the instructions on the display and navigation module display to start using the G-BOOK system service after applying for the service at a dealership.




## FUNCTION OF MAIN COMPONENTS

| Component | Function | | |
|---|---|---|---|
| Emergency Call Switch | When the emergency call switch is pressed, a switch signal is sent to the telematics transceiver.<br>(When a manual maintenance check or manual emergency call is performed.) | | |
| | | Green | • Turns on for 5 seconds after the engine switch is turned on (ACC).<br>• Turns on when the system is under a service contract and operating normally.<br>• Blinks during a emergency call.<br>• Blinks during a manual maintenance check.<br>• Turns off when the system is malfunctioning. |

| | | | |
|---|---|---|---|
| | LED Indicator Light | Red | • Turns on for 5 seconds after the engine switch is turned on (ACC).<br>• Turns on when the telematics transceiver is not within the service area.<br>• Blinks when a call is made while the system is still malfunctioning.<br>• Turns off when the system is operating normally.<br>• Blinks when the mayday battery needs to be replaced.<br>• Blinks when in diagnostic mode to indicate a DTC. |
| Telephone Microphone Assembly | • When the operator service is used: Sends the microphone voice signal to the display and navigation module display.<br>• When an emergency call is made: Sends the microphone voice signal to the telematics transceiver. | | |
| Telephone Antenna Assembly | Sends and receives the data and voice signals used for the G-BOOK service through a communication network. | | |
| Telematics Transceiver | • Uses the telephone antenna assembly to send and receive the data and voice signals used for the G-BOOK service through a communication network.<br>  • When the operator service is used: Sends a received voice signal to the display and navigation module display.<br>  • When the operator service is used: Sends a sent voice signal from the display and navigation module display to the telephone antenna assembly.<br>  • When an emergency call is made: Sends a received voice signal to the vehicle speakers.<br>  • When an emergency call is made: Receives a sent voice signal from the telephone microphone assembly.<br>  • When an emergency call is made: Sends a mute signal to the stereo component amplifier assembly. (Mute function becomes active during the call.)<br>  • When an emergency call is made: Sends the location information to the G-BOOK center. | | |
| Mayday Battery (Back-up battery) | • When automatic emergency call is performed, the mayday battery provides power to the DCM.<br>• When a manual emergency call is made, the mayday battery is not used as the power source.<br>• The mayday battery conducts a self-diagnosis every time the engine switch is turned on (IG), and after an automatic emergency call or manual emergency call is made, and the result is sent to the DCM. | | |
| GPS Antenna | Receives GPS radio waves and sends them to the display and navigation module display. | | |
| Main Body ECU (Cowl side junction block LH) | Sends a security horn sounding signal to the display and navigation module display when the theft deterrent system is activated. | | |
| Display and Navigation Module Display | • Sends and receives the data used for the G-BOOK service to and from the telematics transceiver using a telematics data signal.<br>  • When the operator service is used: Sends the sent voice signal from the telephone microphone assembly to the telematics transceiver.<br>  • When the operator service is used: Sends the received voice signal from the telematics transceiver to the stereo component amplifier assembly using a MOST signal.<br>  • Sends the vehicle location information to the telematics transceiver.<br>  • When a warning comes on, the display and navigation module display receives a warning ON signal from the combination meter assembly via CAN communication and the telematics transceiver sends it to the G-BOOK center.<br>  • When the theft deterrent system is activated, the telematics transceiver sends the G-BOOK center information that the security horn has sounded. | | |
| Stereo Component Amplifier Assembly | Receives the received voice signal sent from the display and navigation module display as a MOST signal and outputs it as sound from the vehicle speakers.<br>(When the operator service is used.) | | |
| Center Airbag Sensor Assembly | Sends an activation signal to the telematics transceiver when airbags deploy.<br>(An automatic emergency call is made.) | | |

## DEVICE USED FOR G-BOOK SYSTEM COMMUNICATION

a. The telematics transceiver is used for data communication or emergency call service telephone calls and operator service telephone calls.

b. The hands-free function cannot use the telematics transceiver. A user's "Bluetooth" compatible cellular phone needs to be used.

c. Perform the following if the device used for G-BOOK system communication is replaced.

**HINT:**

- **If the display and navigation module display or the telematics transceiver is replaced on vehicles that do not have a contract for the G-BOOK service, perform the vehicle contract setting.**
- **If the display and navigation module display or the telematics transceiver is replaced on vehicles that have a contract for the G-BOOK service, perform the vehicle contract setting and the procedure to resume the G-BOOK service and to start the emergency call service.**

## G-BOOK ID OUTLINE

a. On this model, the display and navigation module display functions as the G-BOOK device.

b. The display and navigation module display has a serial number (G-BOOK ID) which can be used to determine the individual device when servicing.

## MAYDAY ID OUTLINE

a. On this model, the telematics transceiver functions as the emergency call service device to perform emergency calls.

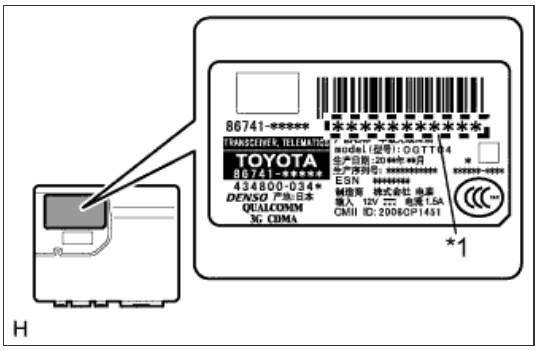
b. The telematics transceiver has a serial number (mayday ID) which can be used to identify the individual device when servicing.

## Data Communication Module (DCM) OUTLINE

a. The G-BOOK device uses the DCM (telematics transceiver) to provide access to the network service.

b. The DCM has a DCM ID (described on the label attached to the DCM).

c. As is the case with cellular phones, the DCM has a phone number.




**Text in Illustration**

| | |
|---|---|
| *1 | DCM ID |

## G-BOOK SUPPORT CENTER OUTLINE

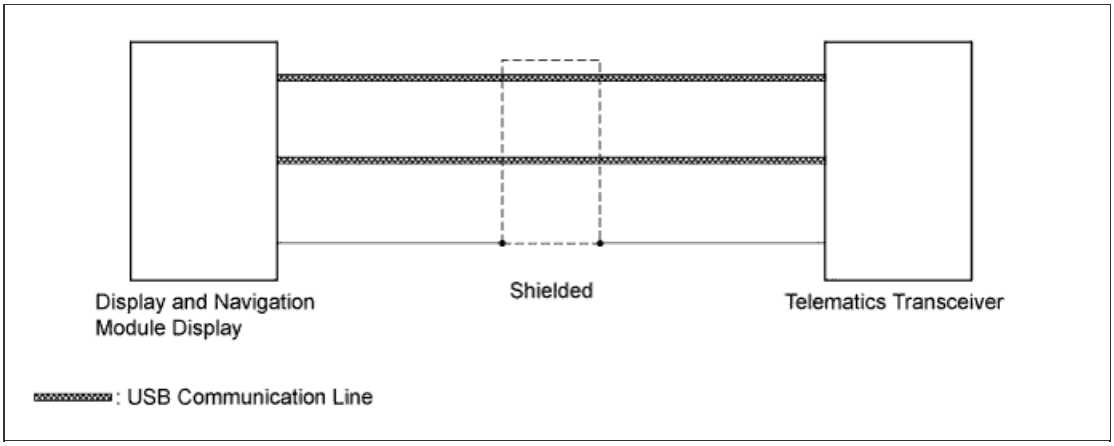
a. The G-BOOK support center provides members with opportunities to ask questions and information necessary for troubleshooting.

**G-BOOK Support Center**

| Main Service | Outline |
|---|---|
| Answering questions about the G-BOOK system | Answering questions from customers about the G-BOOK system |
| Contracting or canceling the G-BOOK online service | Performing procedure to make or cancel a contract for customers |
| Confirming server or communication conditions | Confirming the G-BOOK center condition |
| Re-registering a G-BOOK device or telematics transceiver | Performing procedure for re-registration when the G-BOOK device or telematics transceiver is replaced |
| Answering questions about a manual maintenance check for the emergency call service | Answering questions when a manual maintenance check for the emergency call service has not completed normally |

## COMMUNICATION SYSTEM

a. USB Outline




i. G-BOOK system components communicate with each other via the USB.

**HINT:**

If a short or open circuit occurs in the USB circuit, communication will be interrupted and the system will not operate normally.

## DIAGNOSTIC FUNCTION OUTLINE

a. The G-BOOK system has a diagnostic function (the result will be displayed on the master unit or intelligent tester).

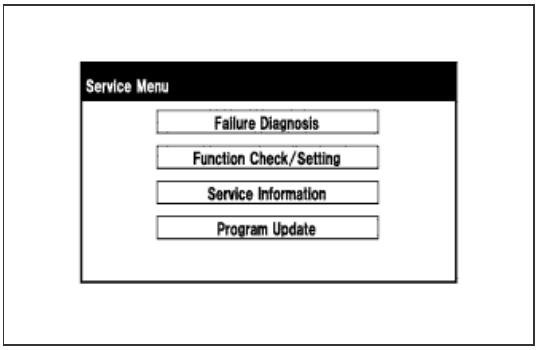
## DIAGNOSIS DISPLAY DETAILED DESCRIPTION

**HINT:**

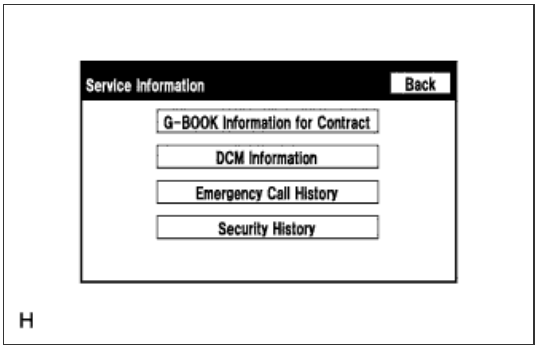
This section contains a detailed description of displays in diagnostic mode.

a. Enter diagnostic mode (Click here).

b. Select "Service Information" on the Service Menu screen.



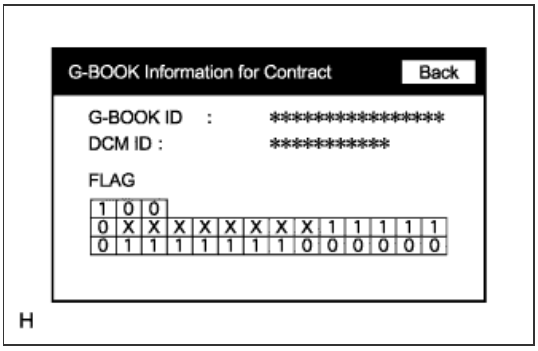

c. Service Information Screen




### Screen Description

| Display | Content |
|---|---|
| G-BOOK Information for Contract | The G-BOOK ID, flag information, etc. are displayed. |
| DCM Information | The ID, contract information, maintenance check date, etc. which are related to the emergency call service are displayed. |
| Emergency Call History | The history (date and condition) of emergency calls is displayed ( Click here). |
| Security History | The history (date and result) of an alarm notification is displayed ( Click here). |

i. G-BOOK Information for Contract Screen

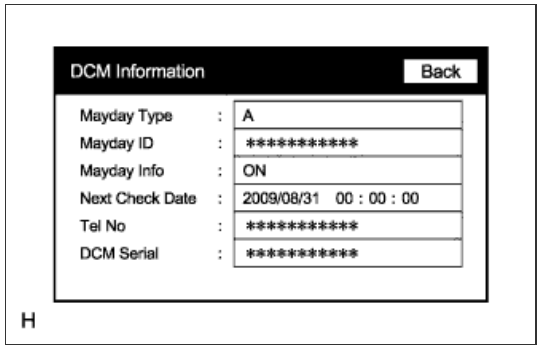



### Screen Description

| Display | Content |
|---|---|

| | |
|---|---|
| G-BOOK ID | The G-BOOK ID of the display and navigation module display is displayed. |
| DCM ID | The 11-digit serial number of the telematics transceiver is displayed. |
| FLAG | The G-BOOK contract flag or service flag of the display and navigation module display is displayed. |

ii. DCM Information Screen




**Screen Description**

| Display | Content |
|---|---|
| Mayday Type | The type of installed emergency call service device is displayed (on this model, "A" (airbag-linked type) is displayed). |
| Mayday ID | The ID of the installed emergency call service device is displayed. |
| Mayday Info | **The emergency call service contract condition is displayed as follows:**<br>• "ON": Contract has been made and membership has been registered<br>• "OFF": Contract has been made but membership has not been registered<br>• "NO CONT": Not contracted |
| Next Check Date | The date on which the automatic maintenance check will be performed next is displayed. |
| Tel No | • The phone number of the telematics transceiver is displayed.<br>• "NO DCM" is displayed when the telematics transceiver is not connected to the display and navigation module display. |
| DCM Serial | • The 11-digit serial number of the telematics transceiver is displayed (DCM ID).<br>• "NO DCM" is displayed when the telematics transceiver is not connected to the display and navigation module display. |

## MAYDAY BATTERY OUTLINE

a. As the mayday battery is a non-rechargeable (primary) battery, it cannot be recharged.

b. When it is time to replace the mayday battery, the emergency call switch red indicator will come on. The DCM will also store a DTC.

**NOTICE:**

After automatic emergency call is performed, the mayday battery must be replaced with a new one.

## WARNING NOTIFICATION FUNCTION

**NOTICE:**

- **Before performing inspections or repairs which may cause warning messages or DTC to occur, such as a simulation test or road test, it is necessary to activate warning notification restraint mode so that the G-BOOK center does not recognize the warnings as real ones.**
- **Warning notification restraint mode can be entered by using the intelligent tester or operating the multi-display.**

**HINT:**

The warning notification function sends a warning ON signal, received from the combination meter assembly via CAN communication, to the G-BOOK center using the G-BOOK device if a warning is displayed due to a vehicle malfunction.

a. Warning notification restraint mode

**HINT:**

- **Performing the following procedure will select warning notification restraint mode.**
- **After warning notification restraint mode is entered, driving the vehicle 10 km (6 miles) will cancel the mode.**

i. Warning notification restraint mode (Using the intelligent tester)

1. Turn the engine switch off.
2. Connect the intelligent tester to the DLC3.
3. Start the engine.
4. Turn the tester on.
5. Enter the following menus: Powertrain / Engine / DTC.

ii. Warning notification restraint mode (Operating the multi-display)

1. Enter diagnostic mode of the navigation system (for HDD) (Click here).

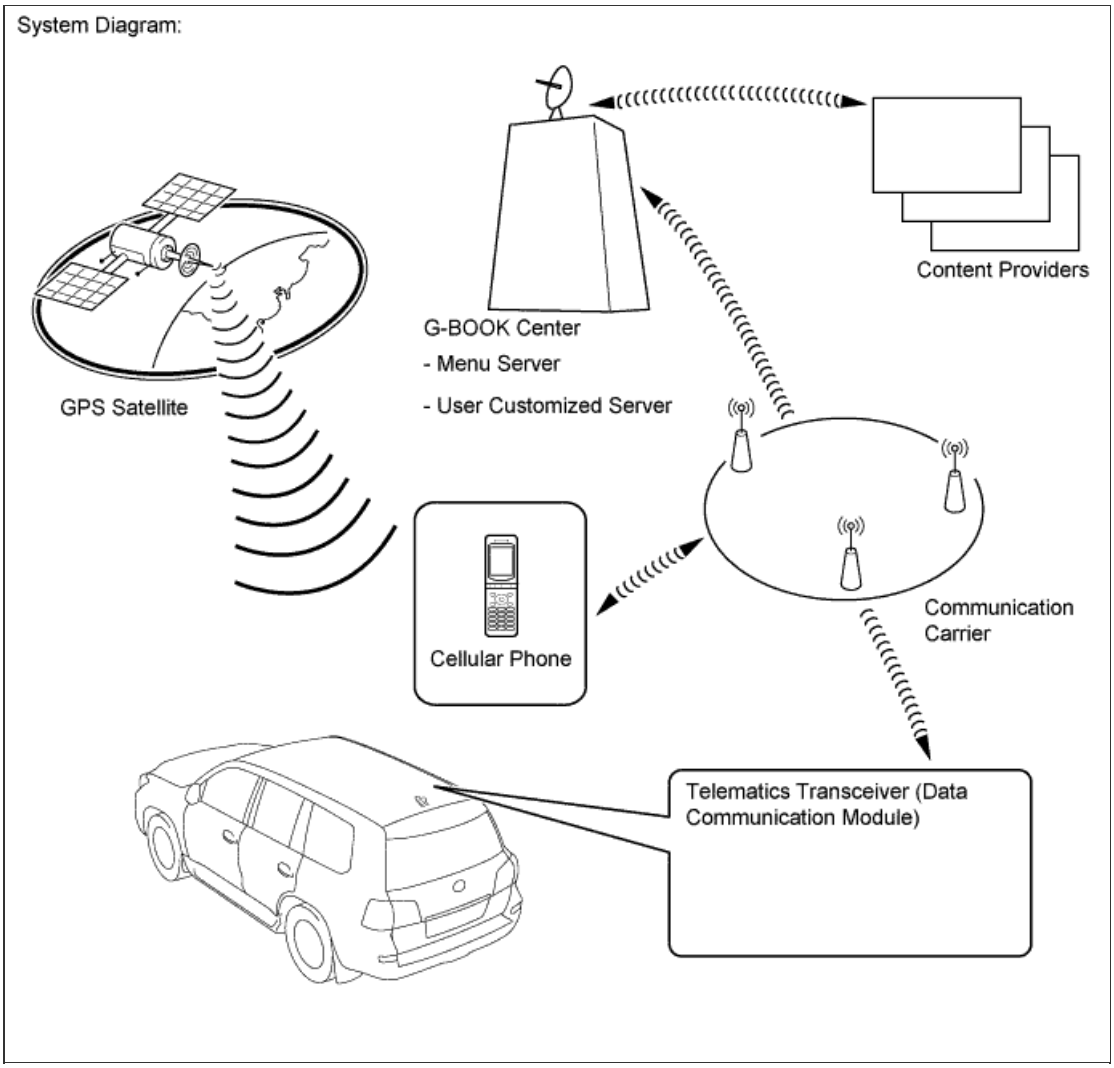
**for Preparation** Click here

## G-BOOK SYSTEM OUTLINE

a. The G-BOOK system is a telematics service that links the vehicle and G-BOOK network (provides information from the G-BOOK center or content providers).

b. To use the G-BOOK system, it is necessary to connect the telematics transceiver (data communication module [DCM]) to the multi-media module receiver assembly.

c. The user needs to follow the instructions on the multi-media module receiver assembly to start using the G-BOOK system service after applying for the service at a dealership.




## FUNCTION OF MAIN COMPONENTS

| Component | Function | | |
|---|---|---|---|
| Emergency Call Switch | When the emergency call switch is pressed, a switch signal is sent to the telematics transceiver.<br>(When a manual maintenance check or manual emergency call is performed.) | | |
| | | Green | • Turns on for 5 seconds after the engine switch is turned on (ACC).<br>• Turns on when the system is under a service contract and operating normally.<br>• Blinks during a emergency call.<br>• Blinks during a manual maintenance check.<br>• Turns off when the system is malfunctioning. |

| | | | |
|---|---|---|---|
| | LED Indicator Light | Red | • Turns on for 5 seconds after the engine switch is turned on (ACC).<br>• Turns on when the telematics transceiver is not within the service area.<br>• Blinks when a call is made while the system is still malfunctioning.<br>• Turns off when the system is operating normally.<br>• Blinks when the mayday battery needs to be replaced.<br>• Blinks when in diagnostic mode to indicate a DTC. |
| Telephone Microphone Assembly | • When the operator service is used: Sends the microphone voice signal to the multi-media module receiver assembly.<br>• When an emergency call is made: Sends the microphone voice signal to the telematics transceiver. | | |
| Telephone Antenna Assembly | Sends and receives the data and voice signals used for the G-BOOK service through a communication network. | | |
| Telematics Transceiver | • Uses the telephone antenna assembly to send and receive the data and voice signals used for the G-BOOK service through a communication network.<br>  • When the operator service is used: Sends a received voice signal to the multi-media module receiver assembly.<br>  • When the operator service is used: Sends a sent voice signal from the multi-media module receiver assembly to the telephone antenna assembly.<br>  • When an emergency call is made: Sends a received voice signal to the vehicle speakers.<br>  • When an emergency call is made: Receives a sent voice signal from the telephone microphone assembly.<br>  • When an emergency call is made: Sends a mute signal to the stereo component amplifier assembly. (Mute function becomes active during the call.)<br>  • When an emergency call is made: Sends the location information to the G-BOOK center. | | |
| Mayday Battery (Back-up battery) | • When automatic emergency call is performed, the mayday battery provides power to the DCM.<br>• When a manual emergency call is made, the mayday battery is not used as the power source.<br>• The mayday battery conducts a self-diagnosis every time the engine switch is turned on (IG), and after an automatic emergency call or manual emergency call is made, and the result is sent to the DCM. | | |
| GPS Antenna | Receives GPS radio waves and sends them to the multi-media module receiver assembly. | | |
| Certification ECU (Smart key ECU assembly) | Sends a security horn sounding signal to the multi-media module receiver assembly when the theft deterrent system is activated. | | |
| Multi-media Module Receiver Assembly | • Sends and receives the data used for the G-BOOK service to and from the telematics transceiver using a telematics data signal.<br>  • When the operator service is used: Sends the sent voice signal from the telephone microphone assembly to the telematics transceiver.<br>  • When the operator service is used: Sends the received voice signal from the telematics transceiver to the stereo component amplifier assembly using a MOST signal.<br>  • Sends the vehicle location information to the telematics transceiver.<br>  • When a warning comes on, the multi-media module receiver assembly receives a warning ON signal from the combination meter assembly via CAN communication and the telematics transceiver sends it to the G-BOOK center.<br>  • When the theft deterrent system is activated, the telematics transceiver sends the G-BOOK center information that the security horn has sounded. | | |
| Stereo Component Amplifier Assembly | Receives the received voice signal sent from the multi-media module receiver assembly as a MOST signal and outputs it as sound from the vehicle speakers.<br>(When the operator service is used.) | | |
| Center Airbag Sensor Assembly | Sends an activation signal to the telematics transceiver when airbags deploy.<br>(An automatic emergency call is made.) | | |

## DEVICE USED FOR G-BOOK SYSTEM COMMUNICATION

a. The telematics transceiver is used for data communication or emergency call service telephone calls and operator service telephone calls.

b. The hands-free function cannot use the telematics transceiver. A user's "Bluetooth" compatible cellular phone needs to be used.

c. Perform the following if the device used for G-BOOK system communication is replaced.

**HINT:**

- **If the multi-media module receiver assembly or the telematics transceiver is replaced on vehicles that do not have a contract for the G-BOOK service, perform the vehicle contract setting.**
- **If the multi-media module receiver assembly or the telematics transceiver is replaced on vehicles that have a contract for the G-BOOK service, perform the vehicle contract setting and the procedure to resume the G-BOOK service and to start the emergency call service.**

## G-BOOK ID OUTLINE

a. On this model, the multi-media module receiver assembly functions as the G-BOOK device.

b. The multi-media module receiver assembly has a serial number (G-BOOK ID) which can be used to determine the individual device when servicing.

## MAYDAY ID OUTLINE

a. On this model, the telematics transceiver functions as the emergency call service device to perform emergency calls.

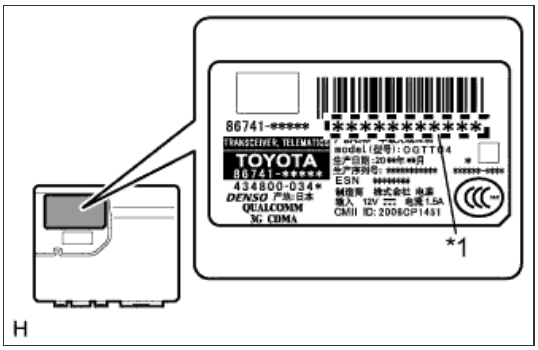
b. The telematics transceiver has a serial number (mayday ID) which can be used to identify the individual device when servicing.

## Data Communication Module (DCM) OUTLINE

a. The G-BOOK device uses the DCM (telematics transceiver) to provide access to the network service.

b. The DCM has a DCM ID (printed on the label attached to the DCM).

c. As is the case with cellular phones, the DCM has a phone number.




**Text in Illustration**

| | |
|---|---|
| *1 | DCM ID |

## G-BOOK SUPPORT CENTER OUTLINE

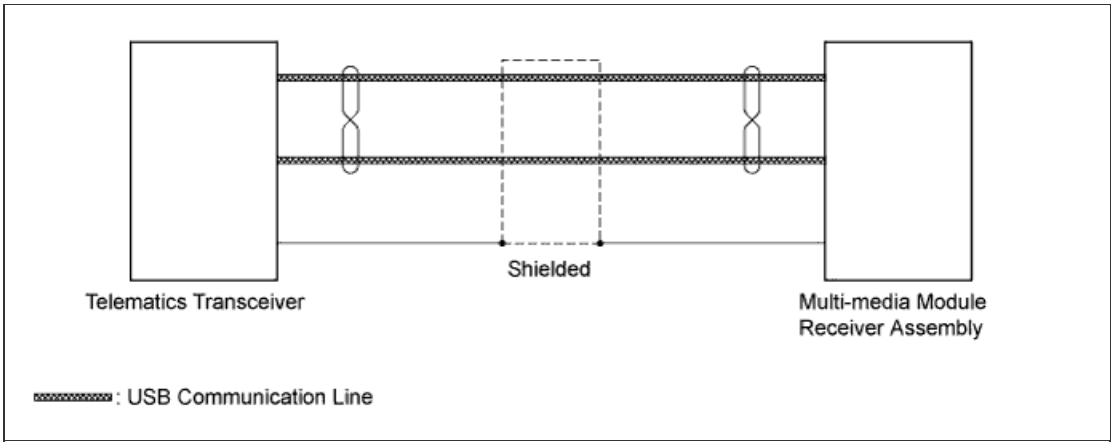
a. The G-BOOK support center provides members with opportunities to ask questions and information necessary for troubleshooting.

**G-BOOK Support Center**

| Main Service | Outline |
|---|---|
| Answering questions about the G-BOOK system | Answering questions from customers about the G-BOOK system |
| Contracting or canceling the G-BOOK online service | Performing procedure to make or cancel a contract for customers |
| Confirming server or communication conditions | Confirming the G-BOOK center condition |
| Re-registering a G-BOOK device or telematics transceiver | Performing procedure for re-registration when the G-BOOK device or telematics transceiver is replaced |
| Answering questions about a manual maintenance check for the emergency call service | Answering questions when a manual maintenance check for the emergency call service has not completed normally |

## COMMUNICATION SYSTEM

a. USB Outline




i. G-BOOK system components communicate with each other via the USB.

**HINT:**

If a short or open circuit occurs in the USB circuit, communication will be interrupted and the system will not operate normally.

## DIAGNOSTIC FUNCTION OUTLINE

a. The G-BOOK system has a diagnostic function (the result will be displayed on the master unit or intelligent tester).

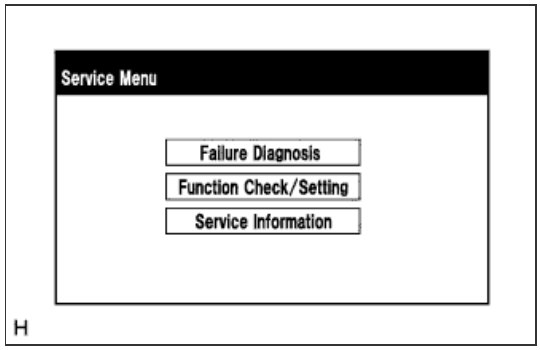
## DIAGNOSIS DISPLAY DETAILED DESCRIPTION

**HINT:**

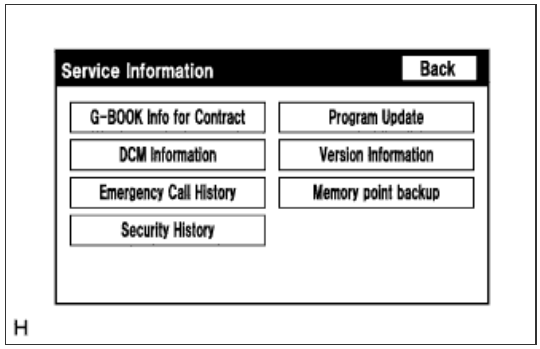
This section contains a detailed description of displays in diagnostic mode.

a. Enter diagnostic mode (Click here).

b. Select "Service Information" on the Service Menu screen.



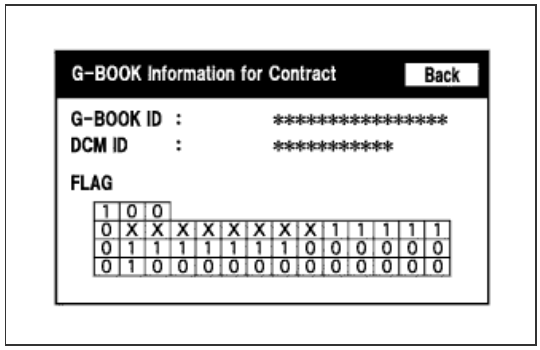

c. Service Information Screen




**Screen Description**

| Display | Content |
|---|---|
| G-BOOK Information for Contract | The G-BOOK ID, flag information, etc. are displayed. |
| DCM Information | The ID, contract information, maintenance check date, etc. which are related to the emergency call service are displayed. |
| Emergency Call History | The history (date and condition) of emergency calls is displayed ( Click here). |
| Security History | The history (date and result) of an alarm notification is displayed ( Click here). |

i. G-BOOK Information for Contract Screen

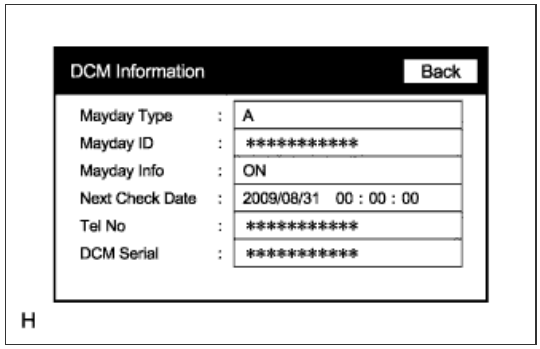



**Screen Description**

| Display | Content |
|---|---|

| | |
|---|---|
| G-BOOK ID | The G-BOOK ID of the multi-media module receiver assembly is displayed. |
| DCM ID | The 11-digit serial number of the telematics transceiver is displayed. |
| FLAG | The G-BOOK contract flag or service flag of the multi-media module receiver assembly is displayed. |

ii. DCM Information Screen




**Screen Description**

| Display | Content |
|---|---|
| Mayday Type | The type of installed emergency call service device is displayed (on this model, "A" (airbag-linked type) is displayed). |
| Mayday ID | The ID of the installed emergency call service device is displayed. |
| Mayday Info | **The emergency call service contract condition is displayed as follows:**<br>• "ON": Contract has been made and membership has been registered<br>• "OFF": Contract has been made but membership has not been registered<br>• "NO CONT": Not contracted |
| Next Check Date | The date on which the automatic maintenance check will be performed next is displayed. |
| Tel No | • The phone number of the telematics transceiver is displayed.<br>• "NO DCM" is displayed when the telematics transceiver is not connected to the multi-media module receiver assembly. |
| DCM Serial | • The 11-digit serial number of the telematics transceiver is displayed (DCM ID).<br>• "NO DCM" is displayed when the telematics transceiver is not connected to the multi-media module receiver assembly. |

## MAYDAY BATTERY OUTLINE

a. As the mayday battery is a non-rechargeable (primary) battery, it cannot be recharged.

b. When it is time to replace the mayday battery, the emergency call switch red indicator will come on. The DCM will also store a DTC.

**NOTICE:**

After automatic emergency call is performed, the mayday battery must be replaced with a new one.

## WARNING NOTIFICATION FUNCTION

**NOTICE:**

- **Before performing inspections or repairs which may cause warning messages or DTC to occur, such as a simulation test or road test, it is necessary to activate warning notification restraint mode so that the G-BOOK center does not recognize the warnings as real ones.**
- **Warning notification restraint mode can be entered by using the intelligent tester or operating the multi-display.**

**HINT:**

The warning notification function sends a warning ON signal, received from the combination meter assembly via CAN communication, to the G-BOOK center using the G-BOOK device if a warning is displayed due to a vehicle malfunction.

a. Warning notification restraint mode

**HINT:**

- **Performing the following procedure will select warning notification restraint mode.**
- **To cancel warning notification restraint mode, turn the engine switch off and on (IG) to display the service mode screen and select "Cancel" button on the screen.**

i. Warning notification restraint mode (Using the intelligent tester)

1. Turn the engine switch off.
2. Connect the intelligent tester to the DLC3.
3. Start the engine.
4. Turn the tester on.
5. Enter the following menus: Powertrain / Engine / DTC.

ii. Warning notification restraint mode (Operating the multi-display)

1. Enter diagnostic mode of the navigation system (Click here).

**for Preparation** Click here

**HINT:**

- **Use the following procedure to troubleshoot the G-BOOK system.**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

**NEXT**

## 2.CHECK PROBLEM SYMPTOM

a. The G-BOOK system provides a variety of functions. Therefore, it is important to identify whether a malfunction is related to the communication system including radio wave conditions or any other systems. Carefully confirm the conditions that caused the malfunction in order to determine if a temporary problem with the radio wave caused the malfunction.

| Displayed Message and Problem Symptom | Cause |
|---|---|
| "The lines are busy and it is not possible to display the desired content. Please try again (operate it again) after waiting for a while." is temporarily displayed. | This is caused when there is a problem with the radio wave signal conditions or when the base station is busy. This is not a malfunction (convince the customer that this is not a malfunction and ask them to use the system as is). |
| "The lines are busy and information was not able to be acquired." is temporarily displayed. | This is caused when there is a problem with the radio wave signal conditions or when the base station is busy. This is not a malfunction (convince the customer that this is not a malfunction and ask them to use the system as is). |
| After "Wait for a while." is displayed, the condition that it takes a long time to display the screen occurs temporarily. | This is caused when there is a problem with the radio wave signal conditions or when the base station is busy. This is not a malfunction (convince the customer that this is not a malfunction and ask them to use the system as is). |

**Result**

| Result | Proceed to |
|---|---|
| Problems other than above occur constantly. | A |

**A**

## 3.INSPECT BATTERY VOLTAGE

a. Measure the battery voltage with the engine switch off.

**Standard Voltage:**
**11 to 14 V**

If the voltage is below 11 V, recharge or replace the battery before proceeding to the next step.

**NEXT**

## 4.CHECK CAN COMMUNICATION SYSTEM*

a. Check for DTC output (Click here).

**Result**

| Result | Proceed to |
|---|---|
| CAN DTC is not output. | A |
| CAN DTC is output. | B |

B. GO TO CAN COMMUNICATION SYSTEM (Click here)

A

## 5.INSPECTION USING "SYSTEM CHECK MODE" SCREEN

a. Perform inspections indicated on the System Check Mode screen to confirm the DCM inspection result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "OK" is displayed in "DCM" on the System Check Mode screen. | A |
| "CHEK" is displayed in "DCM" on the System Check Mode screen. | |
| "EXEH" is displayed in "DCM" on the System Check Mode screen. | |
| "NCON" is displayed in "DCM" on the System Check Mode screen. | B |
| "NRES" is displayed in "DCM" on the System Check Mode screen. | C |

B. GO TO INSPECTION PROCEDURE FOR "NCON" IS DISPLAYED IN "DCM" ON THE SYSTEM CHECK MODE SCREEN (Click here)

C. GO TO INSPECTION PROCEDURE OF "NRES" IS DISPLAYED IN "DCM" ON THE SYSTEM CHECK MODE SCREEN (Click here)

A

## 6.CHECK FOR DTC*

a. Refer to DTC Check/Clear (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is output. | A |
| DTC is not output. | B |

B. Go to step 10

A

## 7.DTC CLEAR*

a. Refer to DTC Check/Clear (Click here).

**HINT:**

The current DTCs may not indicate actual malfunctions depending on the vehicle operating conditions.

NEXT

## 8.RECHECK FOR DTC*

a. Refer to DTC Check/Clear (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is output. | A |
| DTC is not output. | B |

**HINT:**

- **Even if the malfunction symptom is not confirmed, check for DTCs. This is because the system stores history DTCs.**
- **Check the DTCs and inspect the area code indicates.**

| | |
|---|---|
| **B.** | **Go to step 10** |

**A**

## 9.DIAGNOSTIC TROUBLE CODE CHART

a. Find the output code in Diagnostic Trouble Code Chart ( Click here).

**NOTICE:**

- **The navigation system (for HDD) outputs DTCs for the following systems.**
- **When DTCs other than those in Diagnostic Trouble Code Chart for the G-BOOK system are output, refer to Diagnostic Trouble Code Chart for the system.**
- **Audio and visual system (w/ navigation system) ( Click here)**
- **Rear seat entertainment system (w/ rear seat entertainment system) ( Click here)**
- **Navigation system (for HDD) (Click here)**

**Result**

| Result | Proceed to |
|---|---|
| DTCs for the G-BOOK system are output. | A |
| DTCs for the audio and visual system (w/ navigation system) are output. | B |
| DTCs for the rear seat entertainment system (w/ rear seat entertainment system) are output. | C |
| DTCs for the navigation system (for HDD) are output. | D |

| | |
|---|---|
| **A.** | **Go to step 11** |
| **B.** | **GO TO AUDIO AND VISUAL SYSTEM (w/ Navigation System)** |
| **C.** | **GO TO REAR SEAT ENTERTAINMENT SYSTEM** |
| **D.** | **GO TO NAVIGATION SYSTEM (for HDD)** |

## 10.PROBLEM SYMPTOMS TABLE

a. Refer to Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in Problem Symptoms Table. | A |
| Fault is listed in Problem Symptoms Table. | B |

**HINT:**

If the symptom does not recur and no DTC is output, perform the symptom reproduction method ( Click here).

| | |
|---|---|
| **B.** | **Go to step 12** |

**A**

## 11.CHECK ECU TERMINAL ARRANGEMENT BASED ON MALFUNCTION SYMPTOM

a. Refer to Terminals of ECU (Click here).

**NEXT**

**12.CHECK CIRCUIT**

a. Adjust, repair or replace as necessary.

**NOTICE:**

If the display and navigation module display or the telematics transceiver is replaced, perform the vehicle contract setting ( Click here).

**NEXT**

**13.RECHECK FOR DTC**

**HINT:**

After clearing DTCs, recheck for DTCs.

**NEXT**

**14.PERFORM CONFIRMATION TEST**

**NEXT**

**END**

**for Preparation** Click here

**HINT:**

- **Use the following procedure to troubleshoot the G-BOOK system.**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

**NEXT**

## 2.CHECK PROBLEM SYMPTOM

a. The G-BOOK system provides a variety of functions. Therefore, it is important to identify whether a malfunction is related to the communication system including radio wave conditions or any other systems. Carefully confirm the conditions that caused the malfunction in order to determine if a temporary problem with the radio wave caused the malfunction.

| Displayed Message and Problem Symptom | Cause |
|---|---|
| "The lines are busy and it is not possible to display the desired content. Please try again (operate it again) after waiting for a while." is temporarily displayed. | This is caused when there is a problem with the radio wave signal conditions or when the base station is busy. This is not a malfunction (convince the customer that this is not a malfunction and ask them to use the system as is). |
| "The lines are busy and information was not able to be acquired." is temporarily displayed. | This is caused when there is a problem with the radio wave signal conditions or when the base station is busy. This is not a malfunction (convince the customer that this is not a malfunction and ask them to use the system as is). |
| After "Wait for a while." is displayed, the condition that it takes a long time to display the screen occurs temporarily. | This is caused when there is a problem with the radio wave signal conditions or when the base station is busy. This is not a malfunction (convince the customer that this is not a malfunction and ask them to use the system as is). |

**Result**

| Result | Proceed to |
|---|---|
| Problems other than above occur constantly. | A |

**A**

## 3.INSPECT BATTERY VOLTAGE

a. Measure the battery voltage with the engine switch off.

**Standard voltage:**
**11 to 14 V**

If the voltage is below 11 V, recharge or replace the battery before proceeding to the next step.

**NEXT**

## 4.CHECK CAN COMMUNICATION SYSTEM*

a. Check for DTC output (Click here).

**Result**

| Result | Proceed to |
|---|---|
| CAN DTC is not output. | A |
| CAN DTC is output. | B |

B. GO TO CAN COMMUNICATION SYSTEM (Click here)

A

## 5.INSPECTION USING "SYSTEM CHECK MODE" SCREEN

a. Perform inspections indicated on the System Check Mode screen to confirm the DCM inspection result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "OK" is displayed in "DCM" on the System Check Mode screen. | A |
| "CHEK" is displayed in "DCM" on the System Check Mode screen. | |
| "EXEH" is displayed in "DCM" on the System Check Mode screen. | |
| "NCON" is displayed in "DCM" on the System Check Mode screen. | B |
| "NRES" is displayed in "DCM" on the System Check Mode screen. | C |

B. GO TO INSPECTION PROCEDURE FOR "NCON" IS DISPLAYED IN "DCM" ON THE SYSTEM CHECK MODE SCREEN (Click here)

C. GO TO INSPECTION PROCEDURE OF "NRES" IS DISPLAYED IN "DCM" ON THE SYSTEM CHECK MODE SCREEN (Click here)

A

## 6.CHECK FOR DTC*

a. Refer to DTC Check/Clear (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is output. | A |
| DTC is not output. | B |

B. Go to step 10

A

## 7.DTC CLEAR*

a. Refer to DTC Check/Clear (Click here).

**HINT:**

The current DTCs may not indicate actual malfunctions depending on the vehicle operating conditions.

NEXT

## 8.RECHECK FOR DTC*

a. Refer to DTC Check/Clear (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is output. | A |
| DTC is not output. | B |

**HINT:**

- **Even if the malfunction symptom is not confirmed, check for DTCs. This is because the system stores history DTCs.**
- **Check the DTCs and inspect the area code indicates.**

| | |
|---|---|
| **B.** | **Go to step 10** |

**A**

## 9.DIAGNOSTIC TROUBLE CODE CHART

a. Find the output code in Diagnostic Trouble Code Chart ( Click here).

**NOTICE:**

- **The navigation system outputs DTCs for the following systems.**
- **When DTCs other than those in Diagnostic Trouble Code Chart for the G-BOOK system are output, refer to Diagnostic Trouble Code Chart for the system.**
- **Audio and visual system (Click here)**
- **Rear seat entertainment system (for Roof) ( Click here)**
- **Navigation system (Click here)**

**Result**

| Result | Proceed to |
|---|---|
| DTCs for the G-BOOK system are output. | A |
| DTCs for the audio and visual system are output. | B |
| DTCs for the rear seat entertainment system (for Roof) are output. | C |
| DTCs for the navigation system are output. | D |

| | |
|---|---|
| **A.** | **Go to step 11** |
| **B.** | **GO TO AUDIO AND VISUAL SYSTEM (Click here)** |
| **C.** | **GO TO REAR SEAT ENTERTAINMENT SYSTEM (for Roof) ( Click here)** |
| **D.** | **GO TO NAVIGATION SYSTEM (Click here)** |

## 10.PROBLEM SYMPTOMS TABLE

a. Refer to Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in Problem Symptoms Table. | A |
| Fault is listed in Problem Symptoms Table. | B |

**HINT:**

If the symptom does not recur and no DTC is output, perform the symptom reproduction method ( Click here).

| | |
|---|---|
| **B.** | **Go to step 12** |

**A**

## 11.CHECK ECU TERMINAL ARRANGEMENT BASED ON MALFUNCTION SYMPTOM

a. Refer to Terminals of ECU (Click here).

**NEXT**

**12.CHECK CIRCUIT**

a. Adjust, repair or replace as necessary.

**NOTICE:**

If the multi-media module receiver assembly or the telematics transceiver is replaced, perform the vehicle contract setting ( Click here).

**NEXT**

**13.RECHECK FOR DTC**

**HINT:**

After clearing DTCs, recheck for DTCs.

**NEXT**

**14.PERFORM CONFIRMATION TEST**

**NEXT**

**END**

**for Preparation** Click here

## MANUAL MAINTENANCE CHECK

**HINT:**

- **Using the manual maintenance check, it is possible to perform a maintenance check of the G-BOOK device (inspection or repair of the device, or maintenance check after a vehicle repair), confirm if the customer is a registered member (when applying for or canceling the service, or changing the contract details). It is also possible to enable or disable the emergency call service.**
- **The screen illustrations provided are samples only and may be different from actual screens.**

a. Check GPS Reception

i. Check that the GPS mark is displayed on the present location screen.

**HINT:**

The purpose of the manual maintenance check is to confirm that the location information can be sent correctly. Therefore, the manual maintenance check should be performed in a wide-open area where GPS radio waves can be received. Do not perform the check in an area between buildings or in an indoor environment such as a workshop.

b. Perform Manual Maintenance Check

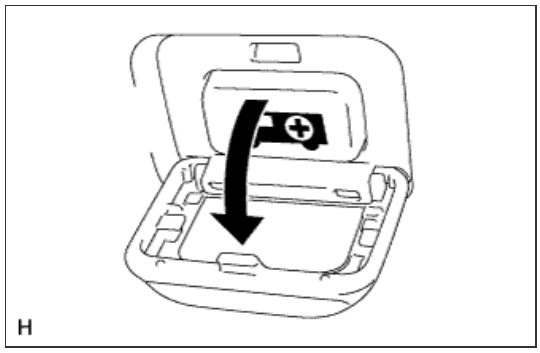
**NOTICE:**

To prevent the accidental summoning of emergency vehicles, make sure to follow the following procedure from the beginning when performing a manual maintenance check.

i. Open the emergency call switch panel cover.

ii. Turn the engine switch off.

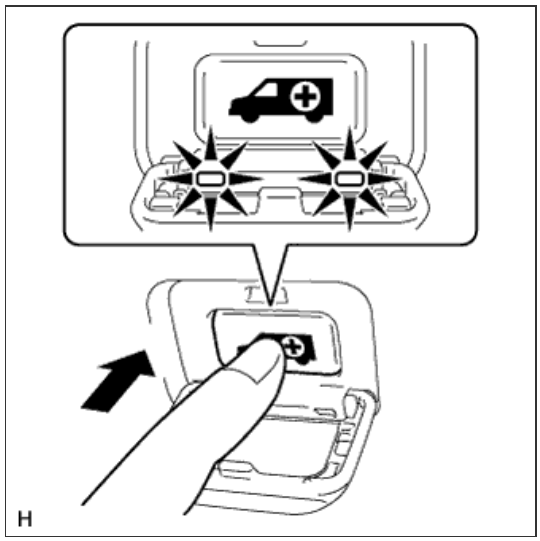
iii. Turn the engine switch on (IG).



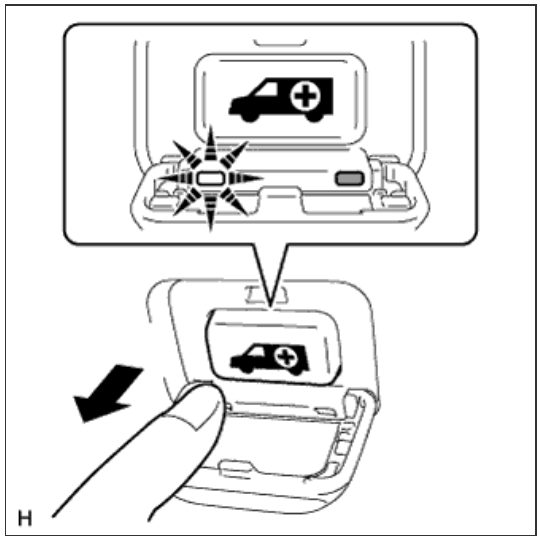

iv. Press and hold about 10 seconds, the emergency call switch immediately after the red and green indicators come on.

**HINT:**

- **Pressing and holding the emergency call switch at this time will cause the system to begin the manual maintenance check without summoning emergency vehicles.**
- **If only the green indicator is illuminated, do not press the emergency call switch, as this will trigger an emergency call and emergency vehicles may be summoned. Return to the first step and begin the procedure again.**



v. After the manual maintenance check starts, the green indicator will start blinking. Release the emergency call switch immediately after the green indicator starts blinking.




vi. The system starts accessing the G-BOOK center.




vii. After connecting to the G-BOOK center, data communication is first performed to confirm where the vehicle is, that a manual maintenance check is being performed, and that the customer is registered to the G-BOOK center.




viii. After data communication is completed, the system enters call mode.




ix. Try to talk to the G-BOOK center operator through the microphone to confirm that a call can be made normally and the call location is correct.

**HINT:**

If the voice quality is poor, or the call location is incorrect, please contact the G-BOOK support center.




x. Finish the manual maintenance check after the call to the G-BOOK center operator ends.

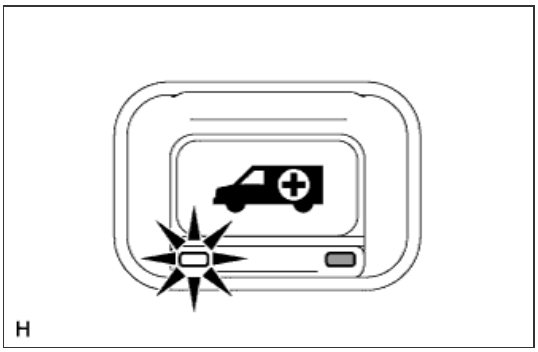
xi. Display the present location screen after finishing the manual maintenance check.




xii. Check that the green indicator is illuminating.

**HINT:**

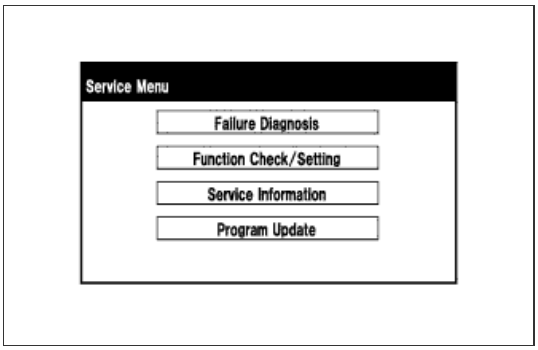
If the manual maintenance check cannot be finished normally, perform the inspections indicated by Problem Symptoms Table (performing the manual maintenance check cannot access the G-BOOK center) (Click here).



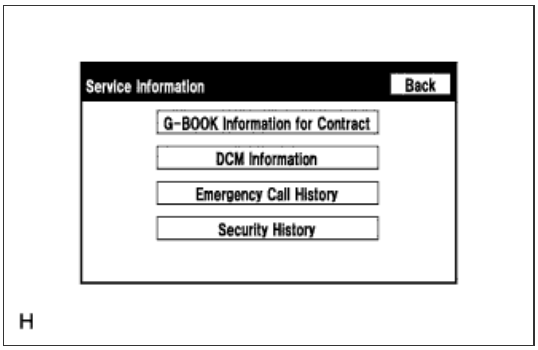

## EMERGENCY CALL HISTORY

a. Enter diagnostic mode (Click here).

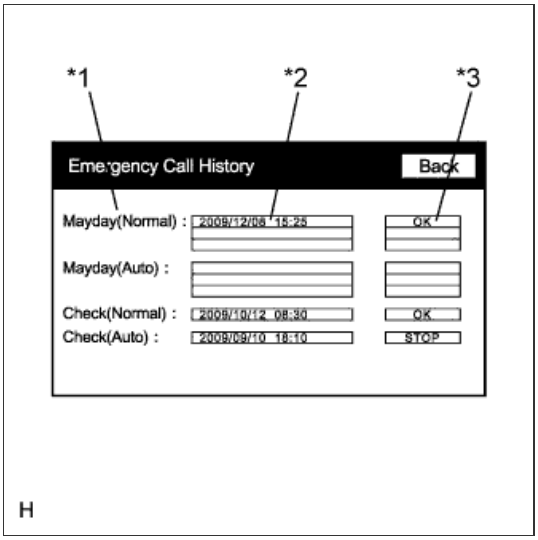
b. Select "Service Information" on the Service Menu screen.




c. Select "Emergency Call History" on the Service Information screen.




d. Emergency Call History




i. Check the call result.

| Display | Content |
|---|---|
| *1: Type of call | Displays the type of call. |
| *2: Time and date of call | Displays the time and date when a call is made in the form of year/month/day hour:minute. |
| *3: Call result | Displays the result of the communication with the G-BOOK center as follows:<br>• "OK": Communication with the center finished normally.<br>• "FAIL": Communication with the center did not finish normally.<br>• "STOP": Communication with the center was interrupted.<br>• "NO CONT": Membership registration has not been performed. |

**OK:**
**"OK" is displayed for the call result of the manual maintenance check.**

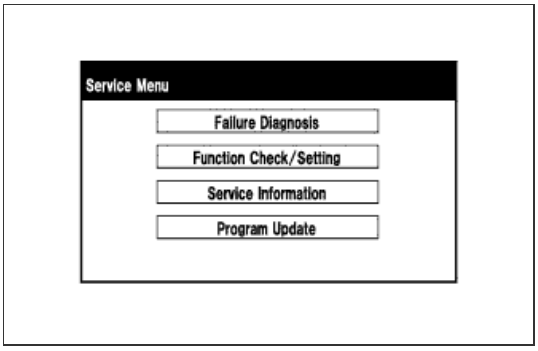
**HINT:**

- **If "FAIL" is displayed, perform a manual maintenance check and confirm that a call can be made normally.**
- **If the manual maintenance check cannot be finished normally, perform the inspections indicated by Problem Symptoms Table (performing the manual maintenance check cannot access the G-BOOK center) (Click here).**

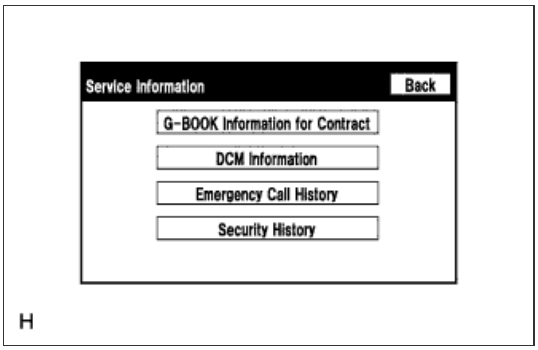
## SECURITY HISTORY

a. Enter diagnostic mode (Click here).

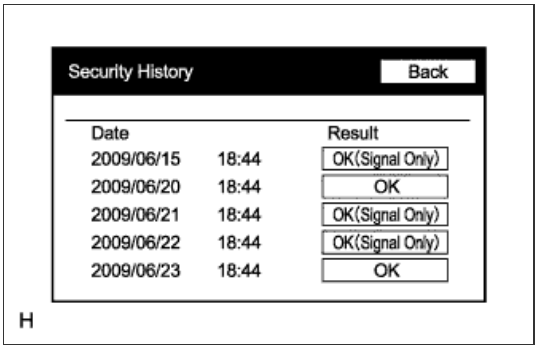
b. Select "Service Information" on the Service Menu screen.




c. Select "Security History" on the Service Information screen.




d. Security History




i. Check the result.

**Displayed Content of Security History Screen**

| Item | Displayed Content |
|---|---|
| Date | Indicates the time and date when the vehicle automatic alarm is activated in the form of year/month/day hour:minute. |
| Result | Displays the result of the call to the G-BOOK center when the vehicle automatic alarm is activated as follows:<br>• "OK (Signal Only)": A security horn sounding signal was received but the call to the center failed.<br>• "OK": A security horn sounding signal was received and the call to the center completed. |

**OK:**

**Either "OK" or "OK (Signal Only)" is displayed after the security horn sounds.**

**HINT:**

- **If neither "OK" nor "OK (Signal Only)" is displayed after the security horn sounds, proceed to the inspection procedure for Security Horn Signal Circuit (Click here).**
- **History will be recorded only for vehicles that have a contract for the G-BOOK service.**

**for Preparation** [Click here]

## MANUAL MAINTENANCE CHECK

**HINT:**

- **Using the manual maintenance check, it is possible to perform a maintenance check of the G-BOOK device (inspection or repair of the device, or maintenance check after a vehicle repair), confirm if the customer is a registered member (when applying for or canceling the service, or changing the contract details). It is also possible to enable or disable the emergency call service.**
- **The screen illustrations provided are samples only and may be different from actual screens.**

a. Check GPS Reception

i. Check that the GPS mark is displayed on the present location screen.

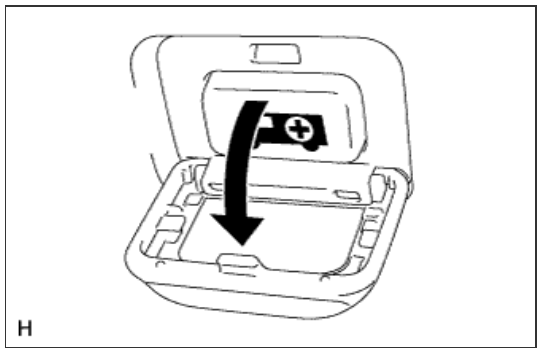
**HINT:**

The purpose of the manual maintenance check is to confirm that the location information can be sent correctly. Therefore, the manual maintenance check should be performed in a wide-open area where GPS radio waves can be received. Do not perform the check in an area between buildings or in an indoor environment such as a workshop.

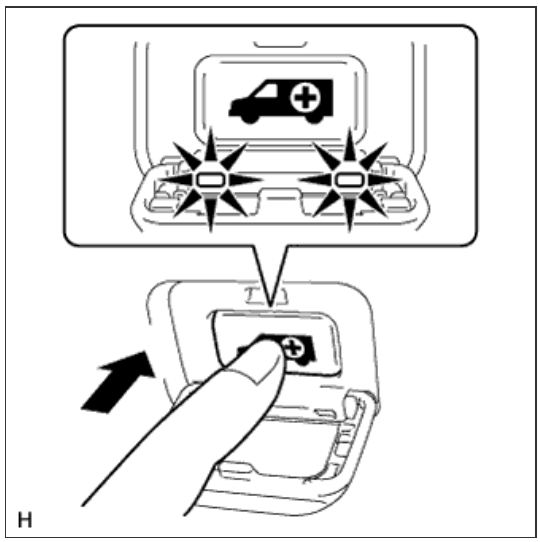
b. Perform Manual Maintenance Check

i. Open the emergency call switch panel cover.

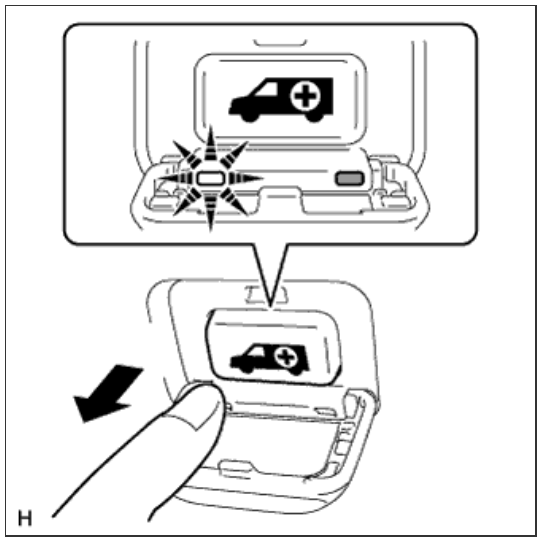
ii. Turn the engine switch on (ACC) or (IG).




iii. Press and hold the emergency call switch immediately after the red and green indicators come on.




iv. After the manual maintenance check starts, the green indicator will start blinking. Release the emergency call switch immediately after the green indicator starts blinking.




v. The system starts accessing the G-BOOK center.




vi. After connecting to the G-BOOK center, data communication is first performed to confirm where the vehicle is, that a manual maintenance check is being performed, and that the customer is registered to the G-BOOK center.




vii. After data communication is completed, the system enters call mode.




viii. Try to talk to the G-BOOK center operator through the microphone to confirm that a call can be made normally and the call location is correct.




ix. Finish the manual maintenance check after the call to the G-BOOK center operator ends.

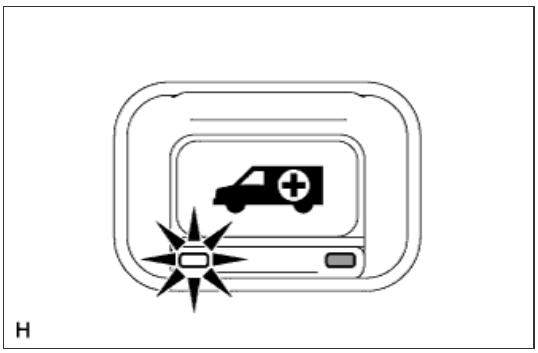
x. Display the present location screen after finishing the manual maintenance check.




xi. Check that the green indicator is illuminating.

**HINT:**

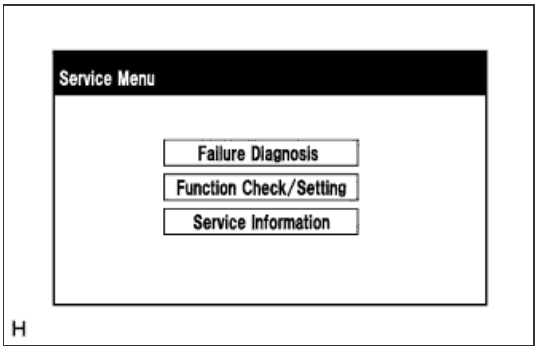
If the manual maintenance check cannot be finished normally, perform the inspections indicated by Problem Symptoms Table (the G-BOOK center cannot be accessed even after a manual maintenance check is performed) (Click here).



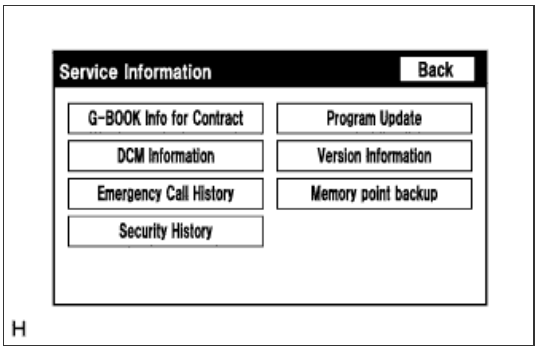
## Emergency Call History

a. Enter diagnostic mode (Click here).

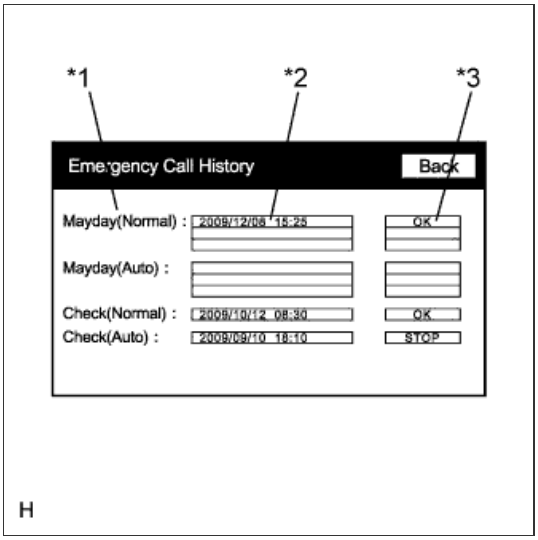
b. Select "Service Information" on the "Service Menu" screen.




c. Select "Emergency Call History" on the "Service Information" screen.




d. Emergency Call History




i. Check the call result.

| Display | Content |
|---|---|
| *1: Type of call | Displays the type of call. |
| *2: Time and date of call | Displays the time and date when a call is made in the form of year/month/day hour:minute. |
| *3: Call result | Displays the result of the communication with the G-BOOK center as follows:<br>• "OK": Communication with the center finished normally.<br>• "FAIL": Communication with the center did not finish normally.<br>• "STOP": Communication with the center was interrupted.<br>• "NO CONT": Membership registration has not been performed. |

**OK:**
**"OK" is displayed for the call result of the manual maintenance check.**

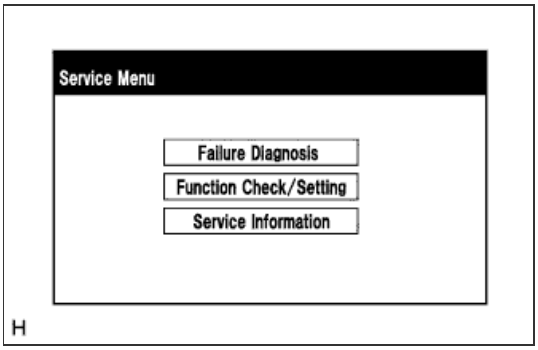
**HINT:**

- **If "FAIL" is displayed, perform a manual maintenance check and confirm that a call can be made normally.**
- **If the manual maintenance check cannot be finished normally, perform the inspections indicated by Problem Symptoms Table (the G-BOOK center cannot be accessed even after a manual maintenance check is performed) (Click here).**

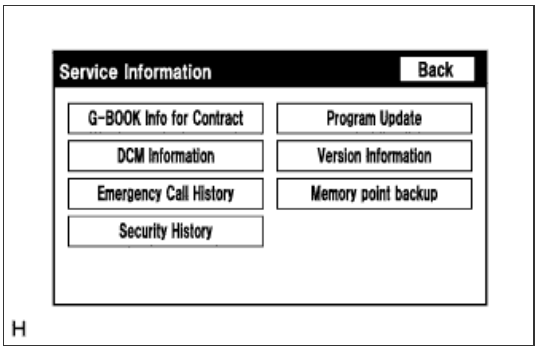
## Security History

a. Enter diagnostic mode (Click here).

b. Select "Service Information" on the "Service Menu" screen.



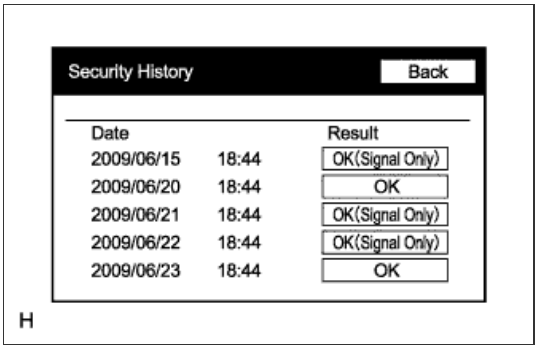
c. Select "Security History" on the "Service Information" screen.




d. Security History

**Displayed Content of Security History Screen**

| Item | Displayed Content |
|---|---|
| Date | Indicates the time and date when the vehicle automatic alarm is activated in the form of year/month/day hour:minute. |
| Result | Displays the result of the call to the G-BOOK center when the vehicle automatic alarm is activated as follows:<br>• "OK (Signal Only)": A security horn sounding signal was received but the call to the center failed.<br>• "OK": A security horn sounding signal was received and the call to the center completed. |




**OK:**

**Either "OK" or "OK (Signal Only)" is displayed after the security horn sounds.**

**HINT:**

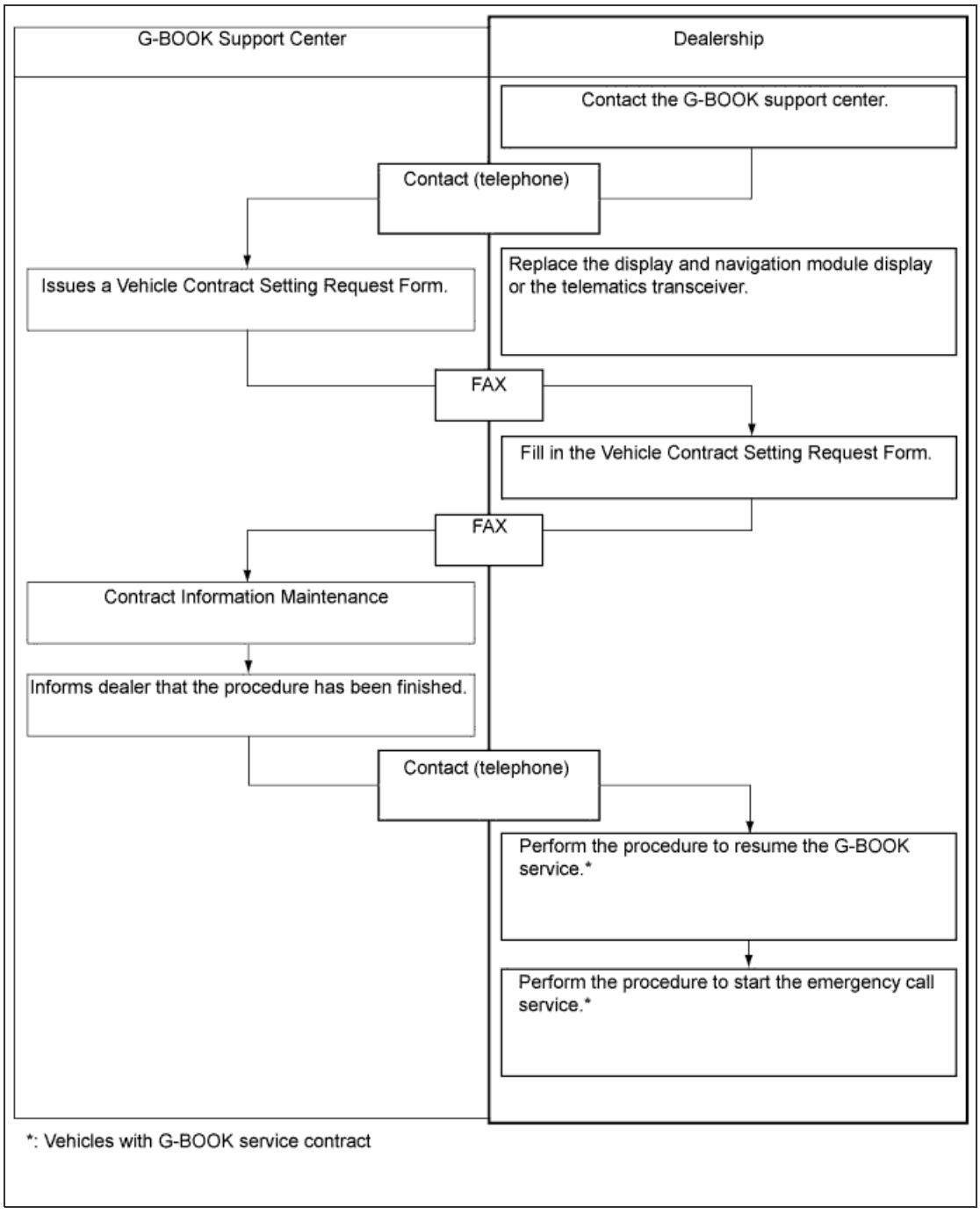
- **If neither "OK" nor "OK (Signal Only)" is displayed after the security horn sounds, proceed to the inspection procedure for Security Horn Signal Circuit (Click here).**
- **History will be recorded only for vehicles that have a contract for the G-BOOK service.**

**for Preparation** Click here

## 1. VEHICLE CONTRACT SETTING

**HINT:**

- **If the display and navigation module display or the telematics transceiver is replaced on vehicles that do not have a contract for the G-BOOK service, perform the vehicle contract setting.**
- **If the display and navigation module display or the telematics transceiver is replaced on vehicles that have a contract for the G-BOOK service, perform the vehicle contract setting and the procedure to resume the G-BOOK service and to start the emergency call service.**




a. Contact the G-BOOK center.

i. Contact the G-BOOK center to inform them that vehicle contract setting will be performed.

**HINT:**

After contacting the G-BOOK center, the center will send a Vehicle Contract Setting Request Form by fax.

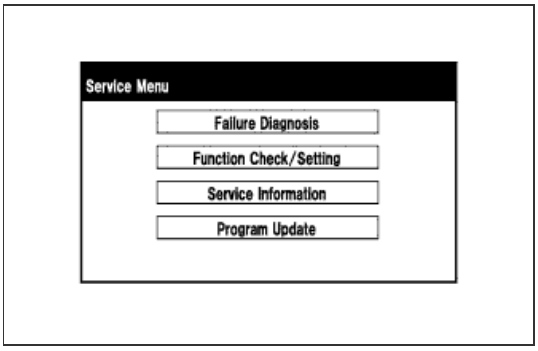
b. Check the ID before replacement (when diagnosis can be activated).

**HINT:**

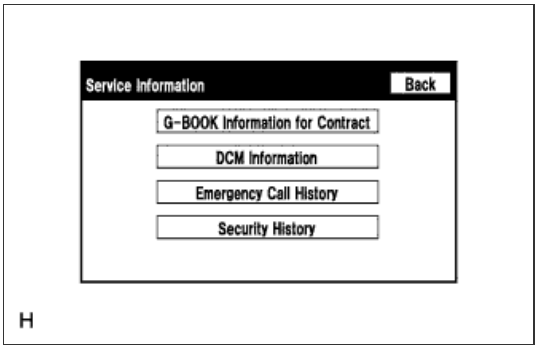
- **If the display and navigation module display is replaced, check the G-BOOK ID.**
- **If the telematics transceiver is replaced, check the DCM ID.**

i. Enter diagnostic mode (Click here).

ii. Select "Service Information" on the Service Menu screen.



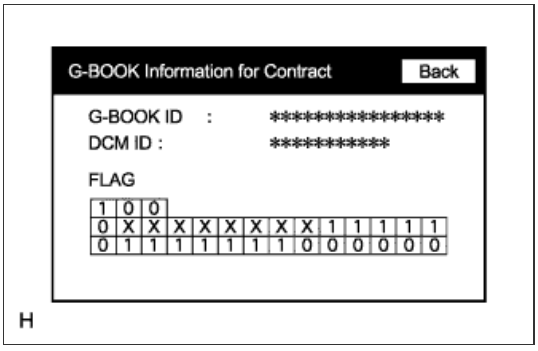

iii. Select "G-BOOK Information for Contract" on the Service Information screen.




iv. Check the G-BOOK ID or DCM ID.

**HINT:**

The DCM ID is also specified on the telematics transceiver label.




c. Replace the display and navigation module display or the telematics transceiver.

i. Replace the display and navigation module display or the telematics transceiver at a dealership.

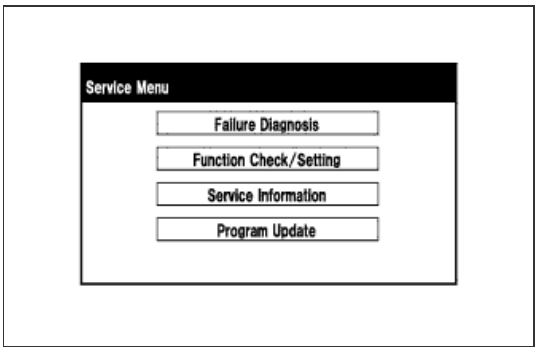
d. Check the ID after replacement.

**HINT:**

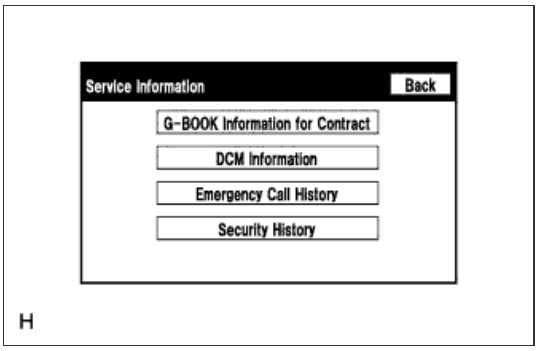
- **If the display and navigation module display is replaced, check the G-BOOK ID.**
- **If the telematics transceiver is replaced, check the DCM ID.**

i. Enter diagnostic mode (Click here).

ii. Select "Service Information" on the Service Menu screen.



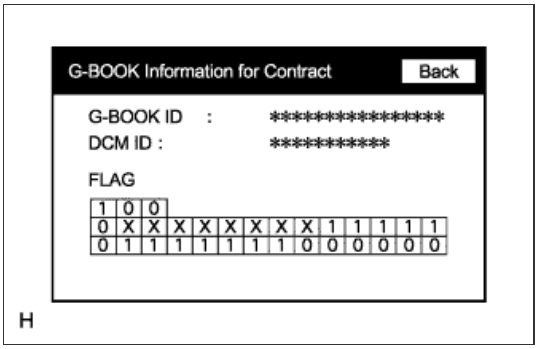

iii. Select "G-BOOK Information for Contract" on the Service Information screen.



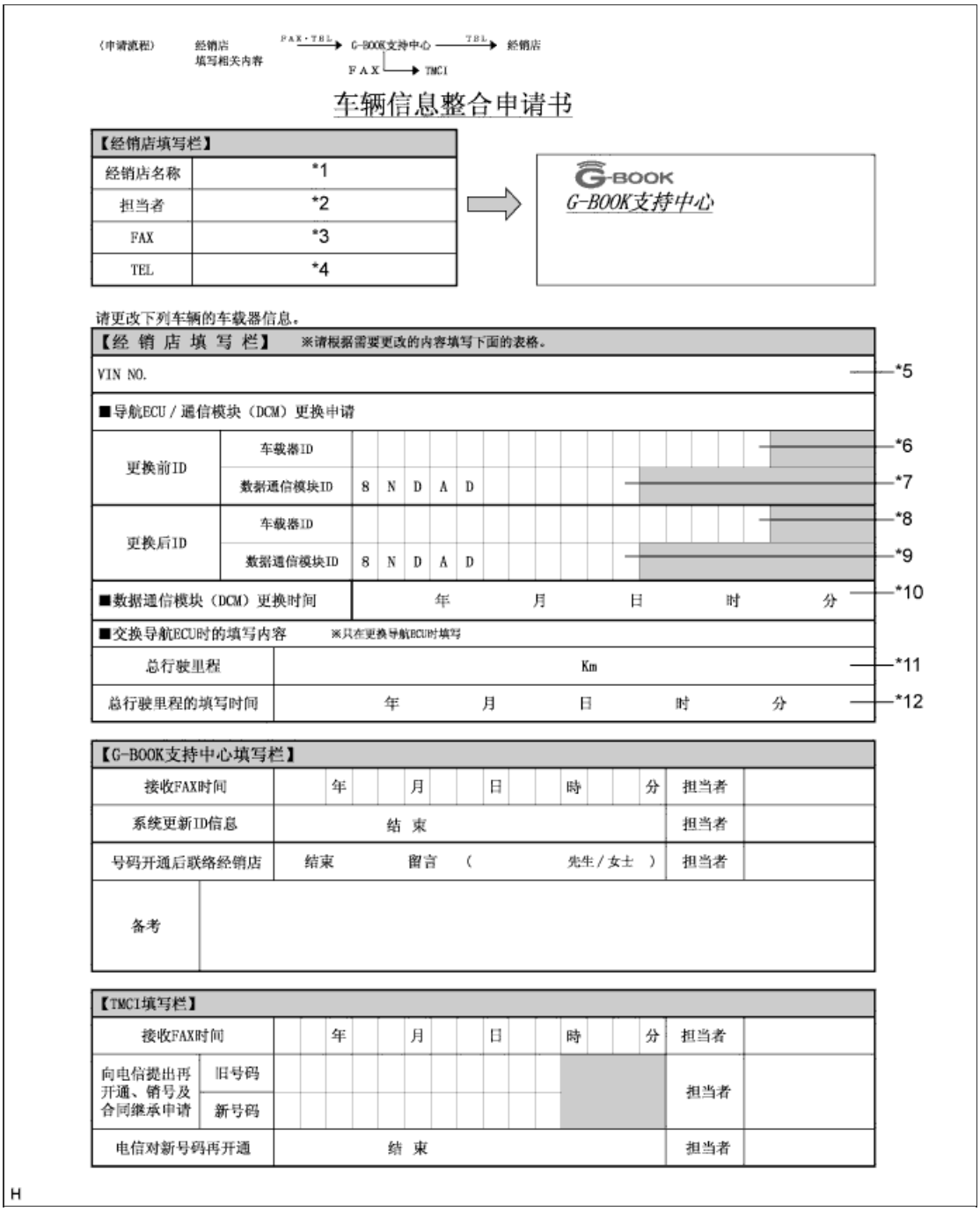

iv. Check the G-BOOK ID or DCM ID.

**HINT:**

The DCM ID is also specified on the telematics transceiver label.




e. Fill-in the Vehicle Contract Setting Request Form.



（申请流程） 经销店 填写相关内容 FAX・TEL G-BOOK支持中心 TEL 经销店 FAX TMCI

车辆信息整合申请书

| 【经销店填写栏】 | |
|---|---|
| 经销店名称 | *1 |
| 担当者 | *2 |
| FAX | *3 |
| TEL | *4 |

G-BOOK G-BOOK支持中心

请更改下列车辆的车载器信息。

| 【经 销 店 填 写 栏】 ※请根据需要更改的内容填写下面的表格。 | | | |
|---|---|---|---|
| VIN NO. | | | *5 |
| ■导航ECU / 通信模块（DCM）更换申请 | | | |
| 更换前ID | 车载器ID | | *6 |
| | 数据通信模块ID | 8 N D A D | *7 |
| 更换后ID | 车载器ID | | *8 |
| | 数据通信模块ID | 8 N D A D | *9 |
| ■数据通信模块（DCM）更换时间 | | 年 月 日 时 分 | *10 |
| ■交换导航ECU时的填写内容 ※只在更换导航ECU时填写 | | | |
| 总行驶里程 | | Km | *11 |
| 总行驶里程的填写时间 | | 年 月 日 时 分 | *12 |

| 【G-BOOK支持中心填写栏】 | | | |
|---|---|---|---|
| 接收FAX时间 | 年 月 日 時 分 | 担当者 | |
| 系统更新ID信息 | 结 束 | 担当者 | |
| 号码开通后联络经销店 | 结束 留言 （ 先生 / 女士 ） | 担当者 | |
| 备考 | | | |

| 【TMCI填写栏】 | | | | |
|---|---|---|---|---|
| 接收FAX时间 | | 年 月 日 時 分 | 担当者 | |
| 向电信提出再开通、销号及合同继承申请 | 旧号码 | | 担当者 | |
| | 新号码 | | | |
| 电信对新号码再开通 | | 结 束 | 担当者 | |

H

i. After filling in the Vehicle Contract Setting Request Form, send it back to the G-BOOK center.

| Item | Information to Enter | Note |
|---|---|---|
| *1 | Enter the dealership name of the applicant. | Applicant information |
| *2 | Enter the name of the applicant. | Applicant information |
| *3 | Enter the fax number of the dealership. | Applicant information |
| *4 | Enter the phone number of the dealership. | Applicant information |
| *5 | Enter the VIN of the vehicle. | Vehicle information |
| *6 | • Enter the G-BOOK ID of the old unit.<br>• Left-align the number.<br>• If the display and navigation module display is not being replaced, it is not necessary to enter this item. | Used as change-request information from the dealership |
| *7 | • Enter the DCM ID of the old unit.<br>• Left-align the number.<br>• If the telematics transceiver is not being replaced, it is not necessary to enter this item. | Used as change-request information from the dealership |
| *8 | • Enter the G-BOOK ID of the new unit installed to the vehicle.<br>• Left-align the number.<br>• If the display and navigation module display is | Used as change-request information from the dealership |

| | | |
|---|---|---|
| | not being replaced, it is not necessary to enter this item. | |
| *9 | • Enter the DCM ID of the new unit installed to the vehicle.<br>• Left-align the number.<br>• If the telematics transceiver is not being replaced, it is not necessary to enter this item. | Used as change-request information from the dealership |
| *10 | • Enter the date when the telematics transceiver is replaced.<br>• If the telematics transceiver is not being replaced, it is not necessary to enter this item. | Used as change-request information from the dealership |
| *11 | Enter the mileage on the odometer when the display and navigation module display is replaced. | Used as change-request information from the dealership |
| *12 | Enter the date that the mileage was recorded. | Used as change-request information from the dealership |

f. Perform the procedure to resume the G-BOOK service.

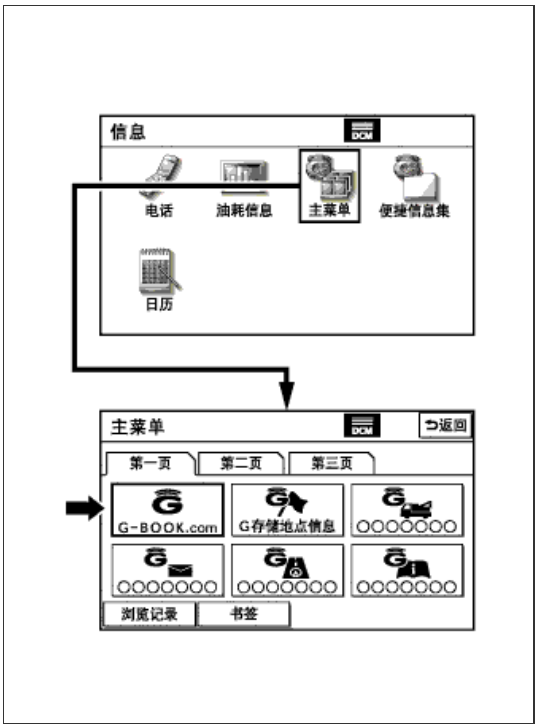
**HINT:**

The screen illustrations provided are samples only and may be different from actual screens.

i. Perform the operations shown in the illustration and select G-BOOK.com.

ii. Check that G-BOOK.com is displayed.

iii. After the guidance screen is displayed, perform the procedure to resume the G-BOOK service by following the instructions on the screen.




g. Perform the procedure to start the emergency call service.

i. After completing the procedure to resume the G-BOOK service, perform the procedure to start the emergency call service by following the instructions on the screen.

**HINT:**

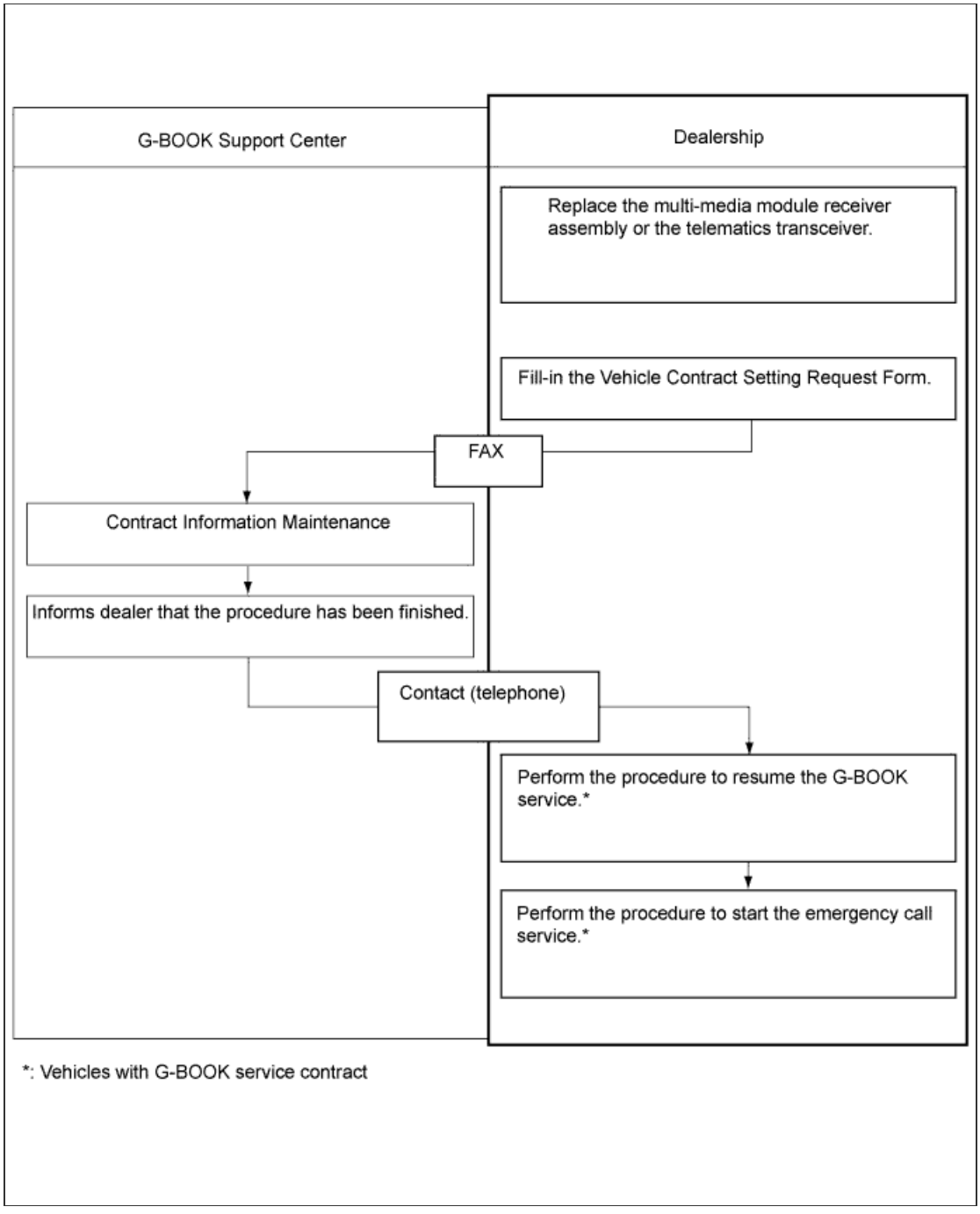
The emergency call service will be available when the procedure is completed successfully.

**for Preparation** Click here

## 1. VEHICLE CONTRACT SETTING

**HINT:**

- **When replacing the multi-media module receiver assembly or telematics transceiver, it is not necessary to cancel the G-BOOK contract. (If cancelled a new G-BOOK contract needs to be created after replacement.)**
- **If the multi-media module receiver assembly or the telematics transceiver is replaced on vehicles that do not have a contract for the G-BOOK service, perform the vehicle contract setting.**
- **If the multi-media module receiver assembly or the telematics transceiver is replaced on vehicles that have a contract for the G-BOOK service, perform the vehicle contract setting and the procedure to resume the G-BOOK service and to start the emergency call service.**



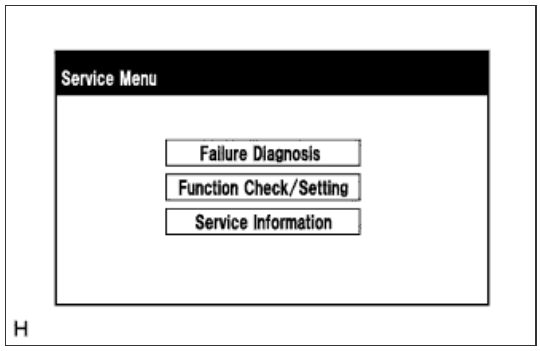
a. Check the ID before replacement (when diagnosis can be activated).

**HINT:**

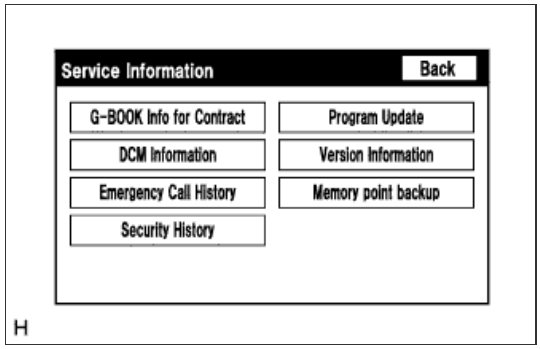
- **If the multi-media module receiver assembly is replaced, check the G-BOOK ID.**
- **If the telematics transceiver is replaced, check the DCM ID.**

i. Enter diagnostic mode (Click here).

ii. Select "Service Information" on the Service Menu screen.



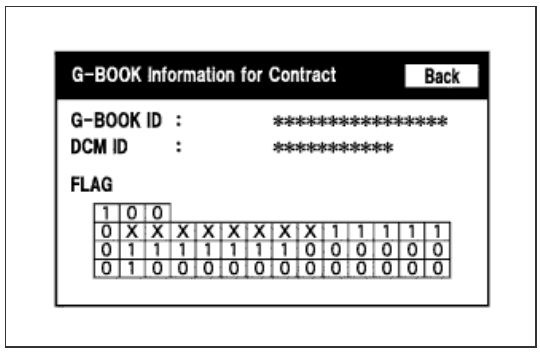

iii. Select "G-BOOK Information for Contract" on the Service Information screen.




iv. Check the G-BOOK ID or DCM ID.

**HINT:**

The DCM ID is also specified on the telematics transceiver label.




b. Replace the multi-media module receiver assembly or the telematics transceiver.

i. Replace the multi-media module receiver assembly or the telematics transceiver at a dealership.

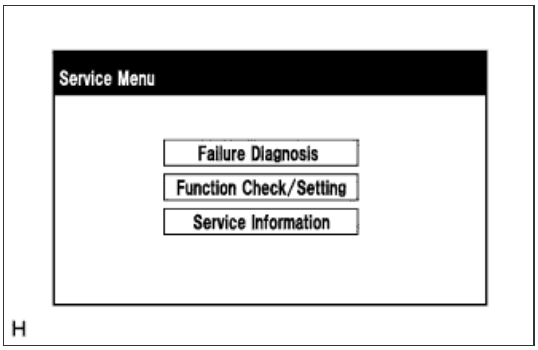
c. Check the ID after replacement.

**HINT:**

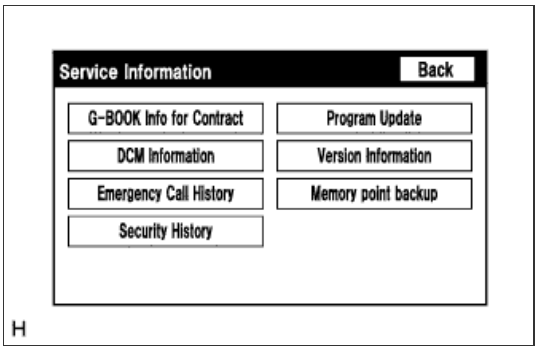
- **If the multi-media module receiver assembly is replaced, check the G-BOOK ID.**
- **If the telematics transceiver is replaced, check the DCM ID.**

i. Enter diagnostic mode (Click here).

ii. Select "Service Information" on the Service Menu screen.



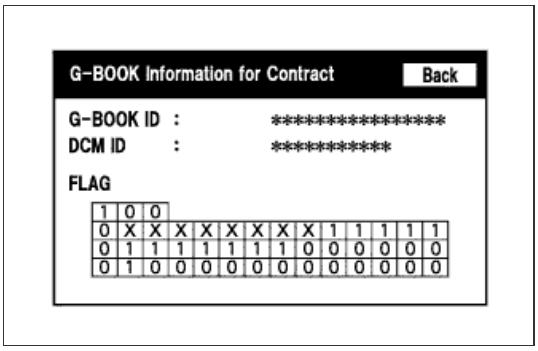

iii. Select "G-BOOK Information for Contract" on the Service Information screen.



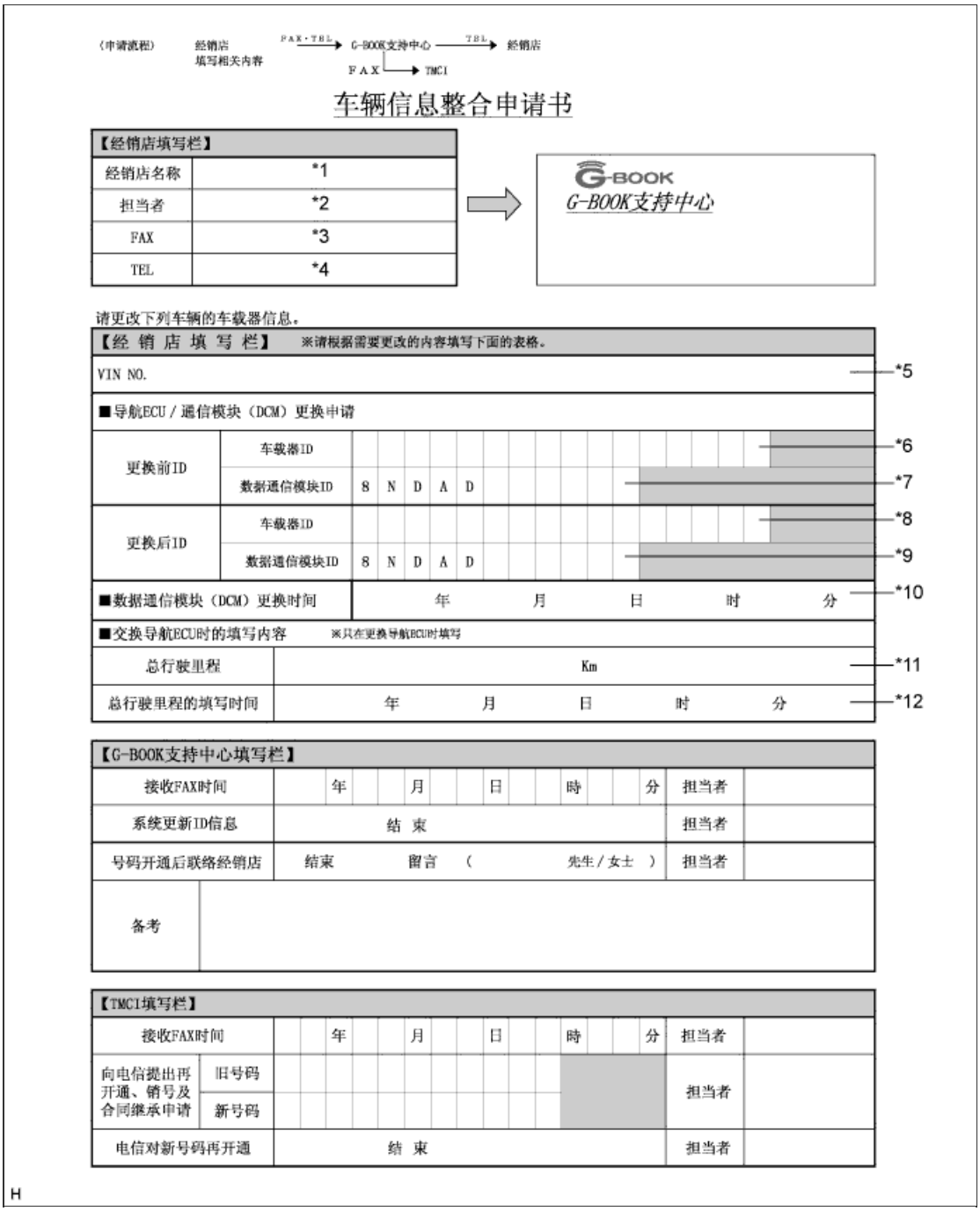

iv. Check the G-BOOK ID or DCM ID.

**HINT:**

The DCM ID is also specified on the telematics transceiver label.




d. Fill-in the Vehicle Contract Setting Request Form.



（申请流程） 经销店 填写相关内容 FAX・TEL → G-BOOK支持中心 → TEL 经销店
FAX → TMCI

车辆信息整合申请书

| 【经销店填写栏】 | |
|---|---|
| 经销店名称 | *1 |
| 担当者 | *2 |
| FAX | *3 |
| TEL | *4 |

G-BOOK
G-BOOK支持中心

请更改下列车辆的车载器信息。

| 【经 销 店 填 写 栏】 ※请根据需要更改的内容填写下面的表格。 | | | |
|---|---|---|---|
| VIN NO. | | | *5 |
| ■导航ECU / 通信模块（DCM）更换申请 | | | |
| 更换前ID | 车载器ID | | *6 |
| | 数据通信模块ID | 8 N D A D | *7 |
| 更换后ID | 车载器ID | | *8 |
| | 数据通信模块ID | 8 N D A D | *9 |
| ■数据通信模块（DCM）更换时间 | | 年 月 日 时 分 | *10 |
| ■交换导航ECU时的填写内容 | ※只在更换导航ECU时填写 | | |
| 总行驶里程 | | Km | *11 |
| 总行驶里程的填写时间 | | 年 月 日 时 分 | *12 |

| 【G-BOOK支持中心填写栏】 | | | |
|---|---|---|---|
| 接收FAX时间 | 年 月 日 時 分 | 担当者 | |
| 系统更新ID信息 | 结 束 | 担当者 | |
| 号码开通后联络经销店 | 结束 留言 （ 先生 / 女士 ） | 担当者 | |
| 备考 | | | |

| 【TMCI填写栏】 | | | | |
|---|---|---|---|---|
| 接收FAX时间 | | 年 月 日 時 分 | 担当者 | |
| 向电信提出再开通、销号及合同继承申请 | 旧号码 | | 担当者 | |
| | 新号码 | | | |
| 电信对新号码再开通 | | 结 束 | 担当者 | |

H

i. After filling in the Vehicle Contract Setting Request Form, fax it to the G-BOOK center.

| Item | Information to Enter | Note |
|---|---|---|
| *1 | Enter the dealership name of the applicant. | Applicant information |
| *2 | Enter the name of the applicant. | Applicant information |
| *3 | Enter the fax number of the dealership. | Applicant information |
| *4 | Enter the phone number of the dealership. | Applicant information |
| *5 | Enter the VIN of the vehicle. | Vehicle information |
| *6 | • Enter the G-BOOK ID of the old unit.<br>• Left-align the number.<br>• If the multi-media module receiver assembly is not being replaced, it is not necessary to enter this item. | Used as change-request information from the dealership |
| *7 | • Enter the DCM ID of the old unit.<br>• Left-align the number.<br>• If the telematics transceiver is not being replaced, it is not necessary to enter this item. | Used as change-request information from the dealership |
| *8 | • Enter the G-BOOK ID of the new unit installed to the vehicle.<br>• Left-align the number.<br>• If the multi-media module receiver assembly is | Used as change-request information from the dealership |

| | | |
|---|---|---|
| | not being replaced, it is not necessary to enter this item. | |
| *9 | • Enter the DCM ID of the new unit installed to the vehicle.<br>• Left-align the number.<br>• If the telematics transceiver is not being replaced, it is not necessary to enter this item. | Used as change-request information from the dealership |
| *10 | • Enter the date when the telematics transceiver is replaced.<br>• If the telematics transceiver is not being replaced, it is not necessary to enter this item. | Used as change-request information from the dealership |
| *11 | Enter the mileage on the odometer when the multi-media module receiver assembly is replaced. | Used as change-request information from the dealership |
| *12 | Enter the date that the mileage was recorded. | Used as change-request information from the dealership |

e. Perform the procedure to resume the G-BOOK service.

**HINT:**

The screen illustrations provided are samples only and may be different from actual screens.

i. Perform the operations shown in the illustration and select G-BOOK.com.

ii. Check that G-BOOK.com is displayed.

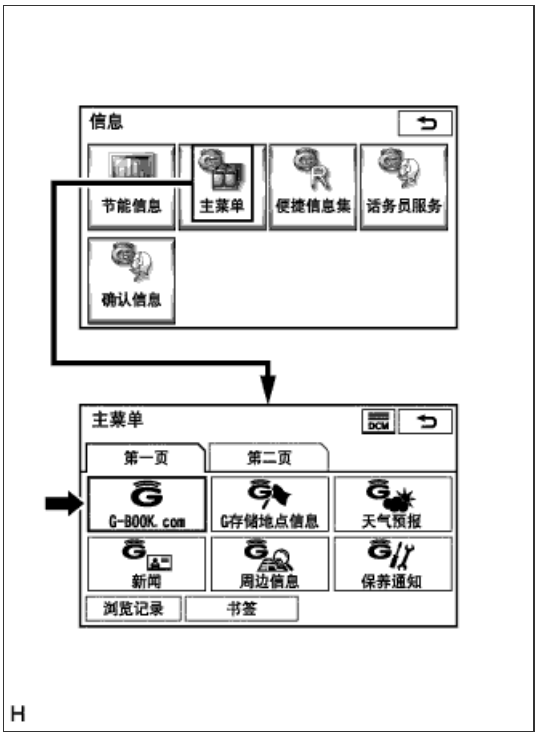
iii. After the guidance screen is displayed, perform the procedure to resume the G-BOOK service by following the instructions on the screen.

f. Perform the procedure to start the emergency call service.

i. After completing the procedure to resume the G-BOOK service, perform the procedure to start the emergency call service by following the instructions on the screen.

**HINT:**

The emergency call service will be available when the procedure is completed successfully.



H

**for Preparation** [Click here]

**Perform "Download necessary data".**

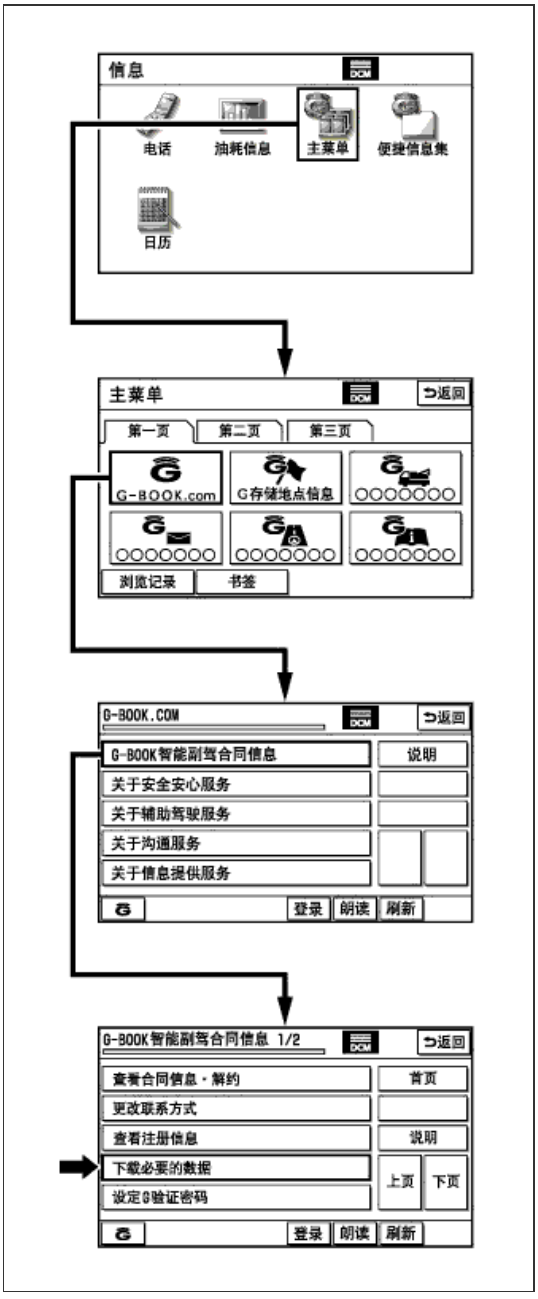
**HINT:**

If the hard disk drive is replaced on vehicles that have a contract for the G-BOOK service, perform "Download necessary data" after installing the new hard disk drive.

a. Perform the operations shown in the illustration and select "Download necessary data".

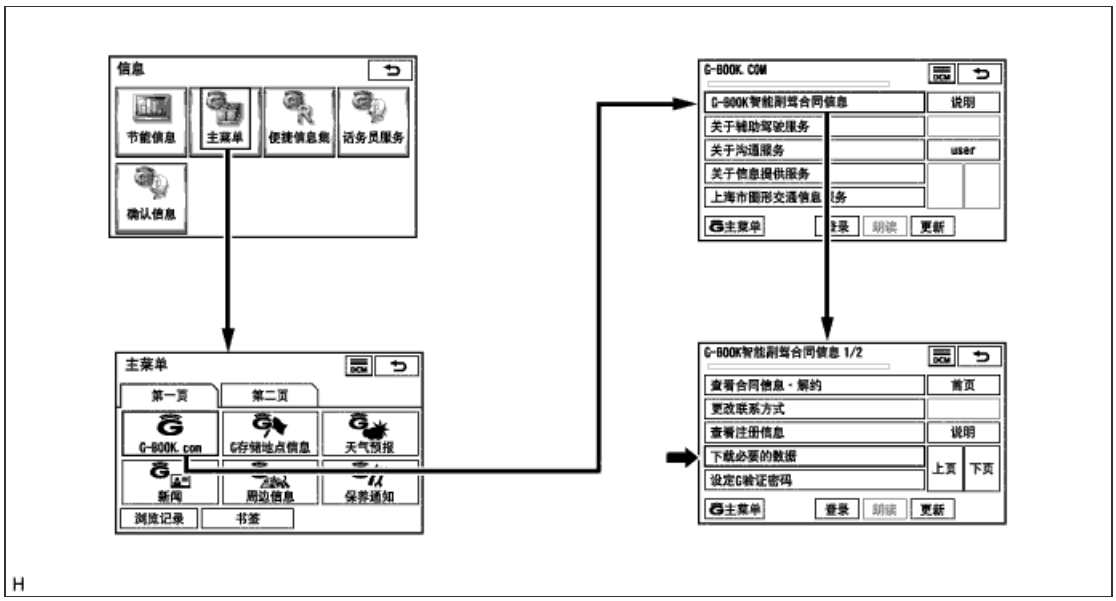
**HINT:**

The screen illustrations provided are samples only and may be different from actual screens.



**for Preparation** Click here

## PERFORM "DOWNLOAD NECESSARY DATA"




**HINT:**

If the hard disc is replaced on vehicles that have a contract for the G-BOOK service, perform "Download necessary data" after installing the new hard disc.

a. Perform the operations shown in the illustration and select "Download necessary data".

**HINT:**

The screen illustrations provided are samples only and may be different from actual screens.

**for Preparation** Click here

**HINT:**

- **Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**
- **Inspect the fuses and relays related to this system before inspecting the suspected areas below.**

**G-BOOK On-screen Message**

| Symptom | Suspected Area | See page |
|---|---|---|
| After "Wait for a while." is displayed, the condition that it takes a long time to display the screen occurs temporarily. | This is caused when there is a problem with the radio wave signal conditions or when the base station is busy. This is not a malfunction (convince the customer that this is not a malfunction and ask them to use the system as is). | - |
| "The lines are busy. Operate it after waiting for a while." is displayed. | Telephone calls are being restricted by the communication provider. Explain to the customer that they need to wait for a while before using the service. | - |
| "The lines are busy and it is not possible to display the desired content. Please try again (operate it again) after waiting for a while." is temporarily displayed. | This is caused when there is a problem with the radio wave signal conditions or when the base station is busy. This is not a malfunction (convince the customer that this is not a malfunction and ask them to use the system as is). | - |
| "The lines are busy and it is not possible to display the desired content. Please try again (operate it again) after waiting for a while." remains displayed. | Proceed to "Communication Access Failed". | Click here |
| "The lines are busy and information was not able to be acquired." is displayed. | Wait for a while and perform the operation again in a different location. | - |
| | Proceed to "Communication Access Failed". | Click here |
| "The lines are shut off and information was not able to be acquired." is displayed. | Proceed to "Communication Access Failed". | Click here |
| "Information was not able to be acquired." is displayed. | Proceed to "Communication Access Failed". | Click here |
| "Communication in preparation now. Wait for a while." is displayed. | The system is trying to detect the telematics transceiver. Wait for a while and perform the operation again. | - |
| | Proceed to "Telematics Transceiver Malfunction". | Click here |
| "No response from the communication module. G-BOOK service is not available now." is displayed. | Proceed to "Telematics Transceiver Malfunction". | Click here |
| "Outside the telephone call area. Move to the telephone call area and use it." is displayed. | Wait for a while and perform the operation again in a different location (within the communication service area). | - |
| | Proceed to "Communication Access Failed". | Click here |
| "Because the time data is old, it is not possible to communicate. Receive GPS." is displayed. | Proceed to Problem Symptoms Table (GPS mark is not displayed) of the Navigation System (for HDD) section. | Click here |
| | If the GPS mark is displayed, wait for a while and perform the operation again in a different location. | - |
| | If the problem symptom is duplicated, replace the display and navigation module display. | Click here |
| "This service is not available because the microphone is not connected." is displayed. | Proceed to "Microphone Circuit between Microphone and Navigation ECU" of the Navigation System (for HDD) section. | Click here |
| "Could not be registered to the bookmark." is displayed when registering a bookmark. | Explain to the customer that this operation is not possible in a cold environment (-20°C (-4°F) or less) and they need to wait until the cabin temperature rises. | - |
| | Proceed to Operation Check - Check Hard Disk Drive of the Navigation System (for HDD) section. | Click here |
| "Could not be deleted." is displayed when deleting a bookmark. | Explain to the customer that this operation is not possible in a cold environment (-20°C (-4°F) or less) and they need to wait until the cabin temperature rises. | - |
| | Proceed to Operation Check - Check Hard Disk Drive of the Navigation System (for HDD) section. | Click here |
| "Could not be renewed." is displayed when editing a bookmark. | Explain to the customer that this operation is not possible in a cold environment (-20°C (-4°F) or less) and they need to wait until the cabin temperature rises. | - |
| | Proceed to Operation Check - Check Hard Disk Drive of the Navigation System (for HDD) section. | Click here |
| | Explain to the customer that this operation is not possible in a cold environment (- | |

| | | |
|---|---|---|
| "Could not be edited." is displayed when editing a fixed phrase. | 20°C (-4°F) or less) and they need to wait until the cabin temperature rises. | - |
| | Proceed to Operation Check - Check Hard Disk Drive of the Navigation System (for HDD) section. | Click here |
| "Could not be deleted." is displayed when deleting the input history. | Explain to the customer that this operation is not possible in a cold environment (-20°C (-4°F) or less) and they need to wait until the cabin temperature rises. | - |
| | Proceed to Operation Check - Check Hard Disk Drive of the Navigation System (for HDD) section. | Click here |

### G-BOOK Announcement Sound

| Symptom | Suspected Area | See page |
|---|---|---|
| G-BOOK announcement sound is not output. | Adjust the volume by referring to the owner's manual. G-BOOK announcement sound is not linked with the audio volume. | - |

### Contract

| Symptom | Suspected Area | See page |
|---|---|---|
| "Communication needs to be initialized. Proceed to G-BOOK.com on the Main Menu screen to initialize." is displayed. | Explain to the customer that a procedure is necessary to use the G-BOOK service. Ask the customer to perform the procedure by referring to the owner's manual. | - |
| "G-BOOK contract is needed. Ask a dealership how to apply for the G-BOOK service." is displayed. | Fill in the vehicle contract setting request form and contact the G-BOOK support center. | - |

### Emergency Call Service On-screen Message

| Symptom | Suspected Area | See page |
|---|---|---|
| "Please note that this service is not available now." is displayed. | Proceed to "G-BOOK Service cannot be Used". | Click here |
| "Contract is not completed for this service. Complete the contract before use." is displayed. | Proceed to "G-BOOK Service cannot be Used". | Click here |
| "Emergency call service is not available because the procedure to start the service has not been performed." is displayed. | Proceed to "G-BOOK Service cannot be Used". | Click here |

### Emergency Call Service Indicator Display Problem

| Symptom | Suspected Area | See page |
|---|---|---|
| The indicator lights on the emergency call switch panel do not come on when the engine switch is turned on (ACC). | Check that G-BOOK contract and procedure to start the emergency call service have been completed successfully. | - |
| | Proceed to "Emergency Call Switch Indicator Circuit". | Click here |
| Illumination on the emergency call switch panel does not turn on. | Proceed to "Emergency Call Switch Illumination Circuit". | Click here |
| The red indicator light on the emergency call switch panel comes on after the engine switch is turned on (ACC). | The vehicle is outside the communication service area. Move the vehicle to a communication service area. | - |
| The red indicator light on the emergency call switch panel blinks after the engine switch is turned on (ACC). | Check for DTCs. | Click here |
| Turning the engine switch on (ACC) will cause a manual maintenance check to start. | Proceed to DTC B15C5. | Click here |
| The red indicator light on the emergency call switch panel does not blink after the engine switch is turned on (ACC), but it blinks after the hybrid system is started and the vehicle is driven. | Proceed to DTC B15C6. | Click here |

### Emergency Call Service Function

| Symptom | Suspected Area | See page |
|---|---|---|
| The G-BOOK center cannot be accessed even after a manual maintenance check is performed. | Check that the G-BOOK service is available. | - |
| | Proceed to "Communication Access Failed". | Click here |
| The automatic maintenance check does not complete normally. | Perform a manual maintenance check. If it does not complete normally, refer to "The G-BOOK center cannot be accessed even after a manual maintenance check is performed". | - |
| The G-BOOK center cannot be accessed by pressing the emergency call switch. | Perform a manual maintenance check. If it does not complete normally, refer to "The G-BOOK center cannot be accessed even after a manual maintenance check is performed". | - |

### Warning Notification Function

| Symptom | Suspected Area | See page |
|---|---|---|
| The multi-display does not show a warning message even though a warning light turns on and the multi-information display indicates a warning. | Proceed to "Warning Notification Function Malfunction". | Click here |
| The multi-display shows a warning message even though a warning light is not on and the multi-information display does not indicate a warning. | Proceed to "Warning Notification Function Malfunction". | Click here |
| The multi-display shows a warning message different from the warning light or the multi-information display. | Proceed to "Warning Notification Function Malfunction". | Click here |
| The same warning notification is repeated. | Proceed to "Warning Notification Function Malfunction". | Click here |

### Alarm Notification Function

| Symptom | Suspected Area | See page |
|---|---|---|
| When the vehicle automatic alarm is activated, the G-BOOK center is not informed of the alarm. | Proceed to "Security History". | Click here |
| | Check CAN communication system. | Click here |
| | Proceed to Security Horn Circuit of the Theft Deterrent System section. | Click here |
| | Proceed to "Telematics Transceiver Malfunction". | Click here |

### My Request On-screen Message

| Symptom | Suspected Area | See page |
|---|---|---|
| "Please note that this service is not available now." is displayed. | Proceed to "G-BOOK Service cannot be Used". | Click here |
| "Contract is not completed for this service. Complete the contract before use." is displayed. | Proceed to "G-BOOK Service cannot be Used". | Click here |

### Operator Service Function

| Symptom | Suspected Area | See page |
|---|---|---|
| When using the operator service, the other caller's voice cannot be heard. | Check if the navigation voice guidance is output normally. If not, refer to Navigation System (for HDD). | Click here |
| | Proceed to "Received Voice Signal Circuit". | Click here |
| When using the operator service, noise occurs in the transmitted voice (caller's voice). | Proceed to "Transmitted Voice Signal Circuit". | Click here |
| When using the operator service, voice cannot be transmitted (the other caller cannot hear the caller's voice). | Proceed to "Transmitted Voice Signal Circuit". | Click here |

**for Preparation** Click here

**HINT:**

- **Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**
- **Inspect the fuses and relays related to this system before inspecting the suspected areas below.**

**G-BOOK On-screen Message**

| Symptom | Suspected Area | See page |
|---|---|---|
| After "Wait for a while." is displayed, the condition that it takes a long time to display the screen occurs temporarily. | This is caused when there is a problem with the radio wave signal conditions or when the base station is busy. This is not a malfunction (convince the customer that this is not a malfunction and ask them to use the system as is). | - |
| "The lines are busy. Operate it after waiting for a while." is displayed. | Telephone calls are being restricted by the communication provider. Explain to the customer that they need to wait for a while before using the service. | - |
| "The lines are busy and it is not possible to display the desired content. Please try again (operate it again) after waiting for a while." is temporarily displayed. | This is caused when there is a problem with the radio wave signal conditions or when the base station is busy. This is not a malfunction (convince the customer that this is not a malfunction and ask them to use the system as is). | - |
| "The lines are busy and it is not possible to display the desired content. Please try again (operate it again) after waiting for a while." remains displayed. | Proceed to "Communication Access Failed". | Click here |
| "The lines are busy and information was not able to be acquired." is displayed. | Wait for a while and perform the operation again in a different location. | - |
| | Proceed to "Communication Access Failed". | Click here |
| "The lines are shut off and information was not able to be acquired." is displayed. | Proceed to "Communication Access Failed". | Click here |
| "Information was not able to be acquired." is displayed. | Proceed to "Communication Access Failed". | Click here |
| "Communication in preparation now. Wait for a while." is displayed. | The system is trying to detect the telematics transceiver. Wait for a while and perform the operation again. | - |
| | Proceed to "Telematics Transceiver Malfunction". | Click here |
| "No response from the communication module. G-BOOK service is not available now." is displayed. | Proceed to "Telematics Transceiver Malfunction". | Click here |
| "Outside the telephone call area. Move to the telephone call area and use it." is displayed. | Wait for a while and perform the operation again in a different location (within the communication service area). | - |
| | Proceed to "Communication Access Failed". | Click here |
| "Because the time data is old, it is not possible to communicate. Receive GPS." is displayed. | Proceed to Problem Symptoms Table (GPS mark is not displayed) of the Navigation System section. | Click here |
| | If the GPS mark is displayed, wait for a while and perform the operation again in a different location. | - |
| | If the problem symptom is duplicated, replace the multi-media module receiver assembly. | Click here |
| "This service is not available because the microphone is not connected." is displayed. | Proceed to "Microphone Circuit between Microphone and Radio Receiver" of the Navigation System section. | Click here |
| "Could not be registered to the bookmark." is displayed when registering a bookmark. | Proceed to Operation Check - Check Hard Disk Drive of the Navigation System section. | Click here |
| | Multi-media module receiver assembly | Click here |
| | Hard disc | Click here |
| "Could not be deleted." is displayed when deleting a bookmark. | Proceed to Operation Check - Check Hard Disk Drive of the Navigation System section. | Click here |
| | Multi-media module receiver assembly | Click here |
| | Hard disc | Click here |
| | Proceed to Operation Check - Check Hard Disk Drive of the Navigation System | Click |

| | | |
|---|---|---|
| "Could not be edited." is displayed when editing a fixed phrase. | section. | here |
| | Multi-media module receiver assembly | Click here |
| | Hard disc | Click here |
| "Could not be deleted." is displayed when deleting the input history. | Proceed to Operation Check - Check Hard Disk Drive of the Navigation System section. | Click here |
| | Multi-media module receiver assembly | Click here |
| | Hard disc | Click here |

### G-BOOK Announcement Sound

| Symptom | Suspected Area | See page |
|---|---|---|
| G-BOOK announcement sound is not output. | Adjust the volume by referring to the owner's manual. G-BOOK announcement sound is not linked with the audio volume. | - |

### Contract

| Symptom | Suspected Area | See page |
|---|---|---|
| "G-BOOK contract is needed. Ask a dealership how to apply for the G-BOOK service." is displayed. | Fill in the vehicle contract setting request form and contact the G-BOOK support center. | - |

### Emergency Call Service On-screen Message

| Symptom | Suspected Area | See page |
|---|---|---|
| "Please note that this service is not available now." is displayed. | Proceed to "G-BOOK Service cannot be Used". | Click here |
| "Contract is not completed for this service. Complete the contract before use." is displayed. | Proceed to "G-BOOK Service cannot be Used". | Click here |
| "Emergency call service is not available because the procedure to start the service has not been performed." is displayed. | Proceed to "G-BOOK Service cannot be Used". | Click here |

### Emergency Call Service Indicator Display Problem

| Symptom | Suspected Area | See page |
|---|---|---|
| The indicator lights on the emergency call switch panel do not come on when the engine switch is turned on (ACC). | Check that G-BOOK contract and procedure to start the emergency call service have been completed successfully. | - |
| | Proceed to "Emergency Call Switch Indicator Circuit". | Click here |
| Illumination on the emergency call switch panel does not turn on. | Proceed to "Emergency Call Switch Illumination Circuit". | Click here |
| The red indicator light on the emergency call switch panel comes on after the engine switch is turned on (ACC). | The vehicle is outside the communication service area. Move the vehicle to a communication service area. | - |
| The red indicator light on the emergency call switch panel blinks after the engine switch is turned on (ACC). | Check for DTCs. | Click here |
| Turning the engine switch on (ACC) will cause a manual maintenance check to start. | Proceed to DTC B15C5. | Click here |
| The red indicator light on the emergency call switch panel does not blink after the engine switch is turned on (ACC), but it blinks after the engine is started and the vehicle is driven. | Proceed to DTC B15C6. | Click here |

### Emergency Call Service Function

| Symptom | Suspected Area | See page |
|---|---|---|
| The G-BOOK center cannot be accessed even after a manual maintenance check is performed. | Check that the G-BOOK service is available. | - |
| | Proceed to "Communication Access Failed". | Click here |
| The automatic maintenance check does not complete normally. | Perform a manual maintenance check. If it does not complete normally, refer to "The G-BOOK center cannot be accessed even after a manual maintenance check is performed". | - |
| The G-BOOK center cannot be accessed by pressing the emergency call switch. | Perform a manual maintenance check. If it does not complete normally, refer to "The G-BOOK center cannot be accessed even after a manual maintenance check is performed". | - |

### Warning Notification Function

| Symptom | Suspected Area | See page |
|---|---|---|
| The multi-display does not show a warning message even though a warning light turns on or the multi-information display indicates a warning. | Proceed to "Warning Notification Function Malfunction". | Click here |
| The multi-display shows a warning message even though a warning light is not on and the multi-information display does not indicate a warning. | Proceed to "Warning Notification Function Malfunction". | Click here |
| The multi-display shows a warning message different from the warning light or the multi-information display. | Proceed to "Warning Notification Function Malfunction". | Click here |
| The same warning notification is repeated. | Proceed to "Warning Notification Function Malfunction". | Click here |

### Alarm Notification Function

| Symptom | Suspected Area | See page |
|---|---|---|
| When the vehicle automatic alarm is activated, the G-BOOK center is not informed of the alarm. | Proceed to "Security History". | Click here |
| | Check CAN communication system. | Click here |
| | Proceed to Security Horn Circuit of the Theft Deterrent System section. | Click here |
| | Proceed to "Telematics Transceiver Malfunction". | Click here |

### My Request On-screen Message

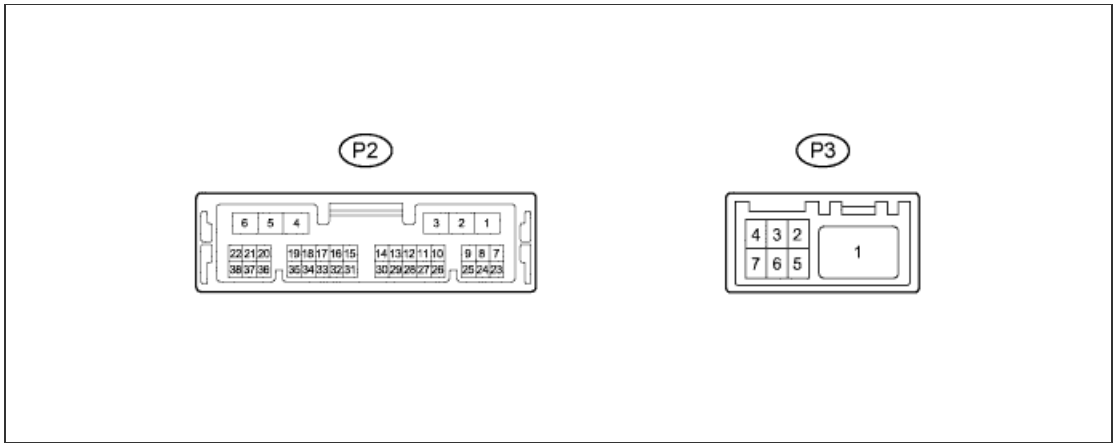
| Symptom | Suspected Area | See page |
|---|---|---|
| "Please note that this service is not available now." is displayed. | Proceed to "G-BOOK Service cannot be Used". | Click here |
| "Contract is not completed for this service. Complete the contract before use." is displayed. | Proceed to "G-BOOK Service cannot be Used". | Click here |

### Operator Service Function

| Symptom | Suspected Area | See page |
|---|---|---|
| When using the operator service, the other caller's voice cannot be heard. | Check if the navigation voice guidance is output normally. If not, refer to Navigation System. | Click here |
| | Proceed to "Received Voice Signal Circuit". | Click here |
| When using the operator service, noise occurs in the transmitted voice (caller's voice). | Proceed to "Transmitted Voice Signal Circuit". | Click here |
| When using the operator service, voice cannot be transmitted (the other caller cannot hear the caller's voice). | Proceed to "Transmitted Voice Signal Circuit". | Click here |

**for Preparation** Click here

## TELEMATICS TRANSCEIVER



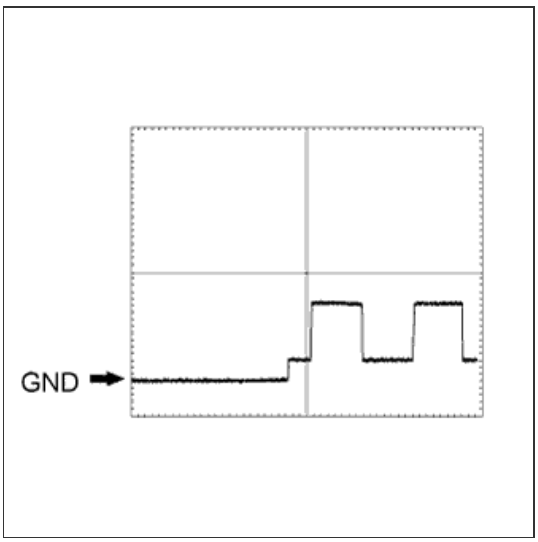

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| P2-1 (+B) - P2-4 (E) | G - W-B | Battery | Engine switch off | 11 to 14 V |
| P2-2 (SPI+) - P2-4 (E) | W - W-B | Sound signal | Audio system playing | A waveform synchronized with sounds is output. |
| P2-3 (SPI-) - P2-4 (E) | B - W-B | Sound signal | Audio system playing | A waveform synchronized with sounds is output. |
| P2-4 (E) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| P2-5 (SPO+) - P2-4 (E) | W - W-B | Sound signal | Emergency call mode | A waveform synchronized with the received voice is output. |
| P2-6 (SPO-) - P2-4 (E) | B - W-B | Sound signal | Emergency call mode | A waveform synchronized with the received voice is output. |
| P2-7 (IG2) - P2-4 (E) | B - W-B | Power source (IG) | Engine switch on (IG) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| P2-8 (ACC) - P2-4 (E) | GR - W-B | Accessory (ON) | Engine switch on (ACC) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| P2-11 (IND1) - P2-4 (E) | L - W-B | Emergency call switch red indicator illumination signal | For 5 seconds after turning the engine switch on (ACC) | 1 to 8.5 V |
| | | | Engine switch off | Below 1 V |
| P2-12 (IND2) - P2-4 (E) | P - W-B | Emergency call switch green indicator illumination signal | For 5 seconds after turning the engine switch on (ACC) | 1 to 8.5 V |
| | | | Engine switch off | Below 1 V |
| P2-13 (BBI-) - P2-4 (E) | L - W-B | Mayday battery power supply | - | - |
| P2-17 (MUTE) - P2-4 (E) | B - W-B | MUTE Signal | Audio system is playing | 3.5 V or higher |
| | | | Emergency call mode | Below 1 V |
| P2-18 (MCO+) - P2-4 (E) | G - W-B | Microphone voice signal | See "Microphone&Voice Recognition Check" (Click here) | A waveform synchronized with the input voice. |
| P2-19 (MCO-) - P2-4 (E) | R - W-B | Microphone voice signal | See "Microphone&Voice Recognition Check" (Click here) | Below 1 Ω |
| P2-20 (CTR1) - P2-4 (E) | B - W-B | Mayday battery control line | - | - |
| P2-21 (CTR2) - P2-4 (E) | V - W-B | Mayday battery control line | - | - |
| P2-24 (GSW) - P2-4 (E) | L - W-B | Airbag deployment signal | Engine switch on (IG) | Pulse generation (Refer to waveform 1) |
| P2-26 (SIG-) - P2-4 (E) | L - W-B | Ground | Always | Below 1 V |

| | | | | |
|---|---|---|---|---|
| P2-27 (SIG1) - P2-26 (SIG-) | W - L | Emergency call switch condition signal | Emergency call switch not pressed | 1.7 V |
| | | | Emergency call switch pressed | 1 V |
| P2-30 (BBI+) - P2-4 (E) | R - W-B | Mayday Battery Power Supply | - | - |
| P2-32 (SGND) - P2-4 (E) | Shield - Body ground | Shield ground | Always | Below 1 Ω |
| P2-33 (MCVD) - P2-4 (E) | W - W-B | Telephone microphone assembly power supply | Engine switch on (ACC) | 5 V |
| | | | Engine switch off | Below 1 V |
| P2-34 (MCI+) - P2-4 (E) | B - W-B | Microphone voice signal | See "Microphone&Voice Recognition Check" (Click here) | Synchronized with the voice wave. |
| P2-35 (MCI-) - P2-4 (E) | R - W-B | Microphone voice signal | See "Microphone&Voice Recognition Check" (Click here) | Synchronized with the voice wave. |
| P3-1 (USB) | B | USB communication line | - | - |
| P3-2 (USBG) - Body ground | W - Body ground | Shield ground | Always | Below 1 V |
| P3-3 (VOT+) - P2-4 (E) | B - W-B | Receive voice signal | Receiving a call while using the operator service | A waveform synchronized with the received voice is output. |
| P3-4 (USBV) - P2-4 (E) | W - W-B | Telephone microphone assembly power supply | Engine switch on (ACC) | 5 V |
| | | | Engine switch off | Below 1 V |
| P3-5 (VOT-) - P2-4 (E) | B - W-B | Receive voice signal | Receiving a call while using the operator service | A waveform synchronized with the received voice is output. |
| P3-6 (VOR-) - P2-4 (E) | B - W-B | Sent voice signal | Calling while using the operator service | A waveform synchronized with the sent voice is output |
| P3-7 (VOR+) - P2-4 (E) | B - W-B | Sent voice signal | Calling while using the operator service | A waveform synchronized with the sent voice is output |

a. Oscilloscope waveform:

i. Waveform 1

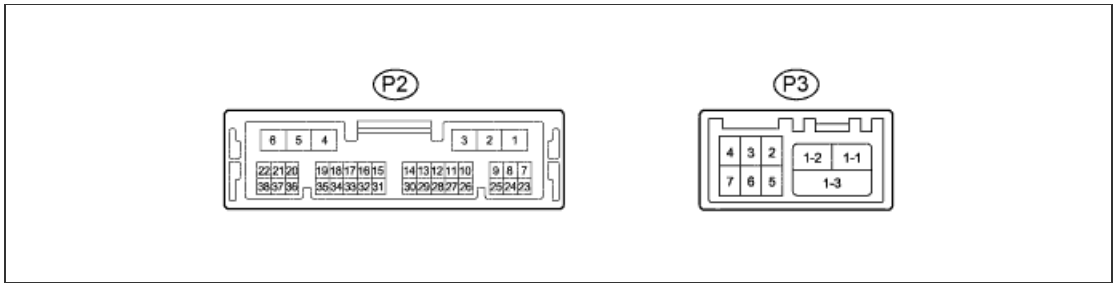
| Item | Condition |
|---|---|
| Tester Connection | P2-24 (GSW) - P2-4 (E) |
| Tool setting | 5.0 V/DIV., 20 ms/DIV. |
| Vehicle condition | Engine switch on (IG) |




DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## TELEMATICS TRANSCEIVER



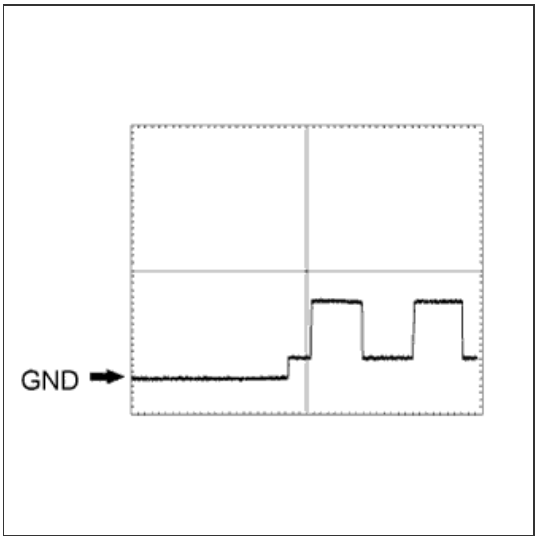

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| P2-1 (+B) - P2-4 (E) | G - W-B | Battery | Engine switch off | 11 to 14 V |
| P2-2 (SPI+) - P2-4 (E) | W - W-B | Sound signal | Audio system playing | A waveform synchronized with sound is output. |
| P2-3 (SPI-) - P2-4 (E) | B - W-B | Sound signal | Audio system playing | A waveform synchronized with sound is output. |
| P2-4 (E) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| P2-5 (SPO+) - P2-4 (E) | W - W-B | Sound signal | Emergency call mode | A waveform synchronized with the received voice is output. |
| P2-6 (SPO-) - P2-4 (E) | B - W-B | Sound signal | Emergency call mode | A waveform synchronized with the received voice is output. |
| P2-7 (IG2) - P2-4 (E) | B - W-B | Power source (IG) | Engine switch on (IG) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| P2-8 (ACC) - P2-4 (E) | GR - W-B | Accessory (ON) | Engine switch on (ACC) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| P2-11 (IND1) - P2-4 (E) | L - W-B | Emergency call switch red indicator illumination signal | For 5 seconds after turning the engine switch on (ACC) | 1 to 8.5 V |
| | | | Engine switch off | Below 1 V |
| P2-12 (IND2) - P2-4 (E) | P - W-B | Emergency call switch green indicator illumination signal | For 5 seconds after turning the engine switch on (ACC) | 1 to 8.5 V |
| | | | Engine switch off | Below 1 V |
| P2-13 (BBI-) - P2-4 (E) | L - W-B | Mayday battery power supply | - | - |
| P2-17 (MUTE) - P2-4 (E) | B - W-B | MUTE Signal | Audio system playing | 3.5 V or higher |
| | | | Emergency call mode | Below 1 V |
| P2-18 (MCO+) - P2-4 (E) | G - W-B | Microphone voice signal | See "Microphone&Voice Recognition Check" (Click here) | A waveform synchronized with the input voice. |
| P2-19 (MCO-) - P2-4 (E) | R - W-B | Microphone voice signal | See "Microphone&Voice Recognition Check" (Click here) | Below 1 Ω |
| P2-20 (CTR1) - P2-4 (E) | B - W-B | Mayday battery control line | - | - |
| P2-21 (CTR2) - P2-4 (E) | V - W-B | Mayday battery control line | - | - |
| P2-24 (GSW) - P2-4 (E) | L - W-B | Airbag deployment signal | Engine switch on (IG) | Pulse generation (Refer to waveform 1) |
| P2-26 (SIG-) - P2-4 (E) | L - W-B | Ground | Always | Below 1 V |
| P2-27 (SIG1) - P2-26 (SIG-) | W - L | Emergency call switch condition signal | Emergency call switch not pressed | 1.7 V |
| | | | Emergency call switch pressed | 1 V |
| | | Mayday Battery Power | | |

| | | | | |
|---|---|---|---|---|
| P2-30 (BBI+) - P2-4 (E) | R - W-B | Supply | - | - |
| P2-32 (SGND) - P2-4 (E) | Shield - Body ground | Shield ground | Always | Below 1 Ω |
| P2-33 (MCVD) - P2-4 (E) | W - W-B | Telephone microphone assembly power supply | Engine switch on (ACC) | 5 V |
| | | | Engine switch off | Below 1 V |
| P2-34 (MCI+) - P2-4 (E) | B - W-B | Microphone voice signal | See "Microphone&Voice Recognition Check" (Click here) | Synchronized with the voice wave. |
| P2-35 (MCI-) - P2-4 (E) | R - W-B | Microphone voice signal | See "Microphone&Voice Recognition Check" (Click here) | Synchronized with the voice wave. |
| P3-1-1 (USB-) | B | USB communication line | - | - |
| P3-1-2 (USB+) | B | USB communication line | - | - |
| P3-1-3 (USBS) | B | USB communication line | - | - |
| P3-2 (USBG) - Body ground | W - Body ground | Shield ground | Always | Below 1 V |
| P3-3 (VOT+) - P2-4 (E) | W - W-B | Receive voice signal | Receiving a call while using the operator service | A waveform synchronized with the received voice is output. |
| P3-4 (USBV) - P2-4 (E) | W - W-B | Telephone microphone assembly power supply | Engine switch on (ACC) | 4.75 to 5.25 V |
| | | | Engine switch off | Below 1 V |
| P3-5 (VOT-) - P2-4 (E) | R - W-B | Receive voice signal | Receiving a call while using the operator service | A waveform synchronized with the received voice is output. |
| P3-6 (VOR-) - P2-4 (E) | B - W-B | Sent voice signal | Calling while using the operator service | A waveform synchronized with the sent voice is output |
| P3-7 (VOR+) - P2-4 (E) | G - W-B | Sent voice signal | Calling while using the operator service | A waveform synchronized with the sent voice is output |

a. Oscilloscope waveform:

i. Waveform 1

| Item | Condition |
|---|---|
| Tester Connection | P2-24 (GSW) - P2-4 (E) |
| Tool setting | 5.0 V/DIV., 20 ms/DIV. |
| Vehicle condition | Engine switch on (IG) |




MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

**for Preparation** Click here

**HINT:**

Refer to Navigation System (Click here).

**for Preparation** Click here

**HINT:**

Refer to Navigation System (Click here).

**for Preparation** Click here

| DTC Code | Detection Item | Trouble Area | See page |
|---|---|---|---|
| B15A8 | Telematics Transceiver Malfunction | Telematics transceiver | Click here |
| B15C4 | Airbag Signal Malfunction/Not Input | 1. SRS airbag system<br>2. Wire harness or connector<br>3. Center airbag sensor assembly<br>4. Telematics transceiver | Click here |
| B15C5 | Manual Button Malfunction | 1. Map light assembly<br>2. Wire harness or connector<br>3. Telematics transceiver | Click here |
| B15C6 | Ignition Switch Signal Malfunction | 1. Wire harness or connector<br>2. Telematics transceiver | Click here |
| B15CB | Telematics Transceiver Antenna Disconnected | 1. Telephone antenna assembly<br>2. Telephone antenna cord sub-assembly<br>3. Telematics transceiver<br>4. Display and navigation module display | Click here |
| B15CC | Backup Battery Failure | 1. Mayday battery<br>2. Wire harness or connector<br>3. Telematics transceiver | Click here |
| B15DE | Telematics Transceiver Location Data Blackout | 1. Wire harness or connector<br>2. Telematics transceiver<br>3. Display and navigation module display | Click here |
| B15E9 | Telematics Communication Malfunction | G-BOOK center | Click here |
| B15EC | Backup Battery Degradation | Mayday battery | Click here |
| B15ED | Backup Battery Correspondence Not Detected | 1. Mayday battery<br>2. Telematics transceiver | Click here |
| B15EE | Telematics Contract Invalid | - | Click here |
| B15EF | Helpnet Vehicle Installation Device ID Malfunction/Unmatched | - | Click here |

**for Preparation** Click here

| DTC Code | Detection Item | See page |
|---|---|---|
| B15A8 | Telematics Transceiver Malfunction | Click here |
| B15C4 | Airbag Signal Malfunction/Not Input | Click here |
| B15C5 | Manual Button Malfunction | Click here |
| B15C6 | Ignition Switch Signal Malfunction | Click here |
| B15CB | Telematics Transceiver Antenna Disconnected | Click here |
| B15CC | Backup Battery Failure | Click here |
| B15DE | Telematics Transceiver Location Data Blackout | Click here |
| B15E9 | Telematics Communication Malfunction | Click here |
| B15EC | Backup Battery Degradation | Click here |
| B15ED | Backup Battery Correspondence Not Detected | Click here |
| B15EE | Telematics Contract Invalid | Click here |
| B15EF | Helpnet Vehicle Installation Device ID Malfunction/Unmatched | Click here |

# DTC B15A8 Telematics Transceiver Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when an internal circuit malfunction is detected by the telematics transceiver self check.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A8 | DCM internal malfunction | Telematics transceiver |

## INSPECTION PROCEDURE

**NOTICE:**

Regardless of whether DTC B15A8 has been output as a present or history DTC, the telematics transceiver should be replaced.

**HINT:**

When replacing the telematics transceiver, perform the vehicle contract setting ( Click here).

**1.REPLACE TELEMATICS TRANSCEIVER**

a. Replace the telematics transceiver ( Click here).

**NEXT**

**END**

# DTC B15DE Telematics Transceiver Location Data Blackout

**for Preparation** Click here

## DESCRIPTION

The telematics transceiver checks the reception condition of the location data every minute after the engine switch is turned on (ACC). If the location data is not received from the display and navigation module display for 5 minutes, this DTC will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15DE | Location information from USB communication is interrupted. | • Wire harness or connector<br>• Telematics transceiver<br>• Display and navigation module display |

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**HINT:**

When replacing the display and navigation module display or the telematics transceiver, perform the vehicle contract setting ( Click here).

### 1.INSPECTION USING "SYSTEM CHECK MODE" SCREEN

a. Perform inspections indicated on the System Check Mode screen to confirm the DCM inspection result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "OK" is displayed in "DCM" on the System Check Mode screen. | A |
| "NCON" is displayed in "DCM" on the System Check Mode screen. | B |

B → GO TO INSPECTION PROCEDURE FOR "NCON" IS DISPLAYED IN "DCM" ON THE SYSTEM CHECK MODE SCREEN (Click here)

A

### 2.CHECK DTC

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**Result**

| Result | Proceed to |
|---|---|
| B15DE is output. | A |
| No DTC is output. | B |

B → USE SIMULATION METHOD TO CHECK (Click here)

A

## 3.CHECK HARNESS AND CONNECTOR (NAVIGATION ECU - TELEMATICS TRANSCEIVER)

a. Check the installation condition.

   i. Check the USB communication cable (digital communication cable) between the display and navigation module display and the telematics transceiver for any installation or connection problems.

b. Disconnect the F70 display and navigation module display connector.

c. Disconnect the P3 telematics transceiver connector.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F70-1 (USB) - P3-1 (USB) | Always | Below 1 Ω |
| F70-2 (USBG) - P3-2 (USBG) | Always | Below 1 Ω |
| F70-4 (USBV) - P3-4 (USBV) | Always | Below 1 Ω |
| P3-1 (USB) - Body ground | Always | 10 kΩ or higher |
| P3-2 (USBG) - Body ground | Always | 10 kΩ or higher |
| P3-4 (USBV) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 4.REPLACE TELEMATICS TRANSCEIVER

a. Replace the telematics transceiver with a normal one and check if the same problem occurs again ( Click here).

   i. Clear the DTC (Click here).

   ii. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

END

# DTC B15A8 Telematics Transceiver Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when an internal circuit malfunction is detected by the telematics transceiver self check.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15A8 | DCM internal malfunction | Telematics transceiver |

## INSPECTION PROCEDURE

**NOTICE:**

Regardless of whether DTC B15A8 has been output as a present or history DTC, the telematics transceiver should be replaced.

**HINT:**

When replacing the telematics transceiver, perform the vehicle contract setting ( Click here).

**1.REPLACE TELEMATICS TRANSCEIVER**

a. Replace the telematics transceiver ( Click here).

**NEXT**

**END**

# DTC B15DE Telematics Transceiver Location Data Blackout

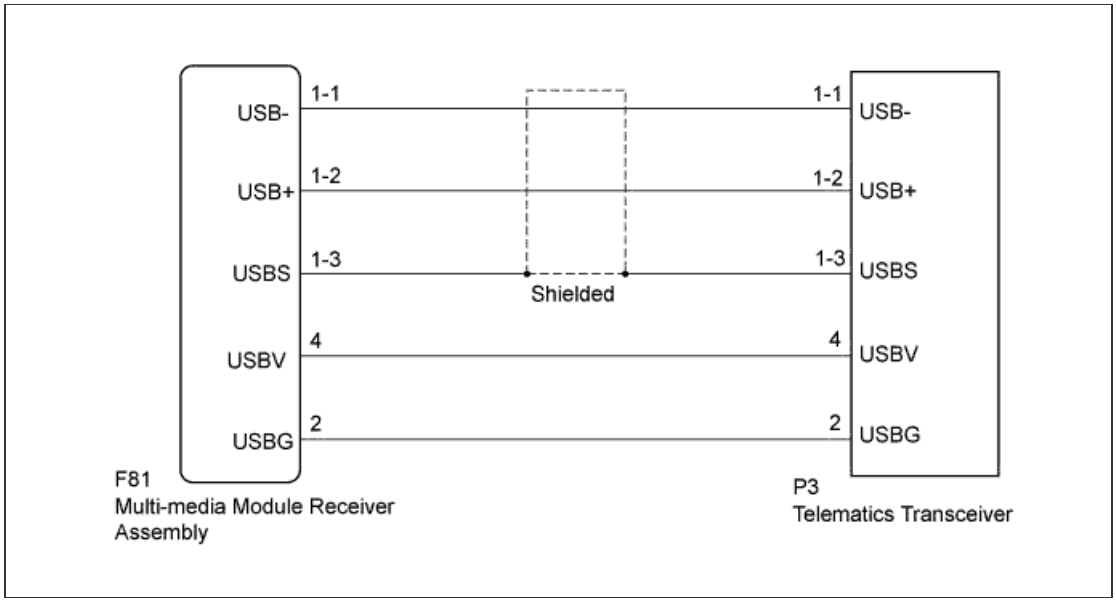
**for Preparation** Click here

## DESCRIPTION

The telematics transceiver checks the reception condition of the location data every minute after the engine switch is turned on (ACC). If the location data is not received from the multi-media module receiver assembly for 5 minutes, this DTC will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15DE | Location information from USB communication is interrupted. | • Harness or connector<br>• Telematics transceiver<br>• Multi-media module receiver assembly |

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**HINT:**

When replacing the multi-media module receiver assembly or the telematics transceiver, perform the vehicle contract setting ( Click here).

### 1.INSPECTION USING "SYSTEM CHECK MODE" SCREEN

a. Perform inspections indicated on the System Check Mode screen to confirm the DCM inspection result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "OK" is displayed in "DCM" on the System Check Mode screen. | A |
| "NCON" is displayed in "DCM" on the System Check Mode screen. | B |

B → GO TO INSPECTION PROCEDURE FOR "NCON" IS DISPLAYED IN "DCM" ON THE SYSTEM CHECK MODE SCREEN (Click here)

A

### 2.CHECK DTC

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**Result**

| Result | Proceed to |
|---|---|
| No DTC is output. | A |
| B15DE is output. | B |

B → Go to step 3

A

USE SIMULATION METHOD TO CHECK (Click here)

## 3.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - TELEMATICS TRANSCEIVER)

a. Check the installation condition.

i. Check the USB communication cable (digital communication cable) between the multi-media module receiver assembly and the telematics transceiver for any installation or connection problems.

b. Disconnect the F81 multi-media module receiver assembly connector.

c. Disconnect the P3 telematics transceiver connector.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F81-1-1 (USB-) - P3-1-1 (USB-) | Always | Below 1 Ω |
| F81-1-2 (USB+) - P3-1-2 (USB+) | Always | Below 1 Ω |
| F81-1-3 (USBS) - P3-1-3 (USBS) | Always | Below 1 Ω |
| F81-2 (USBG) - P3-2 (USBG) | Always | Below 1 Ω |
| F81-4 (USBV) - P3-4 (USBV) | Always | Below 1 Ω |
| F81-1-1 (USB-) - Body ground | Always | 10 kΩ or higher |
| F81-1-2 (USB+) - Body ground | Always | 10 kΩ or higher |
| F81-1-3 (USBS) - Body ground | Always | 10 kΩ or higher |
| F81-2 (USBG) - Body ground | Always | 10 kΩ or higher |
| P3-4 (USBV) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 4.CHECK TELEMATICS TRANSCEIVER

a. Replace the telematics transceiver with a normal one and check if the same problem occurs again ( Click here).

i. Clear the DTC (Click here).

ii. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

END (TELEMATICS TRANSCEIVER IS DEFECTIVE)

## DTC B15C4 Airbag Signal Malfunction/Not Input

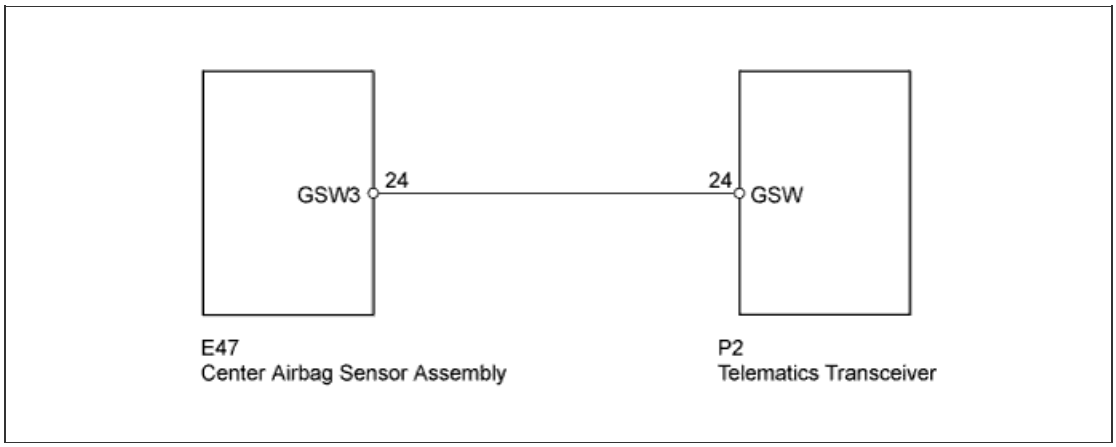
**for Preparation** Click here

### DESCRIPTION

If the telematics transceiver detects an error in communication between the telematics transceiver and the center airbag sensor assembly as a result of the telematics transceiver self check, this DTC will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15C4 | Airbag signal problem | • SRS airbag system<br>• Wire harness or connector<br>• Center airbag sensor assembly<br>• Telematics transceiver |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**HINT:**

When replacing the telematics transceiver, perform the vehicle contract setting ( Click here).

**1.CHECK DTC (SRS AIRBAG SYSTEM)**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again ( Click here).

**OK:**
**No DTC is output.**

**NG** → GO TO SRS AIRBAG SYSTEM (**Click here**)

**OK**

**2.CLEAR DTC**

a. Clear the DTC (Click here).

**NEXT**

**3.RECHECK DTC**

a. Recheck for DTCs and check if the same trouble occurs again ( Click here).

**OK:**
**No DTC is output.**

NG → Go to step 4

OK → END

## 4.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - CENTER AIRBAG SENSOR ASSEMBLY)

a. Disconnect the P2 telematics transceiver connector.

b. Disconnect the E47 center airbag sensor connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

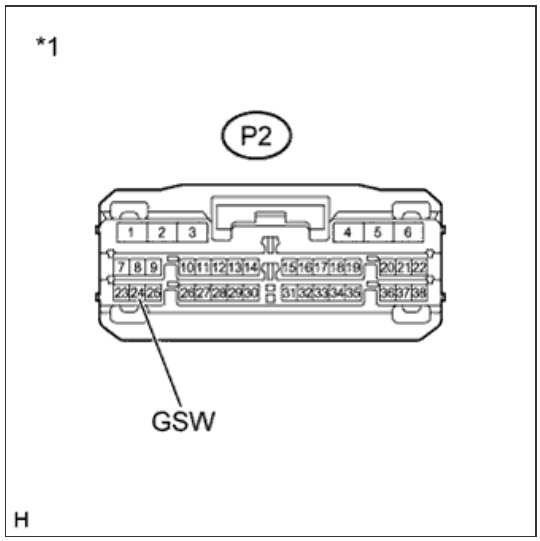
| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P2-24 (GSW) - E47-24 (GSW3) | Always | Below 1 Ω |
| P2-24 (GSW) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.INSPECT TELEMATICS TRANSCEIVER

a. Disconnect the P2 telematics transceiver connector.



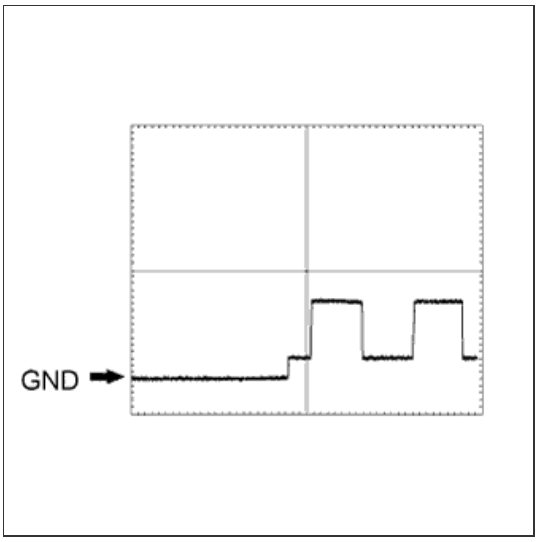

b. Check the input waveform.

i. Check the signal waveform according to the condition(s) in the table below. (Check the waveform from the back of the wire harness connector of the telematics transceiver while the center airbag sensor assembly connectors are connected.)

| Item | Condition |
|---|---|
| Tester Connection | P2-24 (GSW) - Body ground |
| Tool setting | 5.0 V/DIV., 20 ms/DIV. |
| Vehicle condition | Engine switch on (IG) |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Telematics Transceiver) |




NG → Go to step 6

OK

REPLACE TELEMATICS TRANSCEIVER (Click here)

6.REPLACE CENTER AIRBAG SENSOR ASSEMBLY

a. Replace the center airbag sensor assembly with a normal one and check if the same problem occurs again ( Click here).

NEXT

7.CLEAR DTC

a. Clear the DTC (Click here).

NEXT

8.RECHECK DTC

a. Recheck for DTCs and check if the same trouble occurs again ( Click here).

**OK:**
**No DTC is output.**

NG → REPLACE TELEMATICS TRANSCEIVER (Click here)

OK

END

## DTC B15E9 Telematics Communication Malfunction

**for Preparation** Click here

### DESCRIPTION

This DTC will be stored when any of the following conditions is met:

- A manual maintenance check does not complete normally (for a reason such as no response from the G-BOOK center within specified time).
- An automatic maintenance check does not complete normally (for a reason such as no response from the G-BOOK center within specified time) 30 times in a row.
- A manual emergency call or automatic emergency call does not complete normally.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15E9 | Communication processing error | G-BOOK center |

### INSPECTION PROCEDURE

#### 1.CHECK CONNECTION

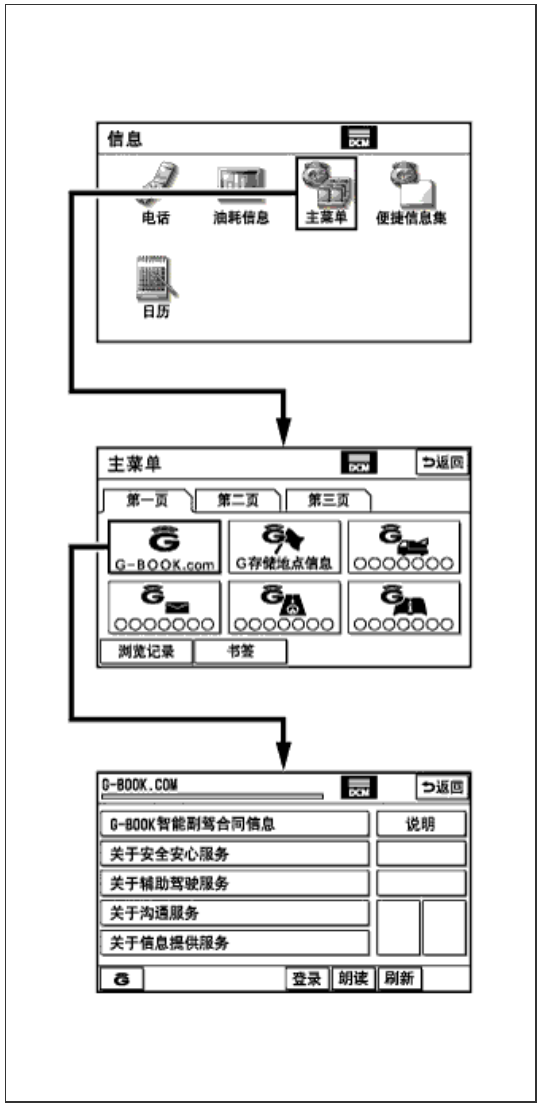
a. Check the connection to the G-BOOK center.

i. Turn the engine switch on (ACC) and wait 1 minute.

ii. Perform the operations shown in the illustration and check that G-BOOK.com is displayed.

**HINT:**

- **If the G-BOOK.com screen is displayed, select "Renew" to check if it is possible to access the G-BOOK.com.**
- **The screen illustrations provided are samples only and may be different from actual screens.**




**Result**

| Result | Proceed to |
|---|---|
| G-BOOK.com can be accessed. | A |
| G-BOOK.com cannot be accessed. | B |

| | |
|---|---|
| B | GO TO PROBLEM SYMPTOMS TABLE (Click here) |

A

## 2.PERFORM MANUAL MAINTENANCE CHECK

a. Perform a manual maintenance check.

i. Move the vehicle to a communication service area. Wait for a while and perform a manual maintenance check ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| Manual maintenance check does not complete normally. | A |
| Manual maintenance check completes normally. | B |

**HINT:**

If the manual maintenance check completes normally, clear history DTCs (this problem was caused by DTCs stored due to past environmental factors).

B → END

A

## 3.CONTACT G-BOOK SUPPORT CENTER

a. Contact the G-BOOK support center.

i. Contact the G-BOOK support center and inform them about the following:

Symptom:G-BOOK.com can be accessed but the manual maintenance check does not complete normally.

**HINT:**

The G-BOOK support center will perform an investigation and provide the results.

NEXT

## FOLLOW INSTRUCTIONS PROVIDED BY G-BOOK SUPPORT CENTER

## DTC B15C4 Airbag Signal Malfunction/Not Input

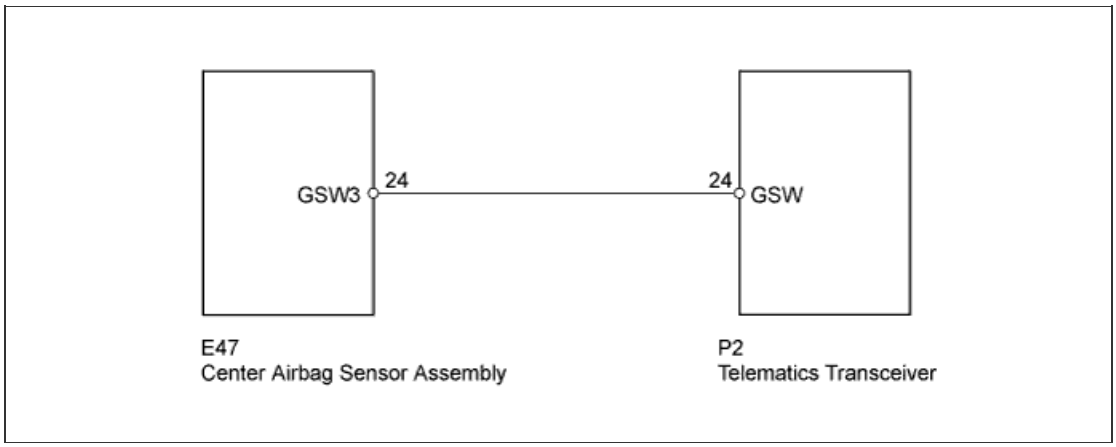
**for Preparation** Click here

### DESCRIPTION

If the telematics transceiver detects an error in communication between the telematics transceiver and the center airbag sensor assembly as a result of the telematics transceiver self check, this DTC will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15C4 | Airbag signal problem | • Airbag system<br>• Harness or connector<br>• Center airbag sensor assembly<br>• Telematics transceiver |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

The vehicle is equipped with an SRS (Supplemental Restraint System) which includes components such as airbags. Before servicing (including removal or installation of parts), be sure to read the Precaution in the SRS (Click here).

**HINT:**

When replacing the telematics transceiver, perform the vehicle contract setting ( Click here).

**1.CHECK DTC (SRS AIRBAG SYSTEM)**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again ( Click here).

**OK:**
**No DTC is output.**

NG → GO TO SRS AIRBAG SYSTEM (Click here)

OK

**2.CLEAR DTC**

a. Clear the DTC (Click here).

NEXT

**3.RECHECK DTC**

a. Recheck for DTCs and check if the same trouble occurs again ( Click here).

**OK:**
**No DTC is output.**

NG → Go to step 4

OK ↓

USE SIMULATION METHOD TO CHECK (Click here)

## 4.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - CENTER AIRBAG SENSOR ASSEMBLY)

a. Disconnect the P2 telematics transceiver connector.

b. Disconnect the E47 center airbag sensor connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P2-24 (GSW) - E47-24 (GSW3) | Always | Below 1 Ω |
| P2-24 (GSW) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

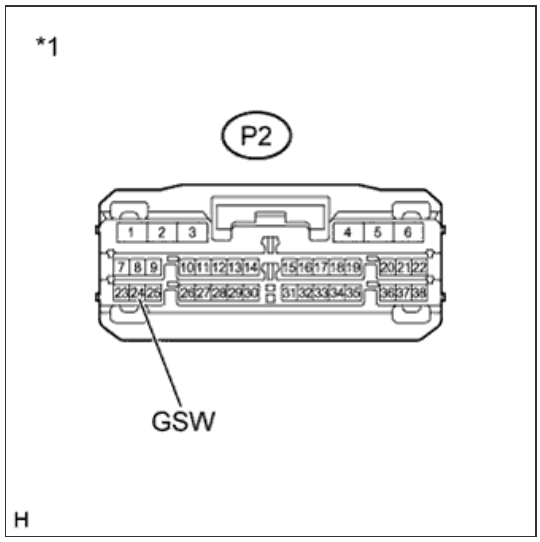
OK ↓

## 5.CHECK TELEMATICS TRANSCEIVER

a. Disconnect the P2 telematics transceiver connector.

**Text in Illustration**

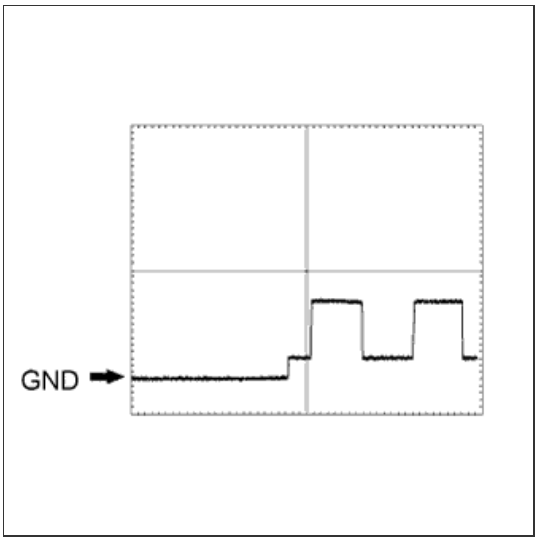
| | |
|---|---|
| *1 | Front view of wire harness connector (to Telematics Transceiver) |




b. Check the input waveform.

i. Check the signal waveform according to the condition(s) in the table below. (Check the waveform from the back of the wire harness connector of the telematics transceiver while the center airbag sensor assembly connectors are connected.)

| Item | Condition |
|---|---|
| Tester Connection | P2-24 (GSW) - Body ground |
| Tool setting | 5.0 V/DIV., 20 ms/DIV. |
| Vehicle condition | Engine switch on (IG) |




NG → Go to step 6

OK

REPLACE TELEMATICS TRANSCEIVER (Click here)

6.REPLACE CENTER AIRBAG SENSOR ASSEMBLY

a. Replace the center airbag sensor assembly with a normal one ( Click here).

NEXT

7.CLEAR DTC

a. Clear the DTC (Click here).

NEXT

8.RECHECK DTC

a. Recheck for DTCs and check if the same trouble occurs again ( Click here).

**OK:**
**No DTC is output.**

NG → REPLACE TELEMATICS TRANSCEIVER (Click here)

OK

END (CENTER AIRBAG SENSOR ASSEMBLY IS DEFECTIVE)

# DTC B15E9 Telematics Communication Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC will be stored when any of the following conditions is met:

- A manual maintenance check does not complete normally (for a reason such as no response from the G-BOOK center within specified time).
- An automatic maintenance check does not complete normally (for a reason such as no response from the G-BOOK center within specified time) 30 times in a row.
- A manual emergency call or automatic emergency call does not complete normally.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15E9 | Communication processing error | G-BOOK center |

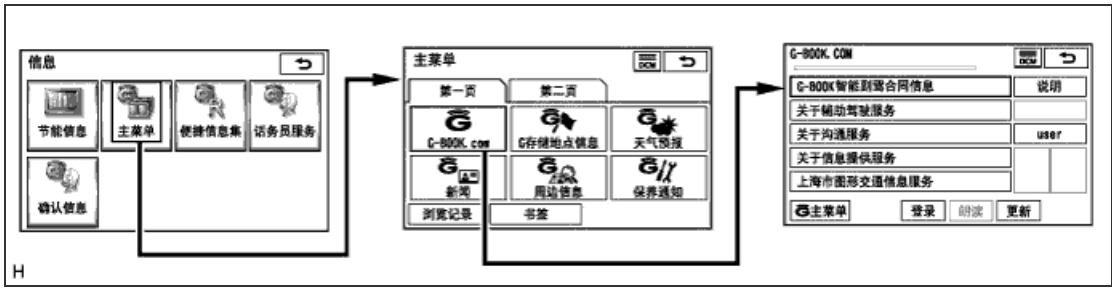
## INSPECTION PROCEDURE

### 1.CHECK CONNECTION

a. Check the connection to the G-BOOK center.

i. Turn the engine switch on (ACC) and wait 1 minute.

ii. Perform the operations shown in the illustration and check that G-BOOK.com is displayed.




**HINT:**

- **If the G-BOOK.com screen is displayed, select "Renew" to check if it is possible to access the G-BOOK.com.**
- **The screen illustrations provided are samples only and may be different from actual screens.**

**Result**

| Result | Proceed to |
|---|---|
| G-BOOK.com can be accessed. | A |
| G-BOOK.com cannot be accessed. | B |

B → GO TO PROBLEM SYMPTOMS TABLE (Click here)

A

### 2.PERFORM MANUAL MAINTENANCE CHECK

a. Perform a manual maintenance check.

i. Move the vehicle to a communication service area. Wait for a while and perform a manual maintenance check ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| Manual maintenance check does not | A |

| | |
|---|---|
| complete normally. | |
| Manual maintenance check completes normally. | B |

**HINT:**

If the manual maintenance check completes normally, clear history DTCs (this problem was caused by DTCs stored due to past environmental factors).

B → END

A

**3.CONTACT G-BOOK SUPPORT CENTER**

a. Contact the G-BOOK support center.

i. Contact the G-BOOK support center and inform them about the following:

Symptom:G-BOOK.com can be accessed but the manual maintenance check does not complete normally.

**HINT:**

The G-BOOK support center will perform an investigation and provide the results.

NEXT

**FOLLOW INSTRUCTIONS PROVIDED BY G-BOOK SUPPORT CENTER**

## DTC B15C5 Manual Button Malfunction

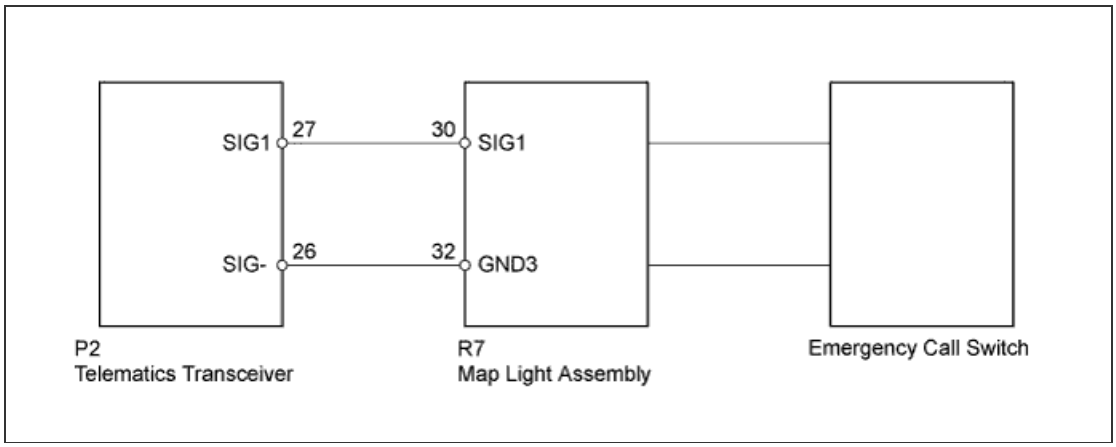
**for Preparation** Click here

### DESCRIPTION

If the telematics transceiver detects an error in the communication between the telematics transceiver and the emergency call switch as a result of the telematics transceiver self check, this DTC will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15C5 | A problem with the emergency call switch is detected. | • Map light assembly<br>• Wire harness or connector<br>• Telematics transceiver |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**HINT:**

When replacing the telematics transceiver, perform the vehicle contract setting ( Click here).

**1.CLEAR DTC**

a. Clear the DTC (Click here).

**NEXT**

**2.CHECK DTC**

a. Recheck for DTCs and check if the same trouble occurs again ( Click here).

**OK:**
**No DTC is output.**

**NG** → **Go to step 3**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

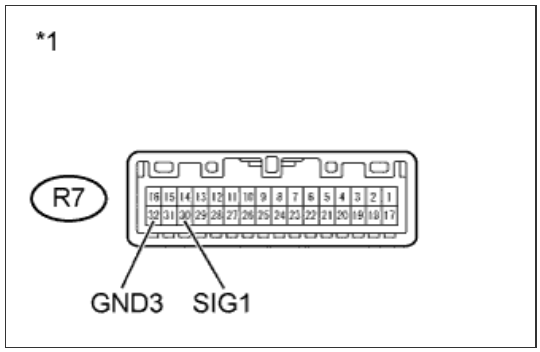
**3.INSPECT MAP LIGHT ASSEMBLY**

a. Disconnect the R7 map light assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| R7-30 (SIG1) - R7-32 (GND3) | Emergency call switch not operated | 410 to 414 Ω |
| R7-30 (SIG1) - R7-32 (GND3) | Emergency call switch operated | 81 to 83 Ω |




**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Map Light Assembly) |

NG → REPLACE MAP LIGHT ASSEMBLY (Click here)

OK

**4.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - MAP LIGHT ASSEMBLY)**

a. Disconnect the P2 telematics transceiver connector.

b. Disconnect the R7 map light assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P2-27 (SIG1) - R7-30 (SIG1) | Always | Below 1 Ω |
| P2-26 (SIG-) - R7-32 (GND3) | Always | Below 1 Ω |
| P2-27 (SIG1) - Body ground | Always | 10 kΩ or higher |
| P2-26 (SIG-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE TELEMATICS TRANSCEIVER (Click here)

# DTC B15EC Backup Battery Degradation

**for Preparation** Click here

## DESCRIPTION

If the mayday battery gets low or automatic call is made, this DTC will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15EC | Mayday battery is consumption. | Mayday battery |

## INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → **REPLACE MAYDAY BATTERY (Click here)**

**OK**

**END**

## DTC B15C5 Manual Button Malfunction

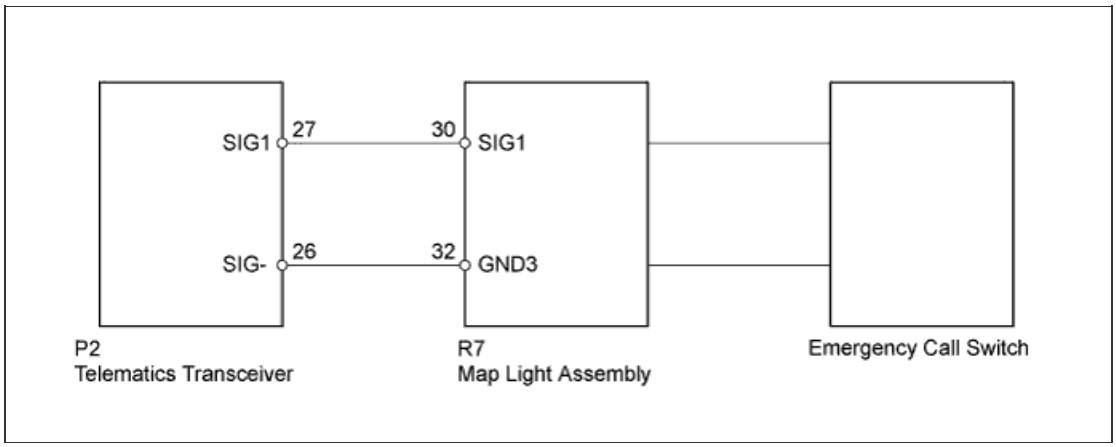
**for Preparation** Click here

### DESCRIPTION

If the telematics transceiver detects an error in the communication between the telematics transceiver and the emergency call switch as a result of the telematics transceiver self check, this DTC will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15C5 | A problem with the emergency call switch is detected. | • Map light assembly (emergency call switch)<br>• Harness or connector<br>• Telematics transceiver |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**HINT:**

When replacing the telematics transceiver, perform the vehicle contract setting ( Click here).

**1.CLEAR DTC**

a. Clear the DTC (Click here).

NEXT

**2.CHECK DTC**

a. Recheck for DTCs and check if the same trouble occurs again ( Click here).

**OK:**
**No DTC is output.**

NG → **Go to step 3**

OK

**USE SIMULATION METHOD TO CHECK (Click here)**

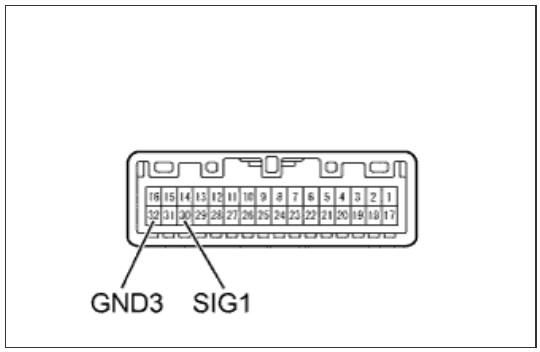
**3.INSPECT MAP LIGHT ASSEMBLY**

a. Remove the map light assembly (Click here).

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| 30 (SIG1) - 32 (GND3) | Emergency call switch not operated | 410 to 414 Ω |
| 30 (SIG1) - 32 (GND3) | Emergency call switch operated | 81 to 83 Ω |




NG → REPLACE MAP LIGHT ASSEMBLY (Click here)

OK

**4.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - MAP LIGHT ASSEMBLY)**

a. Disconnect the P2 telematics transceiver connector.

b. Disconnect the R7 map light assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P2-27 (SIG1) - R7-30 (SIG1) | Always | Below 1 Ω |
| P2-26 (SIG-) - R7-32 (GND3) | Always | Below 1 Ω |
| P2-27 (SIG1) - Body ground | Always | 10 kΩ or higher |
| P2-26 (SIG-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE TELEMATICS TRANSCEIVER (Click here)

# DTC B15EC Backup Battery Degradation

**for Preparation** Click here

## DESCRIPTION

If the mayday battery gets low or automatic call is made, this DTC will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15EC | Mayday battery is consumption. | Mayday battery |

## INSPECTION PROCEDURE

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → **REPLACE MAYDAY BATTERY (Click here)**

**OK**

**END**

## DTC B15C6 Ignition Switch Signal Malfunction

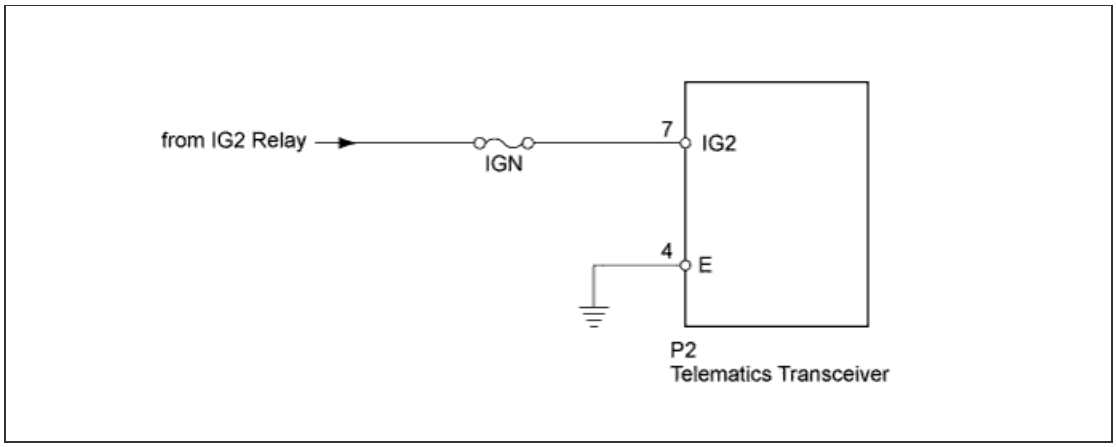
**for Preparation** Click here

### DESCRIPTION

If vehicle movement (10 km/h (6 mph) or more for 10 seconds) is detected based on the location data sent from the display and navigation module display even when the telematics transceiver detects that the engine switch is off, this DTC will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15C6 | IG signal error | • Wire harness or connector<br>• Telematics transceiver |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**HINT:**

When replacing the telematics transceiver, perform the vehicle contract setting ( Click here).

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

**1.CLEAR DTC**

a. Clear the DTC (Click here).

**NEXT**

**2.CHECK DTC**

a. Recheck for DTCs and check if the same trouble occurs again ( Click here).

**OK:**
**No DTC is output.**

**NG** → **Go to step 3**

**OK**

**END**

**3.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - BATTERY AND BODY GROUND)**

a. Disconnect the P2 telematics transceiver connector.

a. Disconnect the P2 telematics transceiver connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P2-4 (E) - Body ground | Always | Below 1 Ω |

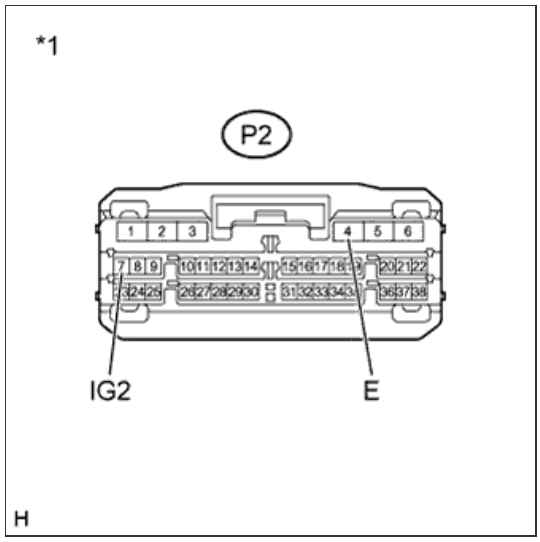
c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| P2-7 (IG2) - Body ground | Engine switch on (IG) | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Telematics Transceiver) |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE TELEMATICS TRANSCEIVER (Click here)

# DTC B15ED Backup Battery Correspondence Not Detected

**for Preparation** Click here

## DESCRIPTION

If the not compatible mayday battery is connected to the telematics transceiver, this DTC will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15ED | The installed mayday battery is not compatible. | • Mayday battery<br>• Telematics transceiver |

## INSPECTION PROCEDURE

**HINT:**

When replacing the telematics transceiver, perform the vehicle contract setting ( Click here).

### 1.CHECK DTC

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

NG → Go to step 2

OK ↓

END

### 2.CONFIRM PART NUMBER (MAYDAY BATTERY)

a. Check the mayday battery part number.

i. Check if the part number of the mayday battery installed on the vehicle is correct.

**OK:**
**86777-0W050**

NG → REPLACE MAYDAY BATTERY (Click here)

OK ↓

### 3.CONFIRM PART NUMBER (TELEMATICS TRANSCEIVER)

a. Check the telematics transceiver part number.

i. Check if the part number of the telematics transceiver installed on the vehicle is correct.

**OK:**
**86741-48020 or 86741-48040**

NG → REPLACE TELEMATICS TRANSCEIVER (Click here)

OK ↓

### 4.REPLACE MAYDAY BATTERY

a. Replace the mayday battery with a normal one and check if the same problem occurs again ( Click here).

i. Clear the DTC (Click here).

ii. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → REPLACE TELEMATICS TRANSCEIVER (Click here)

**OK**

END

## DTC B15C6 Ignition Switch Signal Malfunction

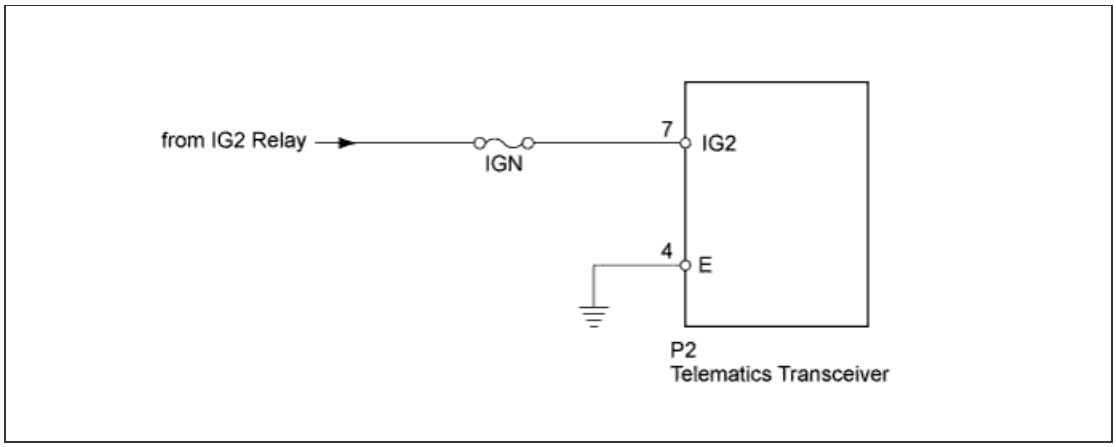
**for Preparation** Click here

### DESCRIPTION

If vehicle movement (10 km/h (6 mph) or more for 10 seconds) is detected based on the location data sent from the multi-media module receiver assembly even when the telematics transceiver detects that the engine switch is off, this DTC will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15C6 | IG signal error | • Harness or connector<br>• Telematics transceiver |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses and relays for circuits related to this system before performing the following inspection procedure.

**HINT:**

When replacing the telematics transceiver, perform the vehicle contract setting ( Click here).

#### 1.CLEAR DTC

a. Clear the DTC (Click here).

NEXT

#### 2.CHECK DTC

a. Recheck for DTCs and check if the same trouble occurs again ( Click here).

**OK:**
**No DTC is output.**

NG → Go to step 3

OK

#### USE SIMULATION METHOD TO CHECK (Click here)

#### 3.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - BATTERY AND BODY GROUND)

a. Disconnect the P2 telematics transceiver connector.

a. Disconnect the P2 telematics transceiver connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P2-4 (E) - Body ground | Always | Below 1 Ω |

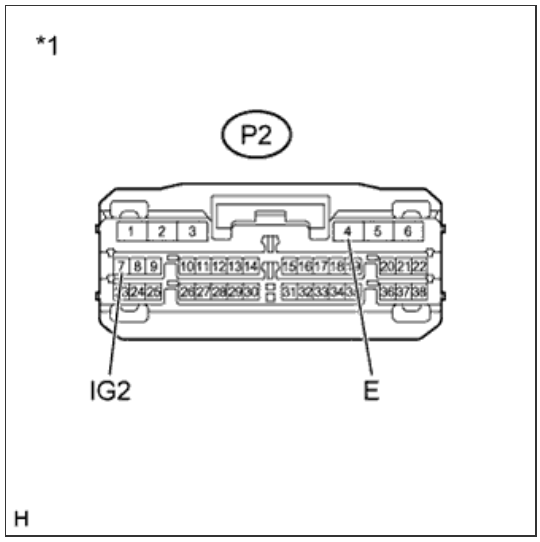
c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| P2-7 (IG2) - Body ground | Engine switch on (IG) | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Telematics Transceiver) |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE TELEMATICS TRANSCEIVER (Click here)

# DTC B15ED Backup Battery Correspondence Not Detected

**for Preparation** Click here

## DESCRIPTION

If the not compatible mayday battery is connected to the telematics transceiver, this DTC will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15ED | The installed mayday battery is not compatible. | • Mayday battery<br>• Telematics transceiver |

## INSPECTION PROCEDURE

**HINT:**

When replacing the telematics transceiver, perform the vehicle contract setting ( Click here).

### 1.CHECK DTC

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

NG → Go to step 2

OK ↓

END

### 2.CONFIRM PART NUMBER (MAYDAY BATTERY)

a. Check the mayday battery part number.

i. Check if the part number of the mayday battery installed on the vehicle is correct.

**OK:**
**86777-0W050**

NG → REPLACE MAYDAY BATTERY (Click here)

OK ↓

### 3.CONFIRM PART NUMBER (TELEMATICS TRANSCEIVER)

a. Check the telematics transceiver part number.

i. Check if the part number of the telematics transceiver installed on the vehicle is correct.

**OK:**
**86741-48020 or 86741-48040**

NG → REPLACE TELEMATICS TRANSCEIVER (Click here)

OK ↓

### 4.REPLACE MAYDAY BATTERY

a. Replace the mayday battery with a normal one and check if the same problem occurs again ( Click here).

i. Clear the DTC (Click here).

ii. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → REPLACE TELEMATICS TRANSCEIVER (Click here)

**OK**

END

# DTC B15CB Telematics Transceiver Antenna Disconnected

**for Preparation** Click here

## DESCRIPTION

If an open circuit in the telephone antenna assembly is detected continuously for 1 minute as a result of a terminal check performed by the telematics transceiver every minute after the engine switch is turned on (ACC), this DTC will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15CB | DCM antenna is not connected or has an open circuit. | • Telephone antenna assembly<br>• Telephone antenna cord sub-assembly<br>• Telematics transceiver<br>• Display and navigation module display |

## INSPECTION PROCEDURE

**HINT:**

When replacing the display and navigation module display or the telematics transceiver, perform the vehicle contract setting ( Click here).

### 1.CLEAR DTC

a. Clear the DTC (Click here).

NEXT

### 2.CHECK DTC

a. Recheck for DTCs and check if the same trouble occurs again ( Click here).

**OK:**
**No DTC is output.**

NG → Go to step 3

OK

### END

### 3.INSPECT TELEPHONE ANTENNA ASSEMBLY

a. Check the installation condition.

i. Check the telephone antenna assembly for any installation problems.

**OK:**
**The telephone antenna assembly is installed correctly.**

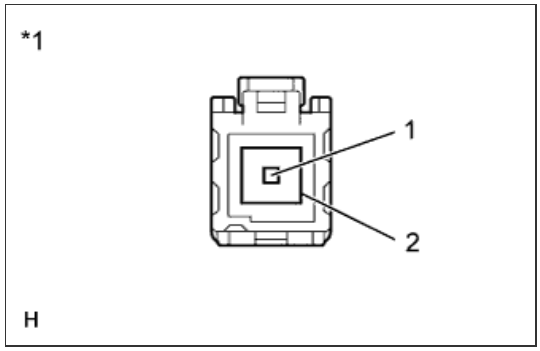
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4 to 11 kΩ |

**Text in Illustration**

| | |
|---|---|
| *1 | Telephone Antenna Assembly |

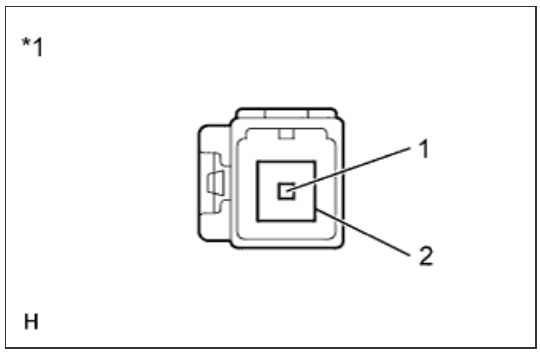


NG → REPLACE TELEPHONE ANTENNA ASSEMBLY (Click here)

OK

## 4.INSPECT TELEPHONE ANTENNA CORD SUB-ASSEMBLY

a. Disconnect the telephone antenna cord sub-assembly connector from the telephone antenna assembly.

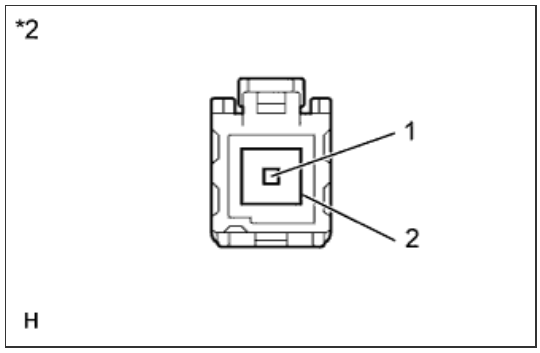



b. Disconnect the telephone antenna cord sub-assembly connector from the telematics transceiver.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 1 | Always | Below 1 Ω |
| 1 - Body ground | Always | 10 kΩ or higher |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of telephone antenna cord sub-assembly connector (to Telephone Antenna Assembly) |
| *2 | Front view of telephone antenna cord sub-assembly connector (to Telematics Transceiver) |

NG → REPLACE HARNESS OR CONNECTOR (TELEPHONE ANTENNA CORD SUB-ASSEMBLY)

OK

## 5.RECHECK DTC

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

NG → Go to step 6

OK

END

## 6.REPLACE TELEMATICS TRANSCEIVER

a. Replace the telematics transceiver with a normal one and check if the same problem occurs again ( Click here).

NEXT

7.RECHECK DTC

a. Recheck for DTCs and check if the same trouble occurs again ( Click here).

**OK:**
**No DTC is output.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

END

# DTC B15EE Telematics Contract Invalid

**for Preparation** Click here

## DESCRIPTION

If an unauthorized contract flag is stored by the G-BOOK device, this DTC will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15EE | Contract is invalid. | - |

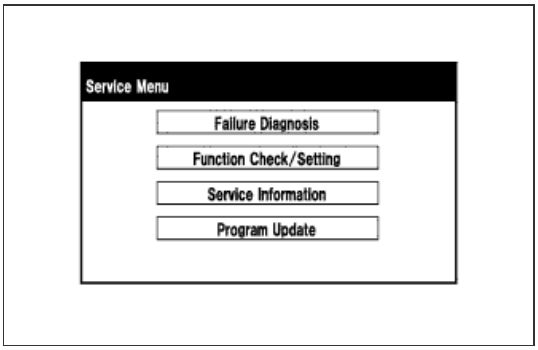
## INSPECTION PROCEDURE

### 1.CHECK CONTRACT FLAG

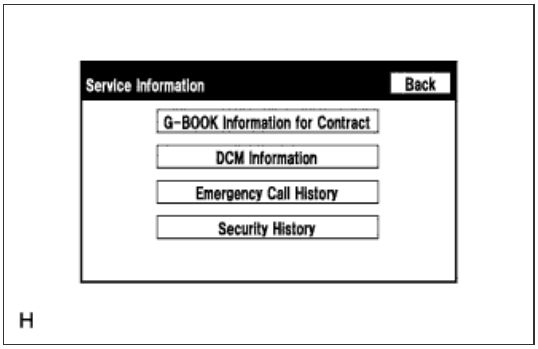
a. Check the contract flag.

i. Enter diagnostic mode (Click here).

ii. Select "Service Information" on the Service Menu screen.



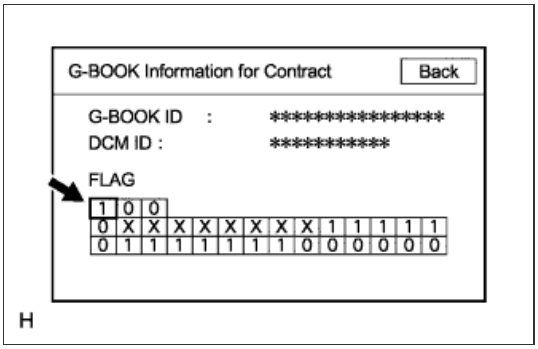

iii. Select "G-BOOK Information for Contract" on the Service Information screen.




iv. Check if the flag information shown in the illustration indicates "1".

**Result**

| Result | Proceed to |
|---|---|
| "1" is not indicated. | A |
| "1" is indicated. | B |



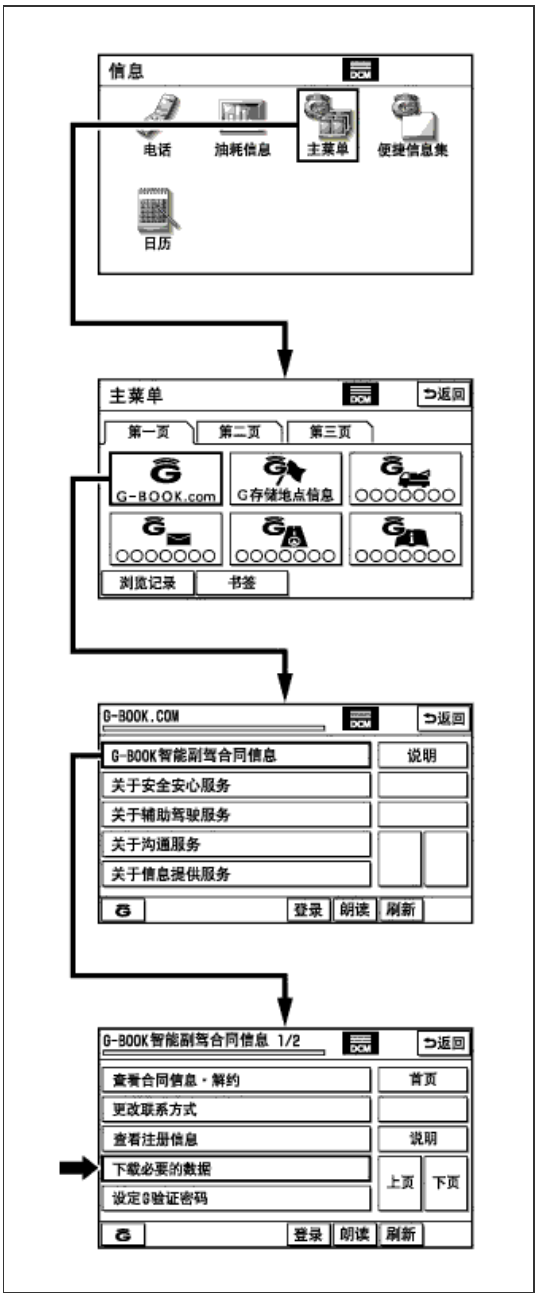

B → Go to step 3

A

## 2.PERFORM OPERATION

a. Perform "Download necessary data" again.

i. Perform the operations shown in the illustration and select "Download necessary data".




**HINT:**

The screen illustrations provided are samples only and may be different from actual screens.

**NEXT**

## 3.MANUAL MAINTENANCE CHECK

a. Manual maintenance check

i. Move the vehicle to a communication service area. Wait for a while and perform a manual maintenance check ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| Manual maintenance check does not complete normally. | A |
| Manual maintenance check completes normally. | B |

**HINT:**

If the manual maintenance check completes normally, clear history DTCs (this problem was caused by DTCs stored due to past environmental factors).

B

END

A

4.CONTACT G-BOOK SUPPORT CENTER

a. Contact the G-BOOK support center.

i. Contact the G-BOOK support center and inform them about the following.

- Flag information is either "1" or "0".
- The manual maintenance check did not complete normally.

**HINT:**

The G-BOOK support center will perform an investigation and provide the results.

NEXT

END

# DTC B15CB Telematics Transceiver Antenna Disconnected

**for Preparation** Click here

## DESCRIPTION

If an open circuit in the telephone antenna assembly is detected continuously for 1 minute as a result of a terminal check performed by the telematics transceiver every minute after the engine switch is turned on (ACC), this DTC will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15CB | DCM antenna is not connected or has an open circuit. | • Telephone antenna assembly<br>• Telephone antenna cord sub-assembly<br>• Telematics transceiver<br>• Multi-media module receiver assembly |

## INSPECTION PROCEDURE

**HINT:**

When replacing the multi-media module receiver assembly or the telematics transceiver, perform the vehicle contract setting ( Click here).

### 1.CLEAR DTC

a. Clear the DTC (Click here).

NEXT

### 2.CHECK DTC

a. Recheck for DTCs and check if the same trouble occurs again ( Click here).

**OK:**
**No DTC is output.**

NG → Go to step 3

OK

### USE SIMULATION METHOD TO CHECK (Click here)

### 3.INSPECT TELEPHONE ANTENNA ASSEMBLY

a. Check the installation condition.

i. Check the telephone antenna assembly for any installation problems.

**OK:**
**The telephone antenna assembly is installed correctly.**

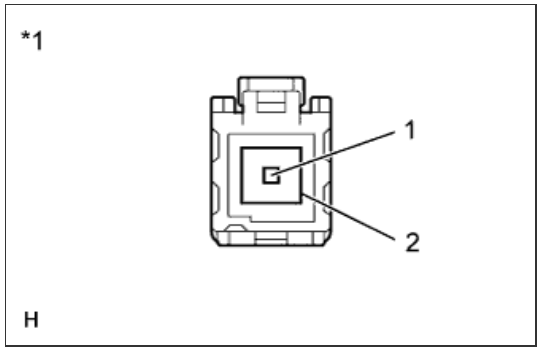
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4 to 11 kΩ |

**Text in Illustration**

| | |
|---|---|
| *1 | Telephone Antenna Assembly |

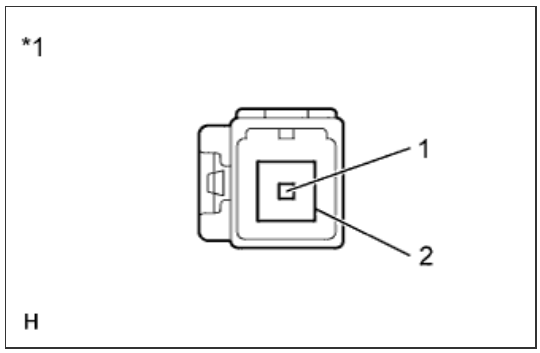


NG → REPLACE TELEPHONE ANTENNA ASSEMBLY (Click here)

OK

**4.INSPECT TELEPHONE ANTENNA CORD SUB-ASSEMBLY**

a. Disconnect the telephone antenna cord sub-assembly connector from the telephone antenna assembly.

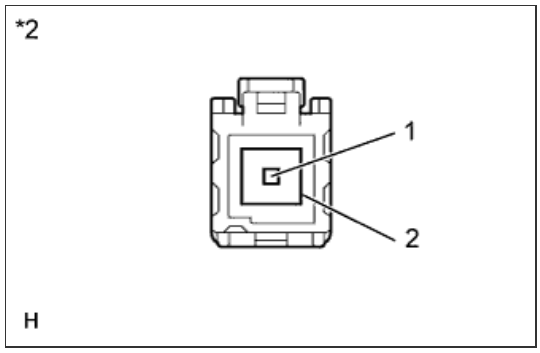



b. Disconnect the telephone antenna cord sub-assembly connector from the telematics transceiver.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 1 | Always | Below 1 Ω |
| 1 - Body ground | Always | 10 kΩ or higher |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of telephone antenna cord sub-assembly connector (to Telephone Antenna Assembly) |
| *2 | Front view of telephone antenna cord sub-assembly connector (to Telematics Transceiver) |

NG → REPLACE TELEPHONE ANTENNA CORD SUB-ASSEMBLY

OK

**5.RECHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

NG → Go to step 6

OK

USE SIMULATION METHOD TO CHECK (Click here)

**6.REPLACE TELEMATICS TRANSCEIVER**

a. Replace the telematics transceiver with a normal one ( Click here).

NEXT

7.RECHECK DTC

a. Recheck for DTCs and check if the same trouble occurs again ( Click here).

**OK:**
**No DTC is output.**

**NG** → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (**Click here**)

**OK**

END (TELEMATICS TRANSCEIVER IS DEFECTIVE)

# DTC B15EE Telematics Contract Invalid

**for Preparation** Click here

## DESCRIPTION

If an unauthorized contract flag is stored by the G-BOOK device, this DTC will be stored.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15EE | Contract is invalid. | - |

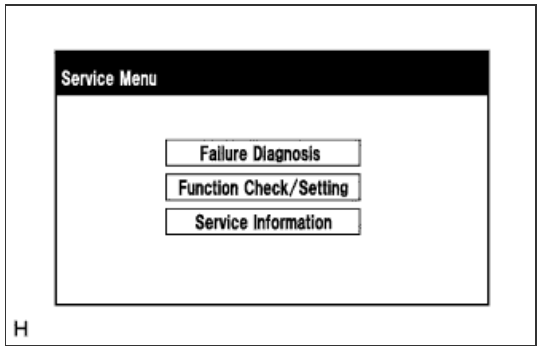
## INSPECTION PROCEDURE

### 1.CHECK CONTRACT FLAG

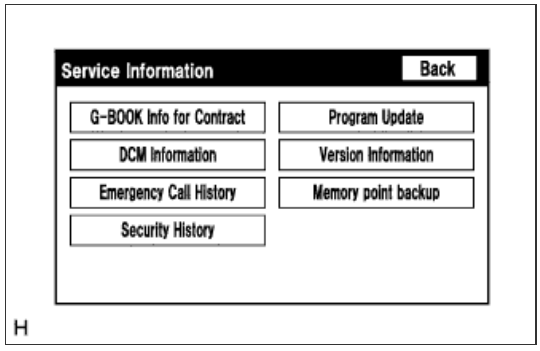
a. Check the contract flag.

i. Enter diagnostic mode (Click here).

ii. Select "Service Information" on the Service Menu screen.



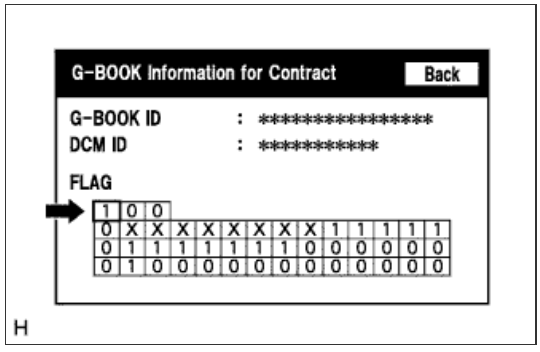

iii. Select "G-BOOK Information for Contract" on the Service Information screen.




iv. Check if the flag information shown in the illustration indicates "1".

**Result**

| Result | Proceed to |
|---|---|
| "1" is not indicated. | A |
| "1" is indicated. | B |




B → Go to step 3

A

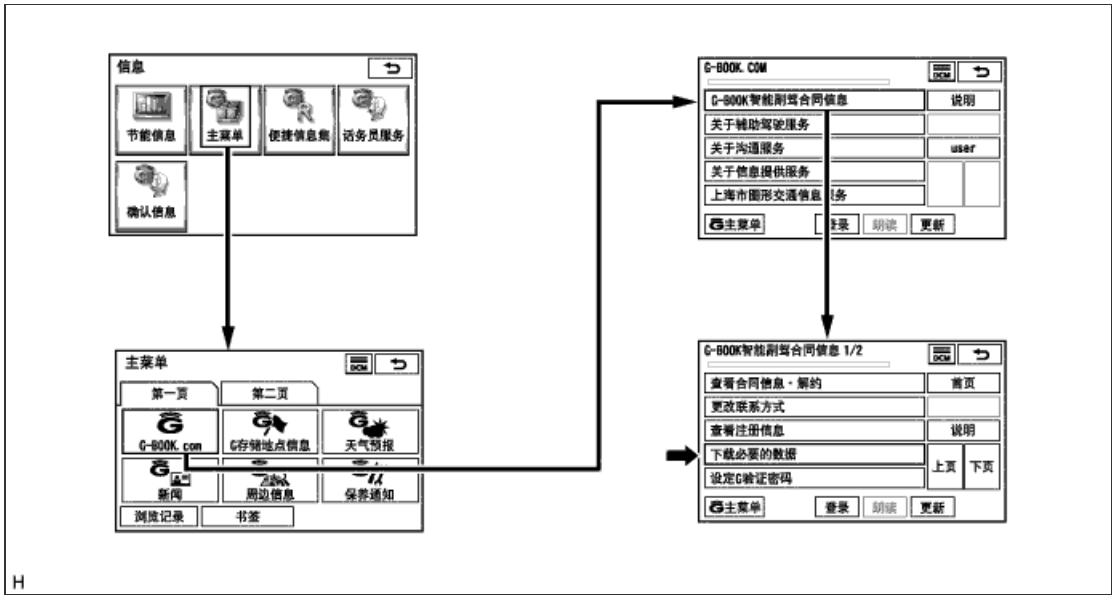
## 2.PERFORM OPERATION

a. Perform "Download necessary data" again.

i. Perform the operations shown in the illustration and select "Download necessary data".

**HINT:**

The screen illustrations provided are samples only and may be different from actual screens.




**NEXT**

## 3.MANUAL MAINTENANCE CHECK

a. Manual maintenance check

i. Move the vehicle to a communication service area. Wait for a while and perform a manual maintenance check ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| Manual maintenance check does not complete normally. | A |
| Manual maintenance check completes normally. | B |

**HINT:**

If the manual maintenance check completes normally, clear history DTCs (this problem was caused by DTCs stored due to past environmental factors).

**B** → **END**

**A**

## 4.CONTACT G-BOOK SUPPORT CENTER

a. Contact the G-BOOK support center.

i. Contact the G-BOOK support center and inform them about the following.

- Flag information is either "1" or "0".

- The manual maintenance check did not complete normally.

**HINT:**

The G-BOOK support center will perform an investigation and provide the results.

**NEXT**

**FOLLOW INSTRUCTIONS PROVIDED BY G-BOOK SUPPORT CENTER**

## DTC B15CC Backup Battery Failure

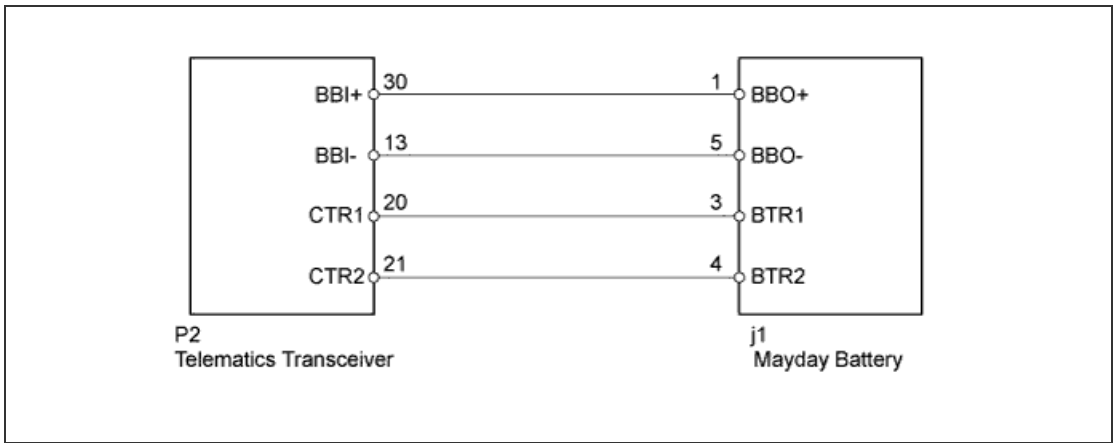
**for Preparation** Click here

### DESCRIPTION

If the telematics transceiver receives a result "Defect", "High Temperature" or "Low Voltage" or cannot receive any signals when mayday battery self-diagnosises.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15CC | Mayday battery malfunction | • Mayday battery<br>• Wire harness or connector<br>• Telematics transceiver |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**HINT:**

When replacing the telematics transceiver, perform the vehicle contract setting ( Click here).

**1.CHECK DTC**

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → **Go to step 2**

**OK**

**END**

**2.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - MAYDAY BATTERY)**

a. Disconnect the P2 telematics transceiver connector.

b. Disconnect the j1 mayday battery connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P2-30 (BBI+) - j1-1 (BBO+) | Always | Below 1 Ω |
| P2-13 (BBI-) - j1-5 | | |

| | | |
|---|---|---|
| (BBO-) | Always | Below 1 Ω |
| P2-20 (CTR1) - j1-3 (BTR1) | Always | Below 1 Ω |
| P2-21 (CTR2) - j1-4 (BTR2) | Always | Below 1 Ω |
| P2-30 (BBI+) - Body ground | Always | 10 kΩ or higher |
| P2-13 (BBI-) - Body ground | Always | 10 kΩ or higher |
| P2-20 (CTR1) - Body ground | Always | 10 kΩ or higher |
| P2-21 (CTR2) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**3.REPLACE MAYDAY BATTERY**

a. Replace the mayday battery with a normal one and check if the same problem occurs again ( Click here).

i. Clear the DTC (Click here).

ii. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

NG → REPLACE TELEMATICS TRANSCEIVER (**Click here**)

OK

**END**

# DTC B15EF Helpnet Vehicle Installation Device ID Malfunction/Unmatched

**for Preparation** Click here

## DESCRIPTION

This DTC will be stored when either of the following conditions is met:

- The mayday ID is not detected in the nonvolatile memory for 5 minutes during the mayday ID confirmations that are performed every minute after the engine switch is turned on (ACC).
- The mayday ID stored in the display and navigation module display and the mayday ID stored in the telematics transceiver are different.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15EF | Mayday ID is invalid. | - |

## INSPECTION PROCEDURE

### 1.CHECK DEVICE

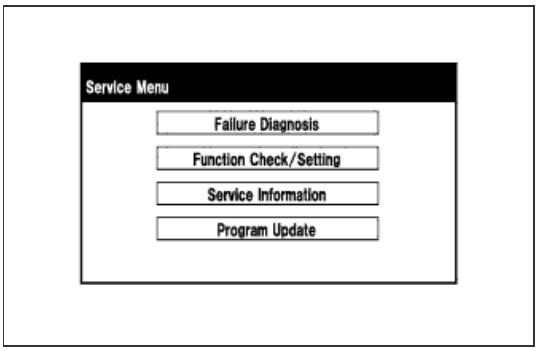
a. Check the part replacement history.

i. Check if the display and navigation module display or the telematics transceiver has been replaced in the past.

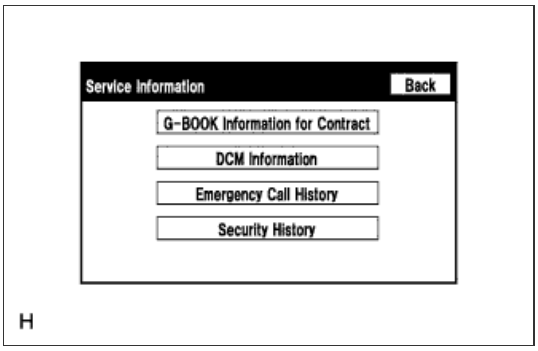
b. Check the mayday ID.

i. Enter diagnostic mode (Click here).

ii. Select "Service Information" on the Service Menu screen.




iii. Select "DCM Information" on the Service Information screen.




H

iv. Check the mayday ID using the DCM Information screen.

c. Contact the G-BOOK support center.

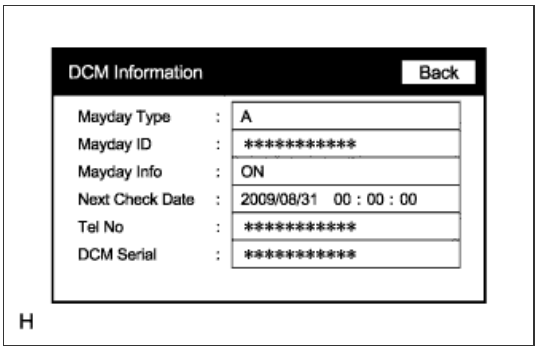
i. Contact the G-BOOK support center and inform them about the following:

- Replacement history of the display and navigation module display
- Replacement history of the telematics transceiver
- Mayday ID

**HINT:**

The G-BOOK support center will perform an investigation and provide the results.

ii. Perform the vehicle contract setting.




NEXT

## 2.CLEAR DTC

a. Clear the DTC (Click here).

NEXT

## END

# DTC B15CC Backup Battery Failure

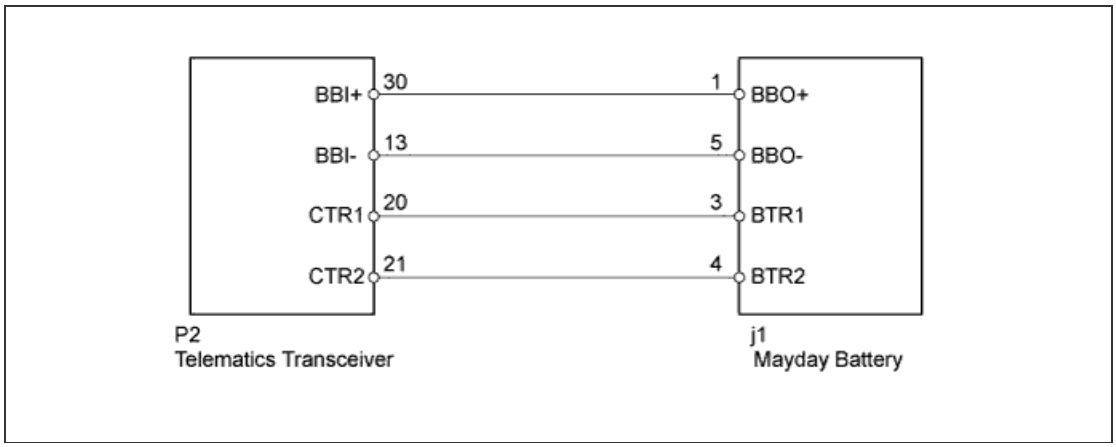
**for Preparation** Click here

## DESCRIPTION

If the telematics transceiver receives a result "Defect", "High Temperature" or "Low Voltage" or cannot receive any signals when mayday battery self-diagnosises.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15CC | Mayday battery malfunction | • Mayday battery<br>• Harness or connector<br>• Telematics transceiver |

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**HINT:**

When replacing the telematics transceiver, perform the vehicle contract setting ( Click here).

### 1.CHECK DTC

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

**NG** → **Go to step 2**

**OK**

### USE SIMULATION METHOD TO CHECK (Click here)

### 2.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - MAYDAY BATTERY)

a. Disconnect the P2 telematics transceiver connector.

b. Disconnect the j1 mayday battery connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P2-30 (BBI+) - j1-1 (BBO+) | Always | Below 1 Ω |
| P2-13 (BBI-) - j1-5 | | |

| | | |
|---|---|---|
| (BBO-) | Always | Below 1 Ω |
| P2-20 (CTR1) - j1-3 (BTR1) | Always | Below 1 Ω |
| P2-21 (CTR2) - j1-4 (BTR2) | Always | Below 1 Ω |
| P2-30 (BBI+) - Body ground | Always | 10 kΩ or higher |
| P2-13 (BBI-) - Body ground | Always | 10 kΩ or higher |
| P2-20 (CTR1) - Body ground | Always | 10 kΩ or higher |
| P2-21 (CTR2) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**3.CHECK MAYDAY BATTERY**

a. Replace the mayday battery with a normal one and check if the same problem occurs again ( Click here).

i. Clear the DTC (Click here).

ii. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

NG → REPLACE TELEMATICS TRANSCEIVER (**Click here**)

OK

**END (MAYDAY BATTERY IS DEFECTIVE)**

# DTC B15EF Helpnet Vehicle Installation Device ID Malfunction/Unmatched

**for Preparation** Click here

## DESCRIPTION

This DTC will be stored when either of the following conditions is met:

- The mayday ID is not detected in the nonvolatile memory for 5 minutes during the mayday ID confirmations that are performed every minute after the engine switch is turned on (ACC).
- The mayday ID stored in the multi-media module receiver assembly and the mayday ID stored in the telematics transceiver are different.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B15EF | Mayday ID is invalid. | - |

## INSPECTION PROCEDURE

### 1.CHECK DEVICE

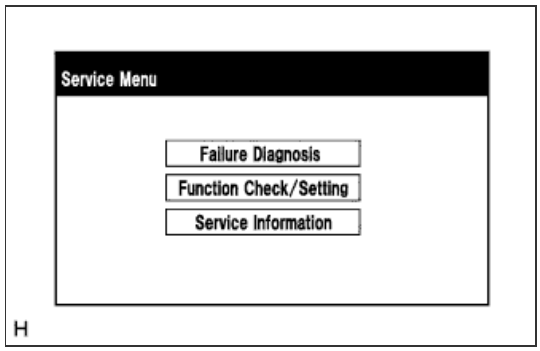
a. Check the part replacement history.

i. Check if the multi-media module receiver assembly or the telematics transceiver has been replaced in the past.

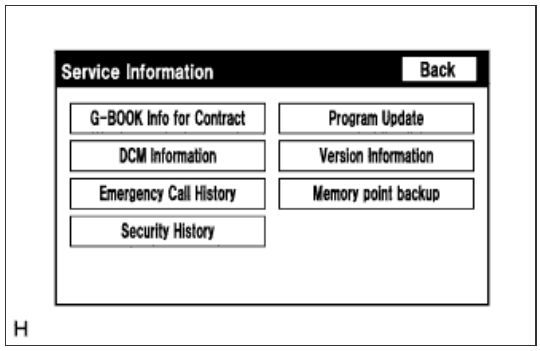
b. Check the mayday ID.

i. Enter diagnostic mode (Click here).

ii. Select "Service Information" on the Service Menu screen.




iii. Select "DCM Information" on the Service Information screen.




iv. Check the mayday ID using the DCM Information screen.

c. Contact the G-BOOK support center.

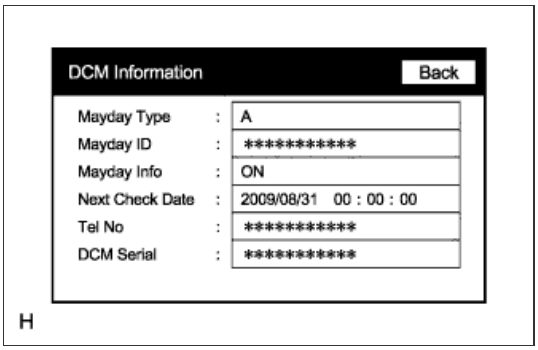
i. Contact the G-BOOK support center and inform them about the following:

- Replacement history of the multi-media module receiver assembly
- Replacement history of the telematics transceiver
- Mayday ID

**HINT:**

The G-BOOK support center will perform an investigation and provide the results.

ii. Perform the vehicle contract setting.




NEXT

## 2.CLEAR DTC

a. Clear the DTC (Click here).

NEXT

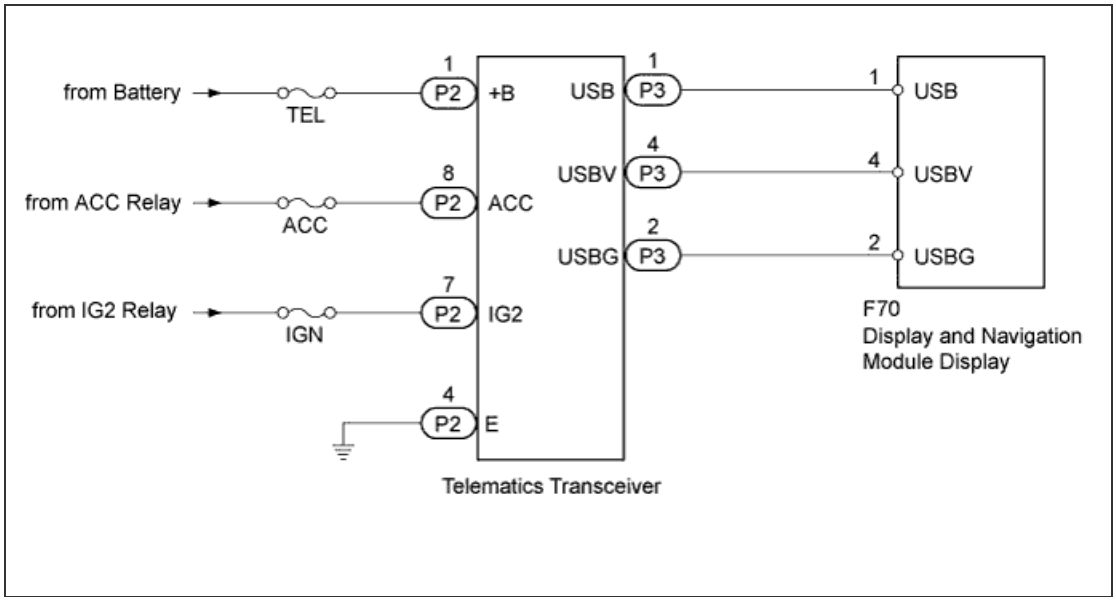
## END

**for Preparation** Click here

## DESCRIPTION

If the display and navigation module display cannot detect the DCM for a certain period of time (15 seconds) after the engine switch is turned on (ACC) and the display and navigation module display confirms that the information is missing by checking past DCM recognition information (registered information), "NCON" will be displayed.
The G-BOOK system uses USB communication between devices. If an open, short, short to +B or short to ground occurs in the USB circuit, communication is interrupted and the G-BOOK system will not operate normally.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**HINT:**

When replacing the display and navigation module display or the telematics transceiver, perform the vehicle contract setting ( Click here).

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - BATTERY AND BODY GROUND)

a. Disconnect the P2 telematics transceiver connector.

b. Measure the resistance according to the value(s) in the table below.

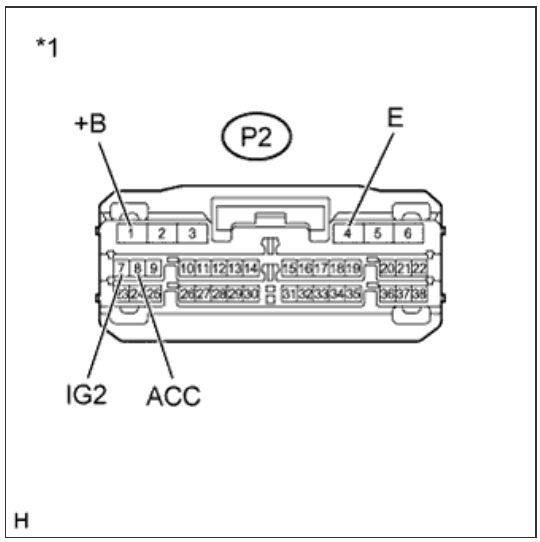
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P2-4 (E) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| P2-1 (+B) - Body ground | Engine switch off | 11 to 14 V |
| P2-7 (IG2) - Body ground | Engine switch on (IG) | 11 to 14 V |
| P2-8 (ACC) - Body | Engine switch on | |



| | | |
|---|---|---|
| ground | (ACC) | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Telematics Transceiver) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 2.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY (USBV, UGND)

a. Disconnect the F70 display and navigation module display connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F70-2 (USBG) - Body ground | Always | Below 1 Ω |

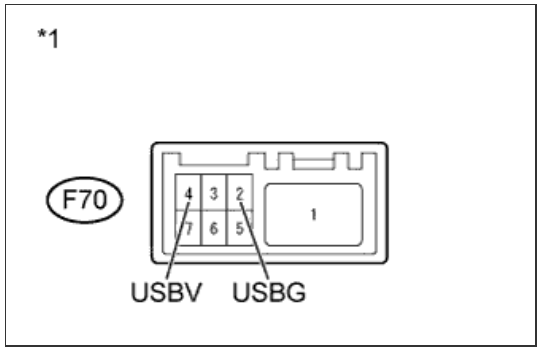
c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F70-4 (USBV) - F70-2 (USBG) | Engine switch on (ACC) | 5 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Display and Navigation Module Display) |




NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

## 3.CHECK HARNESS AND CONNECTOR (NAVIGATION ECU - TELEMATICS TRANSCEIVER)

a. Check the installation condition.

i. Check the USB communication cable (digital communication cable) between the display and navigation module display and the telematics transceiver for any installation or connection problems.

b. Disconnect the F70 display and navigation module display connector.

c. Disconnect the P3 telematics transceiver connector.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F70-1 (USB) - P3-1 (USB) | Always | Below 1 Ω |
| F70-2 (USBG) - P3-2 (USBG) | Always | Below 1 Ω |
| F70-4 (USBV) - P3-4 (USBV) | Always | Below 1 Ω |
| P3-1 (USB) - Body ground | Always | 10 kΩ or higher |
| P3-2 (USBG) - | | |

| | | |
|---|---|---|
| Body ground | Always | 10 kΩ or higher |
| P3-4 (USBV) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**4.REPLACE TELEMATICS TRANSCEIVER**

a. Replace the telematics transceiver with a normal one and check if the same problem occurs again ( Click here).

i. Perform inspections indicated on the System Check Mode screen to confirm the DCM inspection result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "OK" is displayed in "DCM" on the System Check Mode screen. | A |
| "NCON" is displayed in "DCM" on the System Check Mode screen. | B |

B → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

A

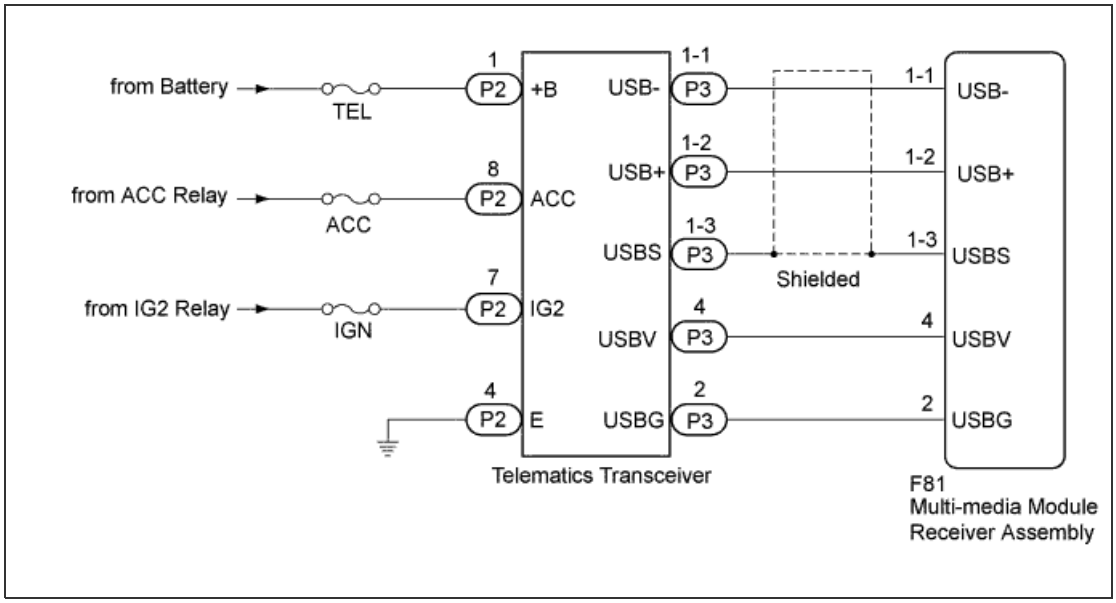
**END**

**for Preparation** Click here

## DESCRIPTION

If the multi-media module receiver assembly cannot detect the DCM for a certain period of time (15 seconds) after the engine switch is turned on (ACC) and the multi-media module receiver assembly confirms that the information is missing by checking past DCM recognition information (registered information), "NCON" will be displayed.
The G-BOOK system uses USB communication between devices. If an open, short, short to +B or short to ground occurs in the USB circuit, communication is interrupted and the G-BOOK system will not operate normally.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

**HINT:**

When replacing the multi-media module receiver assembly or the telematics transceiver, perform the vehicle contract setting ( Click here).

### 1.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - BATTERY AND BODY GROUND)

a. Disconnect the P2 telematics transceiver connector.

b. Measure the resistance according to the value(s) in the table below.

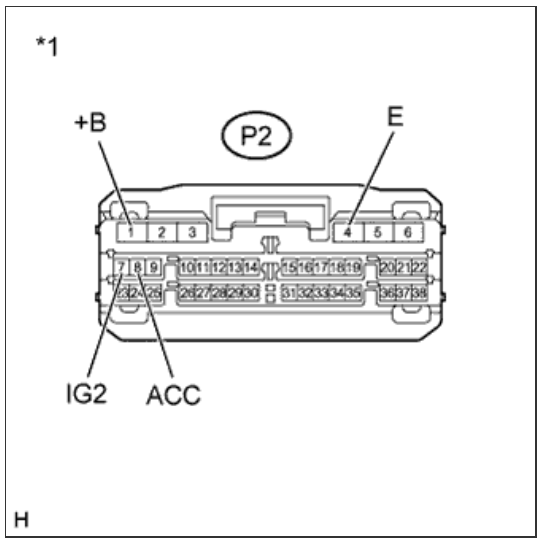
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P2-4 (E) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P2-1 (+B) - Body ground | Always | 11 to 14 V |
| P2-7 (IG2) - Body ground | Engine switch on (IG) | 11 to 14 V |
| P2-8 (ACC) - Body | Engine switch on | |



| | | |
|---|---|---|
| ground | (ACC) | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Telematics Transceiver) |

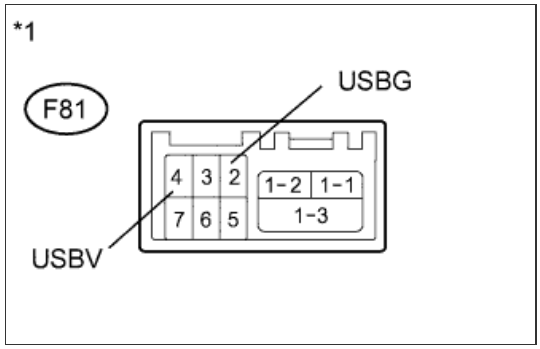
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 2.CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY (USBV, USBG)

a. Disconnect the F81 multi-media module receiver assembly connector.

b. Measure the resistance according to the value(s) in the table below.




**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F81-2 (USBG) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F81-4 (USBV) - F81-2 (USBG) | Engine switch on (ACC) | 4.75 to 5.25 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Multi-media Module Receiver Assembly) |

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

## 3.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - TELEMATICS TRANSCEIVER)

a. Check the installation condition.

i. Check the USB communication cable (digital communication cable) between the multi-media module receiver assembly and the telematics transceiver for any installation or connection problems.

b. Disconnect the F81 multi-media module receiver assembly connector.

c. Disconnect the P3 telematics transceiver connector.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F81-1-1 (USB-) - P3-1-1 (USB-) | Always | Below 1 Ω |
| F81-1-2 (USB+) - P3-1-2 (USB+) | Always | Below 1 Ω |
| F81-1-3 (USBS) - P3-1-3 (USBS) | Always | Below 1 Ω |
| F81-2 (USBG) - P3-2 (USBG) | Always | Below 1 Ω |
| F81-4 (USBV) - | | |

| | | |
|---|---|---|
| P3-4 (USBV) | Always | Below 1 Ω |
| F81-1-1 (USB-) - Body ground | Always | 10 kΩ or higher |
| F81-1-2 (USB+) - Body ground | Always | 10 kΩ or higher |
| F81-1-3 (USBS) - Body ground | Always | 10 kΩ or higher |
| F81-2 (USBG) - Body ground | Always | 10 kΩ or higher |
| P3-4 (USBV) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**4.CHECK TELEMATICS TRANSCEIVER**

a. Replace the telematics transceiver with a normal one and check if the same problem occurs again ( Click here).

i. Perform inspections indicated on the System Check Mode screen to confirm the DCM inspection result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "OK" is displayed in "DCM" on the System Check Mode screen. | A |
| "NCON" is displayed in "DCM" on the System Check Mode screen. | B |

B → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (**Click here**)

A

**END (TELEMATICS TRANSCEIVER IS DEFECTIVE)**

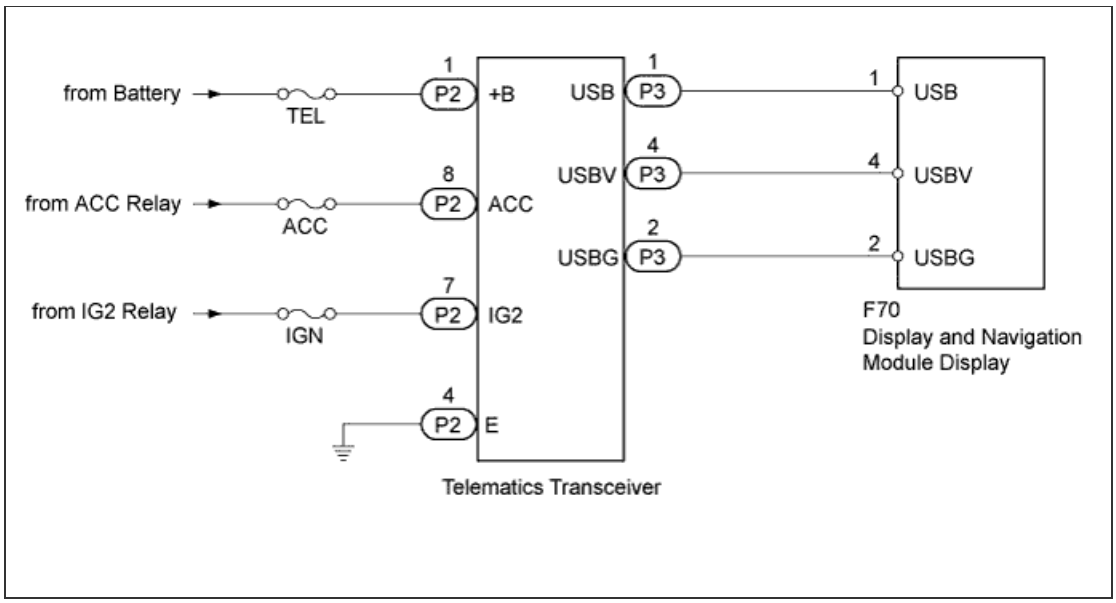
**for Preparation** Click here

## DESCRIPTION

If the telematics transceiver does not receive any of the following from the display and navigation module display within the specified time, "NRES" will be displayed.

- System inspection request signal
- System inspection result request signal
- Diagnosis memory request signal

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**HINT:**

When replacing the display and navigation module display or the telematics transceiver, perform the vehicle contract setting ( Click here).

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.INSPECTION USING "SYSTEM CHECK MODE" SCREEN

a. Perform inspections indicated on the System Check Mode screen to confirm the DCM inspection result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "NRES" is displayed in "DCM" on the System Check Mode screen. | A |
| "OK" is displayed in "DCM" on the System Check Mode screen. | B |

B → USE SIMULATION METHOD TO CHECK (**Click here**)

A

### 2.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - BATTERY AND BODY GROUND)

a. Disconnect the P2 telematics transceiver connector.

a. Disconnect the P2 telematics transceiver connector.

b. Measure the resistance according to the value(s) in the table below.

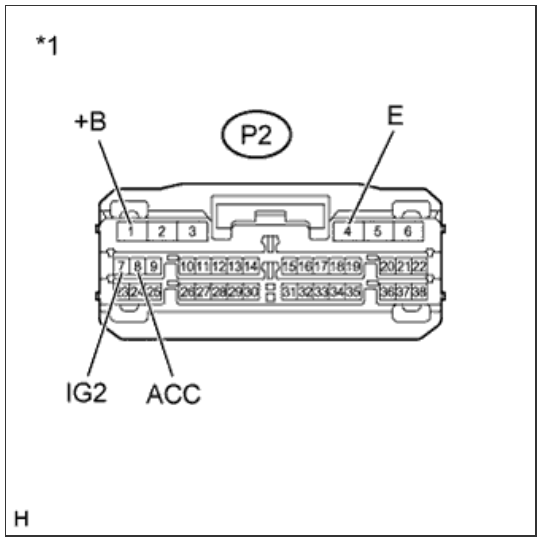
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P2-4 (E) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| P2-1 (+B) - Body ground | Engine switch off | 11 to 14 V |
| P2-7 (IG2) - Body ground | Engine switch on (IG) | 11 to 14 V |
| P2-8 (ACC) - Body ground | Engine switch on (ACC) | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Telematics Transceiver) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 3.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY (USBV, UGND)

a. Disconnect the F70 display and navigation module display connector.

b. Measure the resistance according to the value(s) in the table below.

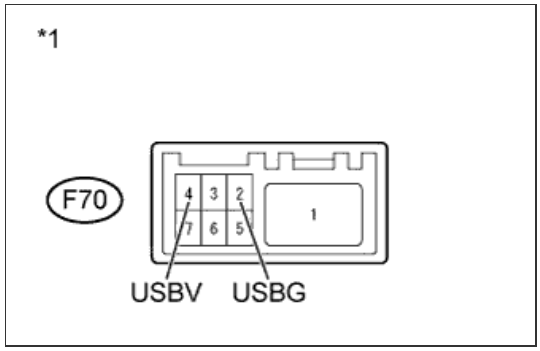
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F70-2 (USBG) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F70-4 (USBV) - F70-2 (USBG) | Engine switch on (ACC) | 5 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Display and Navigation Module Display) |

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

## 4.CHECK HARNESS AND CONNECTOR (NAVIGATION ECU - TELEMATICS TRANSCEIVER)

a. Check the installation condition.

i. Check the USB communication cable (digital communication cable) between the display and navigation module display and the

telematics transceiver for any installation or connection problems.

b. Disconnect the F70 display and navigation module display connector.

c. Disconnect the P3 telematics transceiver connector.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F70-1 (USB) - P3-1 (USB) | Always | Below 1 Ω |
| F70-2 (USBG) - P3-2 (USBG) | Always | Below 1 Ω |
| F70-4 (USBV) - P3-4 (USBV) | Always | Below 1 Ω |
| P3-1 (USB) - Body ground | Always | 10 kΩ or higher |
| P3-2 (USBG) - Body ground | Always | 10 kΩ or higher |
| P3-4 (USBV) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**5.REPLACE TELEMATICS TRANSCEIVER**

a. Replace the telematics transceiver with a normal one and check if the same problem occurs again ( Click here).

i. Perform inspections indicated on the System Check Mode screen to confirm the DCM inspection result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "OK" is displayed in "DCM" on the System Check Mode screen. | A |
| "NRES" is displayed in "DCM" on the System Check Mode screen. | B |

B → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

A

END

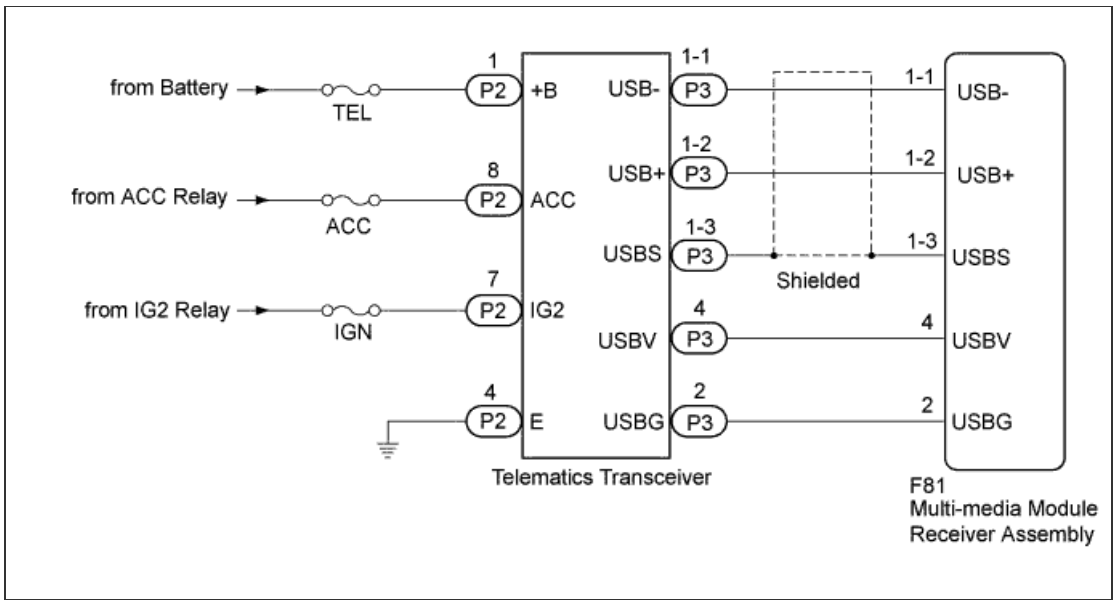
**for Preparation** Click here

## DESCRIPTION

If the telematics transceiver does not receive any of the following from the multi-media module receiver assembly within the specified time, "NRES" will be displayed.

- System inspection request signal
- System inspection result request signal
- Diagnosis memory request signal

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

**HINT:**

When replacing the multi-media module receiver assembly or the telematics transceiver, perform the vehicle contract setting ( Click here).

### 1.INSPECTION USING "SYSTEM CHECK MODE" SCREEN

a. Perform inspections indicated on the System Check Mode screen to confirm the DCM inspection result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "NRES" is displayed in "DCM" on the System Check Mode screen. | A |
| "OK" is displayed in "DCM" on the System Check Mode screen. | B |

B → USE SIMULATION METHOD TO CHECK (**Click here**)

A

### 2.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - BATTERY AND BODY GROUND)

a. Disconnect the P2 telematics transceiver connector.

b. Measure the resistance according to the value(s) in the table below.

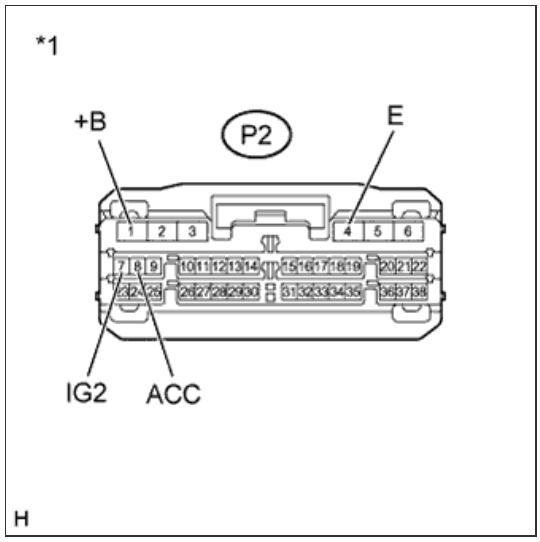
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P2-4 (E) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P2-1 (+B) - Body ground | Always | 11 to 14 V |
| P2-7 (IG2) - Body ground | Engine switch on (IG) | 11 to 14 V |
| P2-8 (ACC) - Body ground | Engine switch on (ACC) | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Telematics Transceiver) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 3.CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY (USBV, USBG)

a. Disconnect the F81 multi-media module receiver assembly connector.

b. Measure the resistance according to the value(s) in the table below.

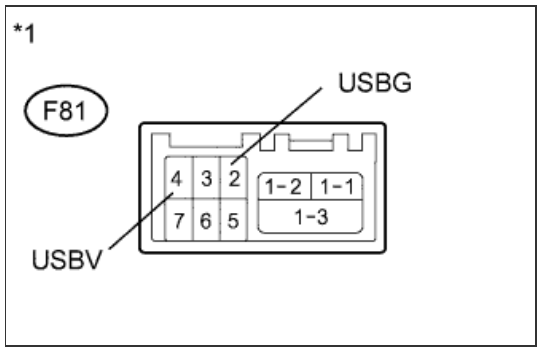
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F81-2 (USBG) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F81-4 (USBV) - F81-2 (USBG) | Engine switch on (ACC) | 4.75 to 5.25 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Multi-media Module Receiver Assembly) |

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

## 4.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - TELEMATICS TRANSCEIVER)

a. Check the installation condition.

i. Check the USB communication cable (digital communication cable) between the multi-media module receiver assembly and the

telematics transceiver for any installation or connection problems.

b. Disconnect the F81 multi-media module receiver assembly connector.

c. Disconnect the P3 telematics transceiver connector.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F81-1-1 (USB-) - P3-1-1 (USB-) | Always | Below 1 Ω |
| F81-1-2 (USB+) - P3-1-2 (USB+) | Always | Below 1 Ω |
| F81-1-3 (USBS) - P3-1-3 (USBS) | Always | Below 1 Ω |
| F81-2 (USBG) - P3-2 (USBG) | Always | Below 1 Ω |
| F81-4 (USBV) - P3-4 (USBV) | Always | Below 1 Ω |
| F81-1-1 (USB-) - Body ground | Always | 10 kΩ or higher |
| F81-1-2 (USB+) - Body ground | Always | 10 kΩ or higher |
| F81-1-3 (USBS) - Body ground | Always | 10 kΩ or higher |
| F81-2 (USBG) - Body ground | Always | 10 kΩ or higher |
| P3-4 (USBV) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**5.CHECK TELEMATICS TRANSCEIVER**

a. Replace the telematics transceiver with a normal one and check if the same problem occurs again ( Click here).

i. Perform inspections indicated on the System Check Mode screen to confirm the DCM inspection result ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| "OK" is displayed in "DCM" on the System Check Mode screen. | A |
| "NRES" is displayed in "DCM" on the System Check Mode screen. | B |

B → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

A

**END (TELEMATICS TRANSCEIVER IS DEFECTIVE)**

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

When replacing the display and navigation module display or the telematics transceiver, perform the vehicle contract setting ( Click here).

### 1.CHECK COMMUNICATION SERVICE CONDITION

a. Move the vehicle.

i. If the vehicle is outside the communication service area, move the vehicle to a communication service area, wait for a while and perform the operation again.

NEXT

### 2.CHECK DTC

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

NG → Go to step 3

OK

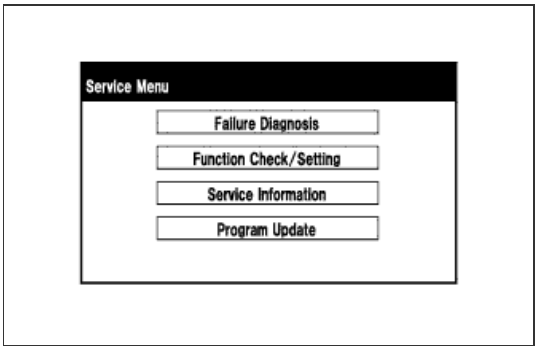
### GO TO DTC CHART

### 3.DCM CHECK

a. DCM Check

i. Enter diagnostic mode (Click here).

ii. Select "Failure Diagnosis" on the Service Menu screen.

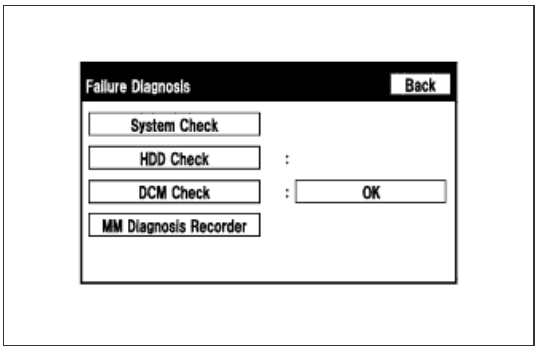



iii. Select "DCM Check" on the Failure Diagnosis screen to perform the DCM Check.

**Result**

| Result | Proceed to |
|---|---|
| • DCM Check cannot be performed. | A |

| | |
|---|---|
| • "OK" is displayed for the result of DCM Check. | |
| • "No Service" is displayed for the result of DCM Check.<br>• "RESTRICTION" is displayed for the result of DCM Check. | B |
| "OFF LINE" is displayed for the result of DCM Check. | C |
| "NO CARRIER" is displayed for the result of DCM Check. | D |
| "ERROR" is displayed for the result of DCM Check. | E |




**HINT:**

If the vehicle is moved while the screen is displayed, select "DCM Check" again to renew the result.

| | |
|---|---|
| B | MOVE VEHICLE |
| C | Go to step 12 |
| D | CONTACT G-BOOK SUPPORT CENTER |
| E | Go to step 13 |

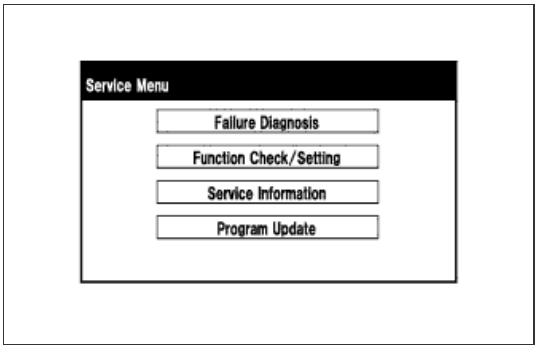
A

## 4.CONTACT G-BOOK SUPPORT CENTER

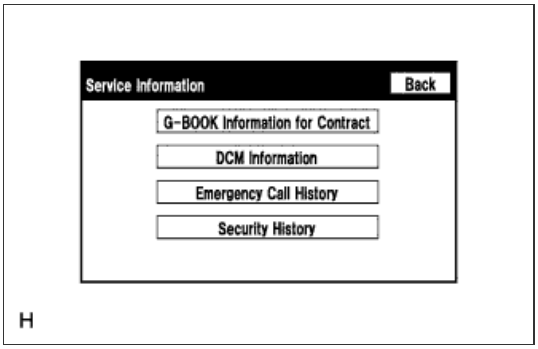
a. Check the contract flag.

i. Enter diagnostic mode (Click here).

ii. Select "Service Information" on the Service Menu screen.

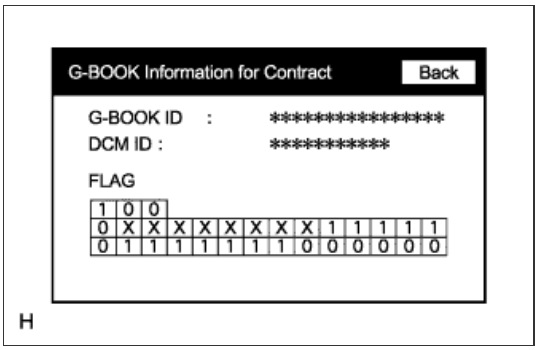



iii. Select "G-BOOK Information for Contract" on the Service Information screen.



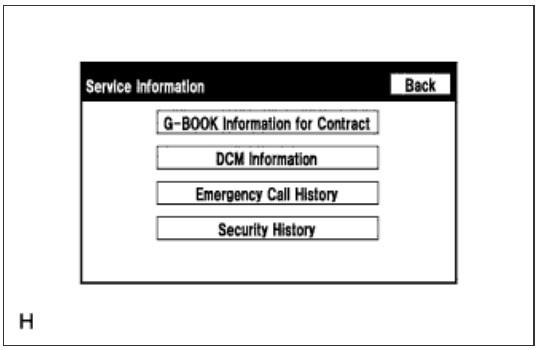

H

iv. Check the flag information item.



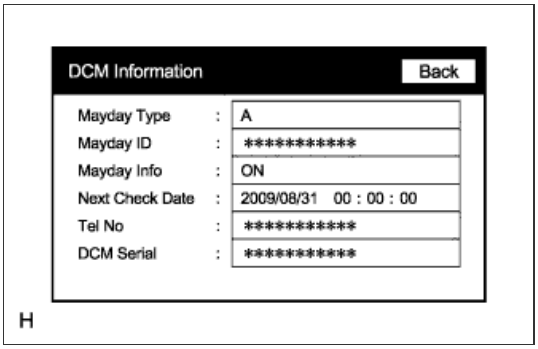

b. Check the device information.

i. Select "DCM Information" on the Service Information screen.




ii. Check the following items on the DCM Information screen.

| Item | Content |
|---|---|
| Tel No | Check if the DCM phone number is displayed. If the number is displayed, record it. |
| DCM Serial | Record the DCM serial number. |




c. Contact the G-BOOK support center.

i. Contact the G-BOOK support center and inform them about the following:

- Phenomenon: Communication has been initialized but communication is not possible.
- Flag information
- Telephone number (Tel No): Not displayed / Displayed number
- Serial number (DCM Serial): Displayed number
- VIN

**HINT:**

The G-BOOK support center will perform an investigation and provide the results.

ii. Check for problem symptoms after receiving a call from the G-BOOK support center.

**Result**

| Result | Proceed to |
|---|---|
| Problem symptom recurs. | A |
| System returns to normal. | B |

B → END

A

**5.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY (USBV, UGND)**

a. Disconnect the F70 display and navigation module display connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F70-2 (USBG) - Body ground | Always | Below 1 Ω |

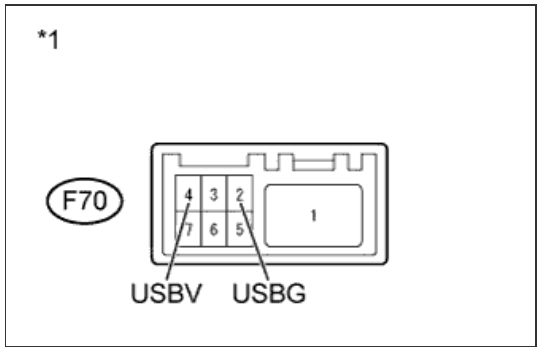
c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F70-4 (USBV) - F70-2 (USBG) | Engine switch on (ACC) | 5 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Display and Navigation Module Display) |




NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

## 6.CHECK HARNESS AND CONNECTOR (NAVIGATION ECU - TELEMATICS TRANSCEIVER)

a. Check the installation condition.

i. Check the USB communication cable (digital communication cable) between the display and navigation module display and the telematics transceiver for any installation or connection problems.

b. Disconnect the F70 display and navigation module display connector.

c. Disconnect the P3 telematics transceiver connector.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F70-1 (USB) - P3-1 (USB) | Always | Below 1 Ω |
| F70-2 (USBG) - P3-2 (USBG) | Always | Below 1 Ω |
| F70-4 (USBV) - P3-4 (USBV) | Always | Below 1 Ω |
| P3-1 (USB) - Body ground | Always | 10 kΩ or higher |
| P3-2 (USBG) - Body ground | Always | 10 kΩ or higher |
| P3-4 (USBV) - Body ground | Always | 10 kΩ or higher |

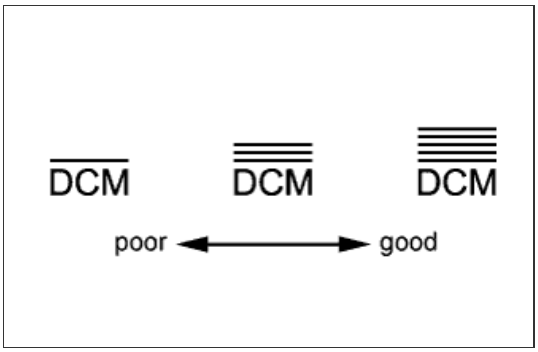
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 7.CHECK RECEPTION LEVEL

a. Check the reception level.

i. Check the reception level of the DCM.




**HINT:**

- **Check if the reception level is significantly lower by comparing it to a China Telecom cellular phone.**
- **If there is no China Telecom cellular phone available, move the vehicle to a location where the reception level indicator shows 3 bars or more.**
- **If a problem occurred because the G-BOOK contract has not been completed, proceed to the contract procedure and check the DCM reception level on the screen during the contract procedure.**

**Result**

| Result | Proceed to |
|---|---|
| • The reception level is not lower than a China Telecom cellular phone.<br>• 3 or more bars are displayed for the reception level. | A |
| • The reception level is lower than a China Telecom cellular phone.<br>• Cannot reach 3 or more bars for the reception level even after moving the vehicle. | B |

B → Go to step 9

A

## 8.REPLACE TELEMATICS TRANSCEIVER

a. Replace the telematics transceiver with a normal one and check if the same problem occurs again ( Click here).

**OK:**
**The system returns to normal.**

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

END

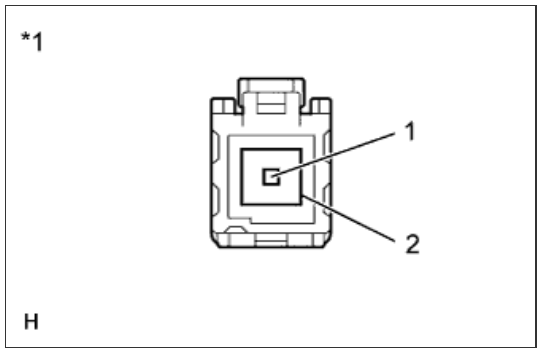
## 9.INSPECT TELEPHONE ANTENNA ASSEMBLY

a. Check the installation condition.

i. Check the telephone antenna assembly for any installation problems.

**OK:**
**The telephone antenna assembly is installed correctly.**

b. Measure the resistance according to the value(s) in the table below.




**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4 to 11 kΩ |

**Text in Illustration**

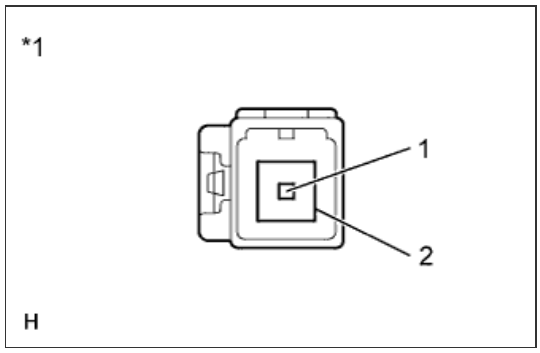
| | |
|---|---|
| *1 | Telephone Antenna Assembly |

NG → REPLACE TELEPHONE ANTENNA ASSEMBLY (Click here)

OK ↓

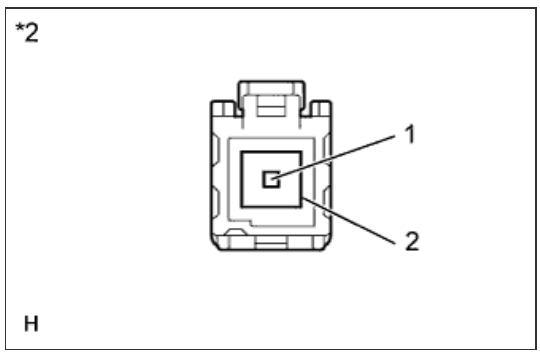
**10.INSPECT TELEPHONE ANTENNA CORD SUB-ASSEMBLY**

a. Disconnect the telephone antenna cord sub-assembly connector from the telephone antenna assembly.




b. Disconnect the telephone antenna cord sub-assembly connector from the telematics transceiver.

c. Measure the resistance according to the value(s) in the table below.




**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 1 | Always | Below 1 Ω |
| 1 - Body ground | Always | 10 kΩ or higher |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of telephone antenna cord sub-assembly connector (to Telephone Antenna Assembly) |
| *2 | Front view of telephone antenna cord sub-assembly connector (to Telematics Transceiver) |

NG → REPLACE HARNESS OR CONNECTOR (TELEPHONE ANTENNA CORD SUB-ASSEMBLY)

OK ↓

## 11.REPLACE TELEMATICS TRANSCEIVER

a. Replace the telematics transceiver with a normal one and check if the same problem occurs again ( Click here).

b. Recheck for DTCs and check if the same trouble occurs again ( Click here).

**OK:**
**No DTC is output.**

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK

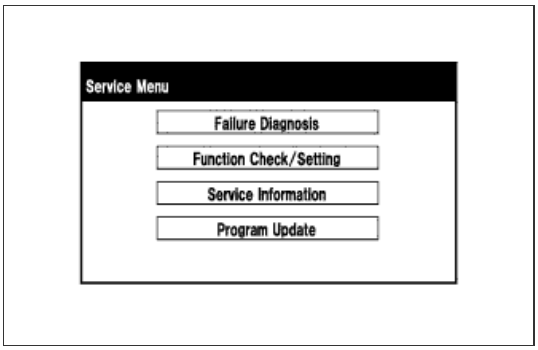
## END

## 12.CHECK CONTRACT FLAG

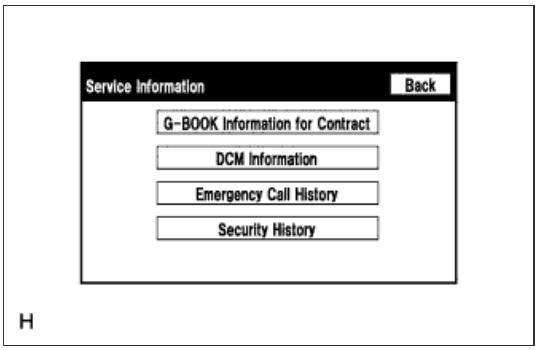
a. Check the contract flag.

i. Enter diagnostic mode (Click here).

ii. Select "Service Information" on the Service Menu screen.



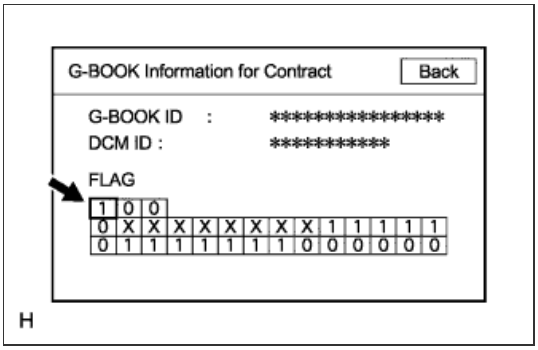

iii. Select "G-BOOK Information for Contract" on the Service Information screen.




iv. Check if the flag information shown in the illustration indicates "1".

v. Turn the engine switch off and then on (ACC).

vi. Check again if the flag information shown in the illustration indicates "1".




b. Recheck the problem symptom.

i. Select G-BOOK.com and perform the contract procedure again.

ii. Check for the problem symptom.

**Result**

| Result | Proceed to |
|---|---|

| | |
|---|---|
| Contract flag indicates "1" and the system returns to normal. | A |
| Contract flag indicates "1" but the problem symptom recurs. | B |
| Contract flag does not indicate "1" and the problem symptom recurs. | C |

B → REPLACE TELEMATICS TRANSCEIVER (Click here)

C → CONTACT G-BOOK SUPPORT CENTER

A

END

13.CHECK PROBLEM SYMPTOM (IG OFF to ACC ON)

a. Check for the problem symptom.

i. Turn the engine switch off and then on (ACC).

ii. Check if the problem symptom recurs.

Result

| Result | Proceed to |
|---|---|
| System returns to normal. | A |
| System does not return to normal. | B |

B → REPLACE TELEMATICS TRANSCEIVER (Click here)

A

END

**for Preparation** Click here

## INSPECTION PROCEDURE

**HINT:**

When replacing the multi-media module receiver assembly or the telematics transceiver, perform the vehicle contract setting ( Click here).

### 1.CHECK COMMUNICATION SERVICE CONDITION

a. Move the vehicle.

i. If the vehicle is outside the communication service area, move the vehicle to a communication service area, wait for a while and perform the operation again.

NEXT

### 2.CHECK DTC

a. Clear the DTC (Click here).

b. Check for DTCs and check if the same trouble occurs again.

**OK:**
**No DTC is output.**

NG → Go to step 3

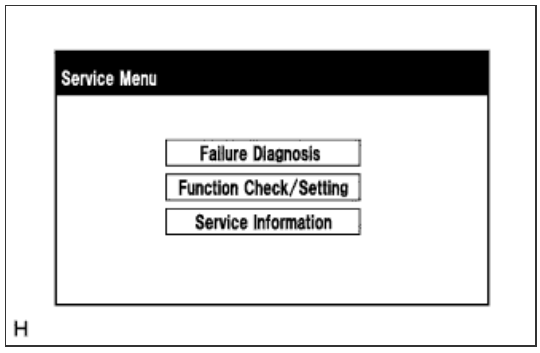
OK

GO TO DTC CHART (**Click here**)

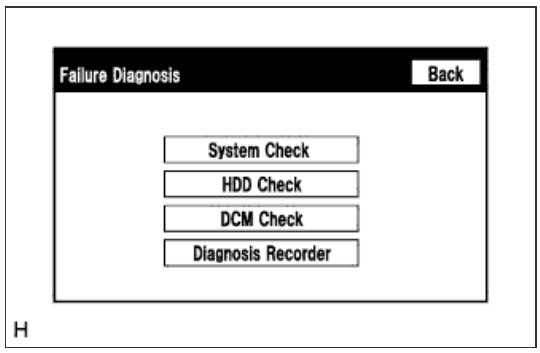
### 3.DCM CHECK

a. Enter diagnostic mode (Click here).

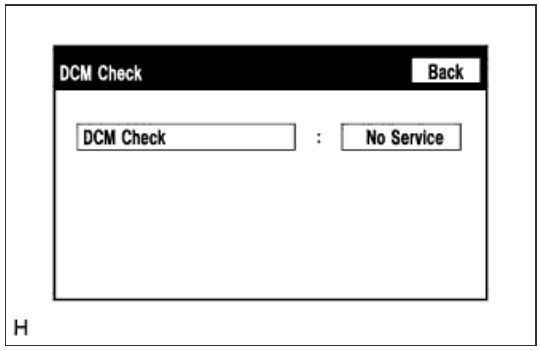
b. Select "Failure Diagnosis" on the Service Menu screen.




c. Select "DCM Check" on the Failure Diagnosis screen to perform the DCM Check.



d. Touch "DCM Check" to perform the DCM Check.




**Result**

| Result | Proceed to |
|---|---|
| • DCM Check cannot be performed.<br>• OK" is displayed for the result of DCM Check. | A |
| "No Service" is displayed for the result of DCM Check. | B |
| "OFF LINE" is displayed for the result of DCM Check. | C |
| "NO CARRIER" is displayed for the result of DCM Check. | D |
| Other results are displayed for the result of DCM Check. | E |

**HINT:**

If the vehicle is moved while the screen is displayed, select "DCM Check" again to renew the result.

| | |
|---|---|
| B | MOVE VEHICLE |
| C | Go to step 13 |
| D | CONTACT G-BOOK SUPPORT CENTER |
| E | Go to step 9 |

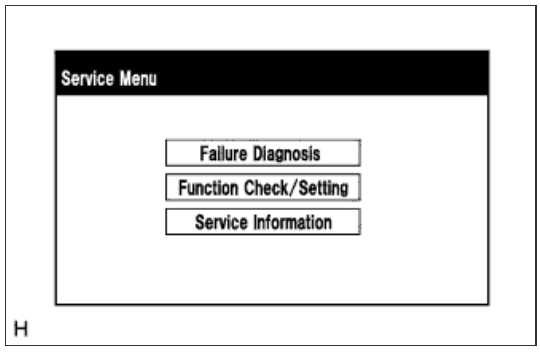
A

## 4.CONTACT G-BOOK SUPPORT CENTER

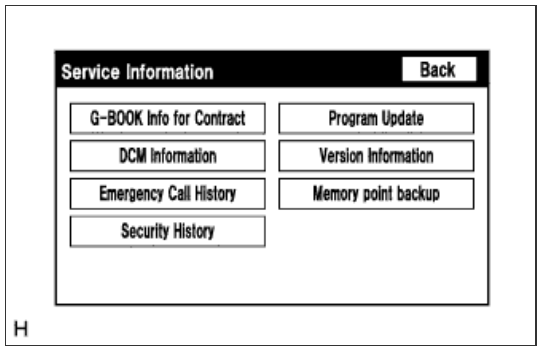
a. Check the contract flag.

i. Enter diagnostic mode (Click here).

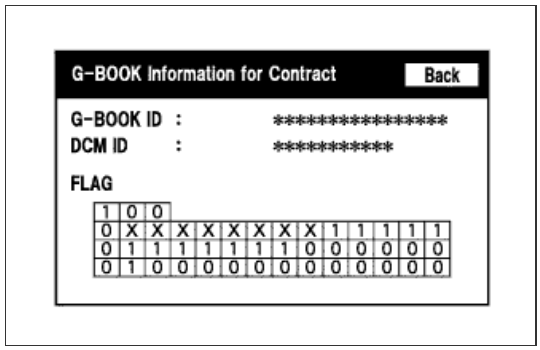
ii. Select "Service Information" on the Service Menu screen.




iii. Select "G-BOOK Information for Contract" on the Service Information screen.

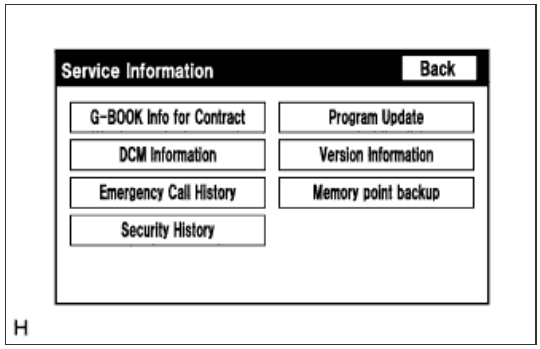



iv. Check the flag information item.



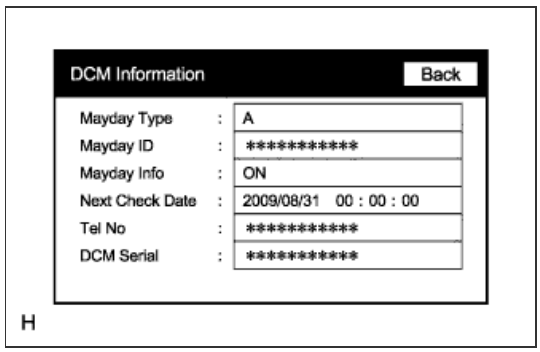

b. Check the device information.

i. Select "DCM Information" on the Service Information screen.




ii. Check the following items on the DCM Information screen.

| Item | Content |
|---|---|
| Tel No | Check if the DCM phone number is displayed. If the number is displayed, record it. |
| DCM Serial | Record the DCM serial number. |




c. Contact the G-BOOK support center.

i. Contact the G-BOOK support center and inform them about the following:

- Phenomenon: Communication has been initialized but communication is not possible.
- Flag information
- Telephone number (Tel No): Not displayed / Displayed number
- Serial number (DCM Serial): Displayed number
- VIN

**HINT:**

The G-BOOK support center will perform an investigation and provide the results.

ii. Check for problem symptoms after receiving a call from the G-BOOK support center.

**Result**

| Result | Proceed to |
|---|---|
| System does not return to normal. | A |
| System returns to normal. | B |

B → END

A

## 5.CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY (USBV, USBG)

a. Disconnect the F81 multi-media module receiver assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F81-2 (USBG) - Body ground | Always | Below 1 Ω |

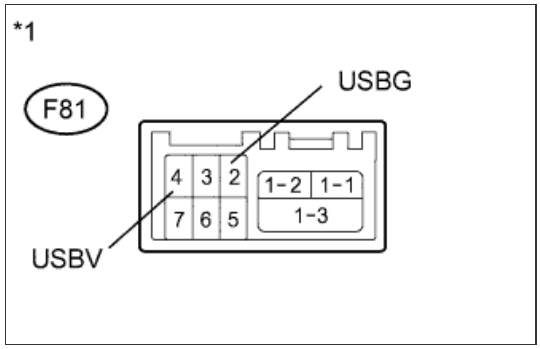
c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F81-4 (USBV) - F81-2 (USBG) | Engine switch on (ACC) | 4.75 to 5.25 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Multi-media Module Receiver Assembly) |




NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

## 6.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - TELEMATICS TRANSCEIVER)

a. Check the installation condition.

i. Check the USB communication cable (digital communication cable) between the multi-media module receiver assembly and the telematics transceiver for any installation or connection problems.

b. Disconnect the F81 multi-media module receiver assembly connector.

c. Disconnect the P3 telematics transceiver connector.

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F81-1-1 (USB-) - P3-1-1 (USB-) | Always | Below 1 Ω |
| F81-1-2 (USB+) - P3-1-2 (USB+) | Always | Below 1 Ω |
| F81-1-3 (USBS) - P3-1-3 (USBS) | Always | Below 1 Ω |
| F81-2 (USBG) - P3-2 (USBG) | Always | Below 1 Ω |
| F81-4 (USBV) - P3-4 (USBV) | Always | Below 1 Ω |

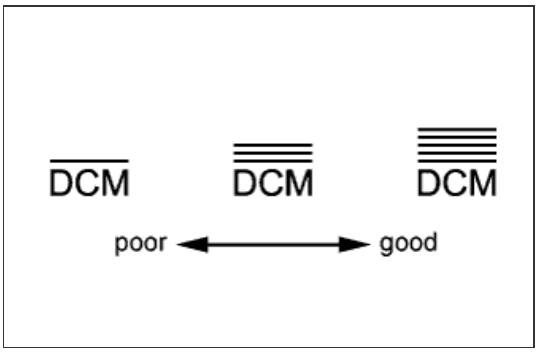
| | | |
|---|---|---|
| F81-1-1 (USB-) - Body ground | Always | 10 kΩ or higher |
| F81-1-2 (USB+) - Body ground | Always | 10 kΩ or higher |
| F81-1-3 (USBS) - Body ground | Always | 10 kΩ or higher |
| F81-2 (USBG) - Body ground | Always | 10 kΩ or higher |
| P3-4 (USBV) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**7.CHECK RECEPTION LEVEL**

a. Check the reception level.




i. Check the reception level of the DCM.

**HINT:**

- **Check if the reception level is significantly lower by comparing it to a China Telecom cellular phone.**
- **If there is no China Telecom cellular phone available, move the vehicle to a location where the reception level indicator shows 3 bars or more.**
- **If a problem occurred because the G-BOOK contract has not been completed, proceed to the contract procedure and check the DCM reception level on the screen during the contract procedure.**

**Result**

| Result | Proceed to |
|---|---|
| • The reception level is not lower than a China Telecom cellular phone.<br>• 3 or more bars are displayed for the reception level. | A |
| • The reception level is lower than a China Telecom cellular phone.<br>• Cannot reach 3 or more bars for the reception level even after moving the vehicle. | B |

B → Go to step 10

A

**8.REPLACE TELEMATICS TRANSCEIVER**

a. Replace the telematics transceiver with a known good one and check if the same problem occurs again ( Click here).

**OK:**
**The system returns to normal.**

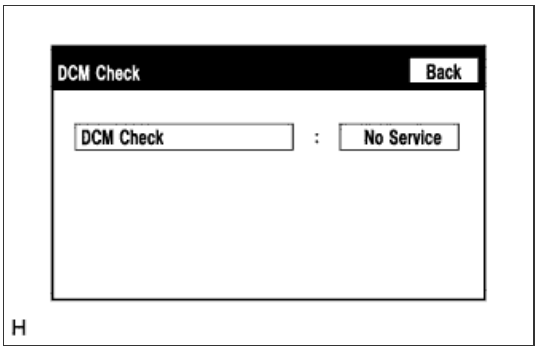
NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY

OK

**END (TELEMATICS TRANSCEIVER IS DEFECTIVE)**

## 9.DCM CHECK

a. Touch "DCM Check" to perform the DCM Check.




**Result**

| Result | Proceed to |
|---|---|
| "RESTRICTION" is displayed for the result of DCM Check. | A |
| "NO ANTENNA" is displayed for the result of DCM Check. | B |
| "ERROR" is displayed for the result of DCM Check. | C |
| "PLL LOCK" is displayed for the result of DCM Check. | D |
| "TIME OUT" is displayed for the result of DCM Check. | E |

**HINT:**

If the vehicle is moved while the screen is displayed, select "DCM Check" again to renew the result.

| | |
|---|---|
| B | Go to step 10 |
| C | Go to step 14 |
| D | Go to step 15 |
| E | DCM CHECK AGAIN |

A

RETRY AFTER WAITING FOR 10 TO 30 MINUTES

## 10.INSPECT TELEPHONE ANTENNA ASSEMBLY

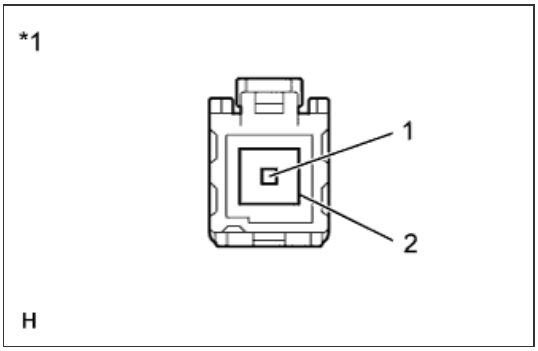
a. Check the installation condition.

i. Check the telephone antenna assembly for any installation problems.

**OK:**

**The telephone antenna assembly is installed correctly.**

b. Measure the resistance according to the value(s) in the table below.




**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Always | 4 to 11 kΩ |

**Text in Illustration**

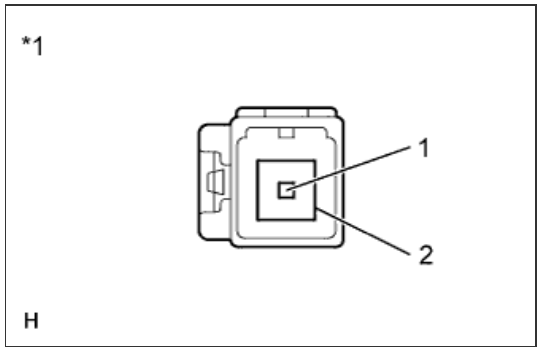
| | |
|---|---|
| *1 | Telephone Antenna Assembly |

NG → REPLACE TELEPHONE ANTENNA ASSEMBLY

OK

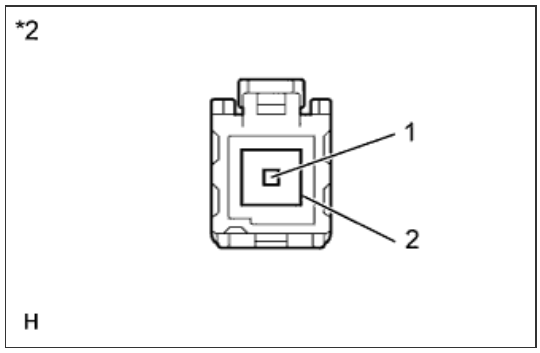
## 11.INSPECT TELEPHONE ANTENNA CORD SUB-ASSEMBLY

a. Disconnect the telephone antenna cord sub-assembly connector from the telephone antenna assembly.




b. Disconnect the telephone antenna cord sub-assembly connector from the telematics transceiver.

c. Measure the resistance according to the value(s) in the table below.




**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 1 | Always | Below 1 Ω |
| 1 - Body ground | Always | 10 kΩ or higher |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of telephone antenna cord sub-assembly connector (to Telephone Antenna Assembly) |
| *2 | Front view of telephone antenna cord sub-assembly connector (to Telematics Transceiver) |

NG → REPLACE TELEVISION ANTENNA CORD SUB-ASSEMBLY (**Click here**)

OK

**12.CHECK TELEMATICS TRANSCEIVER**

a. Replace the telematics transceiver with a known good one and check if the same problem occurs again ( Click here).

b. Recheck for DTCs and check if the same trouble occurs again ( Click here).

**OK:**
**No DTC is output.**

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (**Click here**)

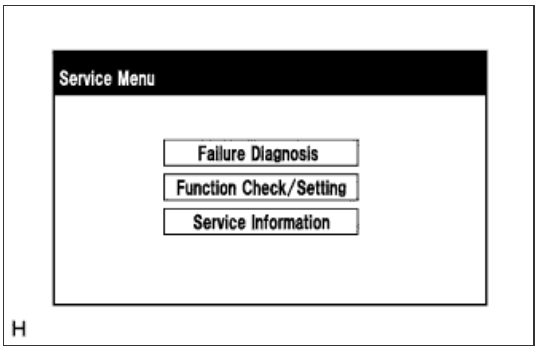
OK

**END (TELEMATICS TRANSCEIVER IS DEFECTIVE)**

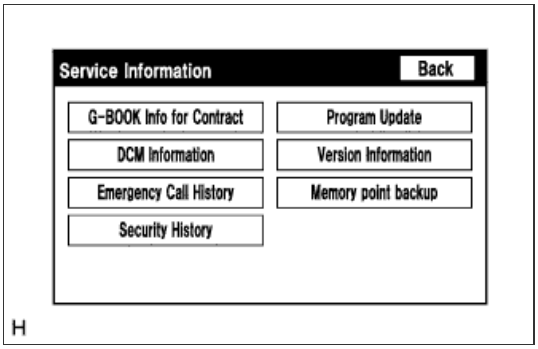
**13.CHECK CONTRACT FLAG**

a. Enter diagnostic mode (Click here).

b. Select "Service Information" on the Service Menu screen.




c. Select "G-BOOK Information for Contract" on the Service Information screen.




d. Check if the flag information shown in the illustration indicates "1".

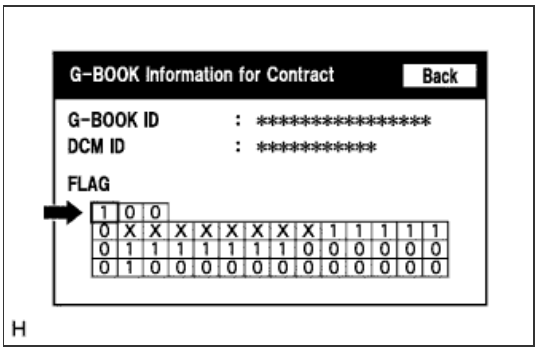
e. Turn the engine switch off and then on (ACC).

f. Check again if the flag information shown in the illustration indicates "1".

g. Recheck the problem symptom.

i. Select G-BOOK.com and perform the contract setting procedure again.

ii. Check for the problem symptom.




**Result**

| Result | Proceed to |
|---|---|
| Contract flag indicates "1" and the system returns to normal. | A |
| Contract flag indicates "1" but the problem symptom recurs. | B |
| Contract flag does not indicate "1" and the problem symptom recurs. | C |

B → REPLACE TELEMATICS TRANSCEIVER

C → CONTACT G-BOOK SUPPORT CENTER

A

END

## 14.CHECK PROBLEM SYMPTOM (ENGINE SWITCH off to on [ACC])

a. Turn the engine switch off and then on (ACC).

b. Check if the problem symptom recurs.

**Result**

| Result | Proceed to |
|---|---|
| System returns to normal. | A |
| System does not return to normal. | B |

B → REPLACE TELEMATICS TRANSCEIVER

A

END

15.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - BATTERY AND BODY GROUND)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE TELEMATICS TRANSCEIVER (Click here)

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK PROBLEM SYMPTOM

a. Perform procedures indicated by the displayed message and check that the problem symptom recurs.

| Displayed Message | Cause | Check Item |
|---|---|---|
| "The lines are busy and information was not able to be acquired." is displayed. | • Other communication error<br>• DCM malfunction<br>• Cellular phone carrier is different from the setting<br>• Excessive number of retries to access<br>• PPP certification error<br>• Error other than PPP certification<br>• No available sockets<br>• No response from the G-BOOK center for a certain period of time after a request is sent<br>• HTTP error | Wait for a while, perform the operation again and check if the problem symptom recurs.*1 |
| "The lines are busy and it is not possible to display the desired content. Please try again (operate it again) after waiting for a while." is displayed. | | Wait for a while, perform the operation again and check if the problem symptom recurs.*1 |
| "The lines are busy. Operate it after waiting for a while." is displayed. | Transmission from the DCM is restricted. | Wait for a while, perform the operation again and check if the problem symptom recurs.*1 |
| "The lines are shut off and information was not able to be acquired." is displayed. | Unexpected shutoff of the telephone line | Wait for a while, perform the operation again and check if the problem symptom recurs.*1 |
| "Outside the telephone call area. Move to the telephone call area and use it." is displayed. | • Vehicle is outside the communication service area<br>• Service becomes unavailable during communication | Move the vehicle to a communication service area, perform the operation again and check if the problem symptom recurs. |

**HINT:**

*1: If this message is temporarily displayed, there is a problem with the radio wave signal conditions or the base station was busy. This is not a malfunction (convince the customer that this is not a malfunction and ask them to use the system as is).

**NEXT**

### 2.MOVE VEHICLE

a. Move the vehicle.

i. If the vehicle is outside the communication service area, move the vehicle to a communication service area, wait for a while and perform the operation again.

**Result**

| Result | Proceed to |
|---|---|
| System returns to normal. | A |
| System does not return to normal. | B |

**B** → GO TO PROBLEM SYMPTOMS TABLE (Click here)

**A**

### END

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK PROBLEM SYMPTOM

a. Perform procedures indicated by the displayed message and check that the problem symptom recurs.

| Displayed Message | Cause | Check Item |
|---|---|---|
| "The lines are busy and information was not able to be acquired." is displayed. | • Other communication error<br>• DCM malfunction<br>• Cellular phone carrier is different from the setting<br>• Excessive number of retries to access<br>• PPP certification error<br>• Error other than PPP certification<br>• No available sockets<br>• No response from the G-BOOK center for a certain period of time after a request is sent<br>• HTTP error | Wait for a while, perform the operation again and check if the problem symptom recurs.* |
| "The lines are busy and it is not possible to display the desired content. Please try again (operate it again) after waiting for a while." is displayed. | | Wait for a while, perform the operation again and check if the problem symptom recurs.* |
| "The lines are busy. Operate it after waiting for a while." is displayed. | Transmission from the DCM is restricted. | Wait for a while, perform the operation again and check if the problem symptom recurs.* |
| "The lines are shut off and information was not able to be acquired." is displayed. | Unexpected shutoff of the telephone line | Wait for a while, perform the operation again and check if the problem symptom recurs.* |
| "Outside the telephone call area. Move to the telephone call area and use it." is displayed. | • Vehicle is outside the communication service area<br>• Service becomes unavailable during communication | Move the vehicle to a communication service area, perform the operation again and check if the problem symptom recurs. |

**HINT:**

*: If this message is temporarily displayed, there is a problem with the radio wave signal conditions or the base station was busy. This is not a malfunction (convince the customer that this is not a malfunction and ask them to use the system as is).

**NEXT**

### 2.MOVE VEHICLE

a. Move the vehicle.

i. If the vehicle is outside the communication service area, move the vehicle to a communication service area, wait for a while and perform the operation again.

**Result**

| Result | Proceed to |
|---|---|
| System returns to normal. | A |
| System does not return to normal. | B |

**B** → GO TO PROBLEM SYMPTOMS TABLE (Click here)

**A**

### END

**for Preparation** Click here

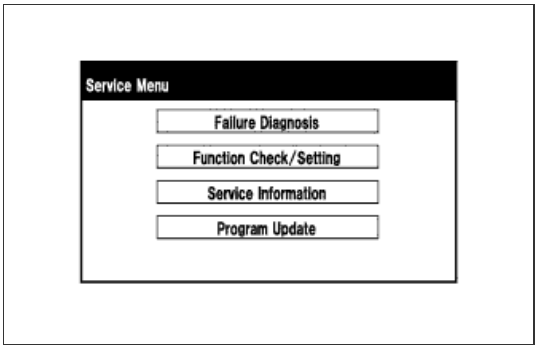
## INSPECTION PROCEDURE

### 1.CHECK CONTACT FLAG

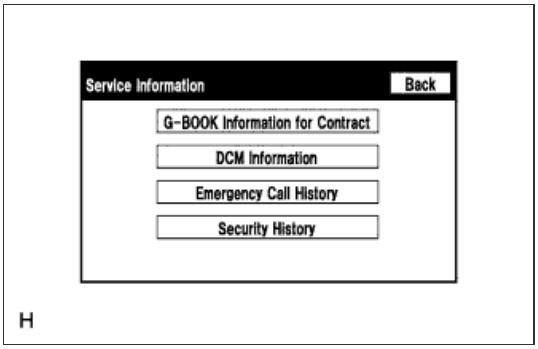
a. Check the contract flag.

i. Enter diagnostic mode (Click here).

ii. Select "Service Information" on the Service Menu screen.



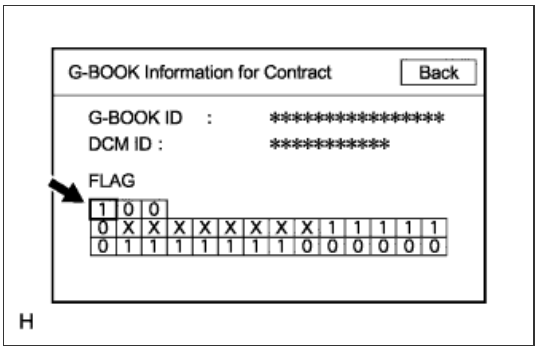

iii. Select "G-BOOK Information for Contract" on the Service Information screen.




iv. Check if the flag information shown in the illustration indicates "1".

**Result**

| Result | Proceed to |
|---|---|
| "1" is not indicated. | A |
| "1" is indicated. | B |




**B** → Go to step 3

**A**

### 2.PERFORM OPERATION AGAIN

a. Perform the contract procedure again.

i. Select G-BOOK.com and perform the contract procedure again.

ii. Check for the problem symptom.

**Result**

| Result | Proceed to |
|---|---|
| System returns to normal. | A |
| System does not return to normal. | B |

B → CONTACT G-BOOK SUPPORT CENTER

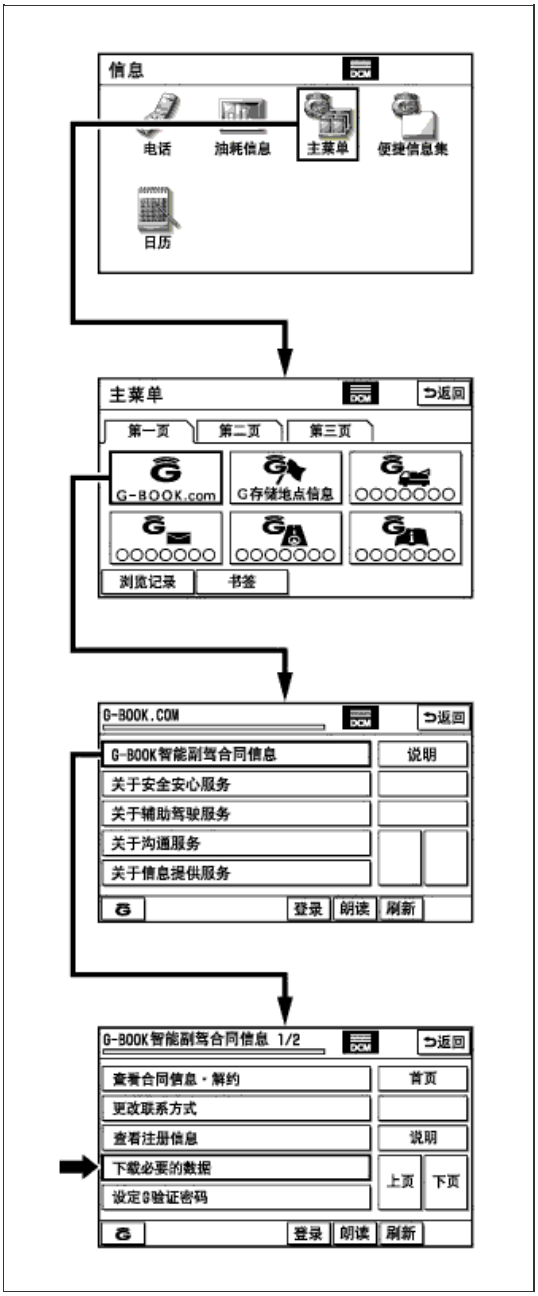
A

END

## 3.PERFORM OPERATION

a. Perform "Download necessary data" again.

i. Perform the operations shown in the illustration and select "Download necessary data".




**HINT:**

The screen illustrations provided are samples only and may be different from actual screens.

ii. Check if the problem symptom recurs.

**Result**

| Result | Proceed to |
|---|---|
| System returns to normal. | A |
| Problem symptom recurs. | B |

B → CONTACT G-BOOK SUPPORT CENTER

A

END

**for Preparation** Click here

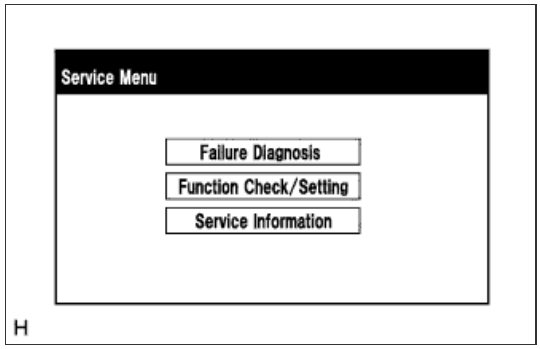
## INSPECTION PROCEDURE

### 1.CHECK CONTRACT FLAG

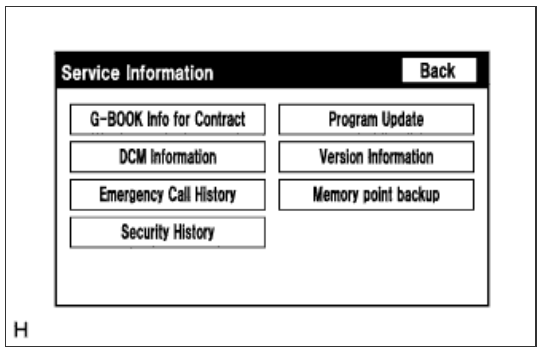
a. Check the contract flag.

i. Enter diagnostic mode (Click here).

ii. Select "Service Information" on the Service Menu screen.



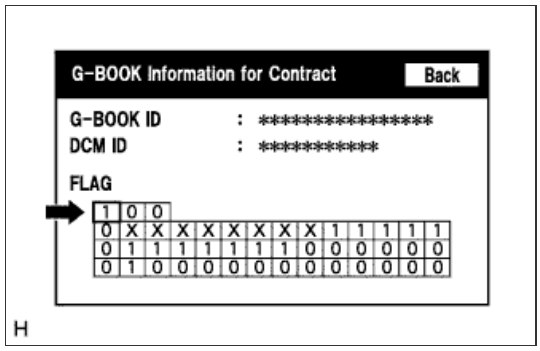

iii. Select "G-BOOK Information for Contract" on the Service Information screen.




iv. Check if the flag information shown in the illustration indicates "1".

**Result**

| Result | Proceed to |
|---|---|
| "1" is not indicated. | A |
| "1" is indicated. | B |




B → Go to step 3

A

### 2.PERFORM OPERATION AGAIN

a. Perform the contract procedure again.

i. Select G-BOOK.com and perform the contract procedure again.

ii. Check for the problem symptom.

**Result**

| Result | Proceed to |
|---|---|
| System returns to normal. | A |
| System does not return to normal. | B |

B → CONTACT G-BOOK SUPPORT CENTER

A

END

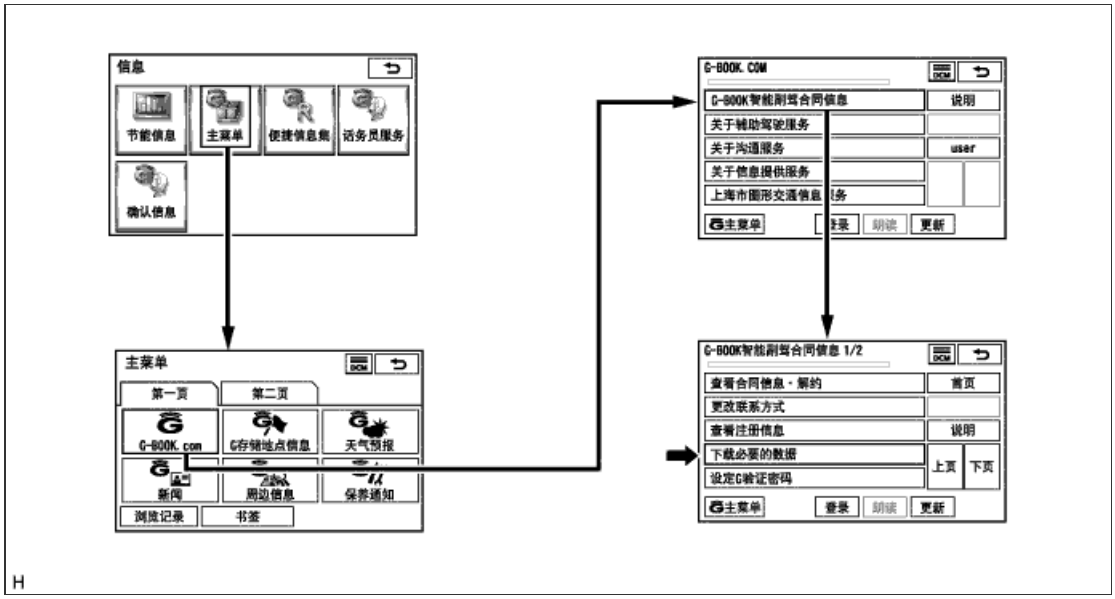
## 3.PERFORM OPERATION

a. Perform "Download necessary data" again.

i. Perform the operations shown in the illustration and select "Download necessary data".

**HINT:**

The screen illustrations provided are samples only and may be different from actual screens.




ii. Check if the problem symptom recurs.

**Result**

| Result | Proceed to |
|---|---|
| System returns to normal. | A |
| Problem symptom recurs. | B |

B → CONTACT G-BOOK SUPPORT CENTER

A

END

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK PROBLEM SYMPTOM (WARNING NOTIFICATION FUNCTION)

a. Check the problem symptom.

i. Check the problem symptom of the warning notification function.

**Result**

| Result | Proceed to |
|---|---|
| The multi-display does not show a warning message even though a warning light turns on and the multi-information display indicates a warning. | A |
| The multi-display shows a warning message even though a warning light is not on and the multi-information display does not indicate a warning. | B |
| The multi-display shows a warning message different from the warning light or the multi-information display. | B |
| The same warning notification is repeated. | C |

**HINT:**

- **The warning notification function sends information to the G-BOOK center.**
- **In order to determine if a temporary problem with radio waves caused the malfunction, carefully confirm the conditions that were present when the malfunction occurred.**

| | |
|---|---|
| B | Go to step 6 |
| C | Go to step 9 |

A

### 2.INSPECT WARNING LIGHT

a. Check if the indicated warning light or message is listed in the following table.

**HINT:**

Only messages listed in the table are included in the G-BOOK warning notification function.

| Warning Name |
|---|
| AFS warning |
| High coolant temperature warning |
| Check engine warning |
| Engine oil level warning |
| Brake system warning |
| Brake fluid warning |
| ABS warning |
| VSC warning |
| 4LO warning |
| VGRS warning |
| 4-WHEEL AHC warning |
| Power steering lock warning |
| Charging system warning |
| Airbag warning |
| PCS warning |
| Cruise warning |

| |
|---|
| Clearance sonar warning |

**Result**

| Result | Proceed to |
|---|---|
| Warning light or message is listed in the table. | A |
| Warning light or message is not listed in the table. | B |

B → END

A

## 3.CONFIRM SETTING (COMMUNICATION LOCK)

a. Check if the G-BOOK communication lock is set.

**Result**

| Result | Proceed to |
|---|---|
| Communication lock is not set. | A |
| Communication lock is set. | B |

B → RELEASE COMMUNICATION LOCK

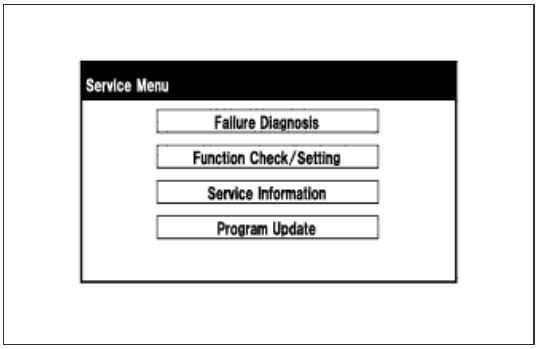
A

## 4.CHECK FOR SERVICE FLAG

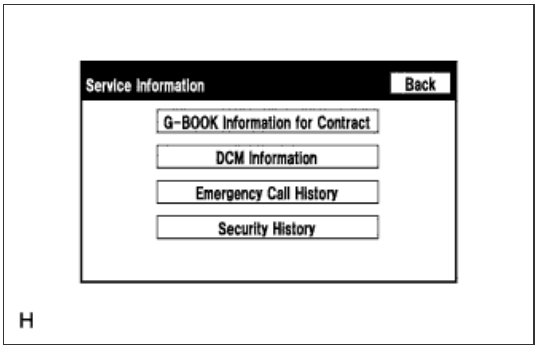
a. Check for service flags.

i. Enter diagnostic mode (Click here).

ii. Select "Service Information" on the Service Menu screen.




iii. Select "G-BOOK Information for Contract" on the Service Information screen.

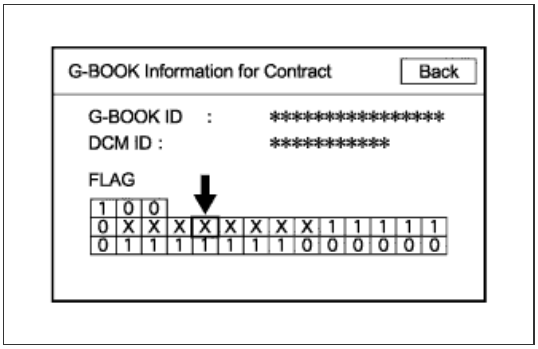



iv. Using the illustration as reference, check if the flag information indicated by the arrow indicates "1".

**Result**

| |
|---|
| |

| Result | Proceed to |
|---|---|
| "1" is indicated. | A |
| "1" is not indicated. | B |




B → Go to step 10

A

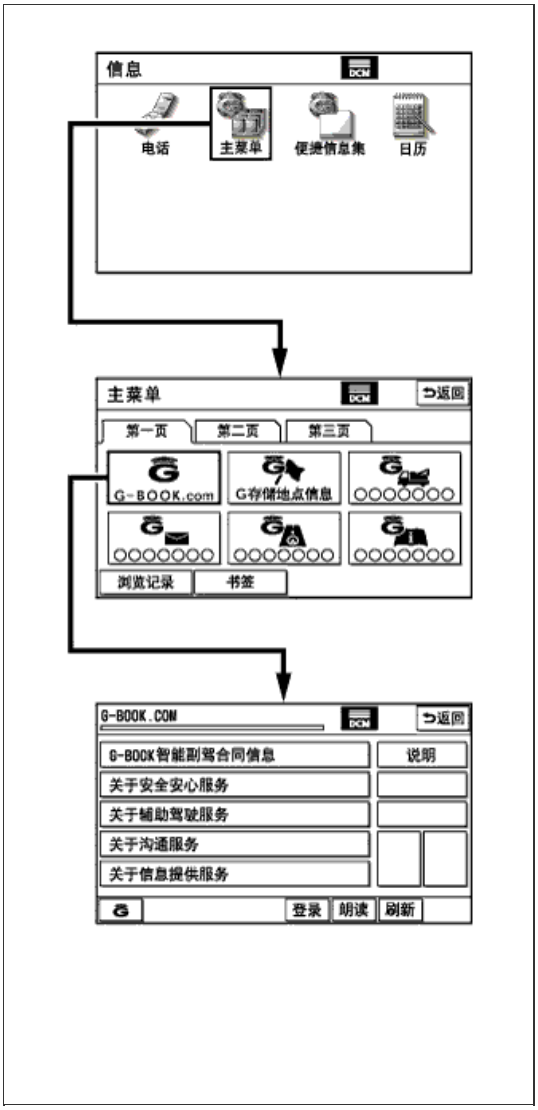
## 5.CHECK CONNECTION (G-BOOK)

a. Perform the operations shown in the illustrations and check that G-BOOK.com is displayed.

**HINT:**

The screen illustrations provided are samples only and may be different from actual screens.

**OK:**
**G-BOOK.com can be accessed.**




NG → GO TO PROBLEM SYMPTOMS TABLE (Click here)

OK

## 6.INSPECT METER WARNING LIGHT

a. Check if a warning light on the combination meter assembly comes on or a warning message on the multi-information display is displayed even when there is no problem.

**OK:**

**There are no problems with warning lights or warning messages.**

**HINT:**

The warning notification function of the G-BOOK system uses the warning notification signals sent and received by the meter and gauge system. Therefore, if the meter and gauge system is not operating normally, the warning notification function will not operate normally.

NG → GO TO METER / GAUGE SYSTEM (Click here)

OK ↓

**7.INSPECT CAN COMMUNICATION SYSTEM**

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the tester on.

d. Enter the following menus: System Select / CAN Bus Check.

e. Check that all ECUs and sensors that use CAN communication are connected.

**Result**

| Result | Proceed to |
|---|---|
| There are no connection problems. | A |
| There is a connection problem. | B |

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

A ↓

**8.CHECK FOR DTC**

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the tester on.

d. Enter the following menus: Utility / All Codes.

e. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| No DTC is output. | A |
| DTC is output. | B |
| DTCs cannot be checked. | |

B → INSPECT EACH ECU SYSTEM

A ↓

**9.INSPECT NAVIGATION SYSTEM (for HDD)**

a. Check if the HDD navigation system is operating and functioning normally.

**OK:**

**The HDD navigation system is normal.**

NG → GO TO NAVIGATION SYSTEM (for HDD) (Click here)

OK ↓

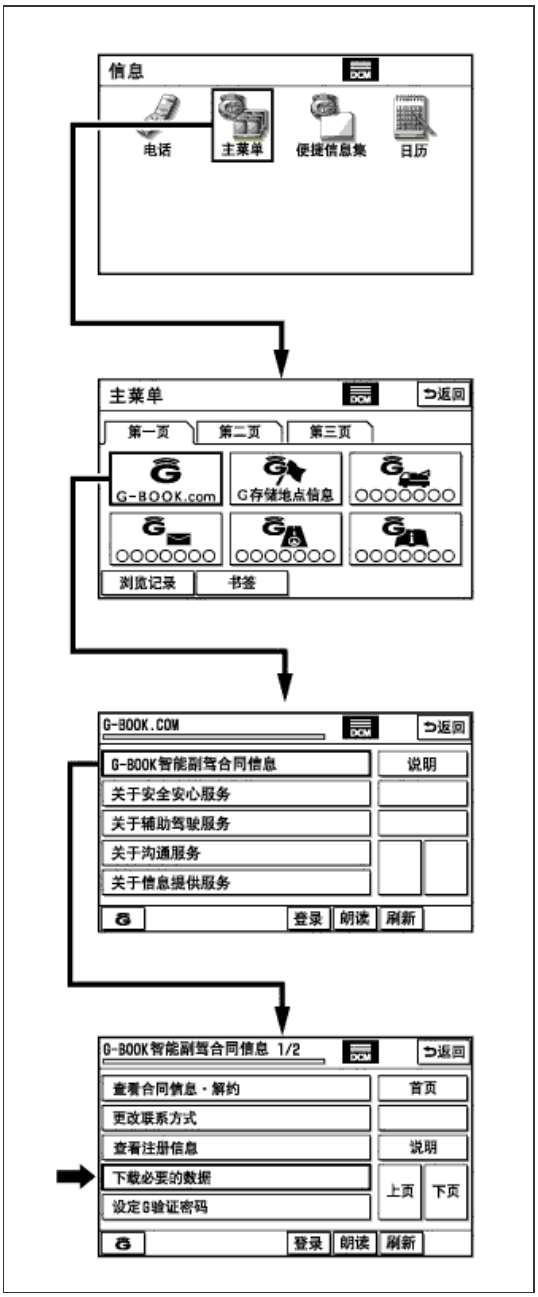
## 10.RENEW DATA TABLE

a. Renew the data.

i. Perform the operations shown in the illustrations and select "Download necessary data".

**HINT:**

The screen illustrations provided are samples only and may be different from actual screens.




**Result**

| Result | Proceed to |
|---|---|
| Data can be renewed. | A |
| Data cannot be renewed. | B |

B → CONTACT G-BOOK SUPPORT CENTER

A → END

**for Preparation** Click here

## INSPECTION PROCEDURE

### 1.CHECK PROBLEM SYMPTOM (WARNING NOTIFICATION FUNCTION)

a. Check the problem symptom.

i. Check the problem symptom of the warning notification function.

**Result**

| Result | Proceed to |
|---|---|
| The multi-display does not show a warning message even though a warning light turns on or the multi-information display indicates a warning. | A |
| The multi-display shows a warning message even though a warning light is not on and the multi-information display does not indicate a warning. | B |
| The multi-display shows a warning message different from the warning light or the multi-information display. | B |
| The same warning notification is repeated. | C |

**HINT:**

- **The warning notification function sends information to the G-BOOK center.**
- **In order to determine if a temporary problem with radio waves caused the malfunction, carefully confirm the conditions that were present when the malfunction occurred.**

| | |
|---|---|
| B | Go to step 5 |
| C | Go to step 8 |

A

### 2.INSPECT WARNING LIGHT

a. Check if the indicated warning light or message is listed in the following table.

**HINT:**

Only messages listed in the table are included in the G-BOOK warning notification function.

| Warning Name |
|---|
| AFS warning |
| High coolant temperature warning |
| Check engine warning |
| Engine oil level warning |
| Brake system warning |
| Brake fluid warning |
| ABS warning |
| VSC warning |
| AWD (4Lo, CTR, DIFF, RrDIFF) warning |
| VGRS warning |
| 4-WHEEL AHC warning |
| Power steering lock warning |
| Charging system warning |
| Airbag warning |
| PCS warning |
| Cruise warning |

| |
|---|
| Lexus parking assist-sensor system open circuit warning |
| Washer fluid level warning |
| Automatic Hi-beam warning |
| Automatic transmission high temperature warning |

**Result**

| Result | Proceed to |
|---|---|
| Warning light or message is listed in the table. | A |
| Warning light or message is not listed in the table. | B |

B → END

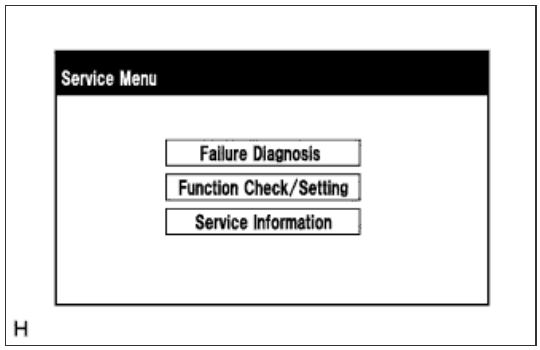
A

## 3.CHECK FOR SERVICE FLAG

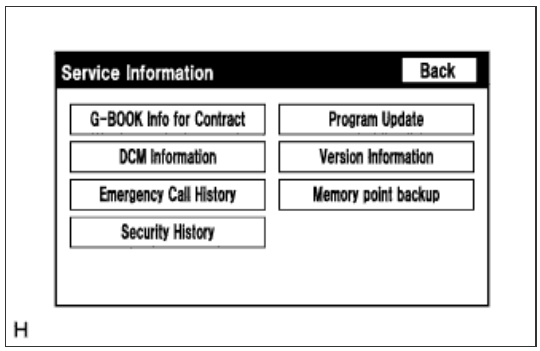
a. Check for service flags.

i. Enter diagnostic mode (Click here).

ii. Select "Service Information" on the Service Menu screen.



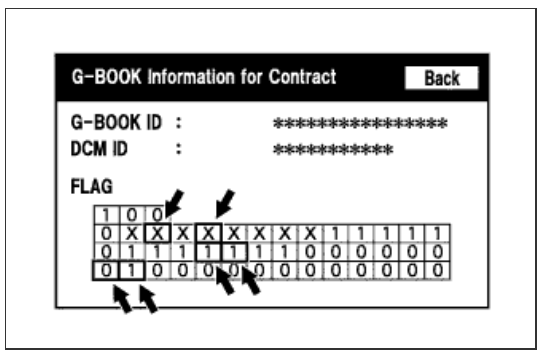

iii. Select "G-BOOK Information for Contract" on the Service Information screen.




iv. Using the illustration as reference, check if the flag information indicated by the arrow indicates "1".

**Result**

| Result | Proceed to |
|---|---|
| "1" is indicated. | A |
| "1" is not indicated. | B |




B → Go to step 9

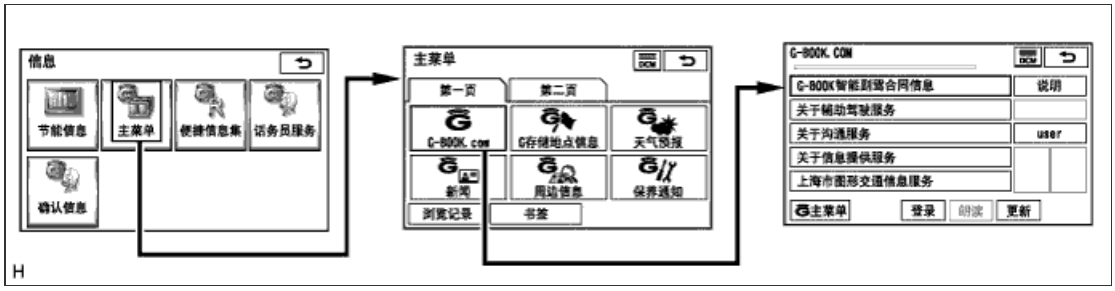
A

## 4.CHECK CONNECTION (TO G-BOOK CENTER)

a. Check the connection to the G-BOOK center.

i. Turn the engine switch on (ACC) and wait 1 minute.

ii. Perform the operations shown in the illustration and check that G-BOOK.com is displayed.




**HINT:**

- **If the G-BOOK.com screen is displayed, select "Renew" to check if it is possible to access the G-BOOK.com.**
- **The screen illustrations provided are samples only and may be different from actual screens.**

**Result**

| Result | Proceed to |
|---|---|
| G-BOOK.com can be accessed. | A |
| G-BOOK.com cannot be accessed. | B |

B → GO TO PROBLEM SYMPTOMS TABLE (Click here)

A

## 5.INSPECT METER WARNING LIGHT

a. Check if a warning light on the combination meter assembly comes on or a warning message on the multi-information display is displayed even when there is no problem.

**OK:**

**There are no problems with warning lights or warning messages.**

**HINT:**

The warning notification function of the G-BOOK system uses the warning notification signals sent and received by the meter / gauge system. Therefore, if the meter / gauge system is not operating normally, the warning notification function will not operate normally.

NG → GO TO METER / GAUGE SYSTEM (Click here)

OK

## 6.INSPECT CAN COMMUNICATION SYSTEM

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the tester on.

d. Enter the following menus: System Select / CAN Bus Check.

e. Check that all ECUs and sensors that use CAN communication are connected.

**Result**

| Result | Proceed to |
|---|---|
| There are no connection problems. | A |
| There is a connection problem. | B |

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

## 7.CHECK FOR DTC

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the tester on.

d. Enter the following menus: Utility / All Codes.

e. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| No DTC is output. | A |
| DTC is output. | B |
| DTCs cannot be checked. | |

B → INSPECT EACH ECU SYSTEM

A

## 8.CHECK NAVIGATION SYSTEM

a. Check if the navigation system is operating and functioning normally.

**OK:**

**The navigation system is normal.**

NG → GO TO NAVIGATION SYSTEM (Click here)

OK

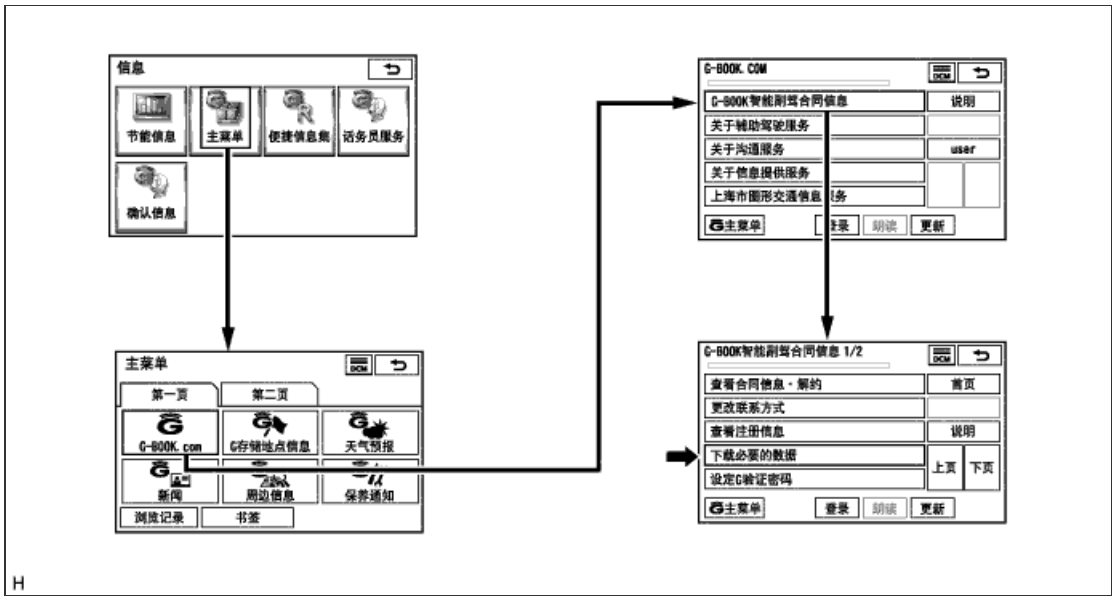
## 9.RENEW DATA TABLE

a. Renew the data.

i. Perform the operations shown in the illustrations and select "Download necessary data".

**HINT:**

The screen illustrations provided are samples only and may be different from actual screens.




**Result**

| Result | Proceed to |
|---|---|
| Data can be renewed. | A |
| Data cannot be renewed. | B |

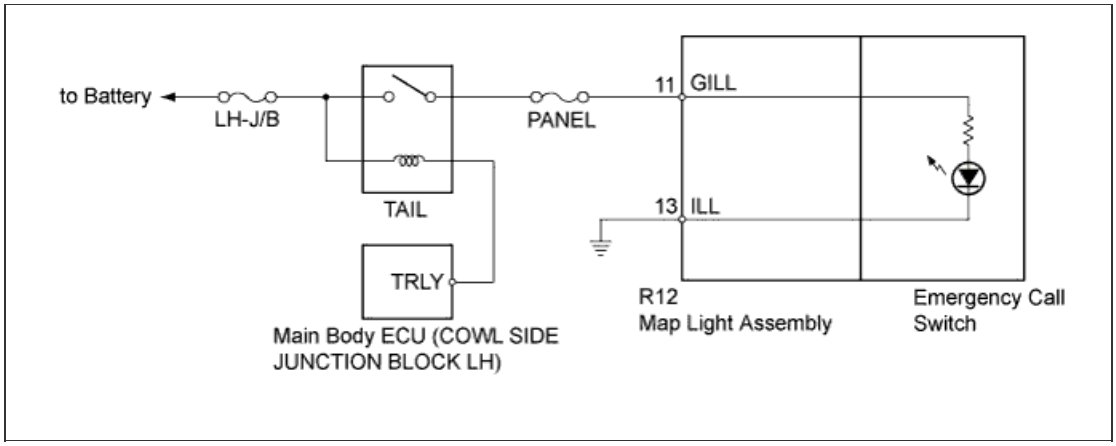
B → CONTACT G-BOOK SUPPORT CENTER

A

END

**for Preparation** Click here

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**HINT:**

When replacing the telematics transceiver, perform the vehicle contract setting ( Click here).

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - BATTERY AND BODY GROUND)

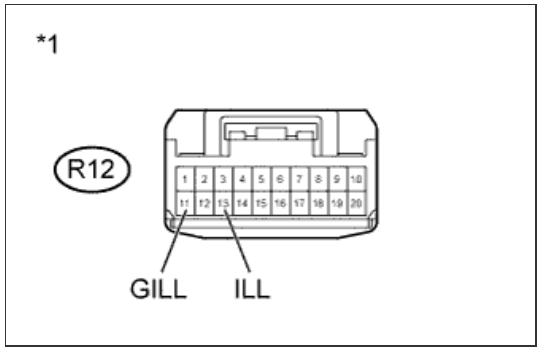
a. Disconnect the R12 map light assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| R12-13 (ILL) - Body ground | Always | 10 kΩ or higher |

c. Measure the voltage according to the value(s) in the table below.




**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| R12-11 (GILL) - Body ground | Light control switch in TAIL or HEAD | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Map Light Assembly) |

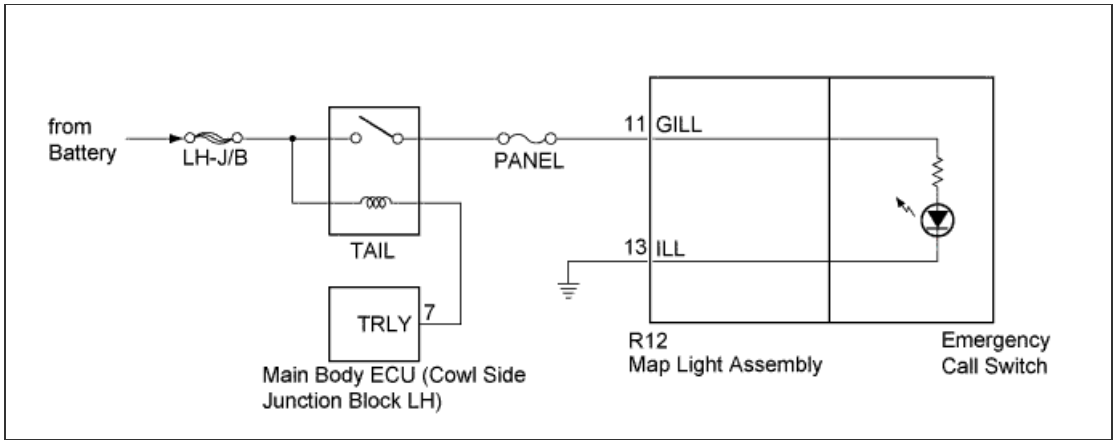
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### REPLACE MAP LIGHT ASSEMBLY (Click here)

**for Preparation** Click here

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**HINT:**

When replacing the telematics transceiver, perform the vehicle contract setting ( Click here).

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

**1.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - BATTERY AND BODY GROUND)**

a. Disconnect the R12 map light assembly connector.

b. Measure the resistance according to the value(s) in the table below.

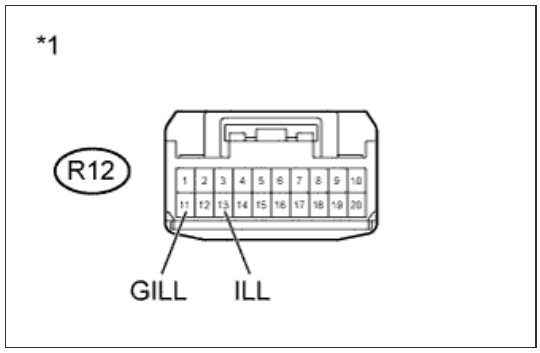
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| R12-13 (ILL) - Body ground | Always | 10 kΩ or higher |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| R12-11 (GILL) - Body ground | Light control switch in TAIL or HEAD | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Map Light Assembly) |

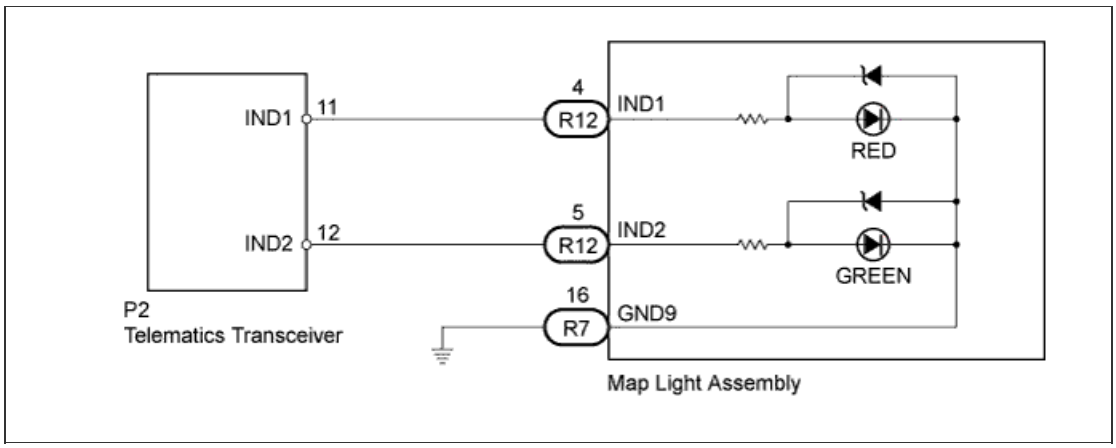
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**REPLACE MAP LIGHT ASSEMBLY (Click here)**

**for Preparation** Click here

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**HINT:**

When replacing the telematics transceiver, perform the vehicle contract setting ( Click here).

### 1.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - MAP LIGHT ASSEMBLY)

a. Disconnect the P2 telematics transceiver connector.

b. Disconnect the R7 and R12 map light assembly connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P2-11 (IND1) - R12-4 (IND1) | Always | Below 1 Ω |
| P2-12 (IND2) - R12-5 (IND2) | Always | Below 1 Ω |
| R7-16 (GND9) - Body ground | Always | Below 1 Ω |
| P2-11 (IND1) - Body ground | Always | 10 KΩ or higher |
| P2-12 (IND2) - Body ground | Always | 10 KΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 2.INSPECT MAP LIGHT ASSEMBLY

a. Disconnect the R7 AND R12 map light assembly connectors.

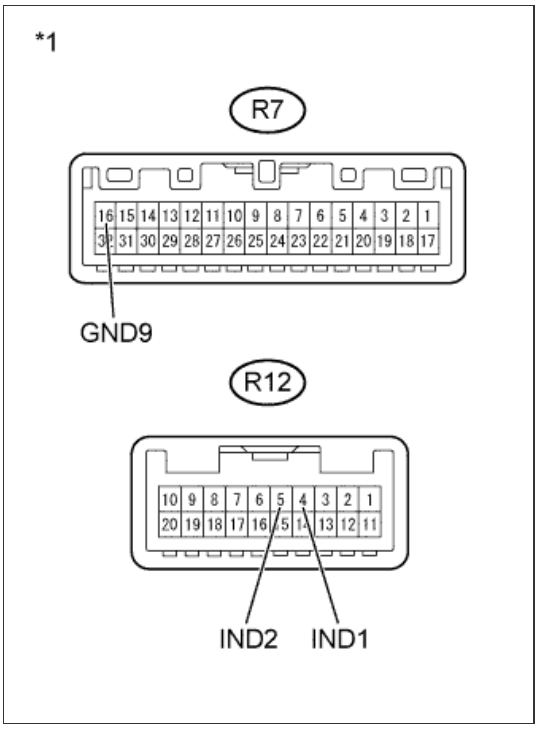
b. Connect 2 dry-cell batteries in series.

c. Connect a positive (+) lead to terminal R12-4 (IND1) or R12-5 (IND2), and a negative (-) lead to terminal R7-16 (GND9) of the map light assembly connector.

d. Check if the illumination for the emergency call switch comes on.

**OK:**

**The red indicator comes on when the positive (+) lead from the batteries is connected to terminal R12-4 (IND1) and the negative (-) lead is connected to terminal R7-16 (GND9).**
**The green indicator comes on when the positive (+) lead from the batteries is connected to terminal R12-5 (IND2) and the negative (-) lead is connected to terminal R7-16 (GND9).**




**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Map Light Assembly) |

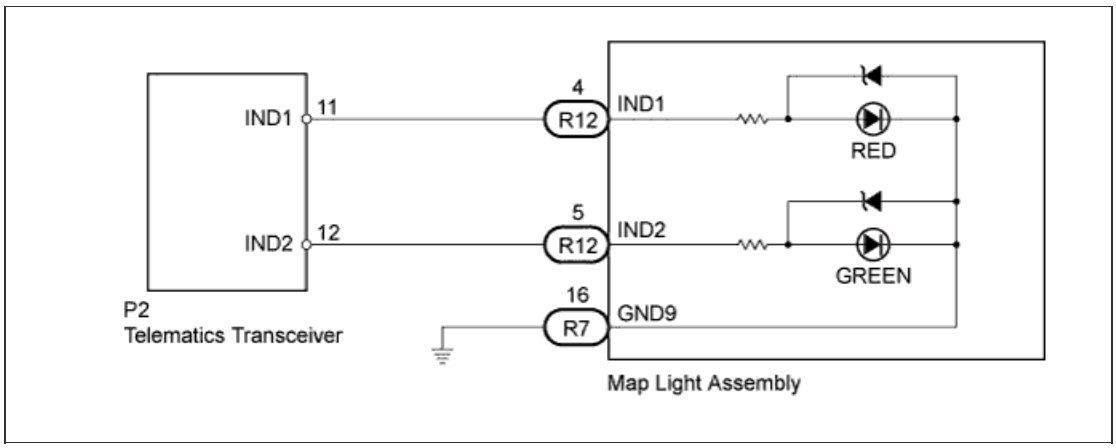
**NG** → REPLACE MAP LIGHT ASSEMBLY (Click here)

**OK**

REPLACE TELEMATICS TRANSCEIVER (Click here)

**for Preparation** Click here

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**HINT:**

When replacing the telematics transceiver, perform the vehicle contract setting ( Click here).

### 1.CHECK HARNESS AND CONNECTOR (TELEMATICS TRANSCEIVER - MAP LIGHT ASSEMBLY)

a. Disconnect the P2 telematics transceiver connector.

b. Disconnect the R7 and R12 map light assembly connectors.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P2-11 (IND1) - R12-4 (IND1) | Always | Below 1 Ω |
| P2-12 (IND2) - R12-5 (IND2) | Always | Below 1 Ω |
| R7-16 (GND9) - Body ground | Always | Below 1 Ω |
| P2-11 (IND1) - Body ground | Always | 10 KΩ or higher |
| P2-12 (IND2) - Body ground | Always | 10 KΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 2.INSPECT MAP LIGHT ASSEMBLY

a. Disconnect the R7 and R12 map light assembly connectors.

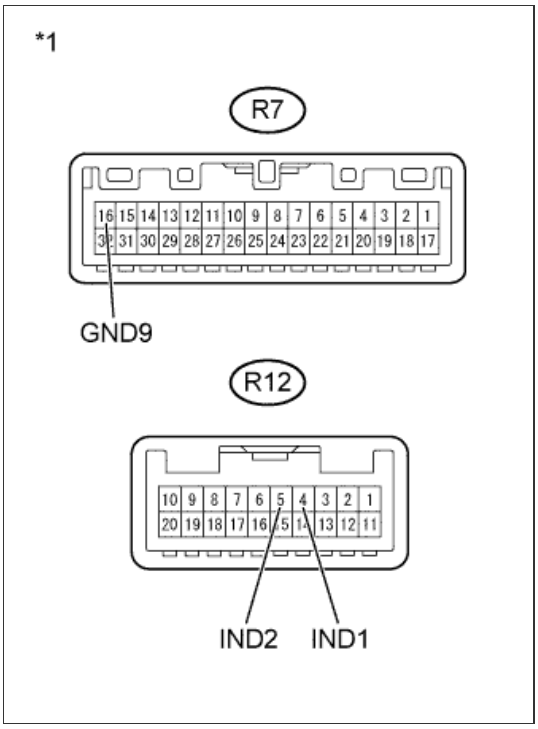
b. Connect 2 dry-cell batteries in series.

c. Connect a positive (+) lead to terminal R12-4 (IND1) or R12-5 (IND2), and a negative (-) lead to terminal R7-16 (GND9) of the map light assembly connector.

d. Check if the illumination for the emergency call switch comes on.

**OK:**

**The red indicator comes on when the positive (+) lead from the batteries is connected to terminal R12-4 (IND1) and the negative (-) lead is connected to terminal R7-16 (GND9).**
**The green indicator comes on when the positive (+) lead from the batteries is connected to terminal R12-5 (IND2) and the negative (-) lead is connected to terminal R7-16 (GND9).**




**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Map Light Assembly) |

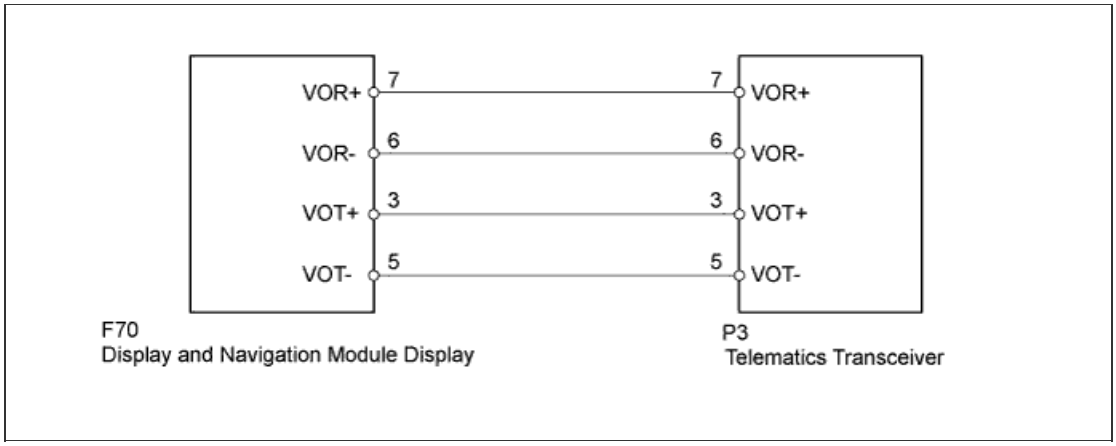
**NG** → REPLACE MAP LIGHT ASSEMBLY (Click here)

**OK**

REPLACE TELEMATICS TRANSCEIVER (Click here)

**for Preparation** Click here

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**HINT:**

When replacing the display and navigation module display or the telematics transceiver, perform the vehicle contract setting ( Click here).

### 1.CHECK HARNESS AND CONNECTOR (NAVIGATION ECU - TELEMATICS TRANSCEIVER)

a. Disconnect the F70 display and navigation module display connector.

b. Disconnect the P3 telematics transceiver connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F70-7 (VOR+) - P3-7 (VOR+) | Always | Below 1 Ω |
| F70-6 (VOR-) - P3-6 (VOR-) | Always | Below 1 Ω |
| F70-3 (VOT+) - P3-3 (VOT+) | Always | Below 1 Ω |
| F70-5 (VOT-) - P3-5 (VOT-) | Always | Below 1 Ω |
| F70-7 (VOR+) - Body ground | Always | 10 kΩ or higher |
| F70-6 (VOR-) - Body ground | Always | 10 kΩ or higher |
| F70-3 (VOR+) - Body ground | Always | 10 kΩ or higher |
| F70-5 (VOR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 2.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

a. Check for pulses according to the value(s) in the table below

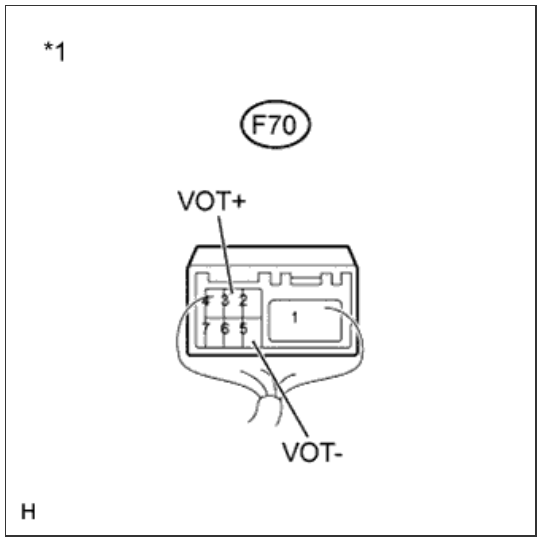
a. Check for pulses according to the value(s) in the table below.

**OK:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F70-3 (VOT+) - Body ground | Calling while using the operator service | A waveform synchronized with the sent voice is output. |
| F70-5 (VOT-) - Body ground | Calling while using the operator service | A waveform synchronized with the sent voice is output. |

**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Display and Navigation Module Display) |

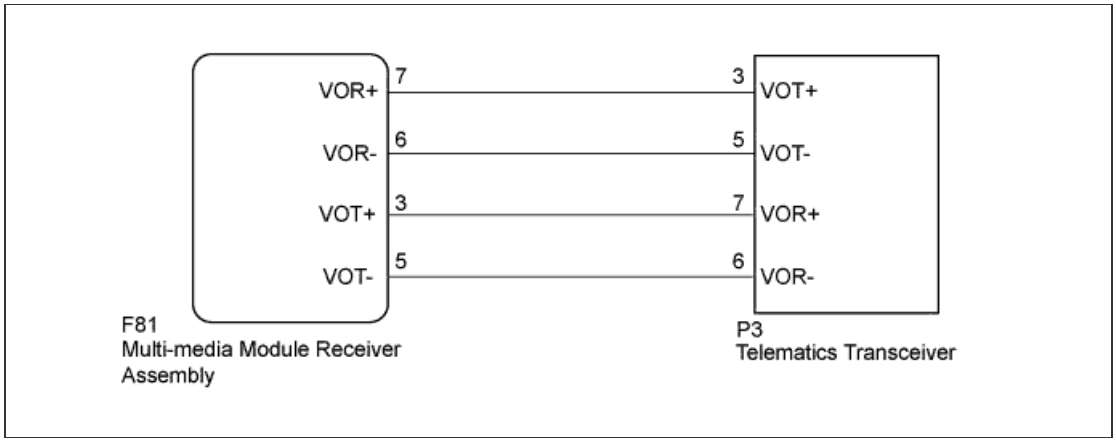



NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK → REPLACE TELEMATICS TRANSCEIVER (Click here)

**for Preparation** Click here

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**HINT:**

When replacing the multi-media module receiver assembly or the telematics transceiver, perform the vehicle contract setting ( Click here).

### 1.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - TELEMATICS TRANSCEIVER)

a. Disconnect the F81 multi-media module receiver assembly connector.

b. Disconnect the P3 telematics transceiver connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F81-7 (VOR+) - P3-7 (VOR+) | Always | Below 1 Ω |
| F81-6 (VOR-) - P3-6 (VOR-) | Always | Below 1 Ω |
| F81-3 (VOT+) - P3-3 (VOT+) | Always | Below 1 Ω |
| F81-5 (VOT-) - P3-5 (VOT-) | Always | Below 1 Ω |
| F81-7 (VOR+) - Body ground | Always | 10 kΩ or higher |
| F81-6 (VOR-) - Body ground | Always | 10 kΩ or higher |
| F81-3 (VOT+) - Body ground | Always | 10 kΩ or higher |
| F81-5 (VOT-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

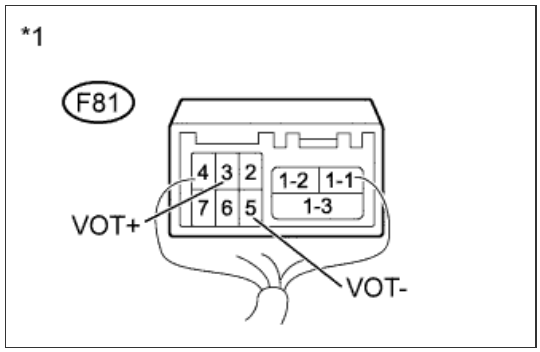
OK

### 2.INSPECT MULTI-MEDIA MODULE RECEIVER ASSEMBLY

a. Check for pulses according to the value(s) in the table below.

**OK:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F81-3 (VOT+) - Body ground | Calling while using the operator service | A waveform synchronized with the sent voice is output. |
| F81-5 (VOT-) - Body ground | Calling while using the operator service | A waveform synchronized with the sent voice is output. |




**Text in Illustration**

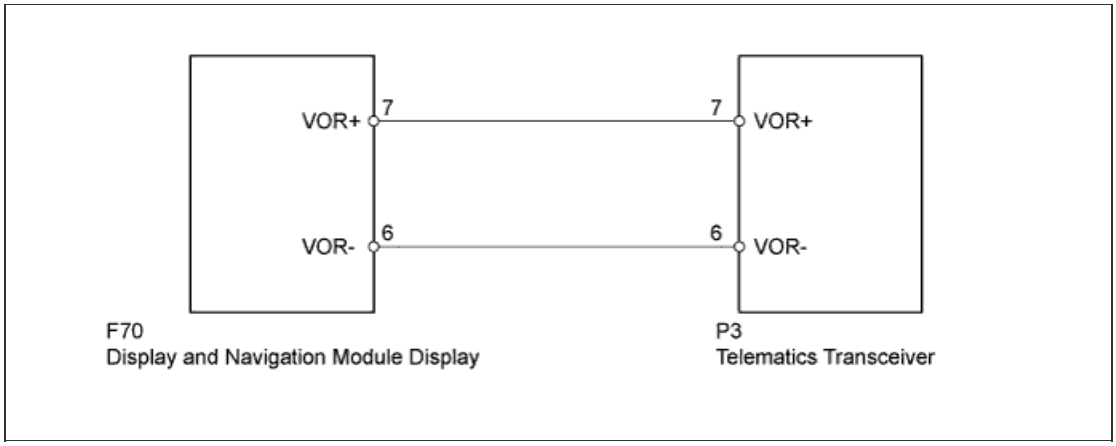
| | |
|---|---|
| *1 | Component with harness connected (Multi-media Module Receiver Assembly) |

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK → REPLACE TELEMATICS TRANSCEIVER (Click here)

**for Preparation** Click here

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**HINT:**

When replacing the display and navigation module display or the telematics transceiver, perform the vehicle contract setting ( Click here).

### 1.CHECK HARNESS AND CONNECTOR (NAVIGATION ECU - TELEMATICS TRANSCEIVER)

a. Disconnect the F70 display and navigation module display connector.

b. Disconnect the P3 telematics transceiver connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F70-7 (VOR+) - P3-7 (VOR+) | Always | Below 1 Ω |
| F70-6 (VOR-) - P3-6 (VOR-) | Always | Below 1 Ω |
| F70-7 (VOR+) - Body ground | Always | 10 kΩ or higher |
| F70-6 (VOR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

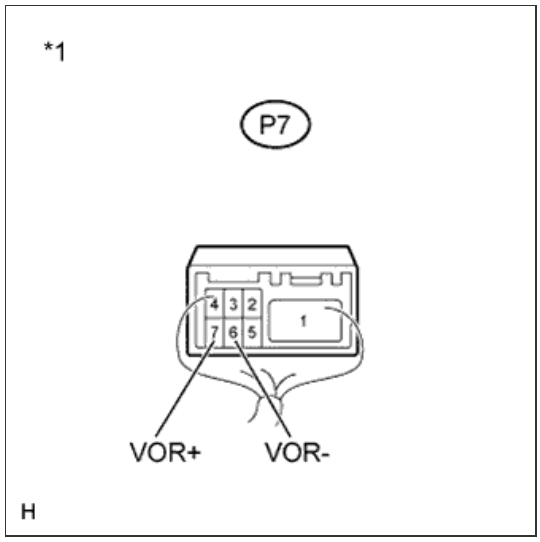
### 2.INSPECT TELEMATICS TRANSCEIVER

a. Check for pulses according to the value(s) in the table below.

**OK:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P3-7 (VOR+) - Body ground | Receiving a call while using the operator service | A waveform synchronized with the received voice is output. |

| | | |
|---|---|---|
| P3-6 (VOR-) - Body ground | Receiving a call while using the operator service | A waveform synchronized with the received voice is output. |




**Text in Illustration**

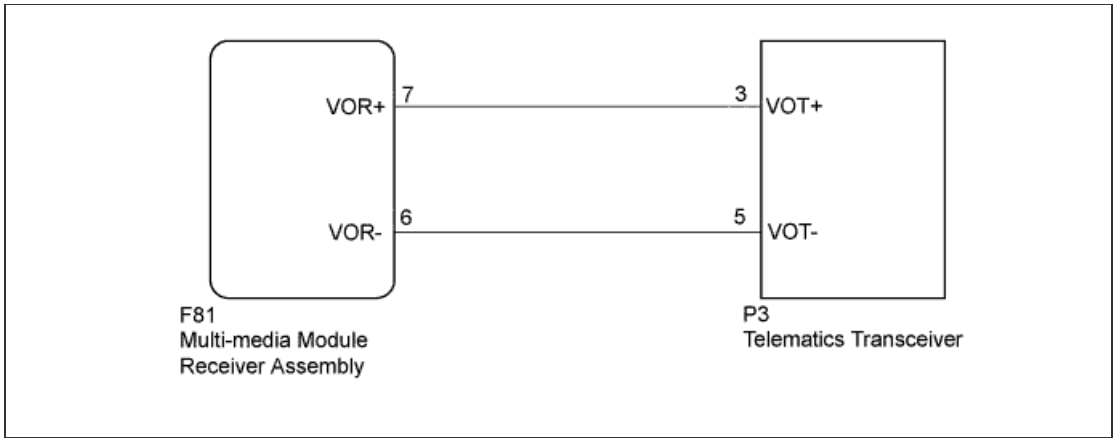
| | |
|---|---|
| *1 | Component with harness connected (Telematics Transceiver) |

NG → REPLACE TELEMATICS TRANSCEIVER (Click here)

OK → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

**for Preparation** Click here

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**HINT:**

When replacing the multi-media module receiver assembly or the telematics transceiver, perform the vehicle contract setting ( Click here).

### 1.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - TELEMATICS TRANSCEIVER)

a. Disconnect the F81 multi-media module receiver assembly connector.

b. Disconnect the P3 telematics transceiver connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F81-7 (VOR+) - P3-7 (VOR+) | Always | Below 1 Ω |
| F81-6 (VOR-) - P3-6 (VOR-) | Always | Below 1 Ω |
| F81-7 (VOR+) - Body ground | Always | 10 kΩ or higher |
| F81-6 (VOR-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 2.INSPECT TELEMATICS TRANSCEIVER

a. Check for pulses according to the value(s) in the table below.

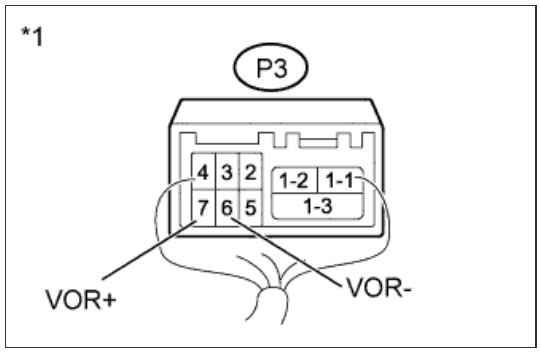
**OK:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| P3-7 (VOR+) - Body ground | Receiving a call while using the operator service | A waveform synchronized with the received voice is output. |

| | | |
|---|---|---|
| P3-6 (VOR-) - Body ground | Receiving a call while using the operator service | A waveform synchronized with the received voice is output. |

**Text in Illustration**

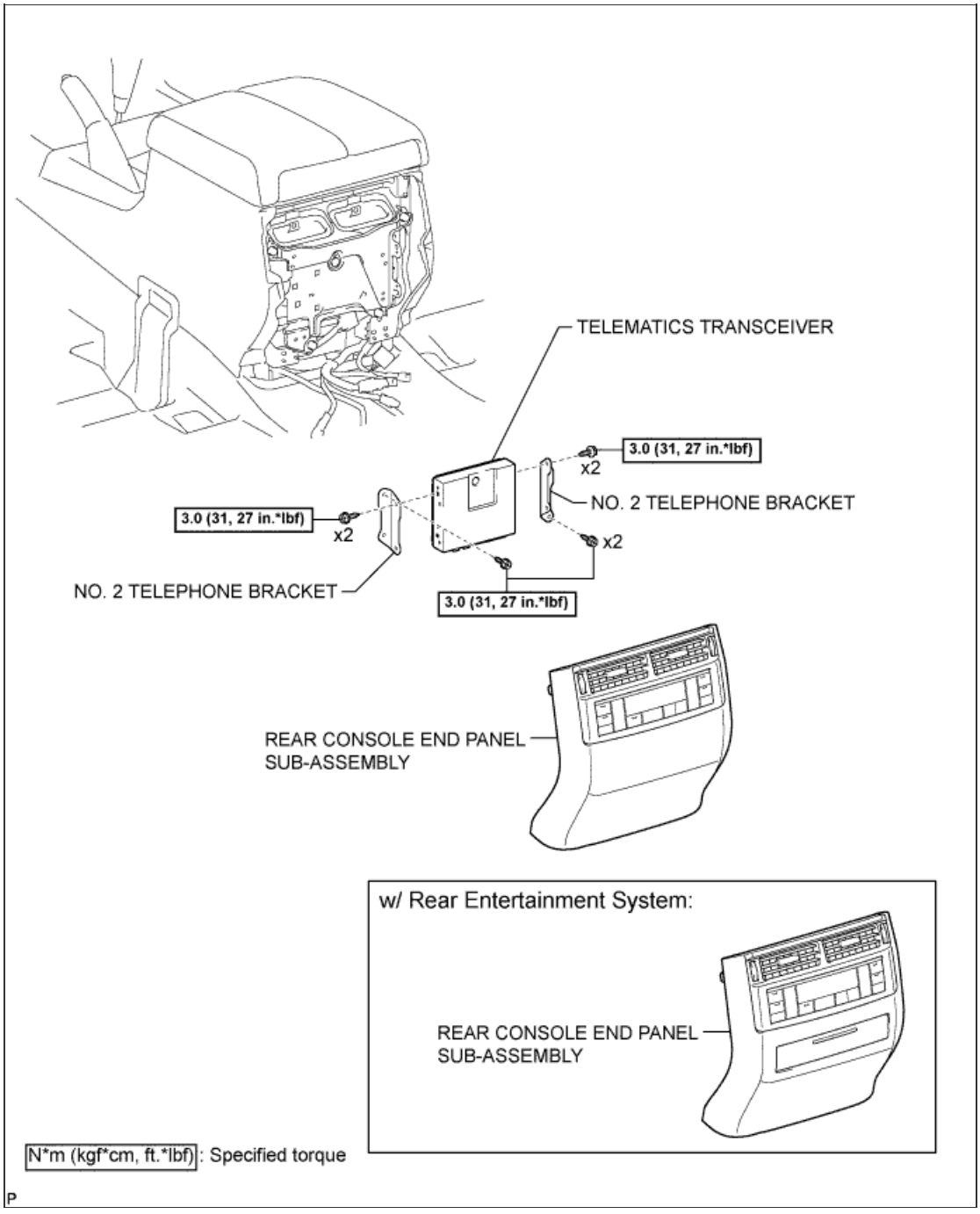
| | |
|---|---|
| *1 | Component with harness connected (Telematics Transceiver) |




NG → REPLACE TELEMATICS TRANSCEIVER (Click here)

OK → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

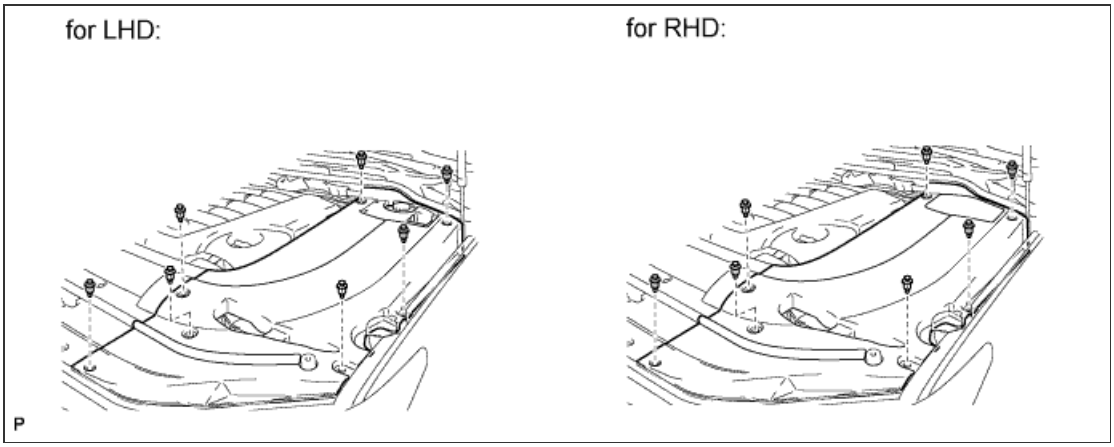
**for Preparation** Click here



**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover.




## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

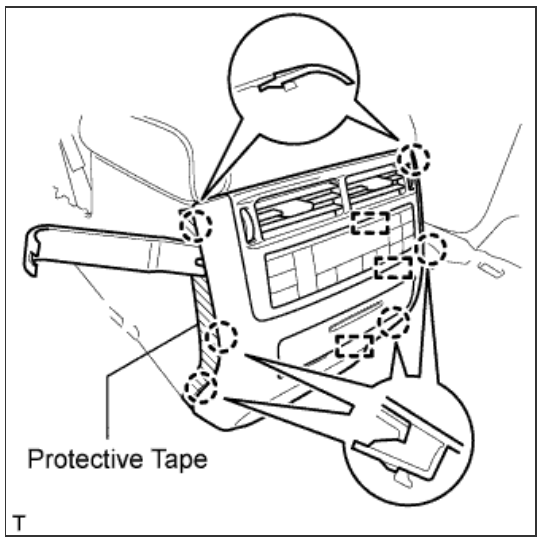
- **w/ Navigation System:**
  **After the engine switch is turned off, the HDD navigation system requires approximately 6 minutes to record various types of memory and settings. As a result, after turning the engine switch off, wait 6 minutes or more before disconnecting the cable from the negative (-) battery terminal.**
- **When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).**

## 3. REMOVE REAR CONSOLE END PANEL SUB-ASSEMBLY

a. Place protective tape as shown in the illustration.

b. Using a moulding remover, detach the 6 claws.

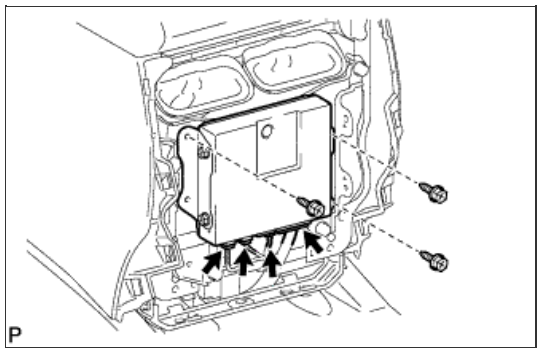
c. Remove the end panel and disconnect the connectors and 3 clamps.



## 4. REMOVE TELEMATICS TRANSCEIVER

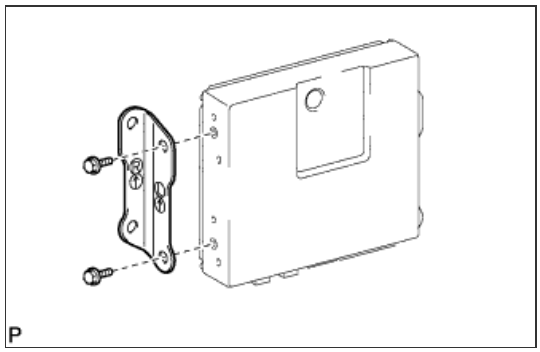
a. Disconnect the 4 connectors.

b. Remove the 3 screws and telematics transceiver with bracket.

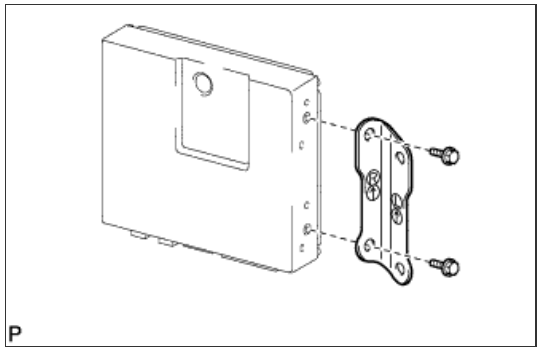



## 5. REMOVE NO. 2 TELEPHONE BRACKET

a. Remove the 2 screws and telephone bracket LH.



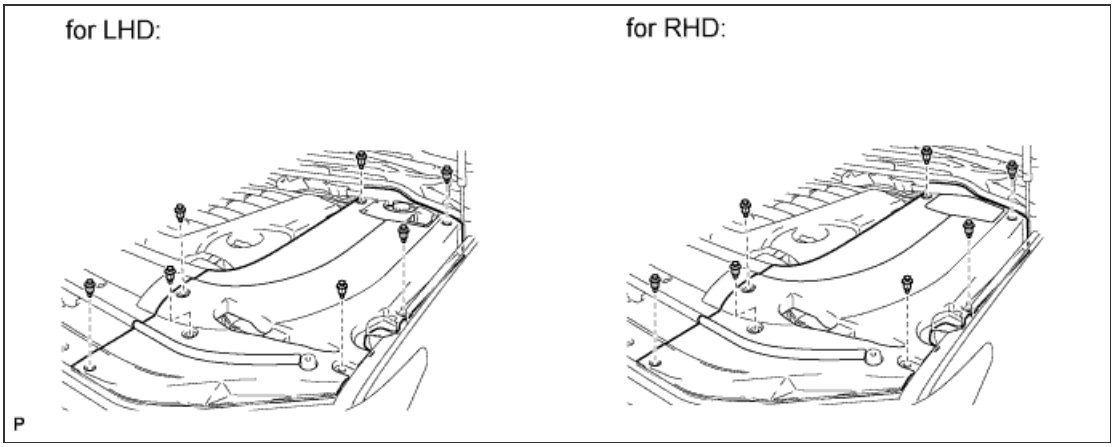

b. Remove the 2 screws and telephone bracket RH.



**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover LH.




## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

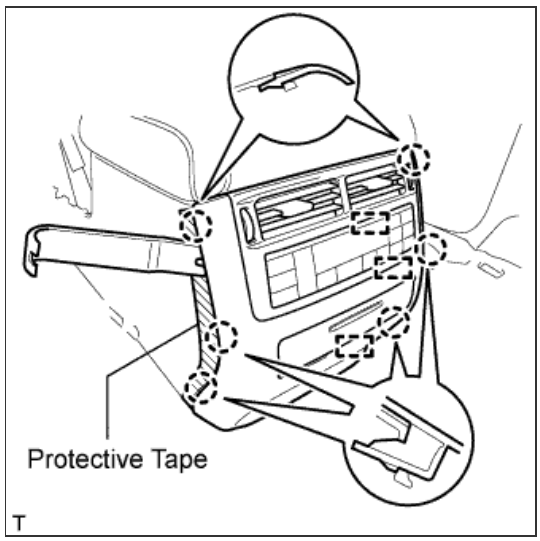
- **w/ Navigation System:**
  **After the engine switch is turned off, the HDD navigation system requires approximately 6 minutes to record various types of memory and settings. As a result, after turning the engine switch off, wait 6 minutes or more before disconnecting the cable from the negative (-) battery terminal.**
- **When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).**

## 3. REMOVE REAR CONSOLE END PANEL SUB-ASSEMBLY

a. Place protective tape as shown in the illustration.

b. Using a moulding remover, detach the 6 claws.

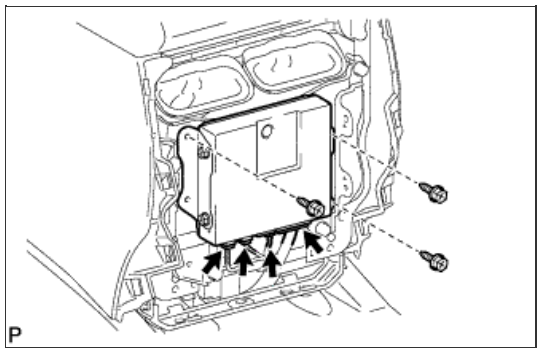
c. Remove the end panel and disconnect the connectors and 3 clamps.



## 4. REMOVE TELEMATICS TRANSCEIVER

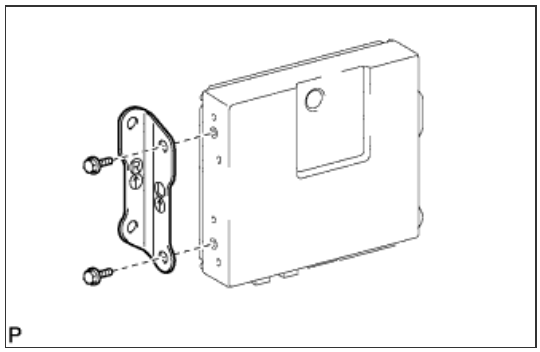
a. Disconnect the 4 connectors.

b. Remove the 3 screws and telematics transceiver with bracket.

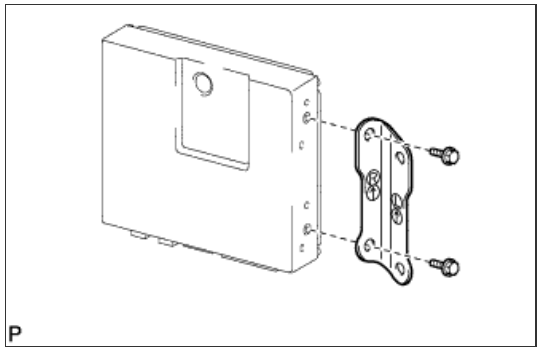



## 5. REMOVE NO. 2 TELEPHONE BRACKET

a. Remove the 2 screws and telephone bracket LH.




b. Remove the 2 screws and telephone bracket RH.



**for Preparation** Click here

## 1. INSTALL NO. 2 TELEPHONE BRACKET

a. Install the telephone bracket RH to the telematics transceiver with the 2 screws.

**Torque:**
**3.0 N*m{ 31 kgf*cm , 27 in.*lbf }**

b. Install the telephone bracket LH to the telematics transceiver with the 2 screws.

**Torque:**
**3.0 N*m{ 31 kgf*cm , 27 in.*lbf }**

## 2. INSTALL TELEMATICS TRANSCEIVER

a. Install the telematics transceiver with bracket with the 3 screws.

**Torque:**
**3.0 N*m{ 31 kgf*cm , 27 in.*lbf }**

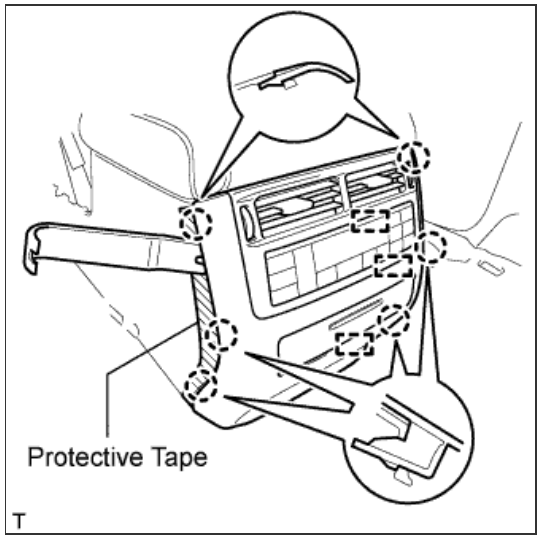
b. Connect the 4 connectors.

## 3. INSTALL REAR CONSOLE END PANEL SUB-ASSEMBLY

a. Place protective tape as shown in the illustration.

b. Using a moulding remover, detach the 6 claws.

c. Remove the end panel and disconnect the connectors and 3 clamps.



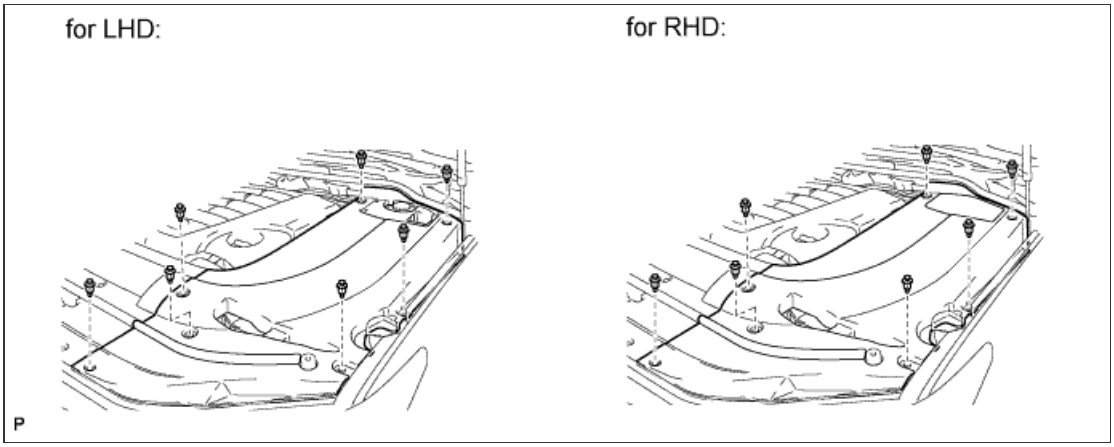

## 4. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 5. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover with the 7 clips.




## 6. CHECK SRS WARNING LIGHT

a. Check the SRS warning light (Click here).

## 7. PERFORM REGISTRATION

a. Perform registration (Click here).

**NOTICE:**

When replacing the telematics transceiver, perform registration.

**for Preparation** Click here

## 1. INSTALL NO. 2 TELEPHONE BRACKET

a. Install the telephone bracket RH to the telematics transceiver with the 2 screws.

**Torque:**
**3.0 N*m{ 31 kgf*cm , 27 in.*lbf }**

b. Install the telephone bracket LH to the telematics transceiver with the 2 screws.

**Torque:**
**3.0 N*m{ 31 kgf*cm , 27 in.*lbf }**

## 2. INSTALL TELEMATICS TRANSCEIVER

a. Install the telematics transceiver with bracket with the 3 screws.

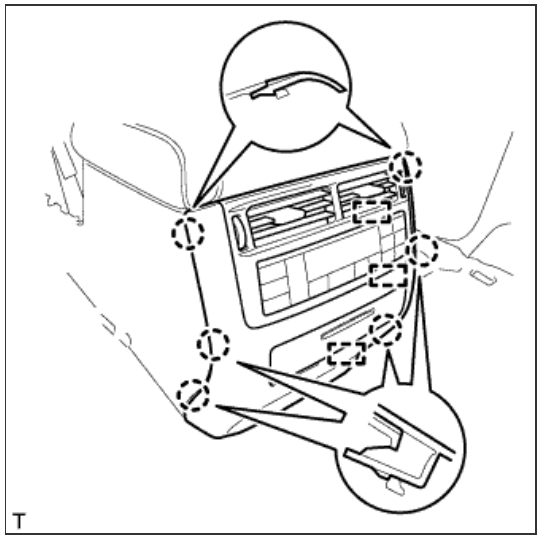
**Torque:**
**3.0 N*m{ 31 kgf*cm , 27 in.*lbf }**

b. Connect the 4 connectors.

## 3. INSTALL REAR CONSOLE END PANEL SUB-ASSEMBLY

a. Connect the connectors and 3 clamps.

b. Attach the 6 claws to install the end panel.




## 4. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 5. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover LH with the 7 clips.

## 6. CHECK SRS WARNING LIGHT

a. Check the SRS warning light (Click here).

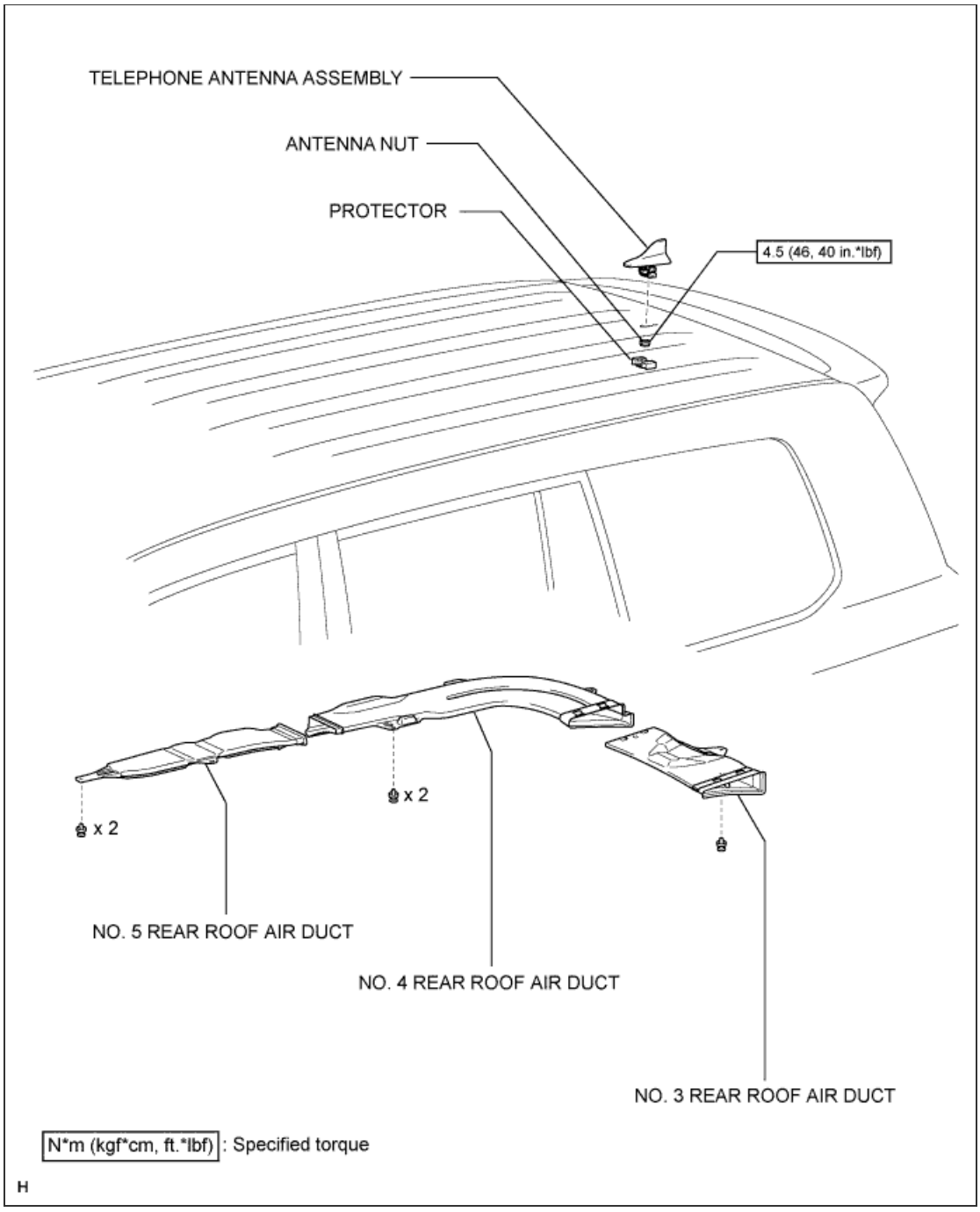
## 7. PERFORM REGISTRATION

a. Perform registration (Click here).

**NOTICE:**

When replacing the telematics transceiver, perform registration.

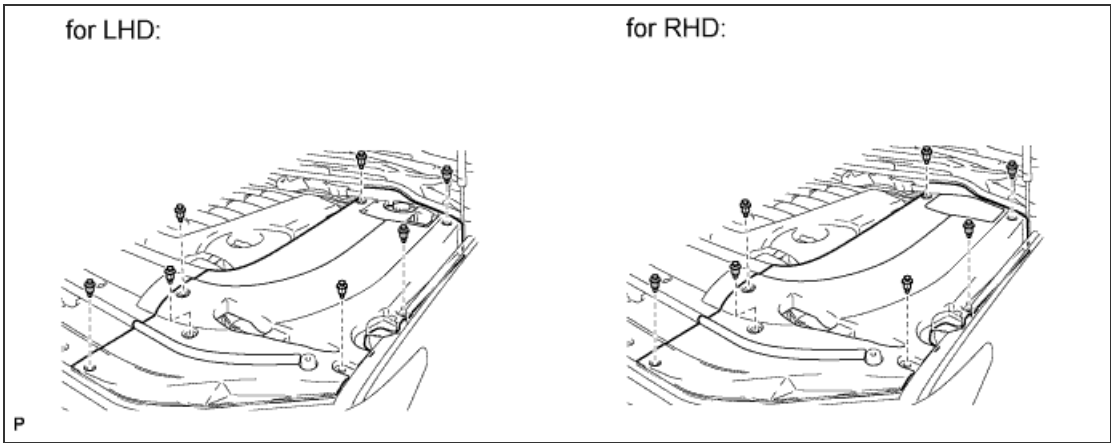
**for Preparation** [Click here]



**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover.




## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

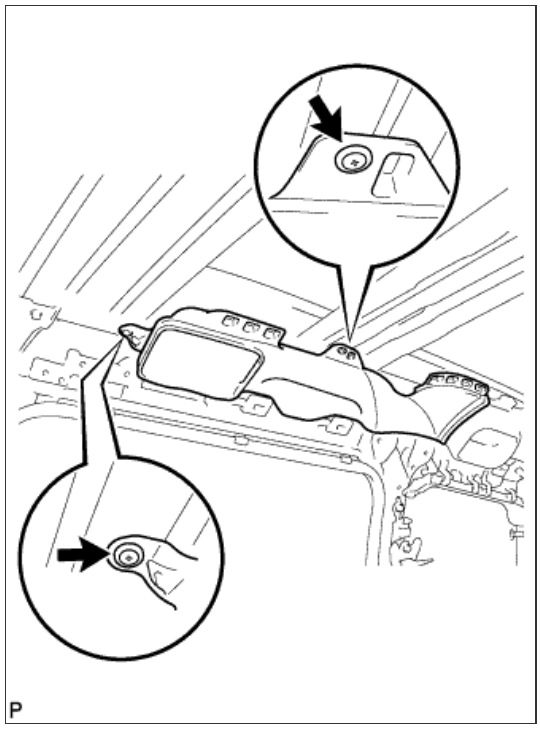
- **w/ Navigation System:**
  **After the engine switch is turned off, the HDD navigation system requires approximately 6 minutes to record various types of memory and settings. As a result, after turning the engine switch off, wait 6 minutes or more before disconnecting the cable from the negative (-) battery terminal.**
- **When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).**

## 3. REMOVE ROOF HEADLINING ASSEMBLY

a. Remove the roof headlining (Click here).

## 4. REMOVE NO. 5 REAR ROOF AIR DUCT

a. Remove the 2 clips and duct.



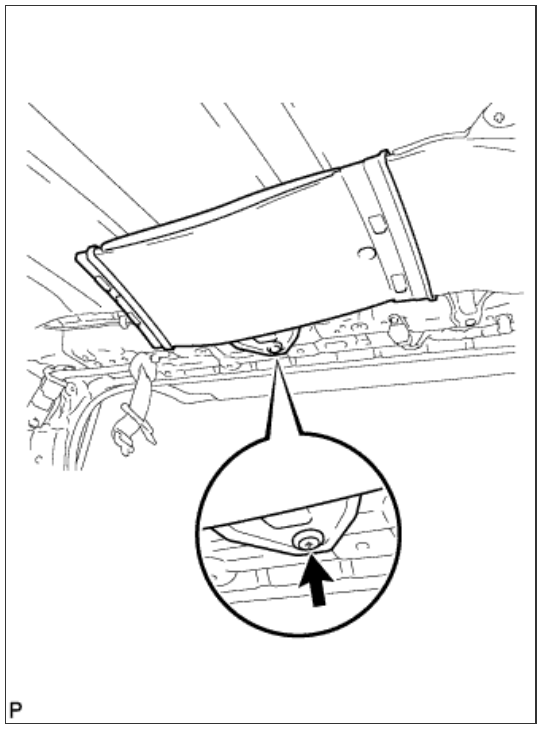

### 5. REMOVE NO. 4 REAR ROOF AIR DUCT

a. Remove the 2 clips and duct.



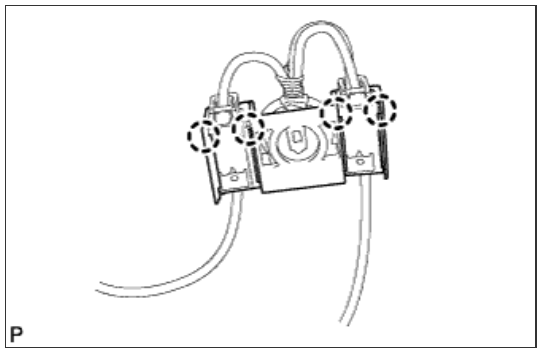

### 6. REMOVE NO. 3 REAR ROOF AIR DUCT

a. Remove the clip and duct.

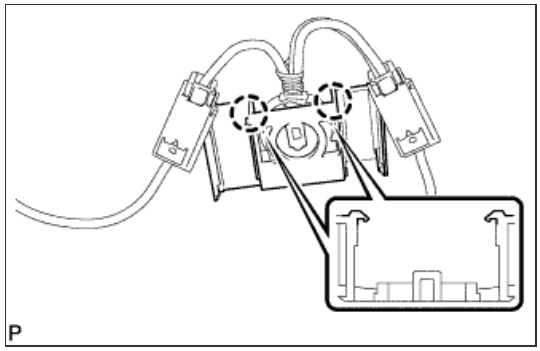



## 7. REMOVE TELEPHONE ANTENNA ASSEMBLY

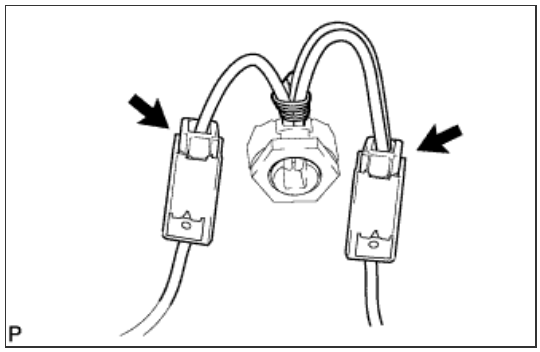
a. Detach the 4 claws and remove the 2 antenna cord connectors from the protector.



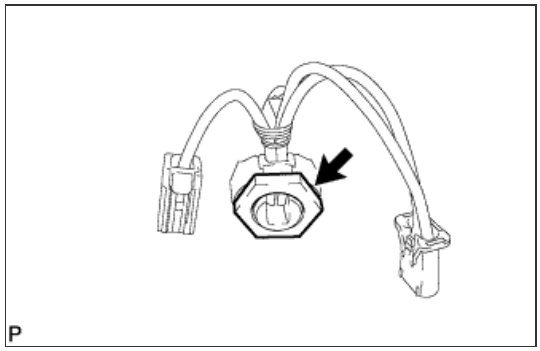

b. Detach the 2 claws and remove the protector.



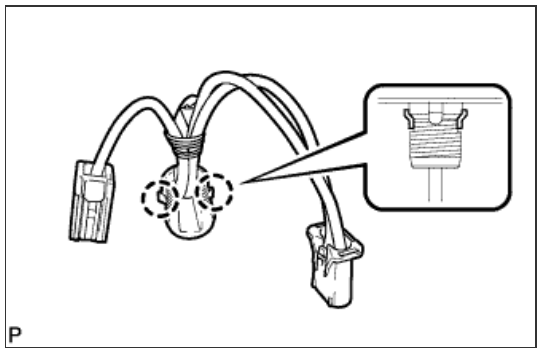

c. Disconnect the 2 antenna cord connectors.



d. Remove the antenna nut.



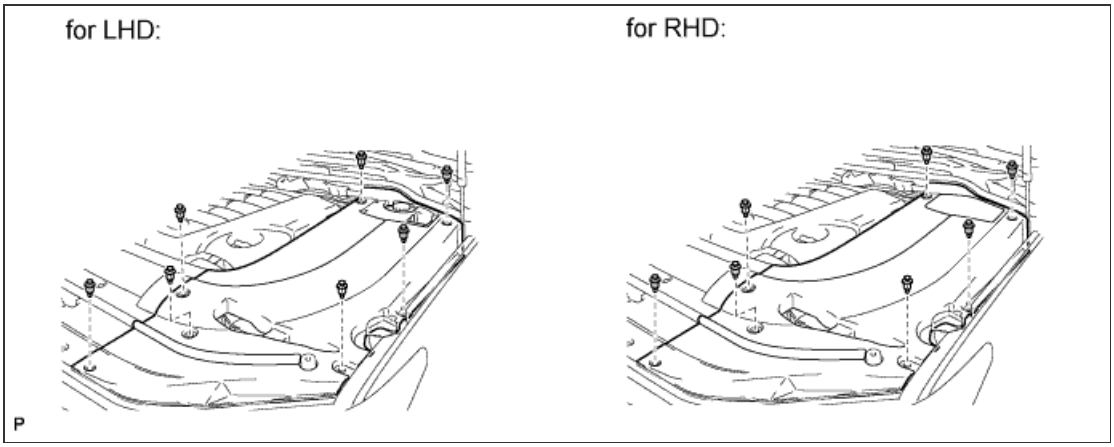

e. Detach the 2 claws and remove the telephone antenna.



**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover LH.




## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

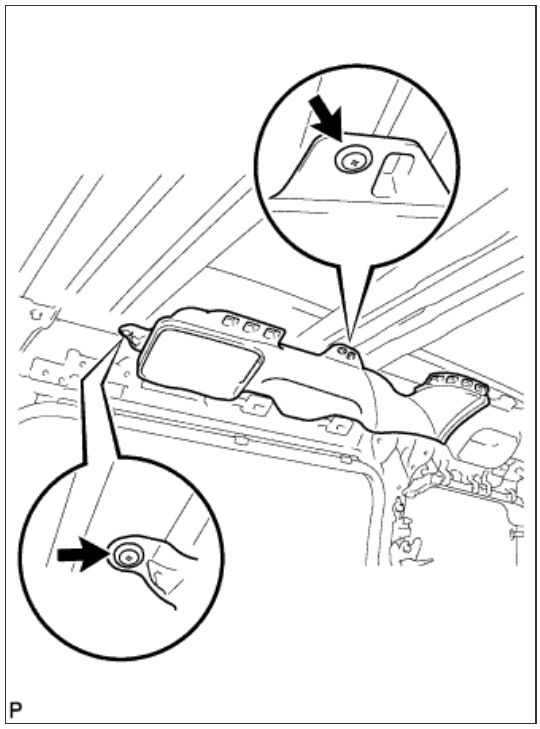
- **w/ Navigation System:**
  **After the engine switch is turned off, the HDD navigation system requires approximately 6 minutes to record various types of memory and settings. As a result, after turning the engine switch off, wait 6 minutes or more before disconnecting the cable from the negative (-) battery terminal.**
- **When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).**

## 3. REMOVE ROOF HEADLINING ASSEMBLY

a. Remove the roof headlining (Click here).

## 4. REMOVE NO. 5 REAR ROOF AIR DUCT

a. Remove the 2 clips and duct.



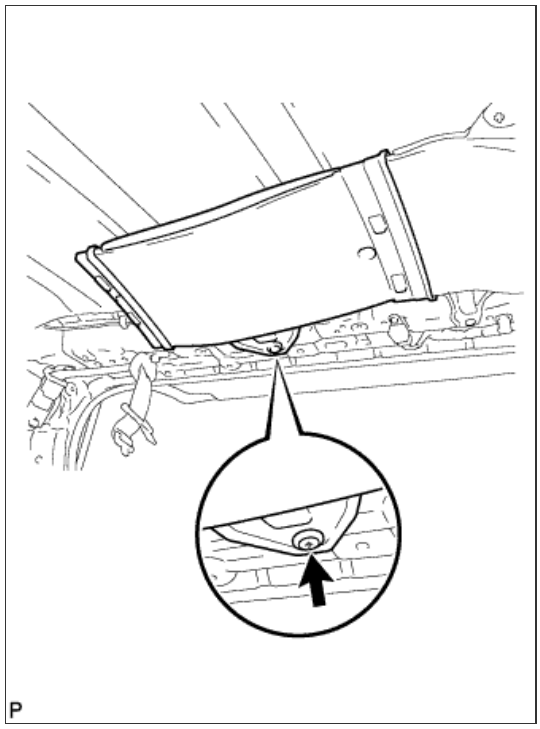

### 5. REMOVE NO. 4 REAR ROOF AIR DUCT

a. Remove the 2 clips and duct.



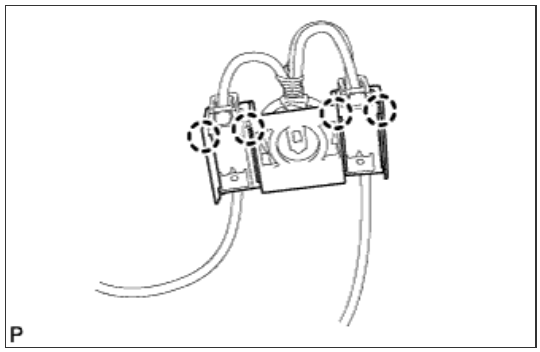

### 6. REMOVE NO. 3 REAR ROOF AIR DUCT

a. Remove the clip and duct.

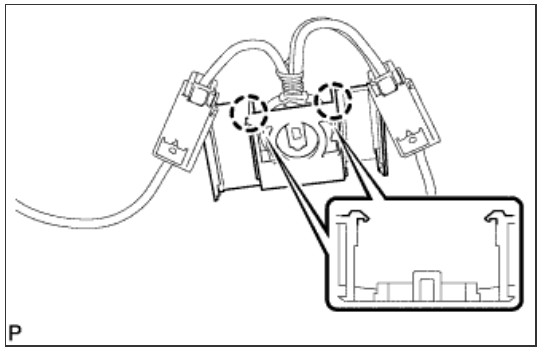



## 7. REMOVE TELEPHONE ANTENNA ASSEMBLY

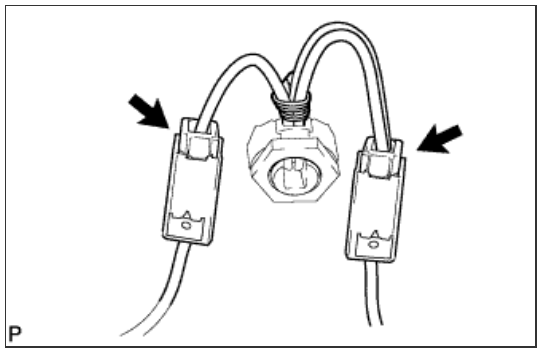
a. Detach the 4 claws and remove the 2 antenna cord connectors from the protector.



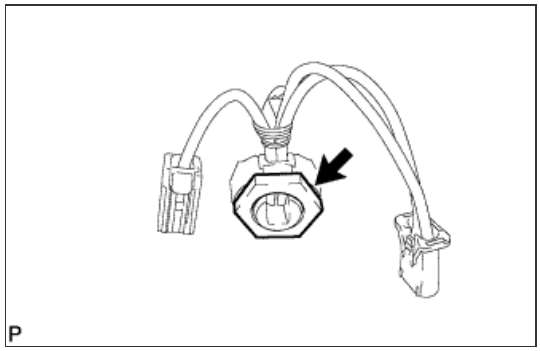

b. Detach the 2 claws and remove the protector.



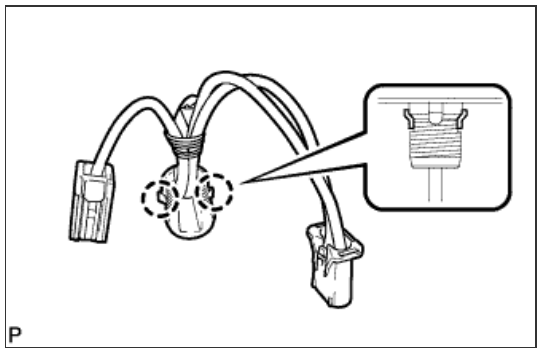

c. Disconnect the 2 antenna cord connectors.



d. Remove the antenna nut.




e. Detach the 2 claws and remove the telephone antenna.



**for Preparation** Click here

## 1. INSTALL TELEPHONE ANTENNA ASSEMBLY

a. Align the positioning pin of the telephone antenna and set the antenna on the vehicle.

b. Attach the 2 claws to install the telephone antenna.

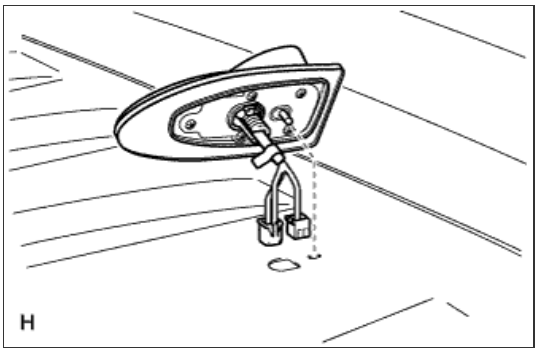
c. Install the antenna nut.

**Torque:**
**4.5 N*m{ 46 kgf*cm , 40 in.*lbf }**

d. Connect the 2 antenna cord connectors.

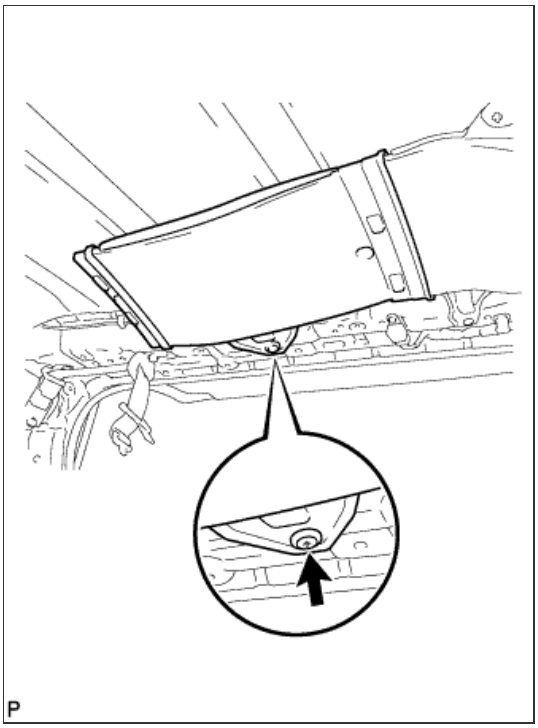
e. Attach the 2 claws to install the protector.

f. Attach the 4 claws to install the 2 antenna cord connectors.




## 2. INSTALL NO. 3 REAR ROOF AIR DUCT

a. Install the duct with the clip.



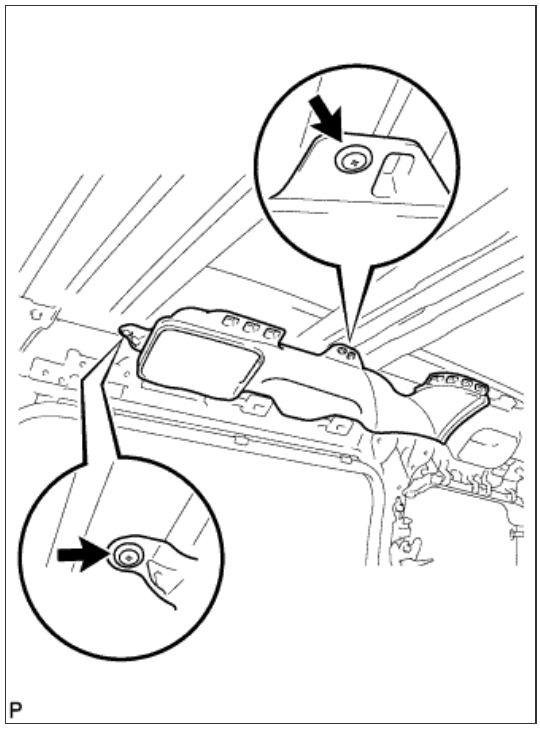

## 3. INSTALL NO. 4 REAR ROOF AIR DUCT

a. Install the duct with the 2 clips.




### 4. INSTALL NO. 5 REAR ROOF AIR DUCT

a. Install the duct with the 2 clips.




### 5. INSTALL ROOF HEADLINING ASSEMBLY

a. Install the roof headlining (Click here).

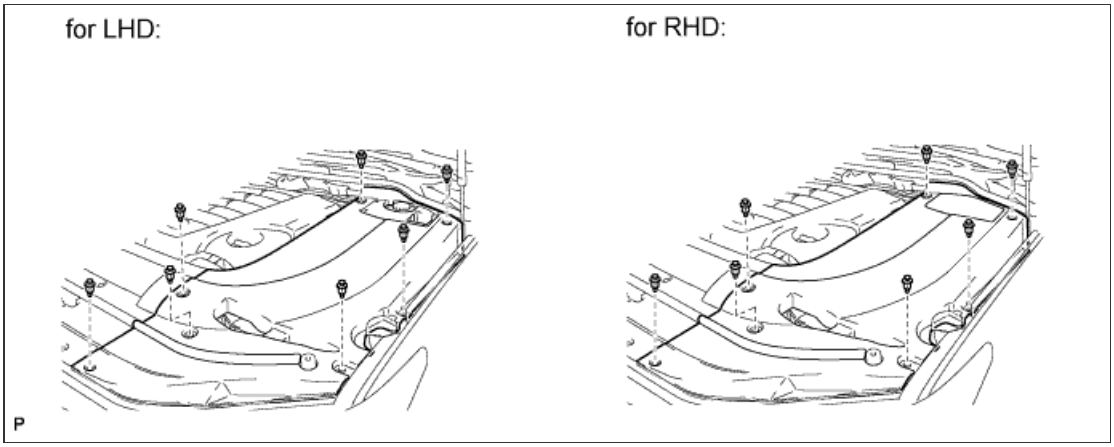
### 6. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 7. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover with the 7 clips.




## 8. CHECK SRS WARNING LIGHT

a. Check the SRS warning light (Click here).

**for Preparation** Click here

## 1. INSTALL TELEPHONE ANTENNA ASSEMBLY

a. Align the positioning pin of the telephone antenna and set the antenna on the vehicle.

b. Attach the 2 claws to install the telephone antenna.

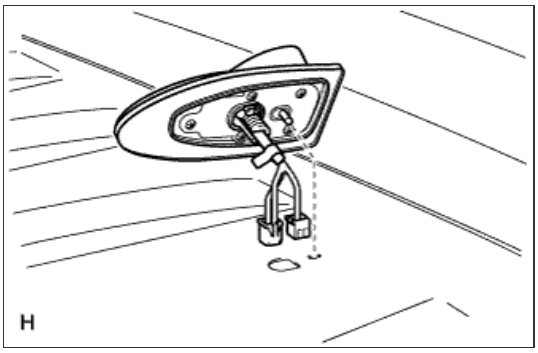
c. Install the antenna nut.

**Torque:**
**4.5 N*m{ 46 kgf*cm , 40 in.*lbf }**

d. Connect the 2 antenna cord connectors.

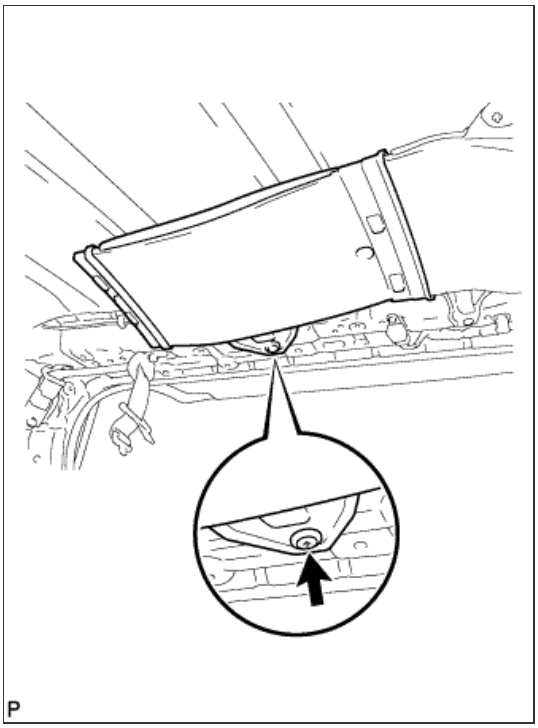
e. Attach the 2 claws to install the protector.

f. Attach the 4 claws to install the 2 antenna cord connectors.




## 2. INSTALL NO. 3 REAR ROOF AIR DUCT

a. Install the duct with the clip.



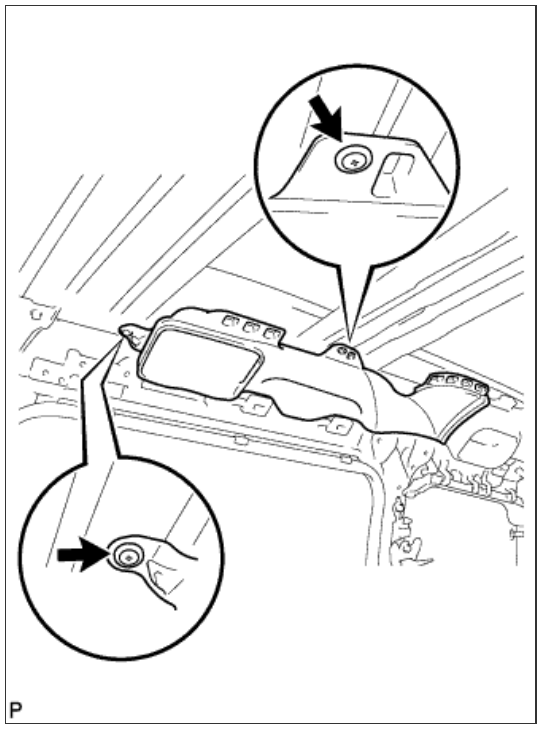

## 3. INSTALL NO. 4 REAR ROOF AIR DUCT

a. Install the duct with the 2 clips.




### 4. INSTALL NO. 5 REAR ROOF AIR DUCT

a. Install the duct with the 2 clips.




### 5. INSTALL ROOF HEADLINING ASSEMBLY

a. Install the roof headlining (Click here).

### 6. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

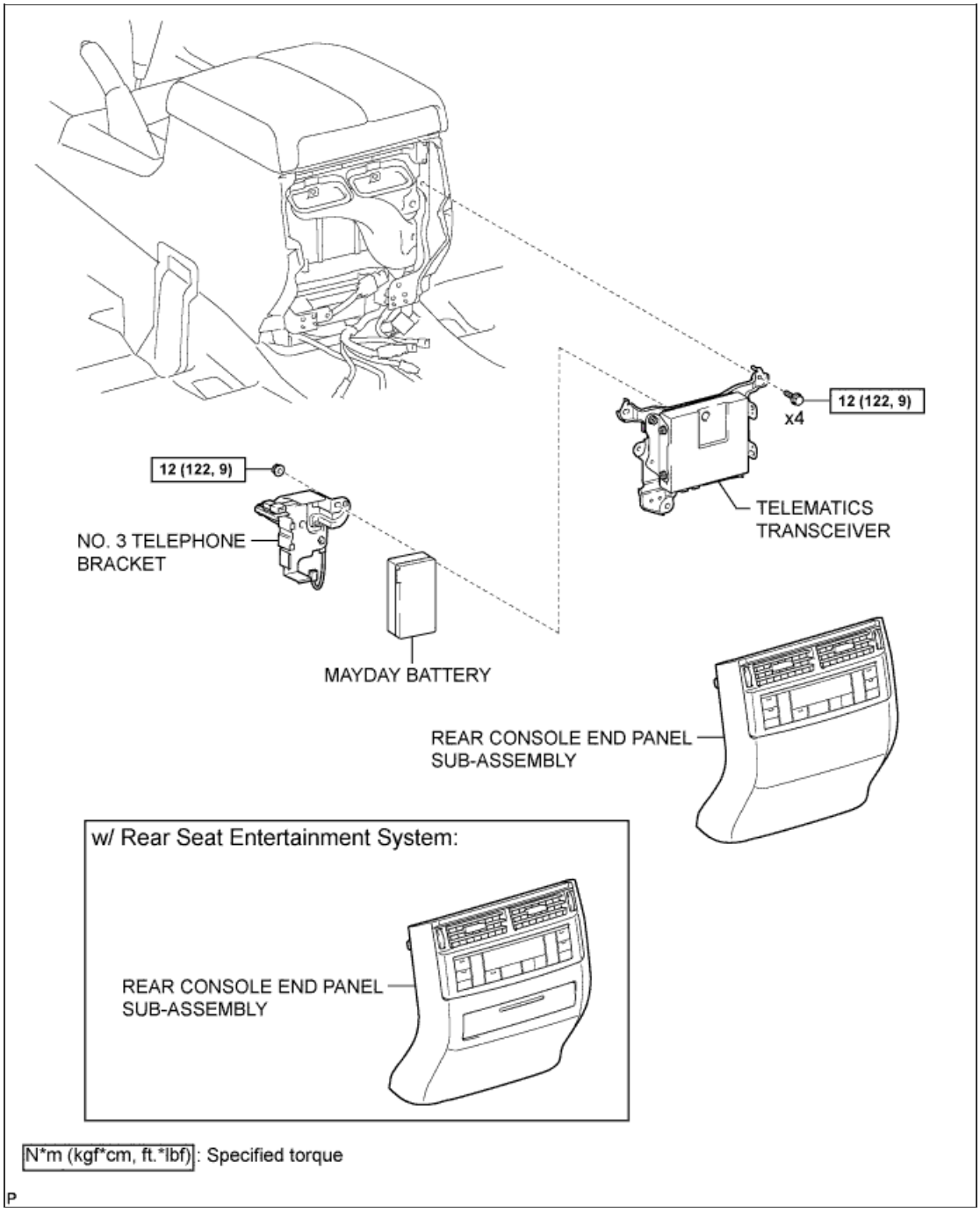
### 7. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover LH with the 7 clips.

### 8. CHECK SRS WARNING LIGHT

a. Check the SRS warning light (Click here).

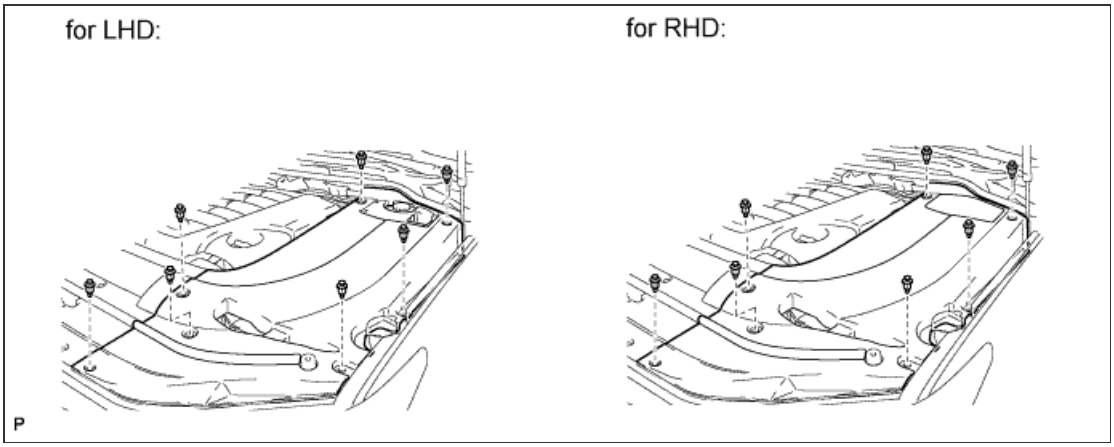
**for Preparation** Click here



**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover with the 7 clips.




## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

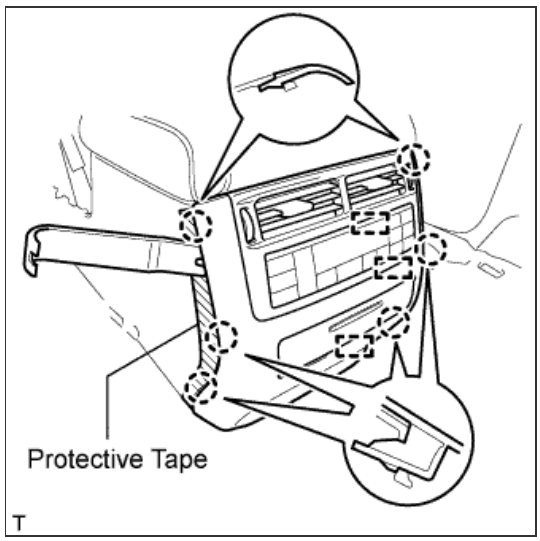
- **w/ Navigation System:**
  **After the engine switch is turned off, the HDD navigation system requires approximately 6 minutes to record various types of memory and settings. As a result, after turning the engine switch off, wait 6 minutes or more before disconnecting the cable from the negative (-) battery terminal.**
- **When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).**

## 3. REMOVE REAR CONSOLE END PANEL SUB-ASSEMBLY

a. Place protective tape as shown in the illustration.

b. Using a moulding remover, detach the 6 claws.

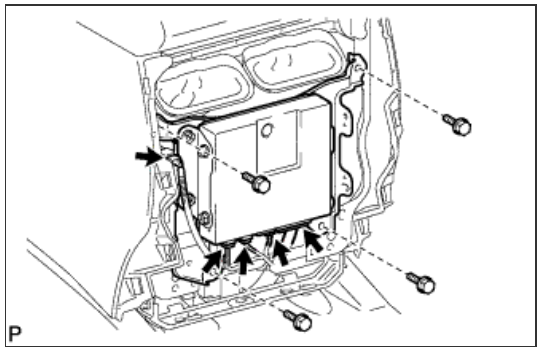
c. Remove the end panel and disconnect the connectors and 3 clamps.



## 4. REMOVE TELEMATICS TRANSCEIVER

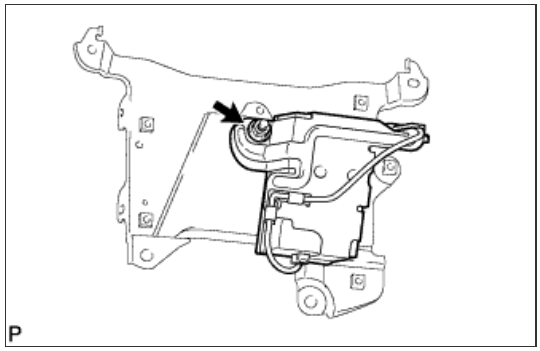
a. Disconnect the 5 connectors.

b. Remove the 4 bolts and telematics transceiver with bracket.

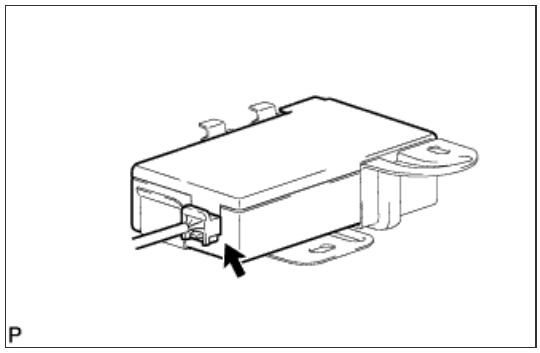



## 5. REMOVE MAYDAY BATTERY

a. Remove the nut and No. 3 telephone bracket together with the mayday battery.



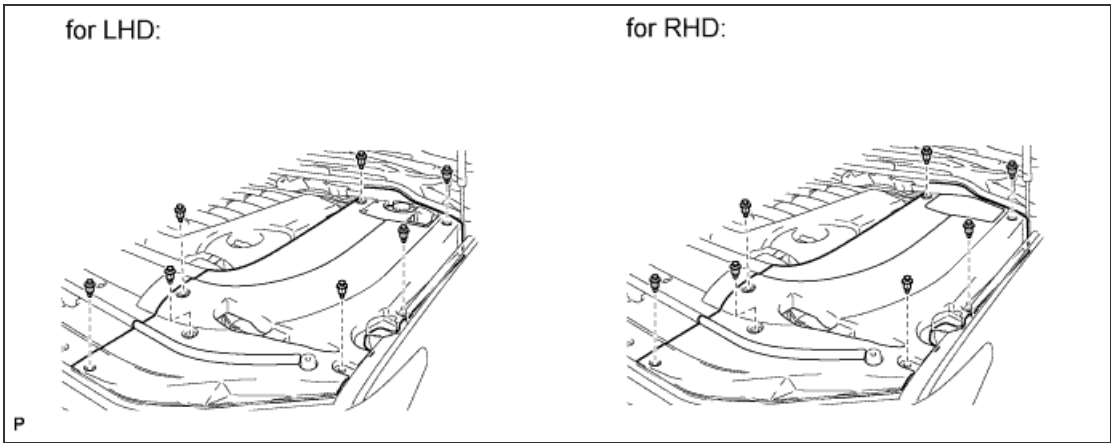

b. Disconnect the connector and remove the mayday battery.



**for Preparation** Click here

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover LH.




## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

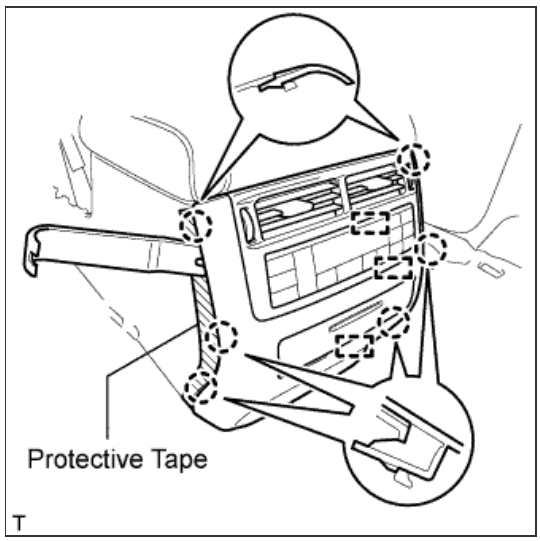
- **w/ Navigation System:**
  **After the engine switch is turned off, the HDD navigation system requires approximately 6 minutes to record various types of memory and settings. As a result, after turning the engine switch off, wait 6 minutes or more before disconnecting the cable from the negative (-) battery terminal.**
- **When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).**

## 3. REMOVE REAR CONSOLE END PANEL SUB-ASSEMBLY

a. Place protective tape as shown in the illustration.

b. Using a moulding remover, detach the 6 claws.

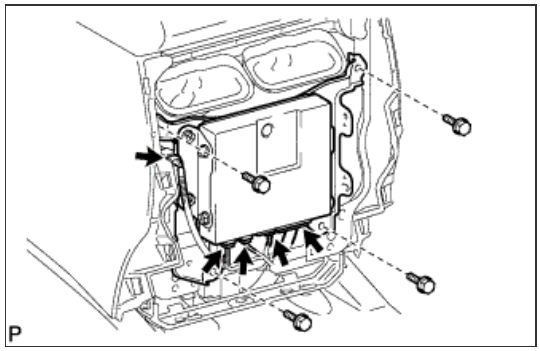
c. Remove the end panel and disconnect the connectors and 3 clamps.



## 4. REMOVE TELEMATICS TRANSCEIVER

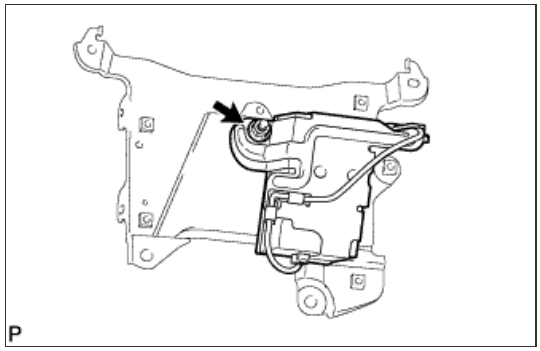
a. Disconnect the 5 connectors.

b. Remove the 4 bolts and telematics transceiver with bracket.

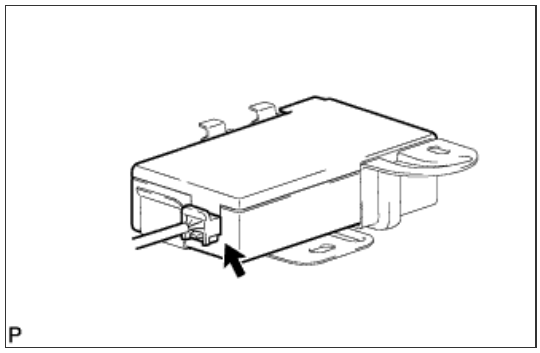



## 5. REMOVE MAYDAY BATTERY

a. Remove the nut and No. 3 telephone bracket together with the mayday battery.




b. Disconnect the connector and remove the mayday battery.



**for Preparation** Click here

## 1. INSTALL MAYDAY BATTERY

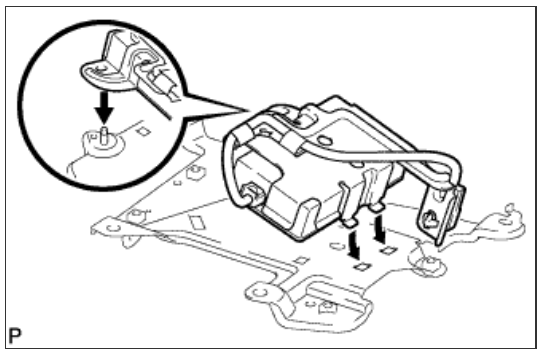
a. Install the mayday battery to the No. 3 telephone bracket.

b. Connect the connector.

c. Align the bracket, 2 claws and the nut attachment shaft, and assembly the mayday battery and bracket together.

d. Install the No. 3 telephone bracket with mayday battery with the nut.

**Torque:**
**12 N*m{ 122 kgf*cm , 9 ft.*lbf }**




## 2. INSTALL TELEMATICS TRANSCEIVER

a. Install the telematics transceiver with bracket with the 4 bolts.

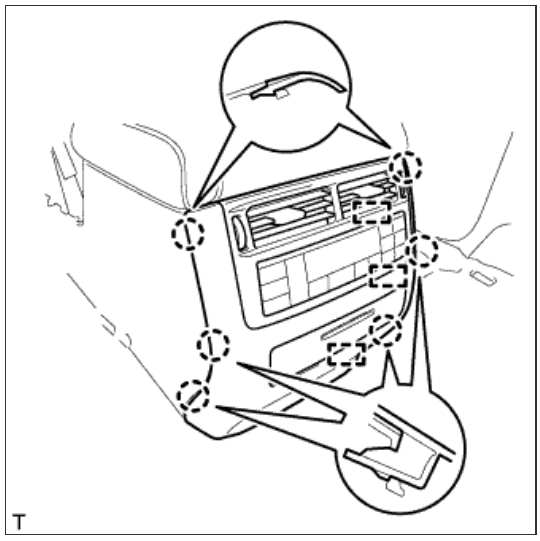
**Torque:**
**12 N*m{ 122 kgf*cm , 9 ft.*lbf }**

b. Connect the 5 connectors.

## 3. INSTALL REAR CONSOLE END PANEL SUB-ASSEMBLY

a. Connect the connectors and 3 clamps.

b. Attach the 6 claws to install the end panel.



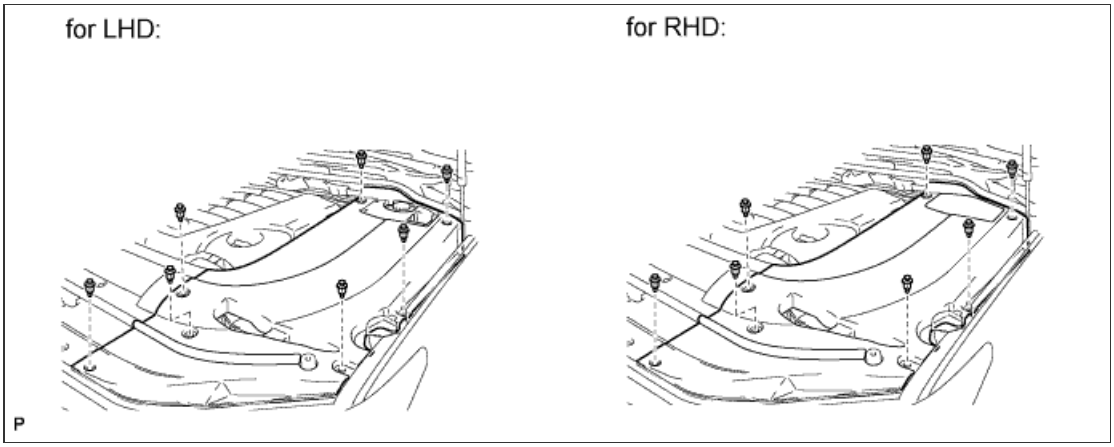

## 4. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 5. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover with the 7 clips.




## 6. CHECK SRS WARNING LIGHT

a. Check the SRS warning light (Click here).

**for Preparation** Click here

## 1. INSTALL MAYDAY BATTERY

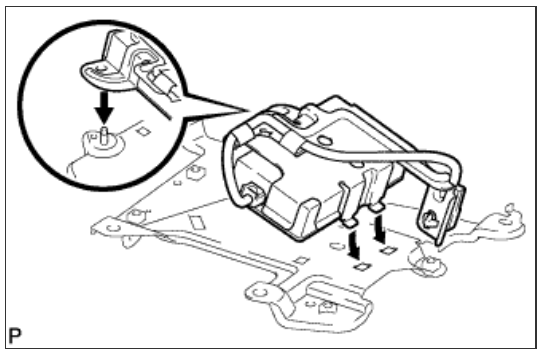
a. Install the mayday battery to the No. 3 telephone bracket.

b. Connect the connector.

c. Align the bracket, 2 claws and the nut attachment shaft, and assembly the mayday battery and bracket together.

d. Install the No. 3 telephone bracket with mayday battery with the nut.

**Torque:**
**12 N*m{ 122 kgf*cm , 9 ft.*lbf }**




## 2. INSTALL TELEMATICS TRANSCEIVER

a. Install the telematics transceiver with bracket with the 4 bolts.

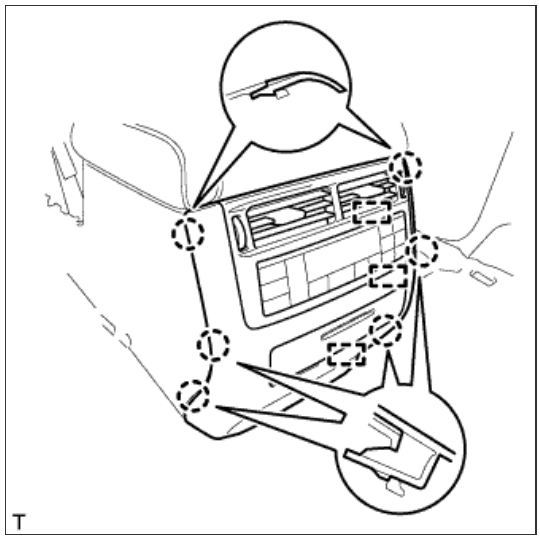
**Torque:**
**12 N*m{ 122 kgf*cm , 9 ft.*lbf }**

b. Connect the 5 connectors.

## 3. INSTALL REAR CONSOLE END PANEL SUB-ASSEMBLY

a. Connect the connectors and 3 clamps.

b. Attach the 6 claws to install the end panel.




## 4. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

### 5. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover LH with the 7 clips.

### 6. CHECK SRS WARNING LIGHT

a. Check the SRS warning light (Click here).

**for Preparation** Click here

## 1.PRECAUTION FOR LEXUS PARKING ASSIST-SENSOR SYSTEM

**HINT:**

- **In very cold weather where a malfunction display appears, the sensor may not detect obstacles.**
- **If the malfunction display appears, visually check the sensor first. If the sensor is free of foreign matter but the malfunction display remains, the sensor may have a malfunction.**

a. Under the following conditions, the detection function may not function properly:

i. The sensor is covered with foreign matter, such as mud or snow (detection function returns to normal if sensor is cleaned).

ii. The sensor is frozen (detection function returns to normal when defrosted).

iii. A hand is blocking the sensor.

b. The detection range may be affected by the following conditions:

i. The sensor is covered with foreign matter, such as mud or snow.

ii. The vehicle is in a very hot or cold area.

c. Under the following conditions, a detection error may occur:

i. Driving on a bumpy road, on an unpaved road or in tall grass.

ii. Things that transmit ultrasonic waves, such as other vehicle horns or sonar systems, motorcycle engines, or large vehicle air brakes, are near the vehicle.

iii. It is raining heavily or water is sprayed on the sensor.

iv. The vehicle is extremely tilted.

v. The vehicle is equipped with a commercial fender pole or a wireless mechanism antenna.

vi. The sensor is covered with foreign matter, such as mud or snow.

vii. The vehicle is moved forward or backward towards high curbs or objects that are perpendicular to the ground.

d. The sensor cannot detect the following objects.

i. Thin objects, such as wires and ropes.

ii. Materials that easily absorb ultrasonic waves, such as cotton, snow, etc.

iii. Objects with sharp edges.

iv. Short objects.

v. Tall objects with a projected upper part.

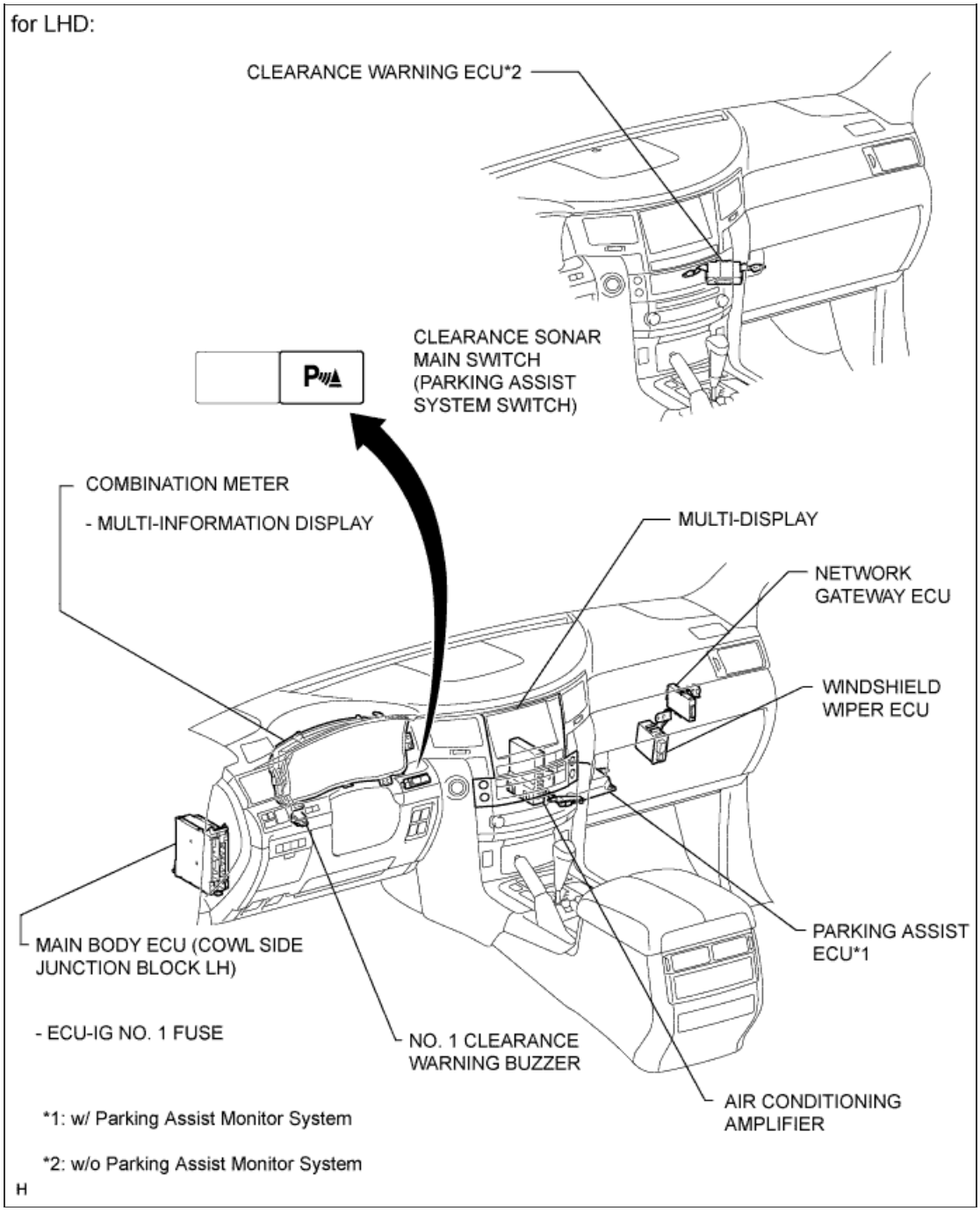
e. Other notices:

i. The sensor cannot detect objects directly under the bumper (the sensor may detect low objects and thin poles, and then lose track of the objects).

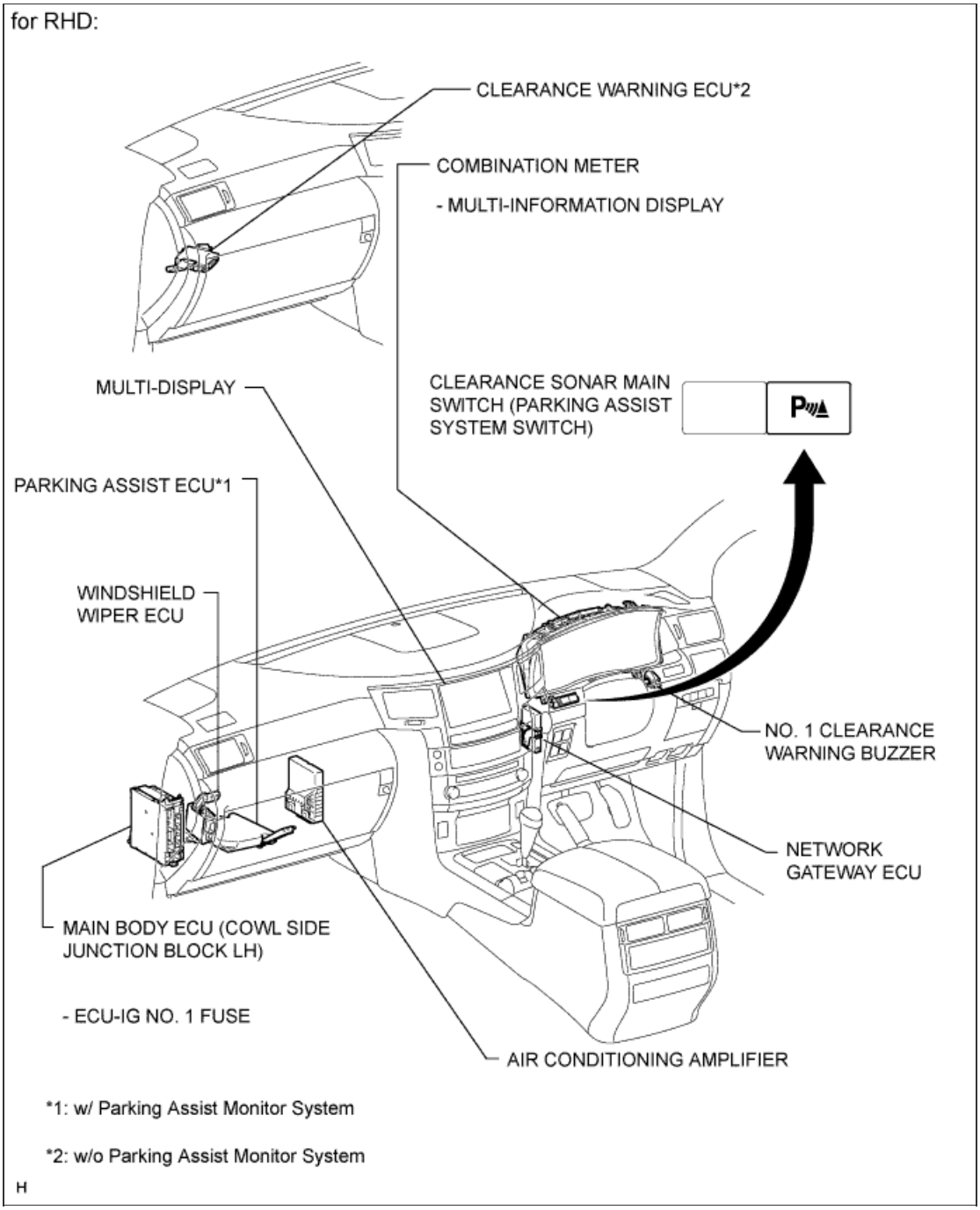
ii. The sensor may be unable to detect obstacles that are too close to the sensor.

iii. The sensor may be unable to detect obstacles if it is dropped or subjected to a strong impact.

**for Preparation** Click here



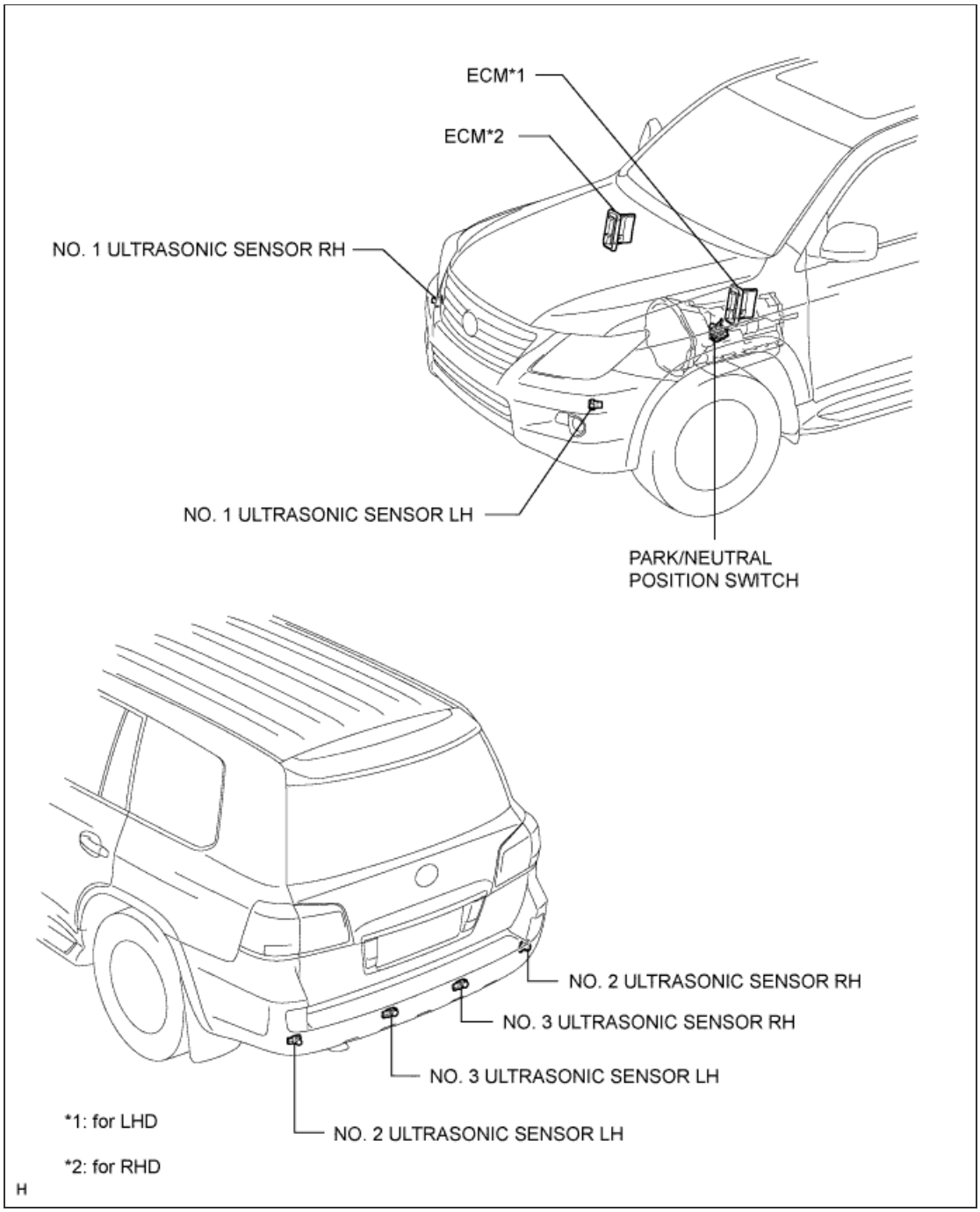
for RHD:



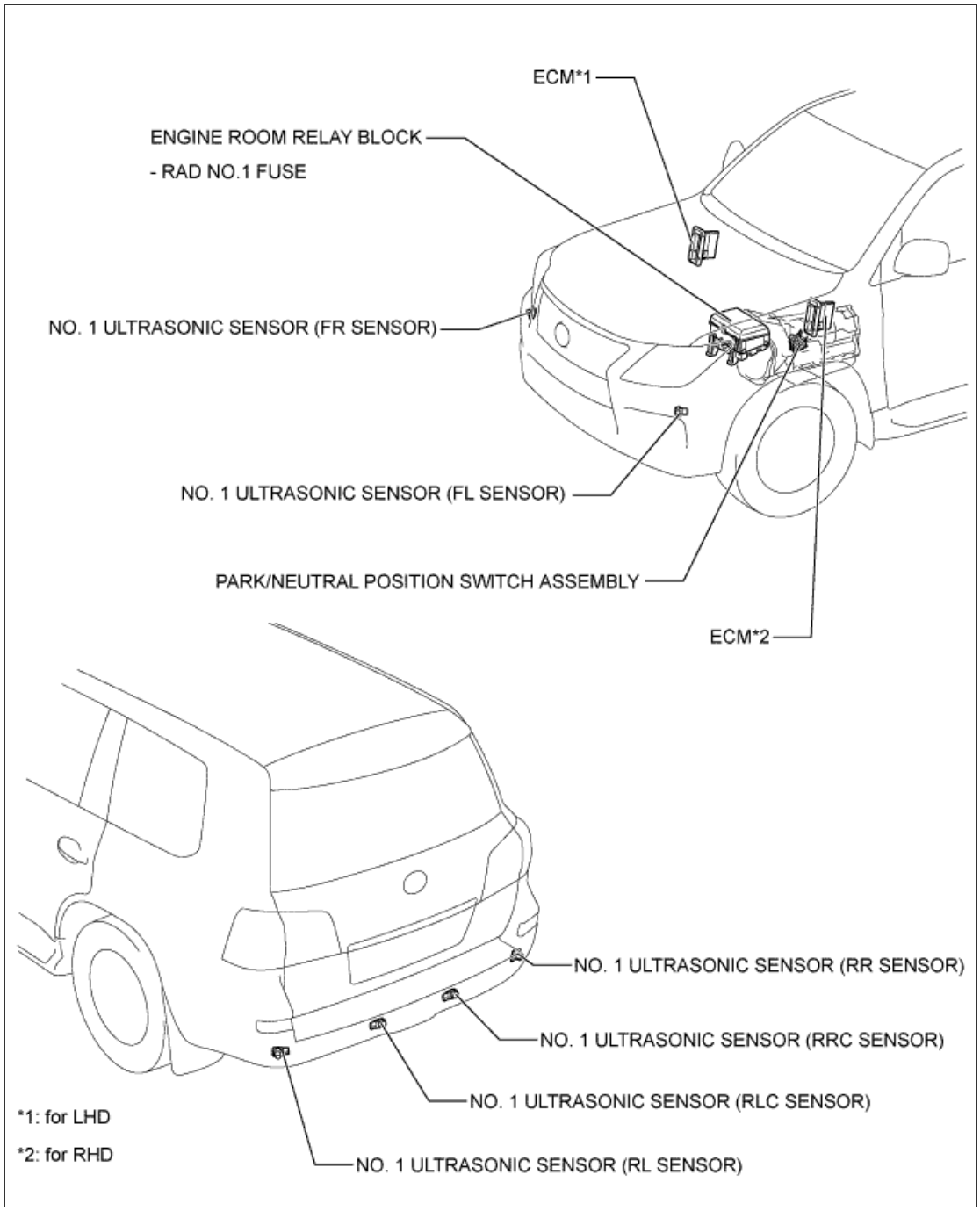

*1: w/ Parking Assist Monitor System

*2: w/o Parking Assist Monitor System

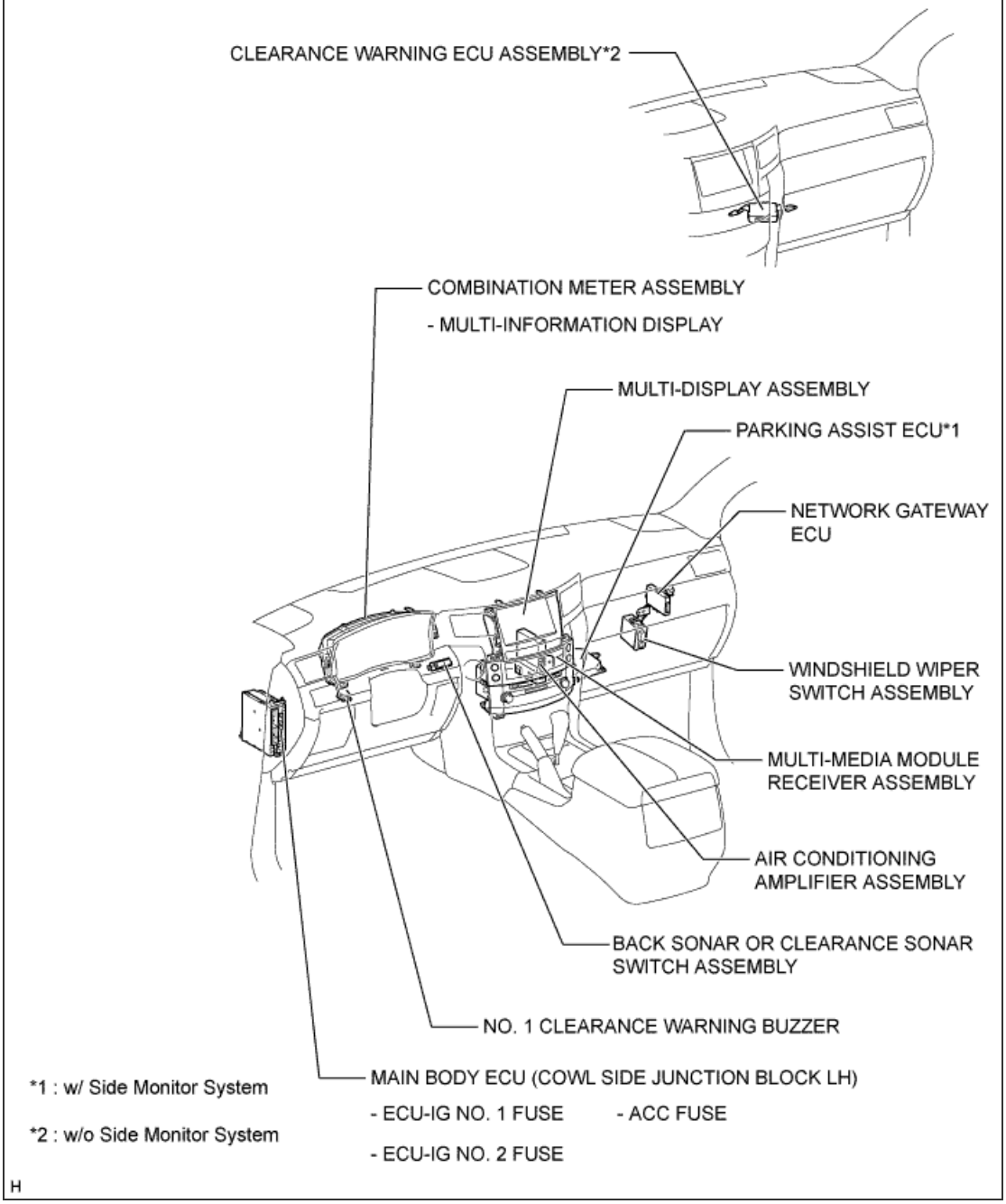
H


ECM*1
ECM*2
NO. 1 ULTRASONIC SENSOR RH
NO. 1 ULTRASONIC SENSOR LH
PARK/NEUTRAL
POSITION SWITCH
NO. 2 ULTRASONIC SENSOR RH
NO. 3 ULTRASONIC SENSOR RH
NO. 3 ULTRASONIC SENSOR LH
NO. 2 ULTRASONIC SENSOR LH
*1: for LHD
*2: for RHD
H

**for Preparation** Click here



for LHD:

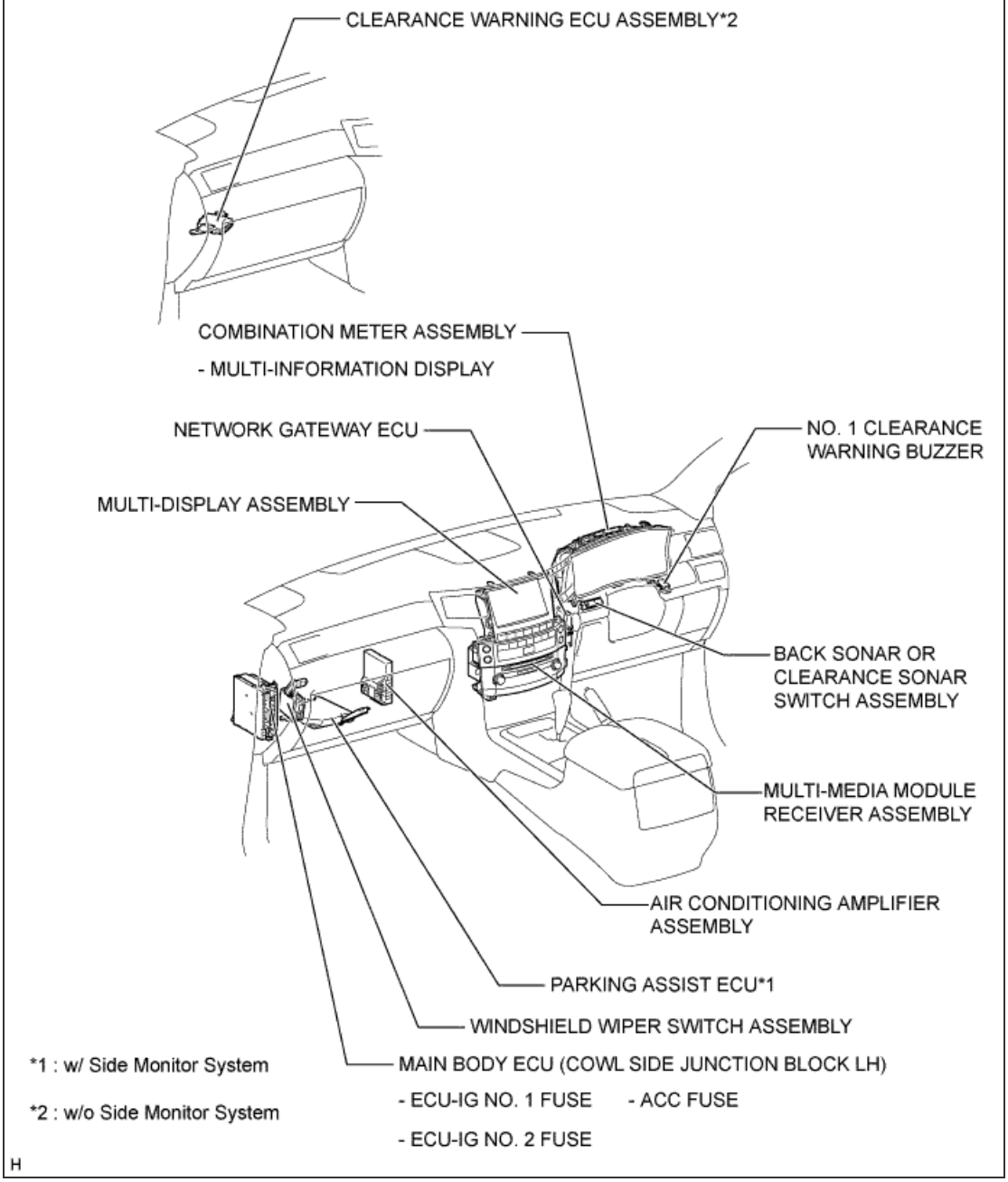



*1 : w/ Side Monitor System

*2 : w/o Side Monitor System

H

for RHD:

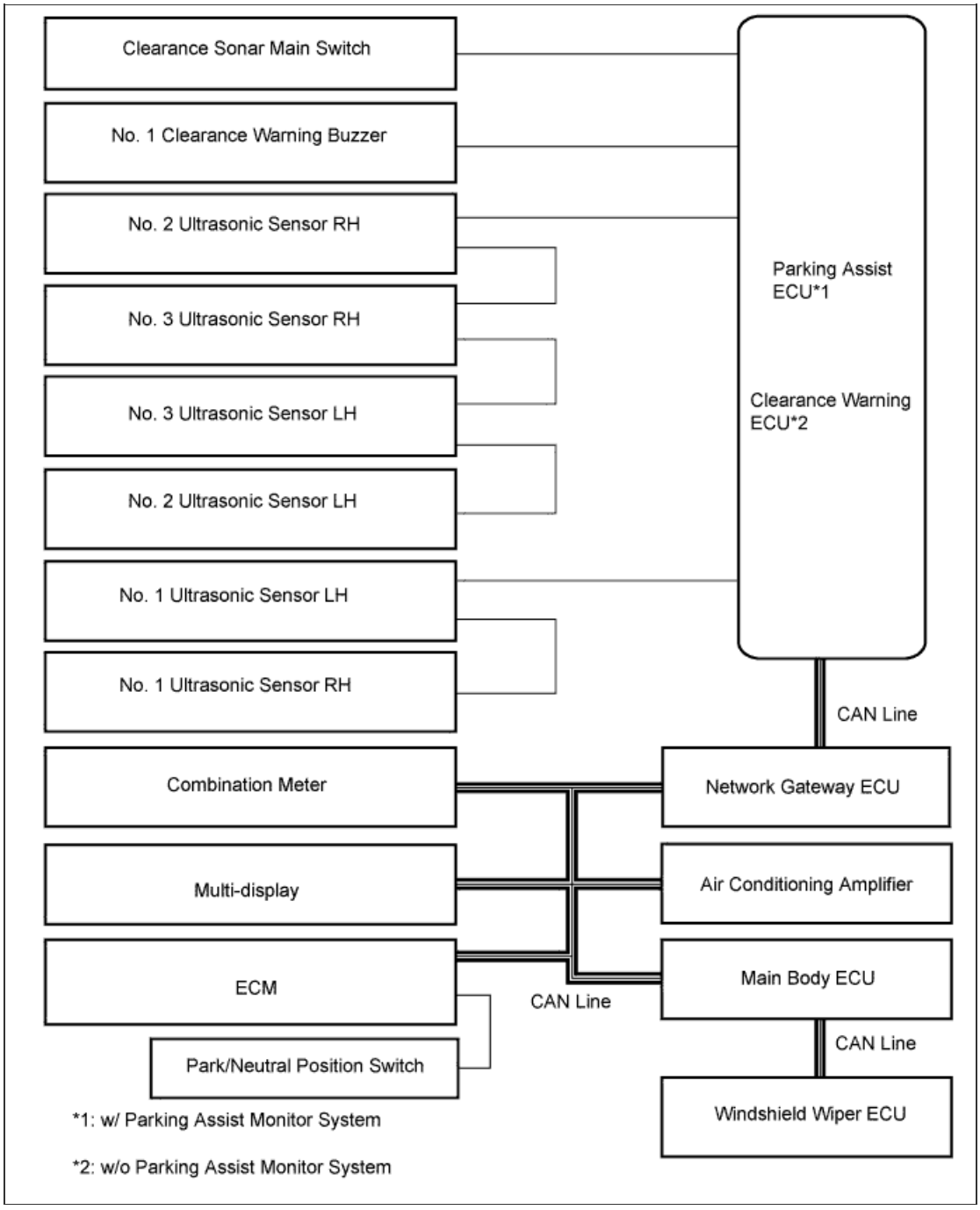



*1 : w/ Side Monitor System

*2 : w/o Side Monitor System

H

**for Preparation** Click here



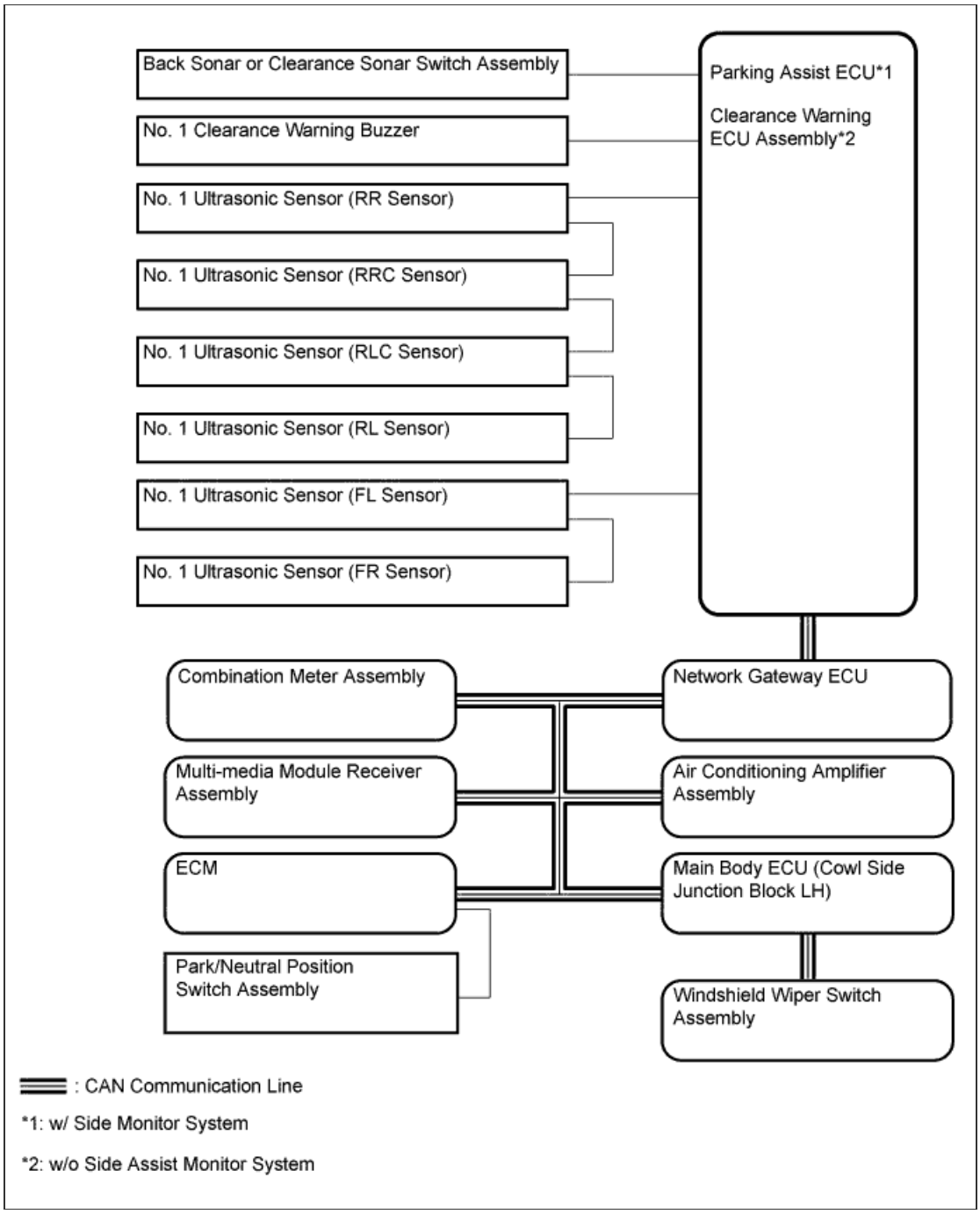

**Communication Table**

| Sender ECU | Receiver ECU | Signal | Line |
|---|---|---|---|
| Combination Meter | • Parking Assist ECU*1<br>• Clearance Warning ECU*2 | Vehicle speed signal | CAN |
| ECM | • Parking Assist ECU*1<br>• Clearance Warning ECU*2 | Shift position signal | CAN |
| Air Conditioning Amplifier | • Parking Assist ECU*1<br>• Clearance Warning ECU*2 | Outside temperature | CAN |
| Main Body ECU | • Parking Assist ECU*1<br>• Clearance Warning ECU*2 | • Dimmer signal<br>• Destination information signal<br>• Steering information signal | CAN |
| | • Parking Assist ECU*1 | | |

| | | | |
|---|---|---|---|
| Windshield Wiper ECU | • Clearance Warning ECU*2 | Wiper status signal | CAN |
| • Parking Assist ECU*1<br>• Clearance Warning ECU*2 | Combination Meter | Ultrasonic sensor detection signal | CAN |

*1: w/ Parking Assist Monitor System
*2: w/o Parking Assist Monitor System

**for Preparation** Click here




### Communication Table

| Sender ECU | Receiver ECU | Signal | Line |
|---|---|---|---|
| Combination Meter Assembly | • Parking Assist ECU*1<br>• Clearance Warning ECU Assembly*2 | Vehicle speed signal | CAN |
| ECM | • Parking Assist ECU*1<br>• Clearance Warning ECU Assembly*2 | Shift position signal | CAN |
| Air Conditioning Amplifier Assembly | • Parking Assist ECU*1<br>• Clearance Warning ECU Assembly*2 | Outside temperature | CAN |
| Main Body ECU (Cowl Side Junction Block LH) | • Parking Assist ECU*1<br>• Clearance Warning ECU Assembly*2 | • Dimmer signal<br>• Destination information signal<br>• Steering information signal | CAN |

| | | | |
|---|---|---|---|
| Windshield Wiper Switch Assembly | Parking Assist ECU*1 | Wiper status signal | CAN |
| • Parking Assist ECU*1<br>• Clearance Warning ECU Assembly*2 | • Combination Meter Assembly<br>• Multi-media Module Receiver Assembly | Ultrasonic sensor detection signal | CAN |

*1: w/ Side Monitor System
*2: w/o Side Monitor System

**for Preparation** Click here

## GENERAL

a. When the vehicle is driven at 9 km/h (5.8 mph) or less, the ultrasonic sensors detect any obstacles at the corners and rear of the vehicle. The system then informs the driver of the distance between the sensors and the obstacles as well as their positions by indicating them on the combination meter and by sounding a buzzer.

## FUNCTION OF COMPONENTS

| Components | Function |
|---|---|
| Ultrasonic sensor | The ultrasonic sensor sends and receives ultrasonic waves. Based on the received wave, the sensor calculates the approximate distance value between the vehicle and obstacle, and sends the distance value as a signal to the parking assist ECU*1 or clearance warning ECU*2. |
| Combination meter | Transmits a vehicle speed signal to the parking assist ECU*1 or clearance warning ECU*2.<br>Receives information from the parking assist ECU*1 or clearance warning ECU*2.<br>• Displays the location of an obstacle and the approximate distance between the vehicle and obstacle.<br>• Informs the driver if the ultrasonic sensors malfunction, or if they freeze or become dirty. |
| Clearance sonar main switch | Built into the drive monitor switch. Outputs the system ON/OFF signals to the parking assist ECU*1 or clearance warning ECU*2. |
| • Parking assist ECU*1<br>• Clearance warning ECU*2 | • Receives the signals from the ultrasonic sensors and sends the display signal to the combination meter.<br>• Receives signals from the ultrasonic sensors and sends the display signal to the multi-display.<br>• Receives signals from the ultrasonic sensors and sends the buzzer signal to the No. 1 clearance warning buzzer. |
| Park/neutral position switch | Sends the signal that activates the LEXUS parking assist-sensor system when the shift lever is moved to R. |
| Multi-display | Receives the information from the parking assist ECU*1 or clearance warning ECU*2 through the CAN.<br>• Displays the location of an obstacle and the approximate distance between the vehicle and obstacle.<br>• Informs the driver if the ultrasonic sensors malfunction, or if they freeze or become dirty. |
| No. 1 clearance warning buzzer | Sounds the buzzer to inform the driver according to the distance to the obstacle. |
| ECM | Transmits the shift position signal to the parking assist ECU*1 or clearance warning ECU*2. |
| Air conditioning amplifier | Transmits the ambient temperature to the parking assist ECU*1 or clearance warning ECU*2. |
| Main body ECU | Transmits the destination signal, dimmer signal and steering information to the parking assist ECU*1 or clearance warning ECU*2. |
| Windshield wiper ECU | Transmits the wiper status signal to the parking assist ECU*1 or clearance warning ECU*2. |

*1: w/ Parking Assist Monitor System
*2: w/o Parking Assist Monitor System

## OPERATION EXPLANATION

a. The ECU determines whether the LEXUS parking assist-sensor system should be operated based on the clearance sonar main switch on/off status, the shift position and the vehicle speed.

b. When the system operates, the ECU transmits ultrasonic waves from the ultrasonic sensors. If these waves encounter an obstacle within one or more of the ranges of the sensors, the waves are reflected back to the sensors, which transmit them to the ECU. Based on this

information, the ECU sends signals to the multi-information display, the multi-display and the clearance warning buzzer. The approximate distance between the vehicle and the obstacle is then indicated, and the buzzer sounds.

**HINT:**

Refer to "Operation Check" for the detailed operation ( Click here).

**for Preparation** Click here

## GENERAL

a. When the vehicle is driven at 9 km/h (5.8 mph) or less, the ultrasonic sensors detect any obstacles at the corners and rear of the vehicle. The system then informs the driver of the distance between the sensors and the obstacles as well as their positions by indicating them on the combination meter and by sounding a buzzer.

## FUNCTION OF COMPONENTS

| Components | Function |
|---|---|
| No. 1 ultrasonic sensor | The No. 1 ultrasonic sensor sends and receives ultrasonic waves. Based on the received wave, the sensor calculates the approximate distance value between the vehicle and obstacle, and sends the distance value as a signal to the parking assist ECU*1 or clearance warning ECU assembly*2. |
| Combination meter assembly | Transmits a vehicle speed signal to the parking assist ECU*1 or clearance warning ECU assembly*2.<br>Receives information from the parking assist ECU*1 or clearance warning ECU assembly*2.<br>• Displays the location of an obstacle and the approximate distance between the vehicle and obstacle.<br>• Informs the driver if the ultrasonic sensors malfunction, or if they freeze or become dirty. |
| Back sonar or clearance sonar switch assembly | Built into the drive monitor switch. Outputs the system ON/OFF signals to the parking assist ECU*1 or clearance warning ECU assembly*2. |
| • Parking assist ECU*1<br>• Clearance warning ECU*2 | • Receives the signals from the ultrasonic sensors and sends the display signal to the combination meter.<br>• Receives signals from the ultrasonic sensors and sends the display signal to the multi-display.<br>• Receives signals from the ultrasonic sensors and sends the buzzer signal to the No. 1 clearance warning buzzer. |
| Park/neutral position switch assembly | Sends the signal that activates the LEXUS parking assist-sensor system when the shift lever is moved to R. |
| Multi-display assembly | Receives the information from the parking assist ECU*1 or clearance warning ECU assembly*2 through the CAN.<br>• Displays the location of an obstacle and the approximate distance between the vehicle and obstacle.<br>• Informs the driver if the ultrasonic sensors malfunction, or if they freeze or become dirty. |
| No. 1 clearance warning buzzer | Sounds the buzzer to inform the driver according to the distance to the obstacle. |
| ECM | Transmits the shift position signal to the parking assist ECU*1 or clearance warning ECU assembly*2. |
| Air conditioning amplifier assembly | Transmits the ambient temperature to the parking assist ECU*1 or clearance warning ECU assembly*2. |
| Main body ECU (cowl side junction block LH) | Transmits the destination signal, dimmer signal and steering information to the parking assist ECU*1 or clearance warning ECU assembly*2. |
| Windshield wiper switch assembly | Transmits the wiper status signal to the parking assist ECU*1. |

*1: w/ Side Monitor System
*2: w/o Side Monitor System

## OPERATION EXPLANATION

a. The ECU determines whether the LEXUS parking assist-sensor system should be operated based on the back sonar or clearance sonar switch assembly on/off status, the shift position and the vehicle speed.

b. When the system operates, the ECU transmits ultrasonic waves from the No. 1 ultrasonic sensors. If these waves encounter an obstacle within one or more of the ranges of the sensors, the waves are reflected back to the sensors, which transmit them to the ECU. Based on this information, the ECU sends signals to the multi-information display, the multi-display assembly and the No. 1 clearance warning buzzer. The approximate distance between the vehicle and the obstacle is then indicated, and the buzzer sounds.

**HINT:**

Refer to "Operation Check" for the detailed operation ( Click here).

**for Preparation** Click here

**HINT:**

- **Use the following procedures to troubleshoot the LEXUS parking assist-sensor system.**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

NEXT

## 2.INSPECT BATTERY VOLTAGE

**Standard voltage:**
**11 to 14 V**

If the voltage is below 11 V, replace or recharge the battery before proceeding.

NEXT

## 3.CHECK COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM*

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

**Result**

| Result | Proceed to |
|---|---|
| CAN DTC is not output | A |
| CAN DTC is output (for LHD) | B |
| CAN DTC is output (for RHD) | C |

B. → Go to CAN COMMUNICATION SYSTEM (Click here)

C. → Go to CAN COMMUNICATION SYSTEM (Click here)

A

## 4.CHECK FOR DTC*

a. Check for DTCs (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is not output | A |
| DTC is output | B |

B. → Go to DIAGNOSTIC TROUBLE CODE CHART ( Click here)

A

## 5.PROBLEM SYMPTOMS TABLE

a. Refer to the Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in problem symptoms table | A |
| Fault is listed in problem symptoms table | B |

B. → Go to step 7

A

## 6.OVERALL ANALYSIS AND TROUBLESHOOTING*

a. Operation Check (Click here).

b. Terminals of ECU (Click here).

c. Data List / Active Test (Click here).

NEXT

## 7.ADJUST, REPAIR OR REPLACE

NEXT

## 8.CONFIRMATION TEST

NEXT

## END

**for Preparation** Click here

**HINT:**

- **Use the following procedures to troubleshoot the LEXUS parking assist-sensor system.**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

NEXT

## 2.INSPECT BATTERY VOLTAGE

**Standard voltage:**
**11 to 14 V**

If the voltage is below 11 V, replace or recharge the battery before proceeding.

NEXT

## 3.CHECK COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM*

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

- for LHD: Click here
- for RHD: Click here

**Result**

| Result | Proceed to |
|---|---|
| CAN DTC is not output | A |
| CAN DTC is output (for LHD) | B |
| CAN DTC is output (for RHD) | C |

B. Go to CAN COMMUNICATION SYSTEM (Click here)

C. Go to CAN COMMUNICATION SYSTEM (Click here)

A

## 4.CHECK FOR DTC*

a. Check for DTCs (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC is not output | A |
| DTC is output | B |

B. Go to DIAGNOSTIC TROUBLE CODE CHART (Click here)

A

## 5.PROBLEM SYMPTOMS TABLE

a. Refer to the Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in problem symptoms table | A |
| Fault is listed in problem symptoms table | B |

B.

ADJUST, REPAIR OR REPLACE IN ACCORDANCE WITH PROBLEM SYMPTOMS TABLE

A

## 6.OVERALL ANALYSIS AND TROUBLESHOOTING*

a. Operation Check (Click here).

b. Terminals of ECU (Click here).

c. Data List / Active Test (Click here).

NEXT

## 7.ADJUST, REPAIR OR REPLACE

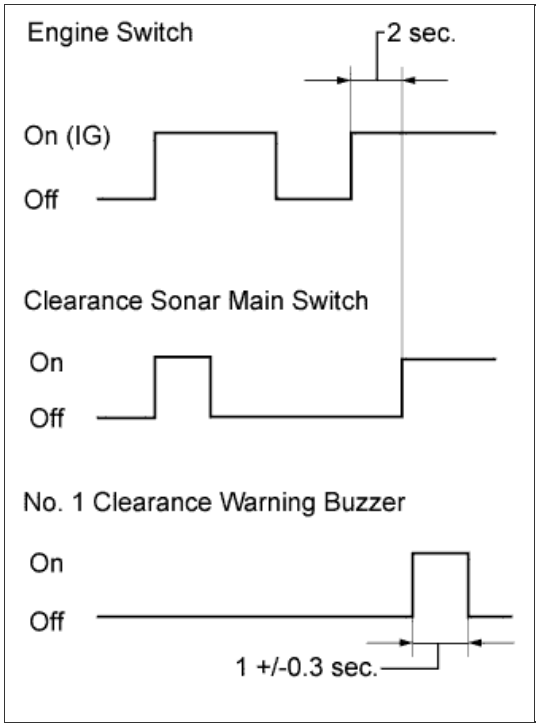
NEXT

## 8.CONFIRMATION TEST

NEXT

END

**for Preparation** Click here




## INITIAL CHECK FUNCTION

a. Turn the engine switch on (IG).

b. After 2 seconds or more have passed, turn the clearance sonar main switch on. Then check the buzzer sounding condition.

**Buzzer sounding:**
**1 +/-0.3 seconds**

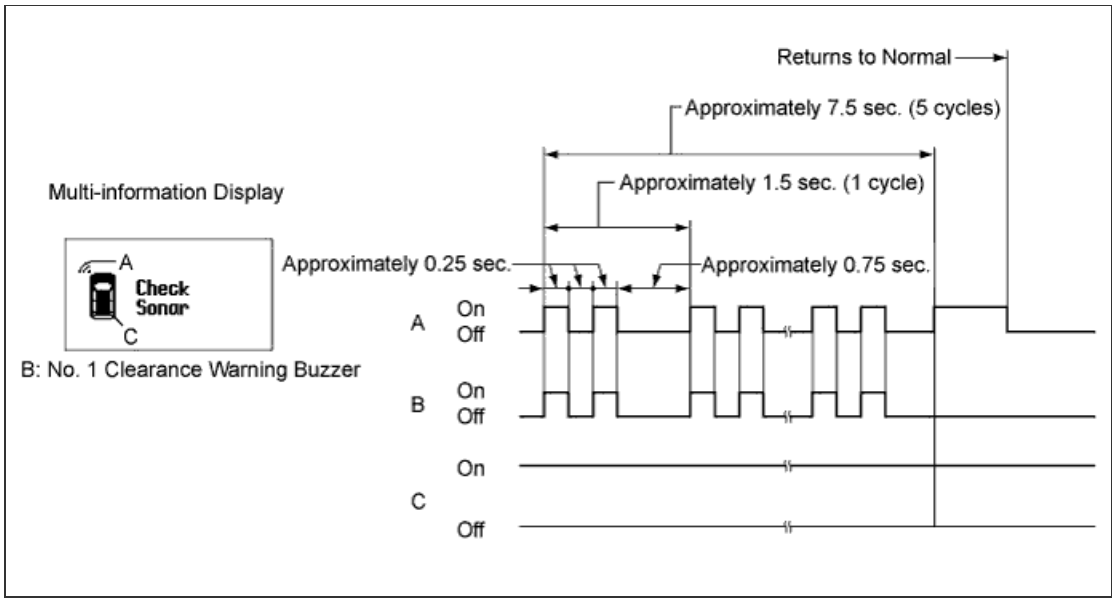
**HINT:**

- **If a malfunction is detected in the ultrasonic sensor circuits, the location of the malfunctioning sensor blinks on the displayed vehicle graphic. However, after the sensor returns to normal, the display also returns to normal.**
- **When the engine switch is turned on (IG) while the clearance sonar main switch is on, the buzzer will not sound.**

## MALFUNCTION OF MULTI-INFORMATION DISPLAY

a. Ultrasonic sensor open circuit

i. If there is an open circuit between the ultrasonic sensor and the ECU or a sensor is malfunctioning, the malfunction is displayed as shown in the illustration.

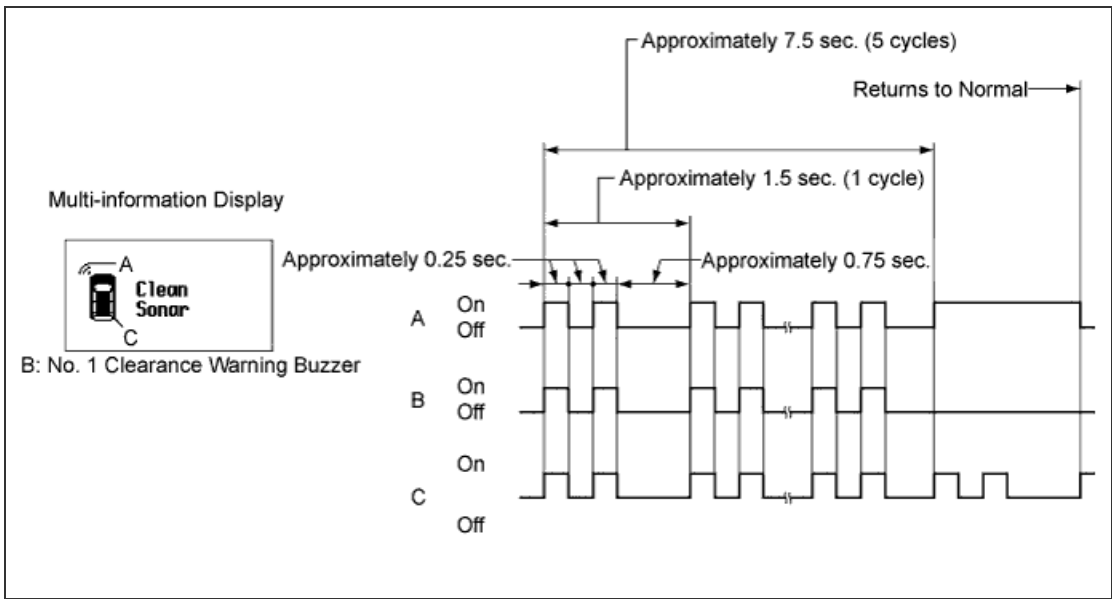



**HINT:**

- **The example shows an open circuit in the No. 1 ultrasonic sensor (front left sensor).**
- **If a sensor has an open circuit, "Check Sonar" is displayed. Refer to "open circuit in front sensor is displayed as a result or self-check" in the problem symptoms table to inspect it.**

b. Ultrasonic sensor frozen

i. If a sensor is covered with foreign matter, such as mud or snow, the affected sensor is displayed as shown in the illustration.



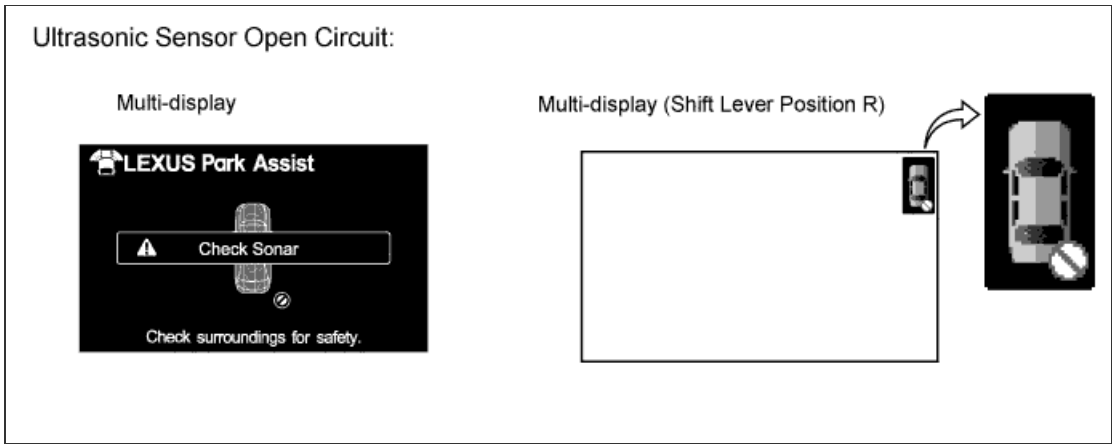

**HINT:**

- **The example shows that the No. 1 ultrasonic sensor (front left sensor) is covered with foreign matter.**
- **If "Clean Sonar" is displayed, cleaning the foreign matter from the sensor will return the sensor to normal.**

## MALFUNCTION OF MULTI-DISPLAY

a. Ultrasonic sensor open circuit

i. If there is an open circuit between the ultrasonic sensor and the ECU or a sensor is malfunctioning, the malfunction is displayed as shown in the illustration.

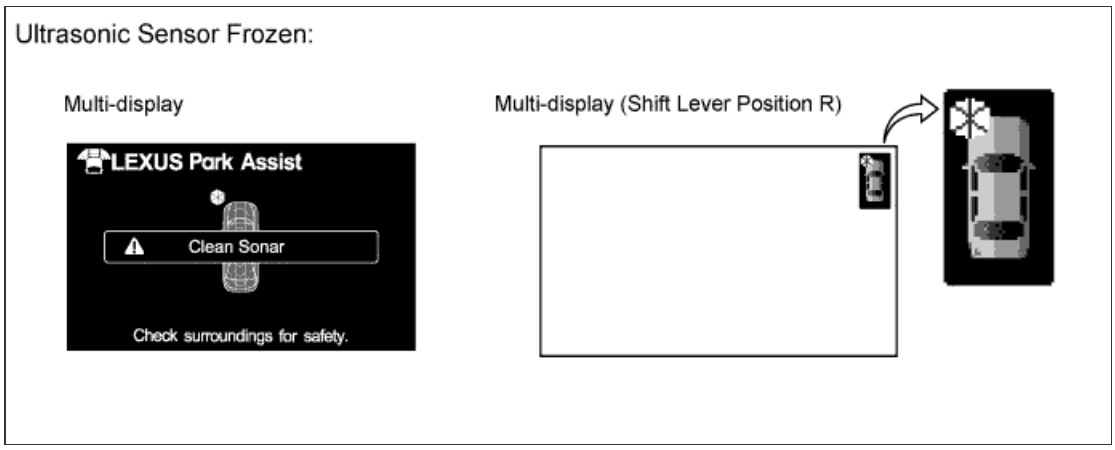



**HINT:**

- **This example shows an open circuit in the No. 2 ultrasonic sensor (rear right sensor).**
- **If a sensor has an open circuit, refer to "open circuit in rear sensor is displayed as a result of self-check" in the problem symptoms table to inspect it.**

b. Ultrasonic sensor frozen

i. If a sensor is covered with foreign matter, such as mud or snow, the affected sensor is displayed as shown in the illustration.




**HINT:**

- **The example shows that the No. 1 ultrasonic sensor (front left sensor) is covered with foreign matter.**
- **If "Clean Sonar" is displayed, cleaning the foreign matter from the sensor will return the sensor to normal.**

## DETECTION RANGE MEASUREMENT AND DISPLAY CHECK

**NOTICE:**

Apply the parking brake securely so that the vehicle does not move.

a. Turn the engine switch on (IG).

b. Turn the clearance sonar main switch on.

c. Move the shift lever to R to check the No. 1 ultrasonic sensors, No. 2 ultrasonic sensors and No. 3 ultrasonic sensors.

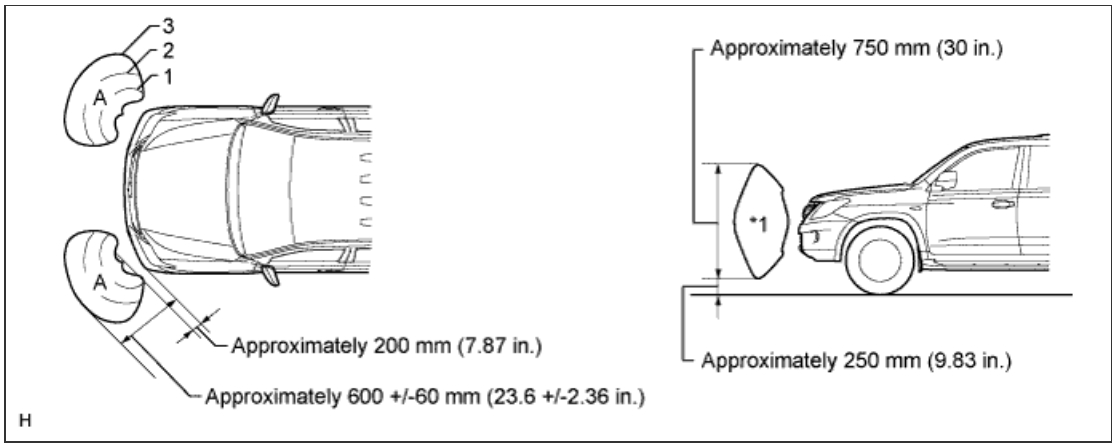
d. Move the shift lever to D and N to check the No. 1 ultrasonic sensors.

e. Move a φ60 mm (2.36 in.) pole around the sensor to measure the detection range of the sensor.

**NOTICE:**

- **These detection ranges are applicable when positioning the φ60 mm (2.36 in.) pole parallel or perpendicular to the ground.**
- **The ranges vary depending on the measuring method and type of obstacle (such as walls).**
- **For close-range and medium-range detection, the values shown are for when using a pole with a diameter of 60 mm (2.36 in.). For long-range detection, the values shown are for when using walls.**
- **The detection range of the resin bumper and steel bumper are not the same, as their installation positions are slightly different.**

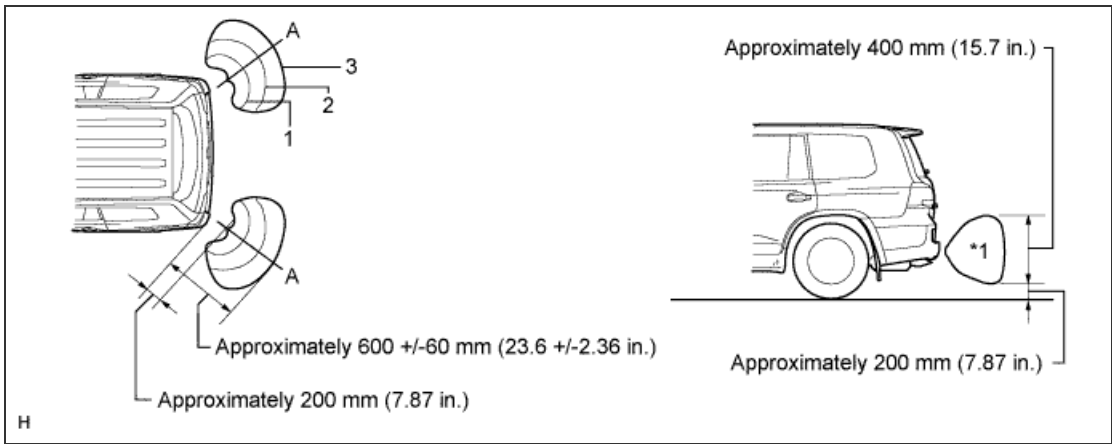
i. No. 1 ultrasonic sensors detection range




**NOTICE:**

The area (labeled *1) which represents a side view of the No. 1 ultrasonic sensor detection range is a cross section of the detection range at the position labeled A which is shown in the top view. The area (labeled* 1) does not represent the entire detection range.

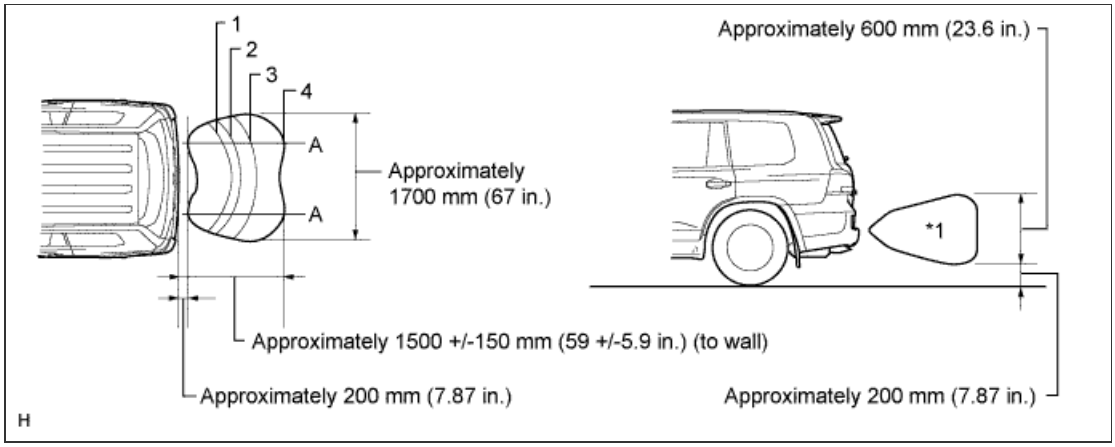
ii. No. 2 ultrasonic sensor detection range




**NOTICE:**

The area (labeled *1) which represents a side view of the No. 2 ultrasonic sensor detection range is a cross section of the detection range at the position labeled A which is shown in the top view. The area (labeled *1) does not represent the entire detection range.

iii. No. 3 ultrasonic sensor detection range




**NOTICE:**

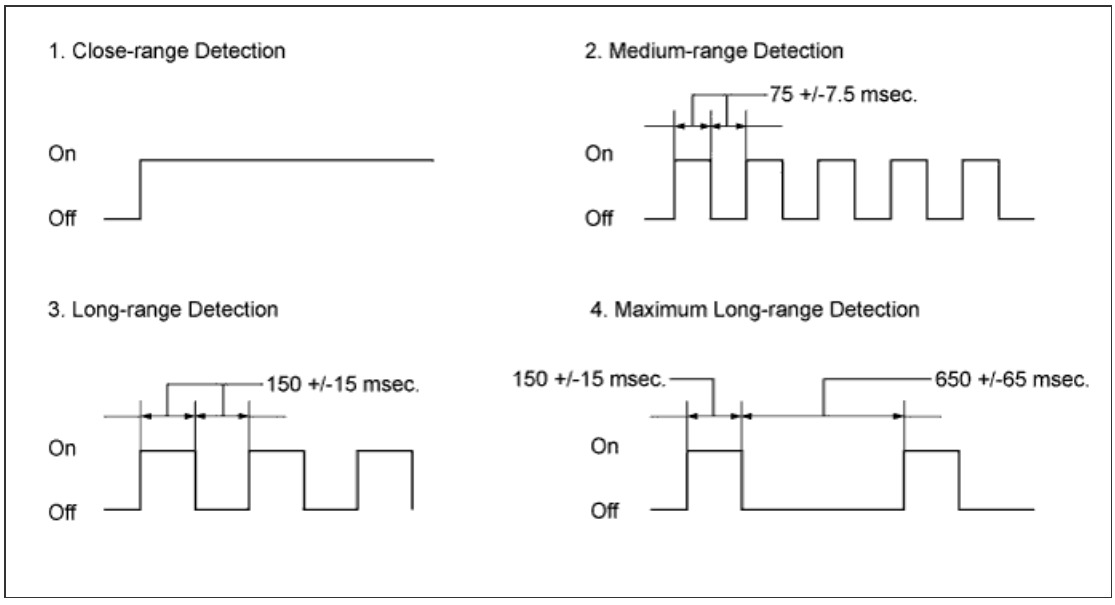
The area (labeled *1) which represents a side view of the No. 3 ultrasonic sensor detection range is a cross section of the detection range at the position labeled A which is shown in the top view. The area (labeled *1) does not represent the entire detection range.

f. When the ultrasonic sensors have detected an obstacle, check the multi-display, multi-information display and that the clearance warning buzzer sounds with the clearance sonar main switch on.

**Operation Condition**

| Shift Lever Position | Vehicle Speed | Multi-display Detection, Multi-information Display Detection, Buzzer Detection | | |
|---|---|---|---|---|
| | | No. 1 Ultrasonic Sensor | No. 2 Ultrasonic Sensor | No. 3 Ultrasonic Sensor |
| P | - | Only perform check operation | | |
| D, S, (N) | 9 km/h (5.6 mph) or less | ○ | X | X |
| R | No limit | ○ | ○ | ○ |

i. Check that the buzzer sounds with the clearance sonar main switch on as shown in the illustration.




**No. 1 Ultrasonic Sensor Detection Range**

| Detection | Distance |
|---|---|
| | |

| | |
|---|---|
| 1. Close-range detection | Within 350 +/-40 mm (13.8 +/-1.57 in.) |
| 2. Medium-range detection | 350 +/-40 to 475 +/-50 mm (13.8 +/-1.57 to 18.7 +/-1.96 in.) |
| 3. Long-range detection | 475 +/-50 to 600 +/-60 mm (18.7 +/-1.96 to 23.6 +/-2.36 in.) |

**No. 2 Ultrasonic Sensor Detection Range**

| Detection | Distance |
|---|---|
| 1. Close-range detection | Within 300 +/-30 mm (11.8 +/-1.18 in.) |
| 2. Medium-range detection | 300 +/-30 to 375 +/-40 mm (11.8 +/-1.18 to 14.8 +/-1.57 in.) |
| 3. Long-range detection | 375 +/-40 to 600 +/-60 mm (14.8 +/-1.57 to 23.6 +/-2.36 in.) |

**No. 3 Ultrasonic Sensor Detection Range**

| Detection | Distance |
|---|---|
| 1. Close-range detection | Within 350 +/-40 mm (13.8 +/-1.57 in.) |
| 2. Medium-range detection | 350 +/-40 to 450 +/-50 mm (13.8 +/-1.57 to 17.7 +/-1.96 in.) |
| 3. Long-range detection | 450 +/-50 to 600 +/-60 mm (17.7 +/-1.96 to 23.6 +/-2.36 in.) |
| 4. Maximum long-range detection | 600 +/-60 to 1500 +/-150 mm (23.6 +/-2.36 to 59.1 +/-5.91 in.) |

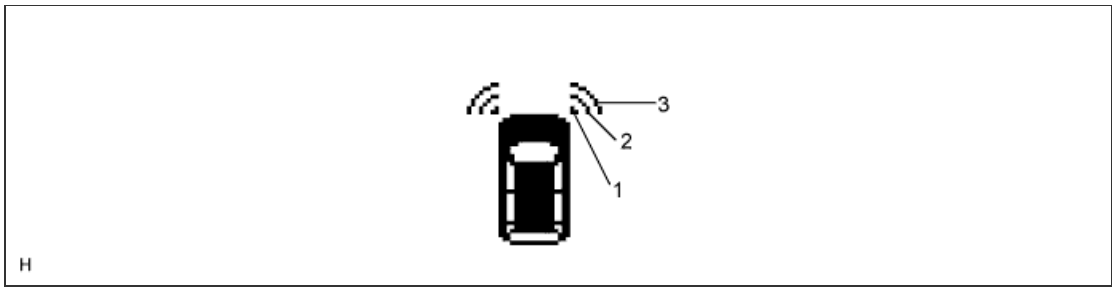
**HINT:**

Ultrasonic waves are used to measure the detection range. However, the detection range may vary depending on the ambient temperature.

ii. Check the multi-information display and buzzer when the No. 1 ultrasonic sensors have detected an obstacle.

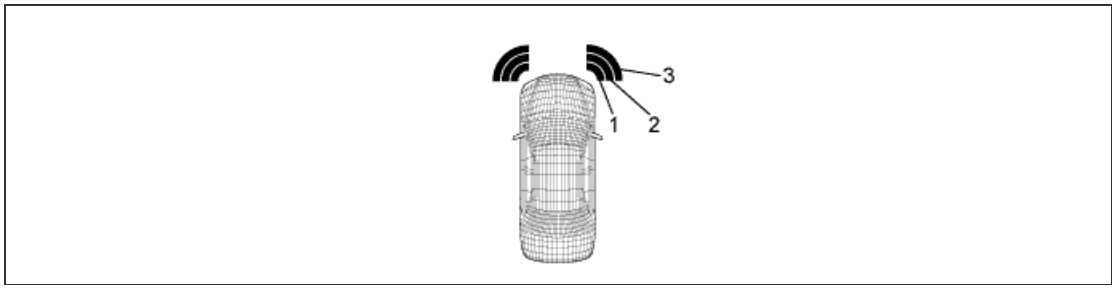
**Operation Condition**

| Engine Switch | Clearance Sonar Main Switch | Shift Lever Position | Vehicle Speed |
|---|---|---|---|
| On (IG) | On | D or N | 9 km/h (5.6 mph) or less |




**Multi-information Display**

| Detection Range | Buzzer | Number of Bars Displayed |
|---|---|---|
| 1. Close-range detection | Sounds continuously | 1 (blinking) |
| 2. Medium-range detection | Sounds intermittently (On: 75 msec., Off: 75 msec.) | 2 (illuminated) |
| 3. Long-range detection | Sounds intermittently (On: 150 msec., Off: 150 msec.) | 3 (illuminated) |




**Multi-display**

| Detection Range | Buzzer | Number of Bars Displayed |
|---|---|---|
| 1. Close-range detection | Sounds continuously | 1 (red illumination) |
| | Sounds intermittently | |

| | | |
|---|---|---|
| 2. Medium-range detection | (On: 75 msec., Off: 75 msec.) | 2 (yellow illumination) |
| 3. Long-range detection | Sounds intermittently<br>(On: 150 msec., Off: 150 msec.) | 3 (yellow illumination) |

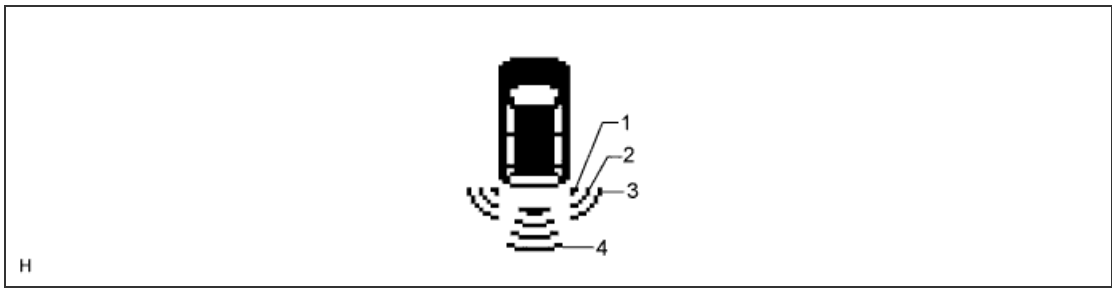
**HINT:**

Ultrasonic waves are used to measure the detection range. However, the detection range may vary depending on the ambient temperature.

iii. Check the multi-information display and buzzer when the No. 2 ultrasonic sensors and No. 3 ultrasonic sensors have detected an obstacle.

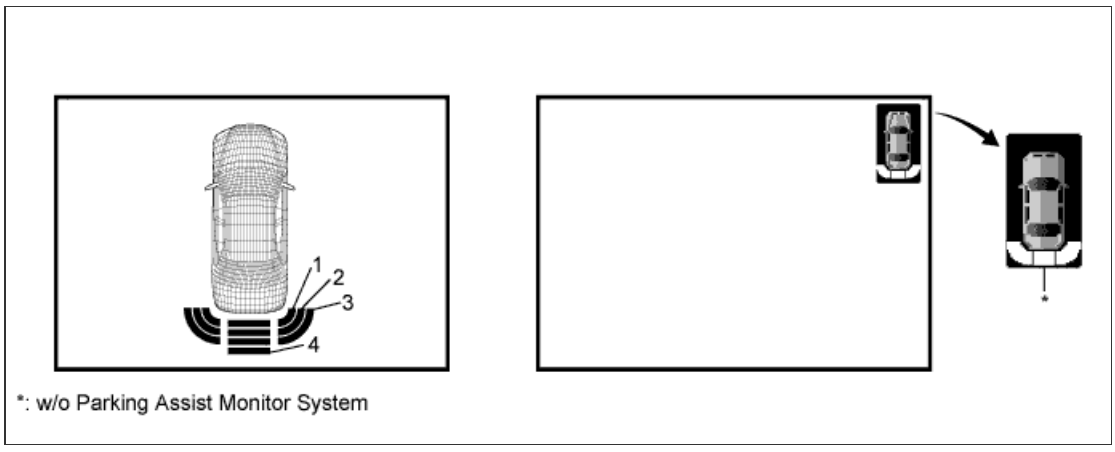
**Operation Condition**

| Engine Switch | Clearance Sonar Main Switch | Shift Lever Position |
|---|---|---|
| On (IG) | On | R |




**Multi-information Display**

| Detection Range | Buzzer | Number of Bars Displayed |
|---|---|---|
| 1. Close-range detection | Sounds continuously | 1 (blinking) |
| 2. Medium-range detection | Sounds intermittently<br>(On: 75 msec., Off: 75 msec.) | 2 (illuminated) |
| 3. Long-range detection | Sounds intermittently<br>(On: 150 msec., Off: 150 msec.) | 3 (illuminated) |
| 4. Maximum long-range detection<br>(for rear center sensors) | Sounds intermittently<br>(On: 150 msec., Off: 650 msec.) | 4 (illuminated) |




**Multi-display**

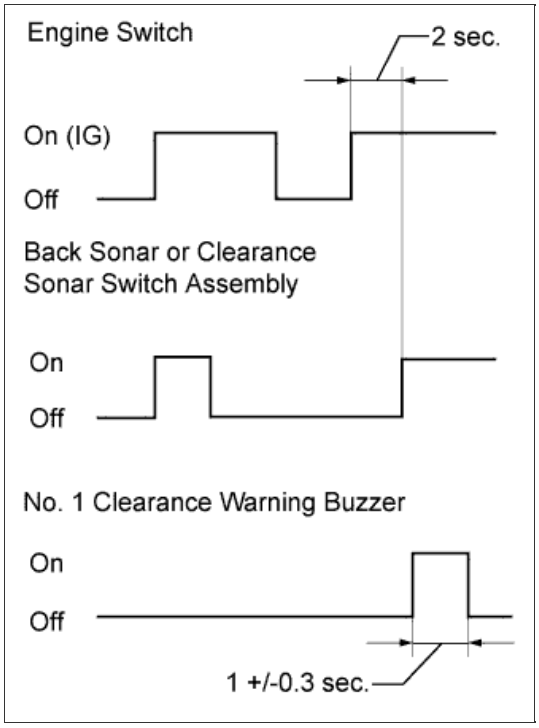
| Detection Range | Buzzer | Number of Bars Displayed |
|---|---|---|
| 1. Close-range detection | Sounds continuously | 1 (red illumination)<br>*: Illumination (red) |
| 2. Medium-range detection | Sounds intermittently<br>(On: 75 msec., Off: 75 msec.) | 2 (yellow illumination)<br>*: Blinking (yellow) |
| 3. Long-range detection | Sounds intermittently<br>(On: 150 msec., Off: 150 msec.) | 3 (yellow illumination)<br>*: Blinking (yellow) |
| 4. Maximum long-range detection<br>(for rear center sensors) | Sounds intermittently<br>(On: 150 msec., Off: 650 msec.) | 4 (yellow illumination)<br>*: Blinking (yellow) |

*: w/o Parking Assist Monitor System

**HINT:**

Ultrasonic waves are used to measure the detection range. However, the detection range may vary depending on the ambient temperature.

**for Preparation** Click here




## INITIAL CHECK FUNCTION

a. Turn the engine switch on (IG).

b. After 2 seconds or more have passed, turn the back sonar or clearance sonar switch assembly on. Then check the buzzer sounding condition.

**Buzzer sounding:**
**1 +/-0.3 seconds**

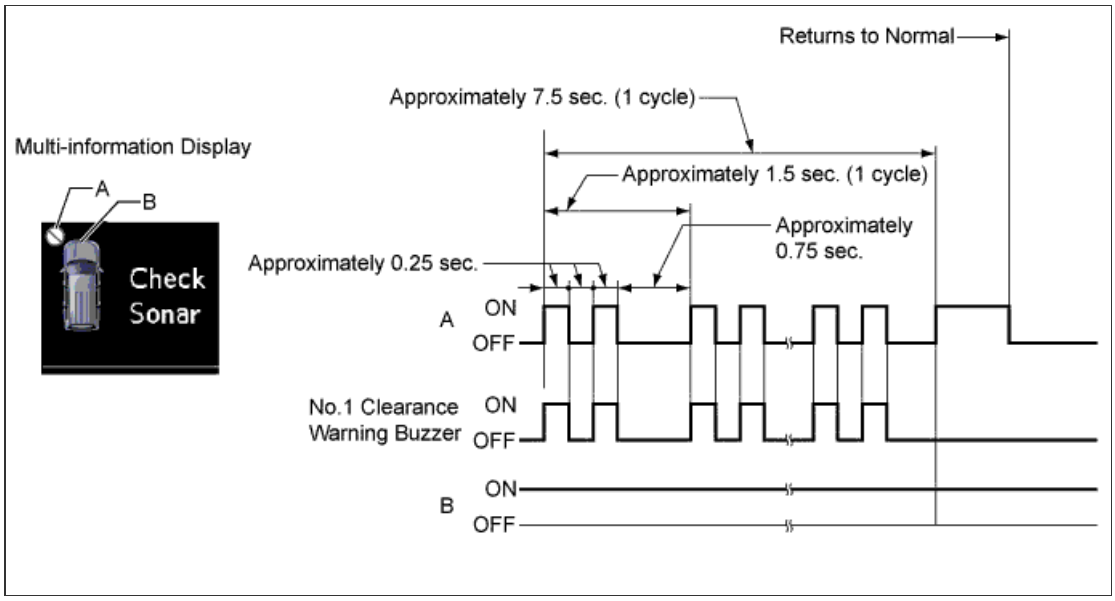
**HINT:**

- **If a malfunction is detected in the ultrasonic sensor circuits, the location of the malfunctioning sensor blinks on the displayed vehicle graphic. However, after the sensor returns to normal, the display also returns to normal.**
- **When the engine switch is turned on (IG) while the back sonar or clearance sonar switch assembly is on, the buzzer will not sound.**

## MALFUNCTION OF MULTI-INFORMATION DISPLAY

a. Ultrasonic sensor open circuit

i. If there is an open circuit between the No. 1 ultrasonic sensor and the ECU or a sensor is malfunctioning, the malfunction is displayed as shown in the illustration.

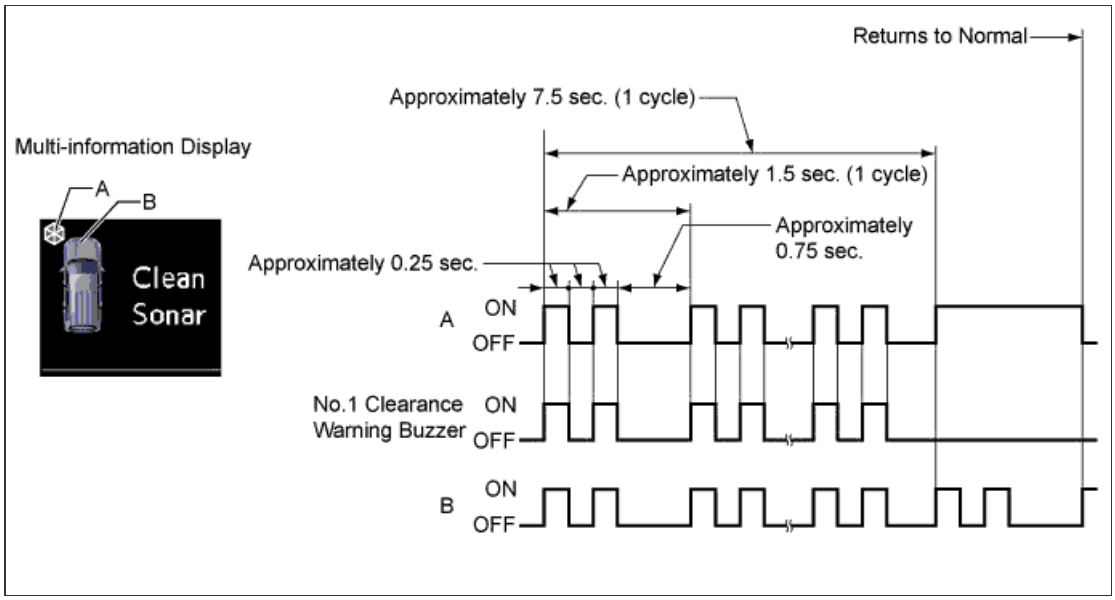



**HINT:**

- **The example shows an open circuit in the No. 1 ultrasonic sensor (FL sensor).**
- **If a sensor has an open circuit, "Check Sonar" is displayed. Refer to "open circuit in front sensor is displayed as a result or self-check" in the problem symptoms table to inspect it.**

b. Ultrasonic sensor frozen

i. If a sensor is covered with foreign matter, such as mud or snow, the affected sensor is displayed as shown in the illustration.



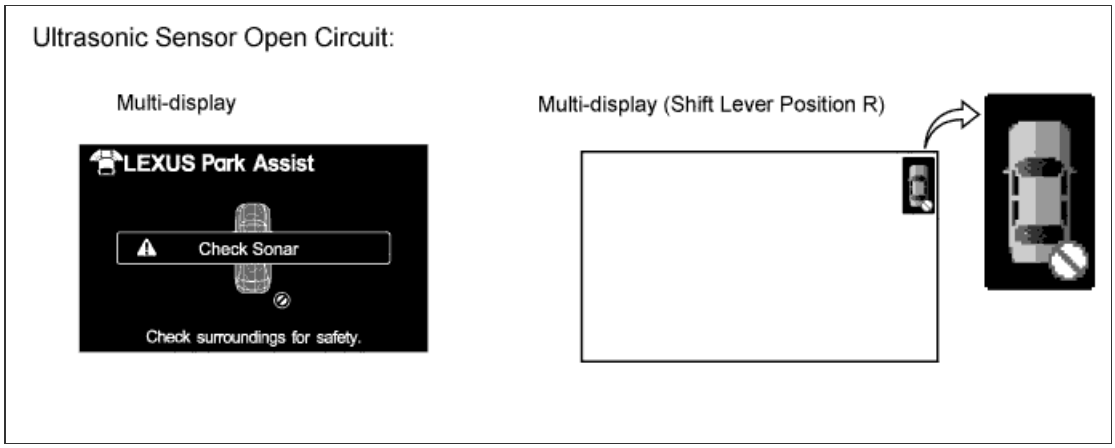

**HINT:**

- **The example shows that the No. 1 ultrasonic sensor (FL sensor) is covered with foreign matter.**
- **If "Clean Sonar" is displayed, cleaning the foreign matter from the sensor will return the sensor to normal.**

## MALFUNCTION OF MULTI-DISPLAY

a. Ultrasonic sensor open circuit

i. If there is an open circuit between the No. 1 ultrasonic sensor and the ECU or a sensor is malfunctioning, the malfunction is displayed as shown in the illustration.

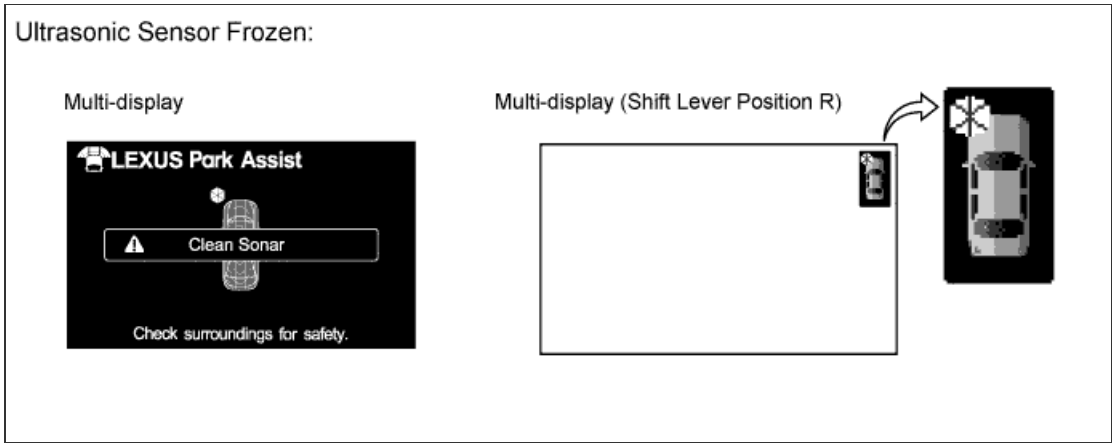



**HINT:**

- **This example shows an open circuit in the No. 1 ultrasonic sensor (RR sensor).**
- **If a sensor has an open circuit, refer to "open circuit in rear sensor is displayed as a result of self-check" in the problem symptoms table to inspect it.**

b. Ultrasonic sensor frozen

i. If a sensor is covered with foreign matter, such as mud or snow, the affected sensor is displayed as shown in the illustration.




**HINT:**

- **The example shows that the No. 1 ultrasonic sensor (FL sensor) is covered with foreign matter.**
- **If "Clean Sonar" is displayed, cleaning the foreign matter from the sensor will return the sensor to normal.**

## DETECTION RANGE MEASUREMENT AND DISPLAY CHECK

**NOTICE:**

Apply the parking brake securely so that the vehicle does not move.

a. Turn the engine switch on (IG).

b. Turn the back sonar or clearance sonar switch assembly on.

c. Move the shift lever to R to check the No. 1 ultrasonic sensors, No. 2 ultrasonic sensors and No. 3 ultrasonic sensors.

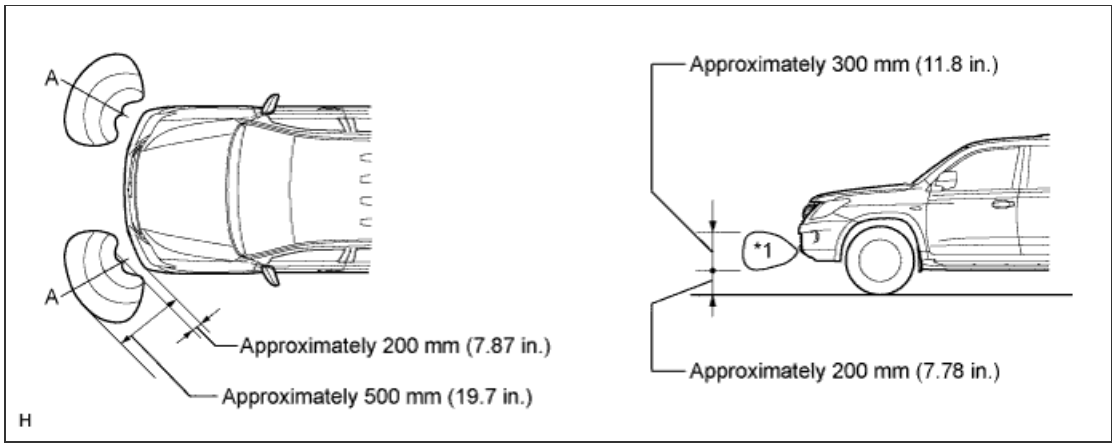
d. Move the shift lever to D and N to check the No. 1 ultrasonic sensors.

e. Move a a diameter of 60 mm (2.36 in.) pole around the sensor to measure the detection range of the sensor.

**NOTICE:**

- **These detection ranges are applicable when positioning the a diameter of 60 mm (2.36 in.) pole parallel or perpendicular to the ground.**
- **The ranges vary depending on the measuring method and type of obstacle (such as walls).**
- **For close-range and medium-range detection, the values shown are for when using a pole with a diameter of 60 mm (2.36 in.). For long-range detection, the values shown are for when using walls.**
- **The detection range of the resin bumper and steel bumper are not the same, as their installation positions are slightly different.**

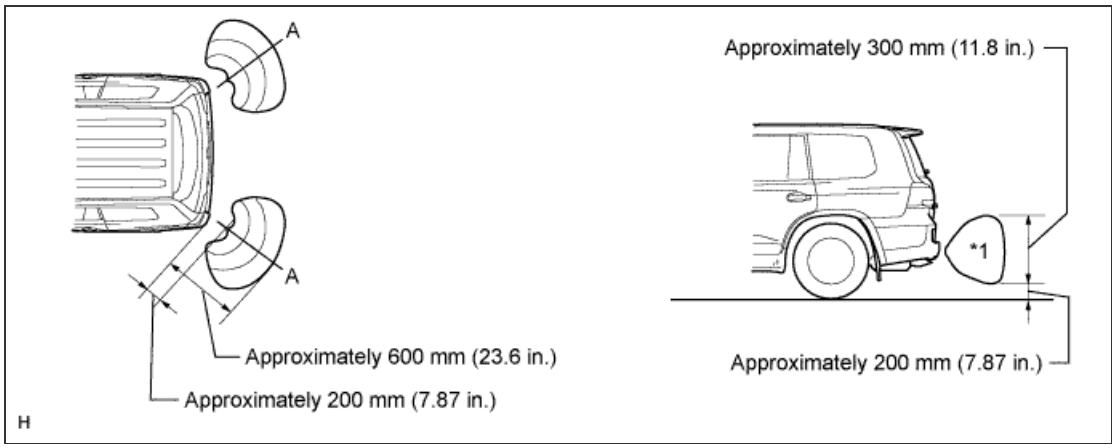
i. No. 1 ultrasonic sensor (FL, FR sensor) detection range




**NOTICE:**

The area (labeled*1) which represents a side view of the No. 1 ultrasonic sensor (FL, FR sensor) detection range is a cross section of the detection range at the position labeled A which is shown in the top view. The area (labeled* 1) does not represent the entire detection range.

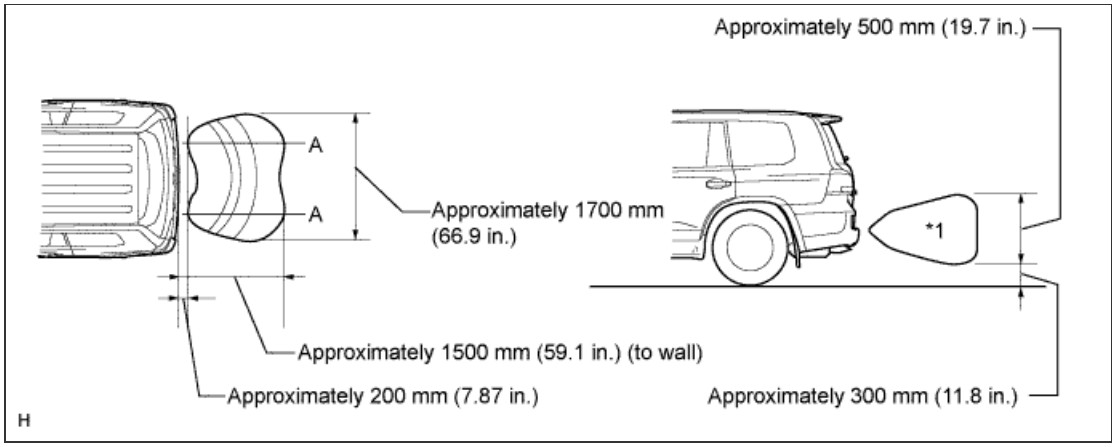
ii. No. 1 ultrasonic sensor (RL, RR sensor) detection range




**NOTICE:**

The area (labeled*1) which represents a side view of the No. 1 ultrasonic sensor (RL, RR sensor) detection range is a cross section of the detection range at the position labeled A which is shown in the top view. The area (labeled*1) does not represent the entire detection range.

iii. No. 1 ultrasonic sensor (RLC, RRC sensor) detection range




**NOTICE:**

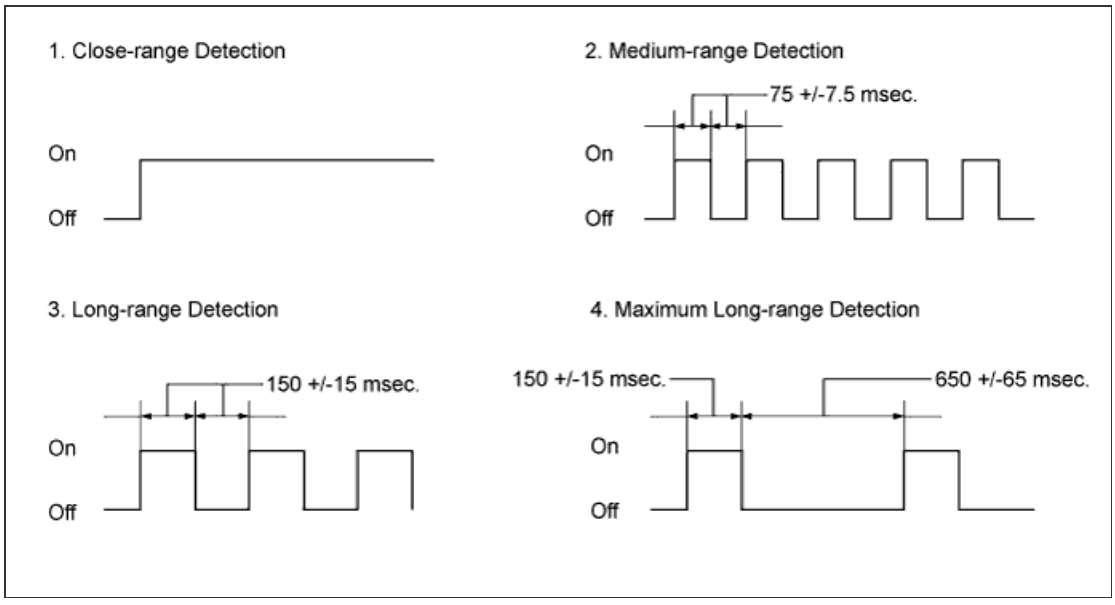
The area (labeled*1) which represents a side view of the No. 1 ultrasonic sensor (RLC, RRC sensor) detection range is a cross section of the detection range at the position labeled A which is shown in the top view. The area (labeled*1) does not represent the entire detection range.

f. When the ultrasonic sensors have detected an obstacle, check the multi-display, multi-information display and that the clearance warning buzzer sounds with the back sonar or clearance sonar switch assembly on.

**Operation Condition**

| Shift Lever Position | Vehicle Speed | Multi-display Detection, Multi-information Display Detection, Buzzer Detection | | |
|---|---|---|---|---|
| | | No. 1 Ultrasonic Sensor (FL, FR Sensor) | No. 1 Ultrasonic Sensor (RL, RR Sensor) | No. 1 Ultrasonic Sensor (RLC, RRC Sensor) |
| P | - | Only perform check operation | | |
| D, S, (N) | 9 km/h (5.6 mph) or less | ○ | X | X |
| R | No limit | ○ | ○ | ○ |

i. Check that the buzzer sounds with the back sonar or clearance sonar switch assembly on as shown in the illustration.




**No. 1 Ultrasonic Sensor (FL, FR Sensor) Detection Range**

| Detection | Distance |
|---|---|
| 1. Close-range detection | Within 250 +/-30 mm (9.84 +/-1.18 in.) |
| 2. Medium-range detection | 250 +/-30 to 375 +/-40 mm (9.84 +/-1.18 to 14.8 +/-1.57 in.) |
| 3. Long-range detection | 375 +/-40 to 500 +/-50 mm (14.8 +/-1.57 to 19.7 +/-1.97 in.) |

**No. 1 Ultrasonic Sensor Detection Range (RL, RR Sensor)**

| Detection | Distance |
|---|---|
| 1. Close-range detection | Within 300 +/-30 mm (11.8 +/-1.18 in.) |
| 2. Medium-range detection | 300 +/-30 to 450 +/-50 mm (11.8 +/-1.18 to 17.7 +/-1.97 in.) |
| 3. Long-range detection | 450 +/-40 to 600 +/-60 mm (17.7 +/-1.97 to 23.6 +/-2.36 in.) |

**No. 1 Ultrasonic Sensor (RLC, RRC Sensor) Detection Range**

| Detection | Distance |
|---|---|
| 1. Close-range detection | Within 500 +/-50 mm (19.7 +/-1.97 in.) |
| 2. Medium-range detection | 500 +/-50 to 650 +/-70 mm (19.7 +/-1.97 to 25.6 +/-2.76 in.) |
| 3. Long-range detection | 650 +/-70 to 800 +/-80 mm (19.7 +/-1.97 to 31.5 +/-3.15 in.) |
| 4. Maximum long-range detection | 800 +/-80 to 1000 +/-100 mm (31.5 +/-3.15 to 39.4 +/-3.94 in.)<br>800 +/-80 to 1500 +/-150 mm (31.5 +/-3.15 to 59.1 +/-5.91 in.) |

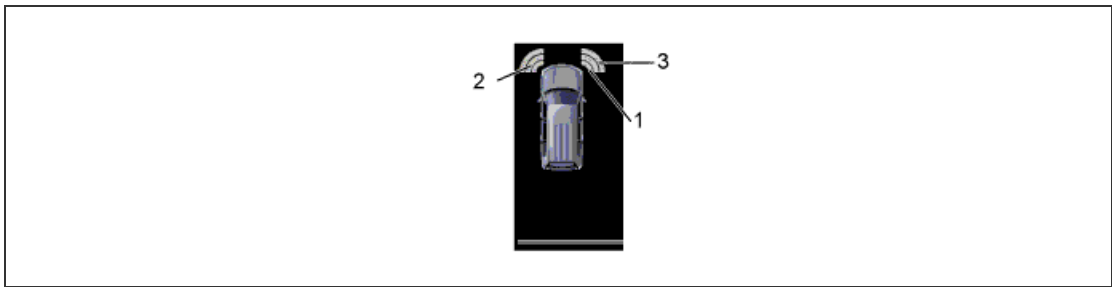
**HINT:**

Ultrasonic waves are used to measure the detection range. However, the detection range may vary depending on the ambient temperature.

ii. Check the multi-information display and buzzer when the No. 1 ultrasonic sensors (FL, FR sensors) have detected an obstacle.

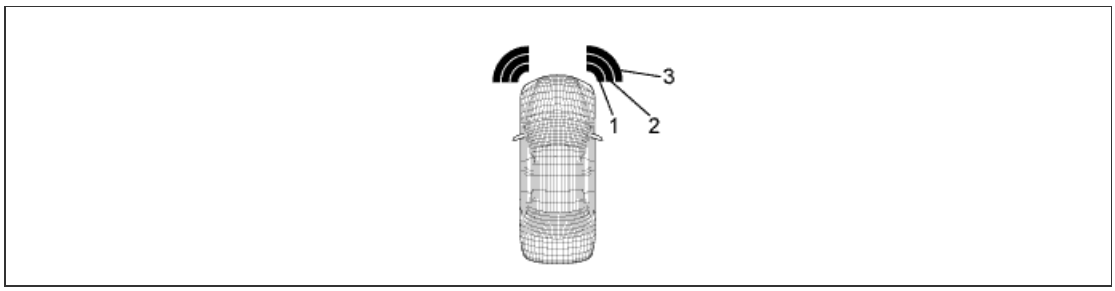
**Operation Condition**

| Engine Switch | back sonar or clearance sonar switch assembly | Shift Lever Position | Vehicle Speed |
|---|---|---|---|
| On (IG) | On | D or N | 9 km/h (5.6 mph) or less |




**Multi-information Display**

| Detection Range | Buzzer | Number of Bars Displayed |
|---|---|---|
| 1. Close-range detection | Sounds continuously | 1 (red blinking) |
| 2. Medium-range detection | Sounds intermittently<br>(On: 75 msec., Off: 75 msec.) | 2 (yellow illuminated) |
| 3. Long-range detection | Sounds intermittently<br>(On: 150 msec., Off: 150 msec.) | 3 (yellow illuminated) |




**Multi-display Assembly**

| Detection Range | Buzzer | Number of Bars Displayed |
|---|---|---|
| 1. Close-range detection | Sounds continuously | 1 (red blinking) |

| | | |
|---|---|---|
| 2. Medium-range detection | Sounds intermittently<br>(On: 75 msec., Off: 75 msec.) | 2 (yellow illumination) |
| 3. Long-range detection | Sounds intermittently<br>(On: 150 msec., Off: 150 msec.) | 3 (yellow illumination) |

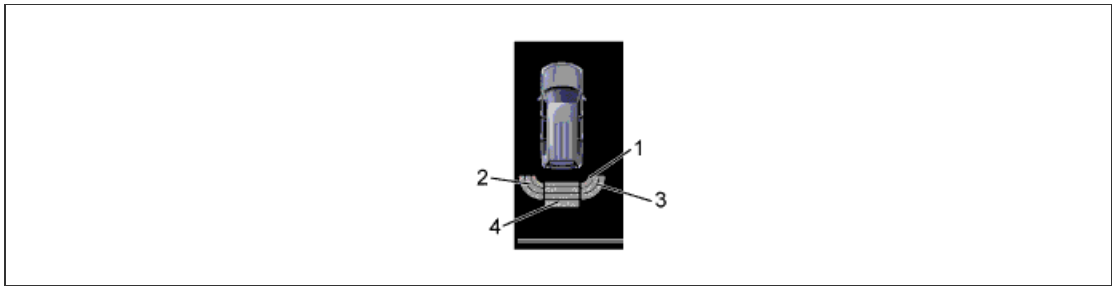
**HINT:**

Ultrasonic waves are used to measure the detection range. However, the detection range may vary depending on the ambient temperature.

iii. Check the multi-information display and buzzer when the No. 1 ultrasonic sensors (RL, RLC, RRC, RR sensors) have detected an obstacle.

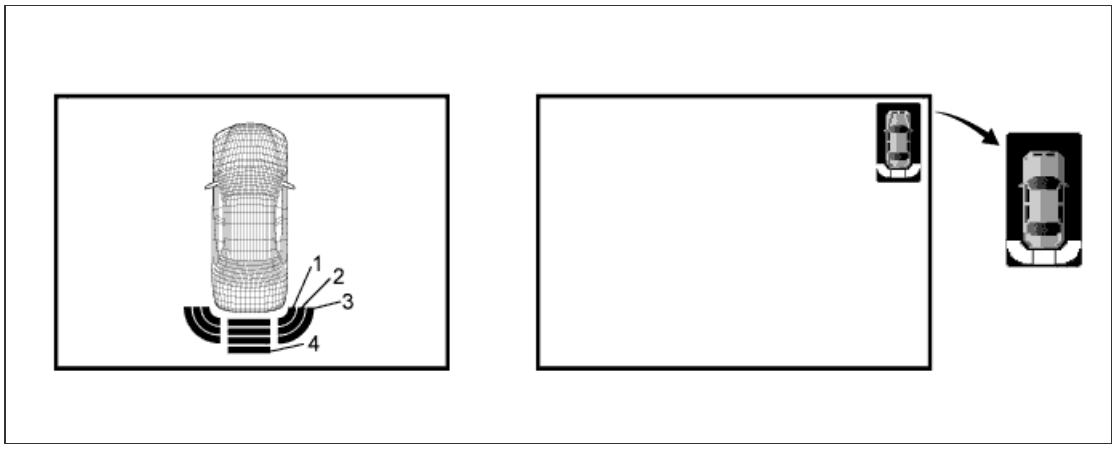
**Operation Condition**

| Engine Switch | back sonar or clearance sonar switch assembly | Shift Lever Position |
|---|---|---|
| On (IG) | On | R |




**Multi-information Display**

| Detection Range | Buzzer | Number of Bars Displayed |
|---|---|---|
| 1. Close-range detection | Sounds continuously | 1 (red blinking) |
| 2. Medium-range detection | Sounds intermittently<br>(On: 75 msec., Off: 75 msec.) | 2 (yellow illuminated) |
| 3. Long-range detection | Sounds intermittently<br>(On: 150 msec., Off: 150 msec.) | 3 (yellow illuminated) |
| 4. Maximum long-range detection<br>(for rear center sensors) | Sounds intermittently<br>(On: 150 msec., Off: 650 msec.) | 4 (yellow illuminated) |




**Multi-display Assembly**

| Detection Range | Buzzer | Number of Bars Displayed |
|---|---|---|
| 1. Close-range detection | Sounds continuously | 1 (red illumination) |
| 2. Medium-range detection | Sounds intermittently<br>(On: 75 msec., Off: 75 msec.) | 2 (yellow illumination) |
| 3. Long-range detection | Sounds intermittently<br>(On: 150 msec., Off: 150 msec.) | 3 (yellow illumination) |
| 4. Maximum long-range detection<br>(for rear center sensors) | Sounds intermittently<br>(On: 150 msec., Off: 650 msec.) | 4 (yellow illumination) |

**HINT:**

Ultrasonic waves are used to measure the detection range. However, the detection range may vary depending on the ambient temperature.

**for Preparation** Click here

## CUSTOMIZE PARAMETERS

**NOTICE:**

- **When the customer requests a change in a function, first make sure that the function can be customized.**
- **Be sure to make a note of the current settings before customizing.**
- **When troubleshooting a function, first make sure that the function is set to the default setting.**

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Customize Setting.

e. Select the setting by referring to the table below.

**Warning**

| Display | Default | Contents | Setting |
|---|---|---|---|
| Rr Sensor Onset Range | Wide | Sets the buzzer activation range for the rear sensors. | Narrow or Wide |
| Keep Sense Buzzer | Avail | Makes the buzzer sound when the distance between the vehicle and obstacle does not change for more than 3 seconds. | Not Avail or Avail |
| Fr & Rr Buzzer Volume | H | Changes the buzzer volume setting. | L, M1, M2, M3 or H |

**Sensor**

| Display | Default | Contents | Setting |
|---|---|---|---|
| Sensor Condition N | Avail | Makes the sensors available when the shift lever is in N. | Not Avail or Avail |
| Reverse Range Front Sensor | F | Changes the operation setting for the vehicle front sensors when the shift lever is in R. | F or F Stop |
| Non P/R Range Rear Sensor | R Stop | Changes the operation setting for the vehicle rear sensors when the shift lever is not in P or R. | R, Rcrn or R Stop |

**Display**

| Display | Default | Contents | Setting |
|---|---|---|---|
| Approach Display OFF | Avail | The display when moving away from a previously detected obstacle. | Not Avail or Avail |
| Display Mode | All | The display mode setting (when the LEXUS parking assist-sensor system is normal). | All or Undisp |

**for Preparation** Click here

## CUSTOMIZE LEXUS PARKING ASSIST-SENSOR SYSTEM

**NOTICE:**

- **When the customer requests a change in a function, first make sure that the function can be customized.**
- **Be sure to make a note of the current settings before customizing.**
- **When troubleshooting a function, first make sure that the function is set to the default setting.**

a. Customizing with the intelligent tester.

i. Connect the intelligent tester to the DLC3.

ii. Turn the engine switch on (IG).

iii. Turn the intelligent tester on.

iv. Enter the following menus: Customize Setting.

v. Select the setting by referring to the table below.

**Warning**

| Display | Default | Contents | Setting |
|---|---|---|---|
| Rr Sensor Onset Range | Wide | Sets the buzzer activation range for the rear sensors. | Narrow or Wide |
| Keep Sense Buzzer | Avail | Makes the buzzer sound when the distance between the vehicle and obstacle does not change for more than 3 seconds. | Not Avail or Avail |
| Fr & Rr Buzzer Volume | H | Changes the buzzer volume setting. | L, M1, M2, M3 or H |

**Sensor**

| Display | Default | Contents | Setting |
|---|---|---|---|
| Sensor Condition N | Avail | Makes the sensors available when the shift lever is in N. | Not Avail or Avail |
| Reverse Range Front Sensor | F | Changes the operation setting for the vehicle front sensors when the shift lever is in R. | F or F Stop |
| Non P/R Range Rear Sensor | R Stop | Changes the operation setting for the vehicle rear sensors when the shift lever is not in P or R. | R, Rcrn or R Stop |

**Display**

| Display | Default | Contents | Setting |
|---|---|---|---|
| Approach Display OFF | Avail | The display when moving away from a previously detected obstacle. | Not Avail or Avail |
| Display Mode | All | The display mode setting (when the LEXUS parking assist-sensor system is normal). | All or Undisp |

b. Customizing with multi-display assembly.

**NOTICE:**

- **When the customer requests a change in a function, first make sure that the function can be customized.**
- **Be sure to make a note of the current settings before customizing.**
- **When troubleshooting a function, first make sure that the function is set to the default setting.**

i. Turn the engine switch on (IG).

ii. Enter the following menus: Setup / Vehicle / LEXUS park assist.

iii. Select the setting by referring to the table below.

**Warning**

| Display | Default | Contents | Setting |
|---|---|---|---|
| Alert | 3 | Sets the buzzer activation range for the rear center sensors. | 1, 2, 3, 4 or 5 |

| | | | |
|---|---|---|---|
| Volume Display | On | The display mode setting (when the LEXUS parking assist-sensor system is normal). | On or Off |
| Distance | Wide | Sets the buzzer activation range for the rear center sensors. | Narrow or Wide |

**for Preparation** Click here

**HINT:**

Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table.

Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

### General

| Symptom | Suspected Area | See page |
|---|---|---|
| System does not operate at all (self-check function does not operate) | ECU Power Source Circuit*1 | Click here |
| | Clearance Warning ECU Power Source Circuit*2 | Click here |
| | Clearance Sonar Main Switch Circuit | Click here |
| | Parking Assist ECU*1 | Click here |
| | Clearance Warning ECU*2 | Click here |
| ECU does not operate when clearance sonar main switch is turned on or off | Read value using the intelligent tester (EEPROM status) | Click here |
| | Parking Assist ECU*1 | Click here |
| | Clearance Warning ECU*2 | Click here |

### Sonar Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Freeze condition is displayed as a result of self-check | Remove ice, mud or snow from the ultrasonic sensor | - |
| Open circuit in front sensors is displayed as a result of self-check | Front Left Sensor Malfunction | Click here |
| | Front Right Sensor Malfunction | Click here |
| | Parking Assist ECU*1 | Click here |
| | Clearance Warning ECU*2 | Click here |
| Open circuit in rear sensors is displayed as a result of self-check | Rear Left Sensor Malfunction | Click here |
| | Rear Right Sensor Malfunction | Click here |
| | Rear Left Center Sensor Malfunction | Click here |
| | Rear Right Center Sensor Malfunction | Click here |
| | Parking Assist ECU*1 | Click here |
| | Clearance Warning ECU*2 | Click here |
| Detection operation operates even when vehicle speed is more than 13 km/h (8 mph) | CAN Communication System*5 | Click here |
| | CAN Communication System*6 | Click here |
| | Parking Assist ECU*1 | Click here |
| | Clearance Warning ECU*2 | Click here |

### Display Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Detection operation is normal but sonar displays do not appear on multi-information display | CAN Communication System*5 | Click here |
| | CAN Communication System*6 | Click here |
| | Parking Assist ECU*1 | Click here |
| | Clearance Warning ECU*2 | Click here |
| | Combination Meter | Click here |
| Detection operation is normal but sonar displays do not appear on multi-display*3, *4 | CAN Communication System*5 | Click here |
| | CAN Communication System*6 | Click here |
| | Parking Assist ECU*1 | Click here |
| | Clearance Warning ECU*2 | Click here |
| | Multi-display*3 | Click here |
| | Multi-display*4 | Click here |
| Detection operation is normal but clearance sonar main switch indicator does not illuminate | Clearance Sonar Main Switch Circuit | Click here |
| | Parking Assist ECU*1 | Click here |
| | Clearance Warning ECU*2 | Click here |

### Buzzer

| Symptom | Suspected Area | See page |
|---|---|---|
| Detection operation is normal but buzzer operation is intermittent | Clearance Warning Buzzer Circuit | Click here |
| | Parking Assist ECU*1 | Click here |
| | Clearance Warning ECU*2 | Click here |

### Indicator Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Clearance sonar indicator Light does not come on | CAN Communication System*5 | Click here |
| | CAN Communication System*6 | Click here |
| | Read value using the intelligent tester (EEPROM status) | - |
| | Parking Assist ECU*1 | Click here |
| | Clearance Warning ECU*2 | Click here |
| | Combination Meter | Click here |

*1: w/ Parking Assist Monitor System
*2: w/o Parking Assist Monitor System
*3: w/ Navigation System
*4: w/o Navigation System
*5: for LHD
*6: for RHD

**for Preparation** Click here

**HINT:**

Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table.

Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

### General

| Symptom | Suspected Area | See page |
|---|---|---|
| System does not operate at all (self-check function does not operate) | ECU Power Source Circuit*1 | Click here |
| | Clearance Warning ECU Power Source Circuit*2 | Click here |
| | Clearance Sonar Main Switch Circuit | Click here |
| | Parking Assist ECU*1 | Click here |
| | Clearance Warning ECU*2 | Click here |
| ECU does not operate when clearance sonar main switch is turned on or off | Read value using the intelligent tester (EEPROM status) | Click here |
| | Parking Assist ECU*1 | Click here |
| | Clearance Warning ECU*2 | Click here |

### Sonar Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Freeze condition is displayed as a result of self-check | Remove ice, mud or snow from the ultrasonic sensor | - |
| Open circuit in front sensors is displayed as a result of self-check | Front Left Sensor Malfunction | Click here |
| | Front Right Sensor Malfunction | Click here |
| | Parking Assist ECU*1 | Click here |
| | Clearance Warning ECU*2 | Click here |
| Open circuit in rear sensors is displayed as a result of self-check | Rear Left Sensor Malfunction | Click here |
| | Rear Right Sensor Malfunction | Click here |
| | Rear Left Center Sensor Malfunction | Click here |
| | Rear Right Center Sensor Malfunction | Click here |
| | Parking Assist ECU*1 | Click here |
| | Clearance Warning ECU*2 | Click here |
| Detection operation operates even when vehicle speed is more than 13 km/h (8 mph) | CAN Communication System*5 | Click here |
| | CAN Communication System*6 | Click here |
| | Parking Assist ECU*1 | Click here |
| | Clearance Warning ECU*2 | Click here |

### Display Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Detection operation is normal but sonar displays do not appear on multi-information display | CAN Communication System*5 | Click here |
| | CAN Communication System*6 | Click here |
| | Parking Assist ECU*1 | Click here |
| | Clearance Warning ECU*2 | Click here |
| | Combination Meter | Click here |
| Detection operation is normal but sonar displays do not appear on multi-display*3, *4 | CAN Communication System*5 | Click here |
| | CAN Communication System*6 | Click here |
| | Parking Assist ECU*1 | Click here |
| | Clearance Warning ECU*2 | Click here |
| | Multi-display*3 | Click here |
| | Multi-display*4 | Click here |
| Detection operation is normal but clearance sonar main switch indicator does not illuminate | Clearance Sonar Main Switch Circuit | Click here |
| | Parking Assist ECU*1 | Click here |
| | Clearance Warning ECU*2 | Click here |

### Buzzer

| Symptom | Suspected Area | See page |
|---|---|---|
| Detection operation is normal but buzzer operation is intermittent | Clearance Warning Buzzer Circuit | Click here |
| | Parking Assist ECU*1 | Click here |
| | Clearance Warning ECU*2 | Click here |

### Indicator Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Clearance sonar indicator Light does not come on | CAN Communication System*5 | Click here |
| | CAN Communication System*6 | Click here |
| | Read value using the intelligent tester (EEPROM status) | - |
| | Parking Assist ECU*1 | Click here |
| | Clearance Warning ECU*2 | Click here |
| | Combination Meter | Click here |

*1: w/ Parking Assist Monitor System
*2: w/o Parking Assist Monitor System
*3: w/ Navigation System
*4: w/o Navigation System
*5: for LHD
*6: for RHD

**for Preparation** Click here

**HINT:**

Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table.

Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

### General

| Symptom | Suspected Area | See page |
|---|---|---|
| System does not operate at all (self-check function does not operate) | ECU power source circuit (w/ Side Monitor System) | Click here |
| | Clearance warning ECU assembly power source circuit (w/o Side Monitor System) | Click here |
| | Back sonar or clearance sonar switch assembly circuit | Click here |
| | Parking assist ECU (w/ Side Monitor System) | Click here |
| | Clearance warning ECU assembly (w/o Side Monitor System) | Click here |
| ECU does not operate when clearance sonar main switch is turned on or off | Read value using the intelligent tester (EEPROM status) | Click here |
| | Parking assist ECU (w/ Side Monitor System) | Click here |
| | Clearance warning ECU assembly (w/o Side Monitor System) | Click here |

### Sonar Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Freeze condition is displayed as a result of self-check | Remove ice, mud or snow from the ultrasonic sensor | - |
| Open circuit in front sensors is displayed as a result of self-check | No. 1 ultrasonic sensor (FL sensor) malfunction | Click here |
| | No. 1 ultrasonic sensor (FR sensor) malfunction | Click here |
| | Parking assist ECU (w/ Side Monitor System) | Click here |
| | Clearance warning ECU assembly (w/o Side Monitor System) | Click here |
| Open circuit in rear sensors is displayed as a result of self-check | No. 1 ultrasonic sensor (RL sensor) malfunction | Click here |
| | No. 1 ultrasonic sensor (RR sensor) malfunction | Click here |
| | No. 1 ultrasonic sensor (RRC sensor) malfunction | Click here |
| | No. 1 ultrasonic sensor (RLC sensor) malfunction | Click here |
| | Parking assist ECU (w/ Side Monitor System) | Click here |
| | Clearance warning ECU assembly (w/o Side Monitor System) | Click here |
| Detection operation operates even when vehicle speed is more than 13 km/h (8 mph) | CAN communication system (for LHD) | Click here |
| | CAN communication system (for RHD) | Click here |
| | Parking Assist ECU (w/ Side Monitor System) | Click here |
| | Clearance warning ECU assembly (w/o Side Monitor System) | Click here |

### Display Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Detection operation is normal but sonar displays do not appear on multi-information display | CAN communication system (for LHD) | Click here |
| | CAN communication system (for RHD) | Click here |
| | Parking assist ECU (w/ Side Monitor System) | Click here |
| | Clearance warning ECU assembly (w/o Side Monitor System) | Click here |
| | Combination meter assembly | Click here |
| Detection operation is normal but sonar displays do not appear on multi-display | CAN communication system (for LHD) | Click here |
| | CAN communication system (for RHD) | Click here |
| | Parking assist ECU (w/ Side Monitor System) | Click here |
| | Clearance warning ECU assembly (w/o Side Monitor System) | Click here |
| | Multi-display assembly (w/ Navigation System) | Click here |
| | Multi-display assembly (w/o Navigation System) | Click here |
| Detection operation is normal but clearance sonar main switch indicator does not illuminate | Back sonar or clearance sonar switch assembly circuit | Click here |
| | Parking assist ECU (w/ Side Monitor System) | Click here |
| | Clearance warning ECU assembly (w/o Side Monitor System) | Click here |

### Buzzer

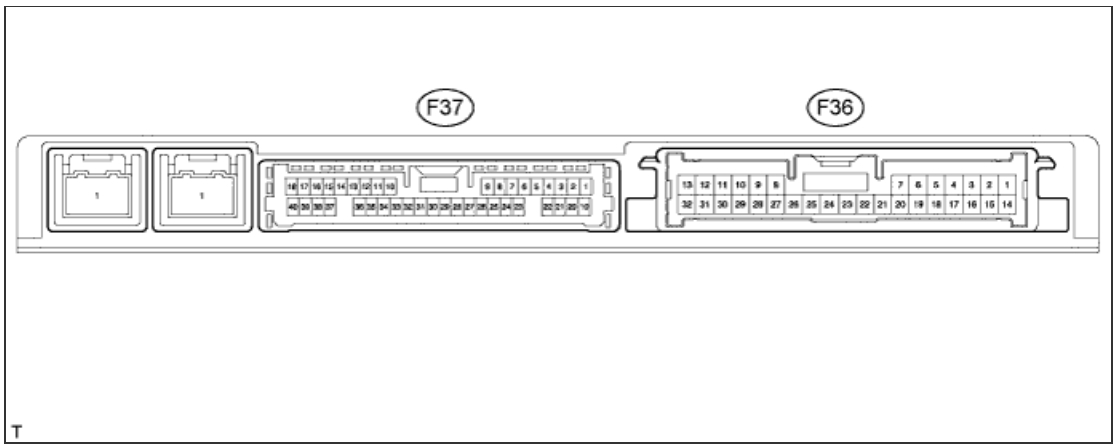
| Symptom | Suspected Area | See page |
|---|---|---|
| Detection operation is normal but buzzer operation is intermittent | No. 1 clearance warning buzzer circuit | Click here |
| | Parking assist ECU (w/ Side Monitor System) | Click here |
| | Clearance warning ECU assembly (w/o Side Monitor System) | Click here |

### Indicator Function

| Symptom | Suspected Area | See page |
|---|---|---|
| Clearance sonar indicator Light does not come on | CAN communication system (for LHD) | Click here |
| | CAN communication system (for RHD) | Click here |
| | Read value using the intelligent tester (EEPROM status) | - |
| | Parking assist ECU (w/ Side Monitor System) | Click here |
| | Clearance warning ECU assembly (w/o Side Monitor System) | Click here |
| | Combination meter assembly | Click here |

**for Preparation** Click here

## CHECK PARKING ASSIST ECU (w/ Parking Assist Monitor System)




a. Disconnect the F36 and F37 ECU connectors.

b. Measure the voltage and resistance according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F36-6 (+B) - F36-4 (GND1) | L - W-B | Power source signal | Always | 11 to 14 V |
| F36-1 (IG) - F36-4 (GND1) | G - W-B | IG power source signal | Engine switch on (IG) | 11 to 14 V |
| F36-1 (IG) - F36-4 (GND1) | G - W-B | IG power source signal | Engine switch off | Below 1 V |
| F36-14 (ACC) - F36-4 (GND1) | GR - W-B | ACC power source signal | Engine switch on (ACC) | 11 to 14 V |
| F36-14 (ACC) - F36-4 (GND1) | GR - W-B | ACC power source signal | Engine switch off | Below 1 V |
| F37-6 (CSSW) - F36-4 (GND1) | Y - W-B | Clearance sonar main switch power source signal | Engine switch on (IG), clearance sonar main switch on | 11 to 14 V |
| F37-6 (CSSW) - F36-4 (GND1) | Y - W-B | Clearance sonar main switch power source signal | Engine switch on (IG), clearance sonar main switch off | Below 1 V |
| F36-4 (GND1) - Body ground | W-B - Body ground | ECU ground | Always | Below 1 Ω |

c. Reconnect the F36 and F37 ECU connectors.

d. Measure the voltage according to the value(s) in the table below.

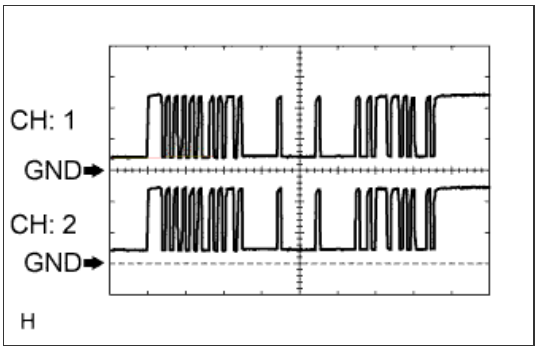
| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F37-28 (BOR) - F37-29 (E2) | R - GR | Rear sensor circuit power source | Engine switch on (IG), clearance sonar main switch on | 7.2 to 8.8 V |
| F37-28 (BOR) - F37-29 (E2) | R - GR | Rear sensor circuit power source | Engine switch off | Below 1 V |
| F37-33 (SOF) - F37-32 (E1) | LG - R | Front sensor circuit power source | Engine switch on (IG), clearance sonar main switch on | Waveform 1 |
| F37-25 (BBZ) - F36-4 (GND1) | G - W-B | Clearance warning buzzer signal | Engine switch on (IG) | 7.2 to 8.8 V |
| F37-25 (BBZ) - F36-4 (GND1) | G - W-B | Clearance warning buzzer signal | Engine switch off | Below 1 V |
| F37-9 (EF) - F36-4 (GND1) | L - W-B | Clearance warning buzzer signal | Buzzer sounding | Waveform 2 |

| | | | | |
|---|---|---|---|---|
| F37-31 (BOF) - F37-32 (E1) | GR - R | Front sensor circuit power source | Engine switch off | Below 1 V |
| F37-31 (BOF) - F37-32 (E1) | GR - R | Front sensor circuit power source | Engine switch on (IG), clearance sonar main switch on | 7.2 to 8.8 V |
| F37-30 (SOR) - F37-29 (E2) | LG - GR | Rear sensor circuit power source | Engine switch on (IG), clearance sonar main switch on | Waveform 1 |

e. Using an oscilloscope, check waveform 1.

**Waveform 1 (Reference)**

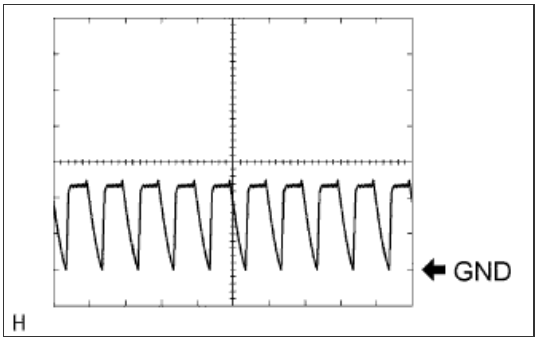
| Item | Content |
|---|---|
| Terminal No. (Symbol) | • F37-33 (SOF) - F37-32 (E1)<br>• F37-30 (SOR) - F37-29 (E2) |
| Tool Setting | 2 V/DIV., 1 msec./DIV. |
| Condition | Engine switch on (IG), clearance sonar main switch on |



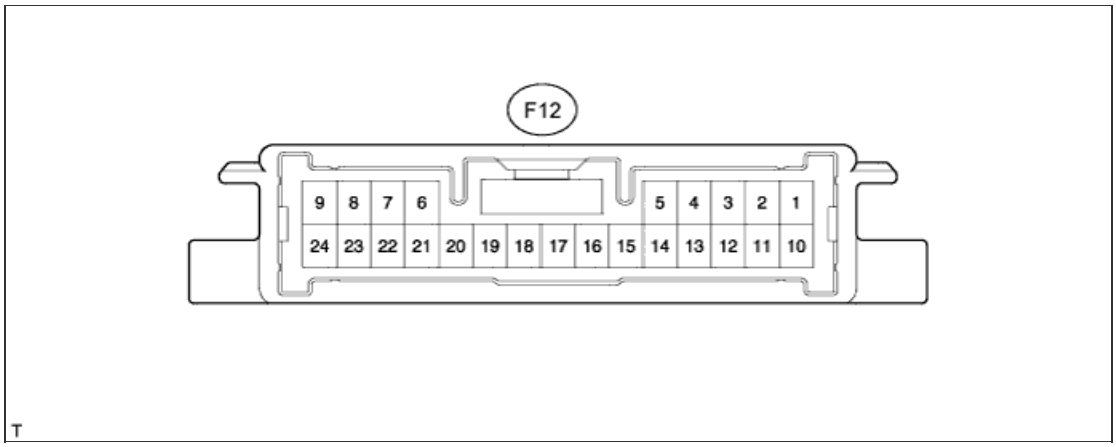

f. Using an oscilloscope, check waveform 2.

**Waveform 2 (Reference)**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F37-9 (EF) - F36-4 (GND1) |
| Tool Setting | 5 V/DIV., 1 msec./DIV. |
| Condition | Engine switch on (IG), shift lever in R |




## CHECK CLEARANCE WARNING ECU (w/o Parking Assist Monitor System)




a. Disconnect the F12 ECU connector.

b. Measure the voltage and resistance according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F12-15 (IG) - F12-17 (GND1) | G - W-B | IG power source signal | Engine switch on (IG) | 11 to 14 V |
| F12-15 (IG) - F12-17 (GND1) | G - W-B | IG power source signal | Engine switch off | Below 1 V |
| F12-12 (CSSW) - F12-17 (GND1) | Y - W-B | Clearance sonar main switch power source signal | Engine switch on (IG), clearance sonar main switch on | 11 to 14 V |
| F12-12 (CSSW) - F12-17 | Y - W-B | Clearance sonar main switch power source | Engine switch on (IG), clearance sonar main | Below 1 V |

| | | | | |
|---|---|---|---|---|
| (GND1) | | signal | switch off | |
| F12-17 (GND1) - Body ground | W-B - Body ground | ECU ground | Always | Below 1 Ω |

c. Reconnect the F12 ECU connector.

d. Measure the voltage according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F12-10 (BBZ) - F12-11 (EF) | G - L | Clearance warning buzzer signal | Buzzer not sounding | Below 1 V |
| F12-10 (BBZ) - F12-11 (EF) | G - L | Clearance warning buzzer signal | Buzzer sounding | Waveform 1 |
| F12-21 (BOF) - F12-19 (E1) | GR - R | No. 1 ultrasonic sensor circuit power source | Engine switch on (IG), clearance sonar main switch on | 7.2 to 8.8 V |
| F12-21 (BOF) - F12-19 (E1) | GR - R | No. 1 ultrasonic sensor circuit power source | Engine switch off | Below 1 V |
| F12-9 (SOF) - F12-19 (E1) | LG - R | No. 1 ultrasonic sensor circuit power source | Engine switch on (IG), clearance sonar main switch on | Waveform 2 |
| F12-7 (BOR) - F12-18 (E2) | R - GR | Rear ultrasonic sensor circuit power source | Engine switch on (IG), clearance sonar main switch on | 7.2 to 8.8 V |
| F12-7 (BOR) - F12-18 (E2) | R - GR | Rear ultrasonic sensor circuit power source | Engine switch off | Below 1 V |
| F12-24 (SOR) - F12-18 (E2) | LG - GR | Rear ultrasonic sensor circuit power source | Engine switch on (IG), clearance sonar main switch on | Waveform 2 |

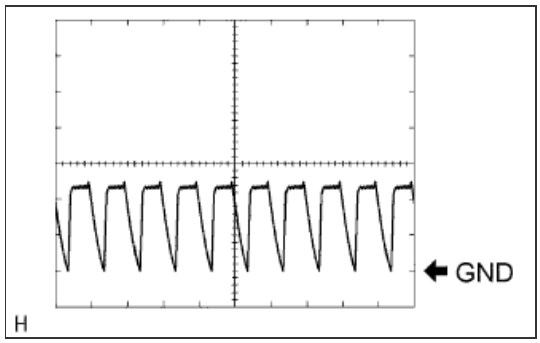
e. Using an oscilloscope, check waveform 1.

**Waveform 1 (Reference)**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F12-10 (BBZ) - F12-11 (EF) |
| Tool Setting | 5 V/DIV., 1 msec./DIV. |
| Condition | Engine switch on (IG), shift lever in R |

**NOTICE:**

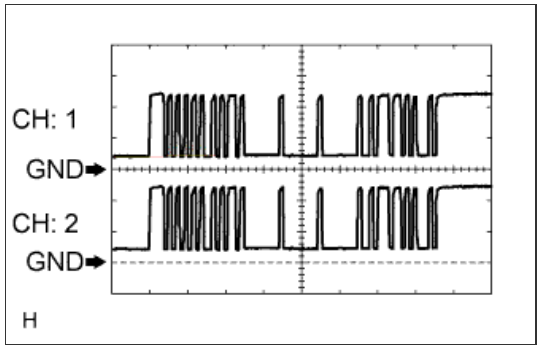
The waveform amplitude varies depending on the volume setting.




f. Using an oscilloscope, check waveform 2.

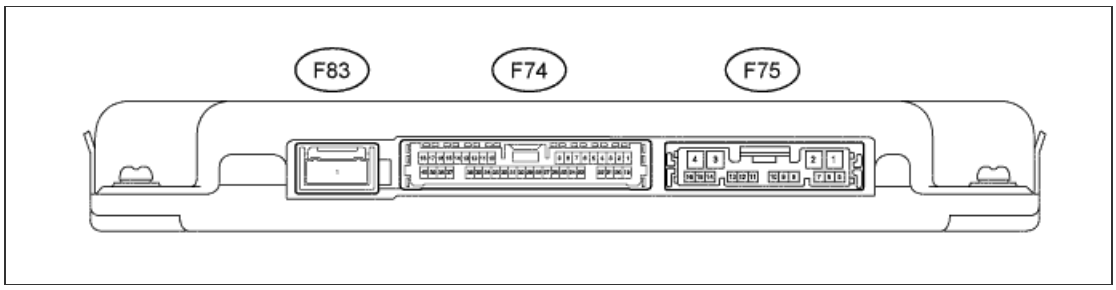
**Waveform 2 (Reference)**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | • F12-9 (SOF) - F12-19 (E1)<br>• F12-24 (SOR) - F12-18 (E2) |
| Tool Setting | 2 V/DIV., 1 msec./DIV. |
| Condition | Engine switch on (IG), clearance sonar main switch on |



**for Preparation** Click here

## CHECK PARKING ASSIST ECU (w/ Side Monitor System)




a. Disconnect the F74 and F75 parking assist ECU connectors.

b. Measure the voltage and resistance according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F74-1 (+B) - F74-4 (GND1) | L - W-B | Power source signal | Always | 11 to 14 V |
| F74-4 (GND1) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F74-8 (IG) - F74-4 (GND1) | G - W-B | IG power source signal | Engine switch on (IG) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F74-9 (ACC) - F74-4 (GND1) | GR - W-B | ACC power source signal | Engine switch on (ACC) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F75-25 (CSSW) - F74-4 (GND1) | Y - W-B | Back sonar or clearance sonar switch assembly power source signal | Engine switch on (IG), back sonar or clearance sonar switch assembly on | 11 to 14 V |
| | | | Engine switch on (IG), back sonar or clearance sonar switch assembly off | Below 1 V |

c. Reconnect the F74 and F75 parking assist ECU connectors.

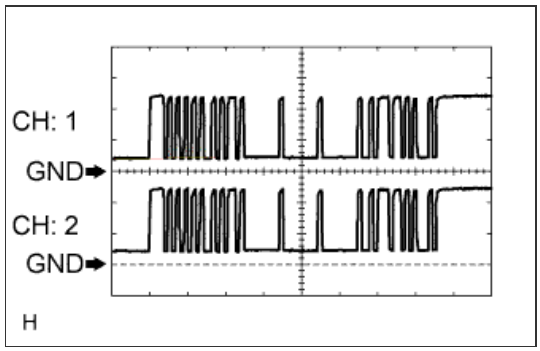
d. Measure the voltage according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F74-7 (BBZ) - F74-6 (EF) | G - L | No. 1 clearance warning buzzer signal | Buzzer does not sounding | Below 1 V |
| | | | Buzzer sounding | Pulse generation (See waveform 2) |
| F75-3 (LIN2) - F75-4 (CSG2) | LG - GR | Rear sensor circuit power source | Engine switch on (IG), back sonar or clearance sonar switch assembly on | Pulse generation (See waveform 1) |
| F75-5 (CSB1) - F75-6 (CSG1) | GR - R | Front sensor circuit power source | Engine switch off | Below 1 V |
| | | | Engine switch on (IG), back sonar or clearance sonar switch assembly on | 7.2 to 8.8 V |
| F75-20 (CSB2) - F75-4 (CSG2) | R - GR | Rear sensor circuit power source | Engine switch on (IG), back sonar or clearance sonar switch assembly on | 7.2 to 8.8 V |
| | | | Engine switch off | Below 1 V |
| F75-23 (LIN1) - F75-6 (CSG1) | LG - R | Front sensor circuit power source | Engine switch on (IG), back sonar or clearance sonar switch assembly on | Pulse generation (See waveform 1) |

e. Using an oscilloscope, check waveform 1.

**Waveform 1 (Reference)**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | • F75-3 (LIN2) - F75-4 (CSG2)<br>• F75-23 (LIN1) - F75-6 (CSG1) |
| Tool Setting | 2 V/DIV., 1 msec./DIV. |
| Condition | Engine switch on (IG), back sonar or clearance sonar switch assembly on |



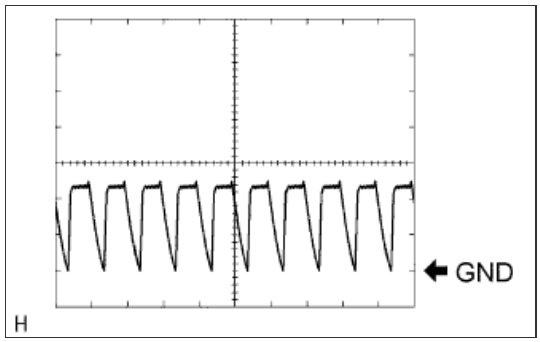

f. Using an oscilloscope, check waveform 2.

**Waveform 2 (Reference)**

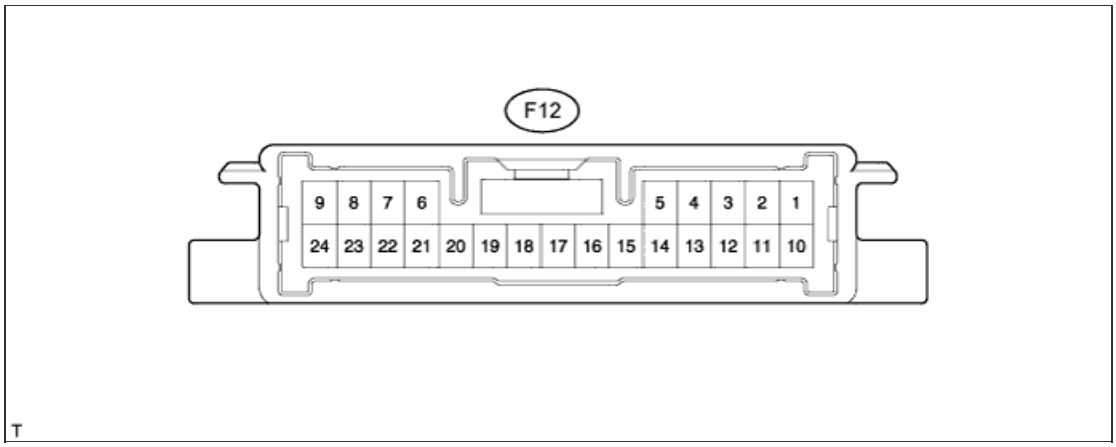
| Item | Content |
|---|---|
| Terminal No. (Symbol) | F74-7 (BBZ) - F74-6 (EF) |
| Tool Setting | 5 V/DIV., 1 msec./DIV. |
| Condition | Buzzer sounding |

**NOTICE:**

The waveform amplitude varies depending on the volume setting.




## CHECK CLEARANCE WARNING ECU ASSEMBLY (w/o Side Monitor System)




a. Disconnect the F12 clearance warning ECU assembly connector.

b. Measure the voltage and resistance according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F12-15 (IG) - F12-17 (GND1) | G - W-B | IG power source signal | Engine switch on (IG) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F12-12 (CSSW) - F12-17 (GND1) | Y - W-B | Back sonar or clearance sonar switch assembly power source signal | Engine switch on (IG), back sonar or clearance sonar switch assembly on | 11 to 14 V |
| | | | Engine switch on (IG), back sonar or clearance sonar switch assembly off | Below 1 V |
| F12-17 (GND1) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |

c. Reconnect the F12 clearance warning ECU assembly connector.

d. Measure the voltage according to the value(s) in the table below.

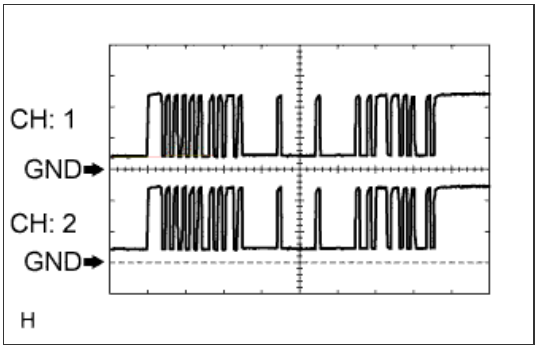
| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| F12-7 (CSB2) - F12-18 (CSG2) | R - GR | Rear ultrasonic sensor circuit power source | Engine switch on (IG), back sonar or clearance sonar switch assembly on | 7.2 to 8.8 V |
| | | | Engine switch off | Below 1 V |
| F12-9 (LIN1) - F12-19 (CSG1) | LG - R | No. 1 ultrasonic sensor circuit power source | Engine switch on (IG), back sonar or clearance sonar switch assembly on | Pulse generation (See waveform 1 |
| F12-10 (BBZ) - F12-11 (EF) | G - L | Clearance warning buzzer signal | Buzzer not sounding | Below 1 V |
| | | | Buzzer sounding | Pulse generation (See waveform 2) |
| F12-21 (CSB1) - F12-19 (CSG1) | GR - R | No. 1 ultrasonic sensor circuit power source | Engine switch on (IG), back sonar or clearance sonar switch assembly on | 7.2 to 8.8 V |
| | | | Engine switch off | Below 1 V |
| F12-24 (LIN2) - F12-18 (CSG2) | LG - GR | Rear ultrasonic sensor circuit power source | Engine switch on (IG), back sonar or clearance sonar switch assembly on | Pulse generation (See waveform 1 |

e. Using an oscilloscope, check waveform 1.

**Waveform 1 (Reference)**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | • F12-9 (LIN1) - F12-19 (CSG1)<br>• F12-24 (LIN2) - F12-18 (CSG2) |
| Tool Setting | 2 V/DIV., 1 msec./DIV. |
| Condition | Engine switch on (IG), back sonar or clearance sonar switch assembly on |



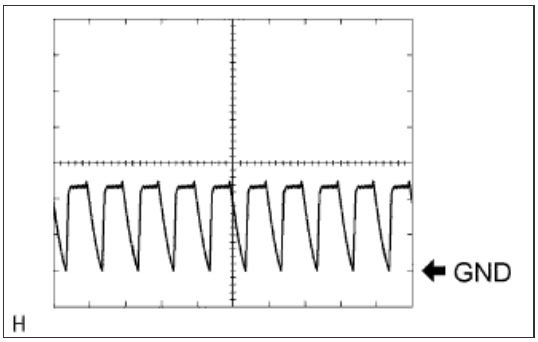

f. Using an oscilloscope, check waveform 2.

**Waveform 2 (Reference)**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F12-10 (BBZ) - F12-11 (EF) |
| Tool Setting | 5 V/DIV., 1 msec./DIV. |
| Condition | Buzzer sounding |

**NOTICE:**

The waveform amplitude varies depending on the volume setting.



**for Preparation** Click here

## CHECK DTC

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus:
Body / Clearance Sonar / DTC.

e. Read the DTCs.

## CLEAR DTC

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus:
Body / Clearance Sonar / DTC.

e. Clear the DTCs.

**for Preparation** Click here

## DATA LIST

**HINT:**

Using the intelligent tester to read the Data List allows the values or states of switches, sensors, actuators and other items to be read without removing any parts. This non-intrusive inspection can be very useful because intermittent conditions or signals may be discovered before parts or wiring is disturbed. Reading the Data List information early in troubleshooting is one way to save diagnostic time.

**NOTICE:**

In the table below, the values listed under "Normal Condition" are reference values. Do not depend solely on these reference values when deciding whether a part is faulty or not.

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Body / Clearance Sonar / Data List.

e. According to the display on the tester, read the Data List.

**Clearance Sonar**

| Tester Display | Measurement Item/Range | Normal Condition | Diagnostic Note |
|---|---|---|---|
| Main Switch | Clearance sonar main switch/OFF or ON | OFF: Clearance sonar main switch off<br>ON: Clearance sonar main switch on | - |
| Clearance Sonar ECU Type | Type of clearance warning ECU/Normal or Steer | Normal: Normal clearance sonar type<br>Steer: Steering sensing type | - |
| Rr Sensor Onset Range | Buzzer activation range (for rear sensors)/Narrow or Wide | Narrow: Buzzer activation range narrow<br>Wide: Buzzer activation range wide | - |
| Keep Sense Buzzer | Buzzer operation/Not Avail or Avail | Not Avail: Buzzer sounds continuously<br>Avail: Buzzer stops | When the distance between the vehicle and obstacle does not change for more than 3 seconds. |
| Fr & Rr Buzzer Volume | Buzzer volume setting/L, M1, M2, M3 or H | L: Buzzer volume low<br>M1: Buzzer volume medium low<br>M2: Buzzer volume medium<br>M3: Buzzer volume medium high<br>H: Buzzer volume high | - |
| Sensor Condition N | Sensor operation/Not Avail or Avail | Not Avail: Sensor does not operate<br>Avail: Sensor operates | When the shift lever is in N. |
| Approach Display OFF | Display operation/Not Avail or Avail | Not Avail: Display does not display<br>Avail: Display displays | When moving away from a previously detected obstacle. |
| Display Mode | Display mode setting/All or Updisp | All: Display displays all sensors<br>Updisp: Display does not display | When the LEXUS parking assist-sensor system is normal. |
| Reverse Range Front | Operation setting for vehicle front sensors (front center, front corner, front side)/F or F Stop | F: All front sensors operate<br>F Stop: All front | When the shift lever is in R. |

| | | | |
|---|---|---|---|
| Sensor | | sensors stop | |
| Non P/R Range Rear Sensor | Operation setting for vehicle rear sensors (rear center, rear corner)/R, Rcrn or R Stop | R: All rear sensors operate<br>Rcrn: Rear corner sensors operate<br>R Stop: All rear sensors stop | When the shift lever is not in P or R. |
| Fr Left Sensor | Front corner sensor LH information/Undetect, Close R, Mid G, Mid L G, Long G, Mid Y, Mid L Y, Long Y, Freeze, Open or Blink | Undetect: Not detected<br>Close R: Detected (Close-range) [Red]<br>Mid G: Detected (Medium-range) [Green]<br>Mid L G: Detected (Long-range) [Green]<br>Long G: Detected (Maximum long-range) [Green]<br>Mid Y: Detected (Medium-range) [Yellow]<br>Mid L Y: Detected (Long-range) [Yellow]<br>Long Y: Detected (Maximum long-range) [Yellow]<br>Freeze: Sensor frozen<br>Open: Open in sensor<br>Blink: All displays blinking | - |
| Fr Right Sensor | Front corner sensor RH information/Undetect, Close R, Mid G, Mid L G, Long G, Mid Y, Mid L Y, Long Y, Freeze, Open or Blink | Undetect: Not detected<br>Close R: Detected (Close-range) [Red]<br>Mid G: Detected (Medium-range) [Green]<br>Mid L G: Detected (Long-range) [Green]<br>Long G: Detected (Maximum long-range) [Green]<br>Mid Y: Detected (Medium-range) [Yellow]<br>Mid L Y: Detected (Long-range) [Yellow]<br>Long Y: Detected (Maximum long-range) [Yellow]<br>Freeze: Sensor frozen<br>Open: Open in sensor<br>Blink: All displays blinking | - |
| Rr Left Sensor | Rear corner sensor LH information/Undetect, Close R, Mid G, Mid L G, Long G, Mid Y, Mid L Y, Long Y, Freeze, Open or Blink | Undetect: Not detected<br>Close R: Detected (Close-range) [Red]<br>Mid G: Detected (Medium-range) [Green]<br>Mid L G: Detected (Long-range) [Green]<br>Long G: Detected (Maximum long-range) [Green]<br>Mid Y: Detected (Medium-range) [Yellow]<br>Mid L Y: Detected | - |

| | | | |
|---|---|---|---|
| | | (Long-range) [Yellow]<br>Long Y: Detected (Maximum long-range) [Yellow]<br>Freeze: Sensor frozen<br>Open: Open in sensor<br>Blink: All displays blinking | |
| Rr Left Center Sensor | Rear center sensor LH information/Undetect, Close R, Mid G, Mid L G, Long G, Mid Y, Mid L Y, Long Y, Freeze, Open or Blink | Undetect: Not detected<br>Close R: Detected (Close-range) [Red]<br>Mid G: Detected (Medium-range) [Green]<br>Mid L G: Detected (Long-range) [Green]<br>Long G: Detected (Maximum long-range) [Green]<br>Mid Y: Detected (Medium-range) [Yellow]<br>Mid L Y: Detected (Long-range) [Yellow]<br>Long Y: Detected (Maximum long-range) [Yellow]<br>Freeze: Sensor frozen<br>Open: Open in sensor<br>Blink: All displays blinking | - |
| Rr Right Center Sensor | Rear center sensor RH information/Undetect, Close R, Mid G, Mid L G, Long G, Mid Y, Mid L Y, Long Y, Freeze, Open or Blink | Undetect: Not detected<br>Close R: Detected (Close-range) [Red]<br>Mid G: Detected (Medium-range) [Green]<br>Mid L G: Detected (Long-range) [Green]<br>Long G: Detected (Maximum long-range) [Green]<br>Mid Y: Detected (Medium-range) [Yellow]<br>Mid L Y: Detected (Long-range) [Yellow]<br>Long Y: Detected (Maximum long-range) [Yellow]<br>Freeze: Sensor frozen<br>Open: Open in sensor<br>Blink: All displays blinking | - |
| Rr Right Sensor | Rear corner sensor RH information/Undetect, Close R, Mid G, Mid L G, Long G, Mid Y, Mid L Y, Long Y, | Undetect: Not detected<br>Close R: Detected (Close-range) [Red]<br>Mid G: Detected (Medium-range) [Green]<br>Mid L G: Detected (Long-range) [Green]<br>Long G: Detected (Maximum long-range) [Green]<br>Mid Y: Detected (Medium-range) | - |

| | | | |
|---|---|---|---|
| | Freeze, Open or Blink | [Yellow]<br>Mid L Y: Detected (Long-range) [Yellow]<br>Long Y: Detected (Maximum long-range) [Yellow]<br>Freeze: Sensor frozen<br>Open: Open in sensor<br>Blink: All displays blinking | |
| Parking Signal | Parking signal/OFF or ON | OFF: Shift lever not in P<br>ON: Shift lever in P | - |
| Reverse Signal | Reverse signal/OFF or ON | OFF: Shift lever not in R<br>ON: Shift lever in R | - |
| Vehicle Speed Info | Vehicle speed signal/SN STOP or SN WORK | SN STOP: Vehicle speed 13 km/h (8 mph) or more<br>SN WORK: Vehicle speed less than 9 km/h (5.6 mph) | - |
| Sonar Detection | Sonar detection condition/STOP or WORK | STOP: Sonar detection not operating<br>WORK: Sonar detection operating | - |
| Clearance Sonar ECU | ECU information/Abnormal or Normal | Abnormal: ECU not normal<br>Normal: ECU normal | - |
| Rr Right Freezed History | Rear corner sensor RH frozen history/Not Rec or Recorded | Not Rec: No record history<br>Recorded: Record history | - |
| Rr Right Center Freezed History | Rear center sensor RH frozen history/Not Rec or Recorded | Not Rec: No record history<br>Recorded: Record history | - |
| Rr Left Center Freezed History | Rear center sensor LH frozen history/Not Rec or Recorded | Not Rec: No record history<br>Recorded: Record history | - |
| Rr Left Freezed History | Rear corner sensor LH frozen history/Not Rec or Recorded | Not Rec: No record history<br>Recorded: Record history | - |
| Fr Right Freezed History | Front corner sensor RH frozen history/Not Rec or Recorded | Not Rec: No record history<br>Recorded: Record history | - |
| Fr Left Freezed History | Front corner sensor LH frozen history/Not Rec or Recorded | Not Rec: No record history<br>Recorded: Record history | - |
| # Codes | Number of stored trouble codes/min.: 0, max.: 255 | Number of DTCs displayed | - |

## ACTIVE TEST

**HINT:**

Using the intelligent tester to perform Active Tests allows relays, VSVs, actuators and other items to be operated without removing any parts. This non-intrusive functional inspection can be very useful because intermittent operation may be discovered before parts or wiring is disturbed. Performing Active Tests early in troubleshooting is one way to save diagnostic time. Data List information can be displayed while performing Active Tests.

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Body / Clearance Sonar / Active Test.

e. According to the display on the tester, perform the Active Test.

**Clearance Sonar**

| Tester Display | Test Part | Control Range | Diagnostic Note |
|---|---|---|---|
| Buzzer | No. 1 clearance warning buzzer | Operate or Stop | - |

**for Preparation** Click here

**HINT:**

If a trouble code is output during the DTC check, inspect the trouble areas listed for that code. For details of the code, refer to the "See page" below.

**LEXUS Parking Assist-Sensor System**

| DTC Code | Detection Item | Trouble Area | See page |
|---|---|---|---|
| C1AE1 | Front Left Sensor Malfunction | - No. 1 ultrasonic sensor LH<br>- Parking assist ECU*1<br>- Clearance warning ECU*2 | Click here |
| C1AE4 | Front Right Sensor Malfunction | - No. 1 ultrasonic sensor RH<br>- Parking assist ECU*1<br>- Clearance warning ECU*2 | Click here |
| C1AE6 | Rear Left Sensor Malfunction | - No. 2 ultrasonic sensor LH<br>- Parking assist ECU*1<br>- Clearance warning ECU*2 | Click here |
| C1AE7 | Rear Left Center Sensor Malfunction | - No. 3 ultrasonic sensor LH<br>- Parking assist ECU*1<br>- Clearance warning ECU*2 | Click here |
| C1AE8 | Rear Right Center Sensor Malfunction | - No. 3 ultrasonic sensor RH<br>- Parking assist ECU*1<br>- Clearance warning ECU*2 | Click here |
| C1AE9 | Rear Right Sensor Malfunction | - No. 2 ultrasonic sensor RH<br>- Parking assist ECU*1<br>- Clearance warning ECU*2 | Click here |
| C1AEC | Front Sensor Communication Malfunction | - Front ultrasonic sensor circuit<br>- Parking assist ECU*1<br>- Clearance warning ECU*2 | Click here |
| C1AED | Rear Sensor Communication Malfunction | - Rear ultrasonic sensor circuit<br>- Parking assist ECU*1<br>- Clearance warning ECU*2 | Click here |
| C1AEF | Shift Position Information | CAN communication system | Click here |
| U0155 | Lost Communication with Instrument Panel Cluster Control Module (Combination Meter) | CAN communication system | Click here |

*1: w/ Parking Assist Monitor System
*2: w/o Parking Assist Monitor System

**for Preparation** Click here

**HINT:**

If a trouble code is output during the DTC check, inspect the trouble areas listed for that code. For details of the code, refer to the "See page" below.

**LEXUS Parking Assist-sensor System**

| DTC Code | Detection Item | See page |
|---|---|---|
| C1AE1 | Front Left Sensor Malfunction | Click here |
| C1AE4 | Front Right Sensor Malfunction | Click here |
| C1AE6 | Rear Left Sensor Malfunction | Click here |
| C1AE7 | Rear Left Center Sensor Malfunction | Click here |
| C1AE8 | Rear Right Center Sensor Malfunction | Click here |
| C1AE9 | Rear Right Sensor Malfunction | Click here |
| C1AEC | Front Sensor Communication Malfunction | Click here |
| C1AED | Rear Sensor Communication Malfunction | Click here |
| C1AEF | Shift Position Information | Click here |
| U0155 | Lost Communication with Instrument Panel Cluster Control Module (Combination Meter) | Click here |

## DTC C1AE1 Front Left Sensor Malfunction

**for Preparation** Click here

### DESCRIPTION

The No. 1 ultrasonic sensor LH is installed on the front bumper. The ECU detects obstacles based on signals received from the No. 1 ultrasonic sensor LH. If the No. 1 ultrasonic sensor LH has an open or other malfunction, it will not function normally.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1AE1 | A malfunction of the No. 1 ultrasonic sensor LH. | • No. 1 ultrasonic sensor LH<br>• Parking assist ECU*1<br>• Clearance warning ECU*2 |

*1: w/ Parking Assist Monitor System
*2: w/o Parking Assist Monitor System

### INSPECTION PROCEDURE

**NOTICE:**

If the DTC is output after repairs, turn the engine switch on (IG) and move the shift lever to R. Then clear the DTC.

#### 1.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AE1 is output | A |
| No DTC is output | B |

B → USE SIMULATION METHOD TO CHECK (**Click here**)

A

#### 2.REPLACE NO. 1 ULTRASONIC SENSOR LH

a. Replace the No. 1 ultrasonic sensor LH with a normally functioning sensor ( Click here).

NEXT

#### 3.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AE1 is output (w/ Parking Assist Monitor System) | A |
| DTC C1AE1 is output (w/o Parking Assist Monitor System) | B |
| No DTC is output | C |

B → REPLACE CLEARANCE WARNING ECU (**Click here**)

C → END

A

REPLACE PARKING ASSIST ECU (Click here)

## DTC C1AE9 Rear Right Sensor Malfunction

**for Preparation** Click here

### DESCRIPTION

The No. 2 ultrasonic sensor RH is installed on the rear bumper. The ECU detects obstacles based on signals received from the No. 2 ultrasonic sensor RH. If the No. 2 ultrasonic sensor RH has an open or other malfunction, it will not function normally.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1AE9 | A malfunction of the No. 2 ultrasonic sensor RH. | • No. 2 ultrasonic sensor RH<br>• Parking assist ECU*1<br>• Clearance warning ECU*2 |

*1: w/ Parking Assist Monitor System
*2: w/o Parking Assist Monitor System

### INSPECTION PROCEDURE

**NOTICE:**

If the DTC is output after repairs, turn the engine switch on (IG) and move the shift lever to R. Then clear the DTC.

#### 1.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AE9 is output | A |
| No DTC is output | B |

B → USE SIMULATION METHOD TO CHECK (**Click here**)

A

#### 2.REPLACE NO. 2 ULTRASONIC SENSOR RH

a. Replace the No. 2 ultrasonic sensor RH with a normally functioning sensor ( Click here).

NEXT

#### 3.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AE9 is output (w/ Parking Assist Monitor System) | A |
| DTC C1AE9 is output (w/o Parking Assist Monitor System) | B |
| No DTC is output | C |

B → REPLACE CLEARANCE WARNING ECU (**Click here**)

C → END

A

REPLACE PARKING ASSIST ECU (Click here)

# DTC C1AE1 Front Left Sensor Malfunction

**for Preparation** Click here

## DESCRIPTION

The No. 1 ultrasonic sensor (FL sensor) is installed on the front bumper. The ECU detects obstacles based on signals received from the No. 1 ultrasonic sensor (FL sensor). If the No. 1 ultrasonic sensor (FL sensor) has an open or other malfunction, it will not function normally.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1AE1 | A malfunction of the No. 1 ultrasonic sensor (FL sensor). | • No. 1 ultrasonic sensor (FL sensor)<br>• Parking assist ECU*1<br>• Clearance warning ECU assembly*2 |

*1: w/ Side Monitor System
*2: w/o Side Monitor System

## INSPECTION PROCEDURE

**NOTICE:**

If the DTC is output after repairs, turn the engine switch on (IG) and move the shift lever to R. Then clear the DTC.

**1.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C1AE1 is not output.**

NG → **Go to step 2**

OK ↓

**USE SIMULATION METHOD TO CHECK (Click here)**

**2.REPLACE NO. 1 ULTRASONIC SENSOR (FL SENSOR)**

a. Replace the No. 1 ultrasonic sensor (FL sensor) with a normally functioning one ( Click here).

NEXT ↓

**3.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AE1 is not output | A |
| DTC C1AE1 is output (w/ Side Monitor System) | B |
| DTC C1AE1 is output (w/o Side Monitor System) | C |

B → **REPLACE PARKING ASSIST ECU (Click here)**

C → **REPLACE CLEARANCE WARNING ECU ASSEMBLY (Click here)**

A ↓

**END (NO. 1 ULTRASONIC SENSOR [FL SENSOR] IS DEFECTIVE)**

## DTC C1AE9 Rear Right Sensor Malfunction

**for Preparation** Click here

### DESCRIPTION

The No. 1 ultrasonic sensor (RR sensor) is installed on the rear bumper. The ECU detects obstacles based on signals received from the No. 1 ultrasonic sensor (RR sensor). If the No. 1 ultrasonic sensor (RR sensor) has an open or other malfunction, it will not function normally.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1AE9 | A malfunction of the No. 1 ultrasonic sensor (RR sensor). | • No. 1 ultrasonic sensor (RR sensor)<br>• Parking assist ECU*1<br>• Clearance warning ECU assembly*2 |

*1: w/ Side Monitor System
*2: w/o Side Monitor System

### INSPECTION PROCEDURE

**NOTICE:**

If the DTC is output after repairs, turn the engine switch on (IG) and move the shift lever to R. Then clear the DTC.

**1.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C1AE9 is not output.**

NG → Go to step 2

OK

**USE SIMULATION METHOD TO CHECK (Click here)**

**2.REPLACE NO. 1 ULTRASONIC SENSOR (RR SENSOR)**

a. Replace the No. 1 ultrasonic sensor (RR sensor) with a normally functioning one ( Click here).

NEXT

**3.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AE9 is not output | A |
| DTC C1AE9 is output (w/ Side Monitor System) | B |
| DTC C1AE9 is output (w/o Side Monitor System) | C |

B → REPLACE PARKING ASSIST ECU (Click here)

C → REPLACE CLEARANCE WARNING ECU ASSEMBLY (Click here)

A

**END (NO. 1 ULTRASONIC SENSOR [RR SENSOR] IS DEFECTIVE)**

## DTC C1AE4 Front Right Sensor Malfunction

**for Preparation** Click here

### DESCRIPTION

The No. 1 ultrasonic sensor RH is installed on the front bumper. The ECU detects obstacles based on signals received from the No. 1 ultrasonic sensor RH. If the No. 1 ultrasonic sensor RH has an open circuit or other malfunction, it will not function normally.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1AE4 | A malfunction of the No. 1 ultrasonic sensor RH. | • No. 1 ultrasonic sensor RH<br>• Parking assist ECU*1<br>• Clearance warning ECU*2 |

*1: w/ Parking Assist Monitor System
*2: w/o Parking Assist Monitor System

### INSPECTION PROCEDURE

**NOTICE:**

If the DTC is output after repairs, turn the engine switch on (IG) and move the shift lever to R. Then clear the DTC.

**1.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AE4 is output | A |
| No DTC is output | B |

B → USE SIMULATION METHOD TO CHECK (**Click here**)

A

**2.REPLACE NO. 1 ULTRASONIC SENSOR RH**

a. Replace the No. 1 ultrasonic sensor RH with a normally functioning sensor ( Click here).

NEXT

**3.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AE4 is output (w/ Parking Assist Monitor System) | A |
| DTC C1AE4 is output (w/o Parking Assist Monitor System) | B |
| No DTC is output | C |

B → REPLACE CLEARANCE WARNING ECU (**Click here**)

C → END

A

REPLACE PARKING ASSIST ECU (Click here)

## DTC C1AEC Front Sensor Communication Malfunction

**for Preparation** Click here

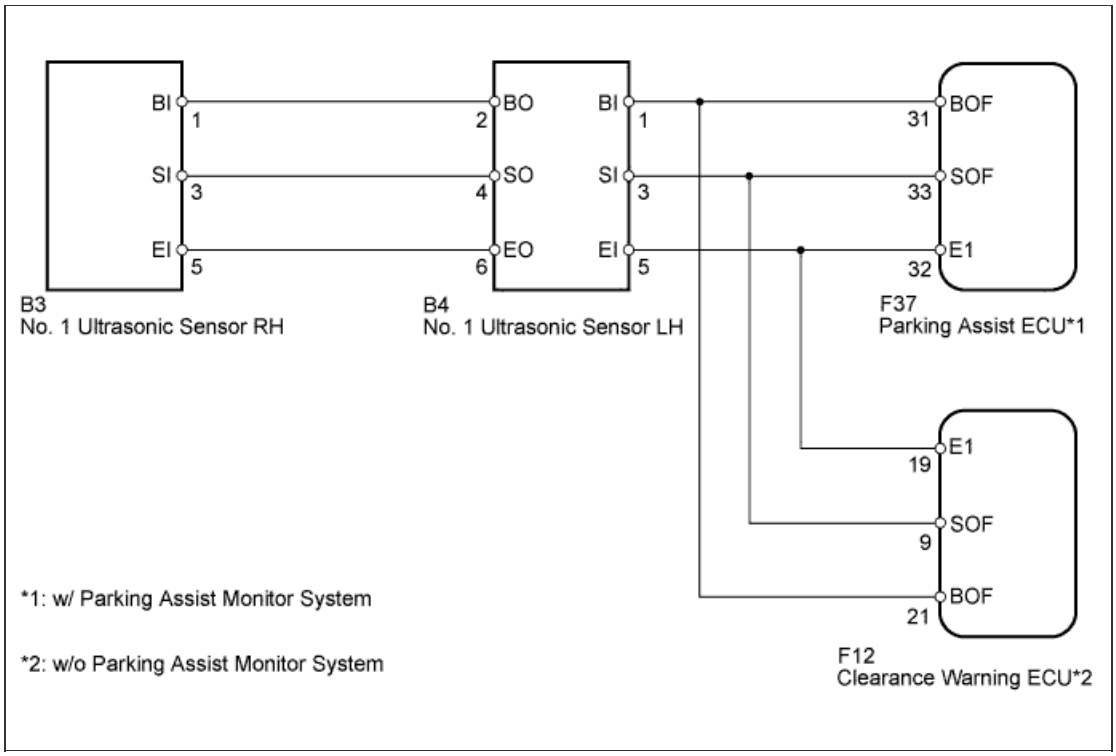
### DESCRIPTION

This DTC is stored when there is an open or short circuit in the communication line between the front sensors and the ECU, or when there is a malfunction in a front sensor.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1AEC | An open or short circuit in the communication line between the front sensors and ECU or a malfunction in a front sensor during initialization mode after the engine switch is turned on (IG). | • Front ultrasonic sensor circuit<br>• Parking assist ECU*1<br>• Clearance warning ECU*2 |

*1: w/ Parking Assist Monitor System
*2: w/o Parking Assist Monitor System

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**1.CHECK DTC OUTPUT**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AEC is output (w/ Parking Assist Monitor System) | A |
| DTC C1AEC is output (w/o Parking Assist Monitor System) | B |
| No DTC is output | C |

| | |
|---|---|
| B | Go to step 10 |
| C | USE SIMULATION METHOD TO CHECK (Click here) |

A

## 2.CHECK PARKING ASSIST ECU

a. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

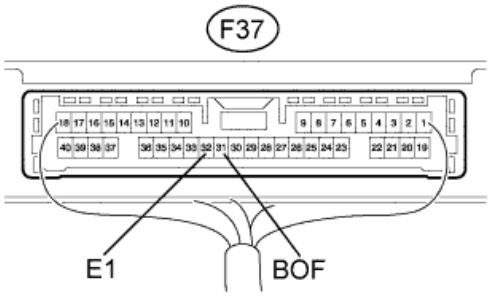
| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F37-31 (BOF) - Body ground | Engine switch on (IG) | 7.2 to 8.8 V |

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F37-32 (E1) - Body ground | Always | Below 1 Ω |

Component with harness connected:
(Parking Assist ECU)




NG → REPLACE PARKING ASSIST ECU (Click here)

OK

## 3.CHECK HARNESS AND CONNECTOR (NO. 1 ULTRASONIC SENSOR LH - PARKING ASSIST ECU)

a. Disconnect the B4 sensor connector.

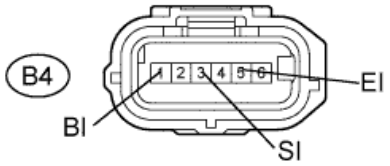
b. Disconnect the F37 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

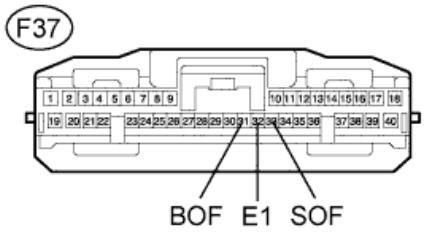
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| B4-1 (BI) - F37-31 (BOF) | Always | Below 1 Ω |
| B4-3 (SI) - F37-33 (SOF) | Always | Below 1 Ω |
| B4-5 (EI) - F37-32 (E1) | Always | Below 1 Ω |
| B4-1 (BI) - Body ground | Always | 10 kΩ or higher |
| B4-3 (SI) - Body ground | Always | 10 kΩ or higher |
| B4-5 (EI) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to No. 1 Ultrasonic Sensor LH)




Front view of wire harness connector:
(to Parking Assist ECU)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 4.CHECK HARNESS AND CONNECTOR (NO. 1 ULTRASONIC SENSOR LH - NO. 1 ULTRASONIC SENSOR RH)

a. Disconnect the B4 and B3 sensor connectors.

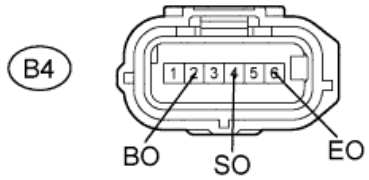
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

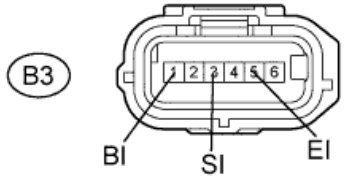
| Tester Connection | Condition | Specified Condition |
|---|---|---|
| B4-2 (BO) - B3-1 | Always | Below 1 Ω |

| | | |
|---|---|---|
| (BI) | | |
| B4-4 (SO) - B3-3 (SI) | Always | Below 1 Ω |
| B4-6 (EO) - B3-5 (EI) | Always | Below 1 Ω |
| B4-2 (BO) - Body ground | Always | 10 kΩ or higher |
| B4-4 (SO) - Body ground | Always | 10 kΩ or higher |
| B4-6 (EO) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to No. 1 Ultrasonic Sensor LH)




Front view of wire harness connector:
(to No. 1 Ultrasonic Sensor RH)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AEC is output | A |
| No DTC is output | B |

NG → USE SIMULATION METHOD TO CHECK (Click here)

OK

## 6.INSPECT NO. 1 ULTRASONIC SENSOR LH

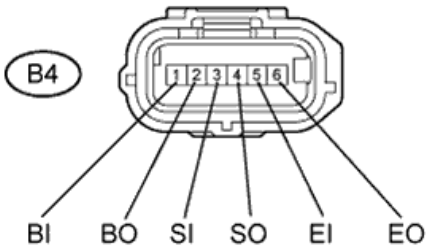
a. Disconnect the B4 sensor connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| B4-1 (BI) - B4-5 (EI) | Always | 10 kΩ or higher |
| B4-1 (BI) - B4-2 (BO) | Always | 10 kΩ or higher |
| B4-3 (SI) - B4-4 (SO) | Always | Below 1 Ω |
| B4-5 (EI) - B4-6 (EO) | Always | Below 1 Ω |

Front view of wire harness connector:
(to No. 1 Ultrasonic Sensor LH)



NG → REPLACE NO. 1 ULTRASONIC SENSOR LH (Click here)

OK

## 7.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AEC is output | A |
| No DTC is output | B |

B → END

A

## 8.REPLACE NO. 1 ULTRASONIC SENSOR RH

a. Replace the No. 1 ultrasonic sensor RH with a normally functioning sensor ( Click here)

NEXT

## 9.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AEC is output | A |
| No DTC is output | B |

B → END

A

REPLACE PARKING ASSIST ECU (Click here)

## 10.CHECK CLEARANCE WARNING ECU

a. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

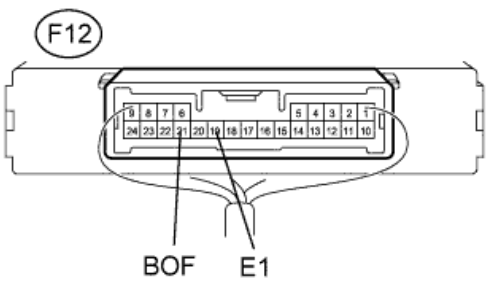
| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F12-21 (BOF) - Body ground | Engine switch on (IG) | 7.2 to 8.8 V |

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F12-19 (E1) - Body ground | Always | Below 1 Ω |

Component with harness connected:
(Clearance Warning ECU)




NG → REPLACE CLEARANCE WARNING ECU (Click here)

OK

## 11.CHECK HARNESS AND CONNECTOR (NO. 1 ULTRASONIC SENSOR LH - CLEARANCE WARNING ECU)

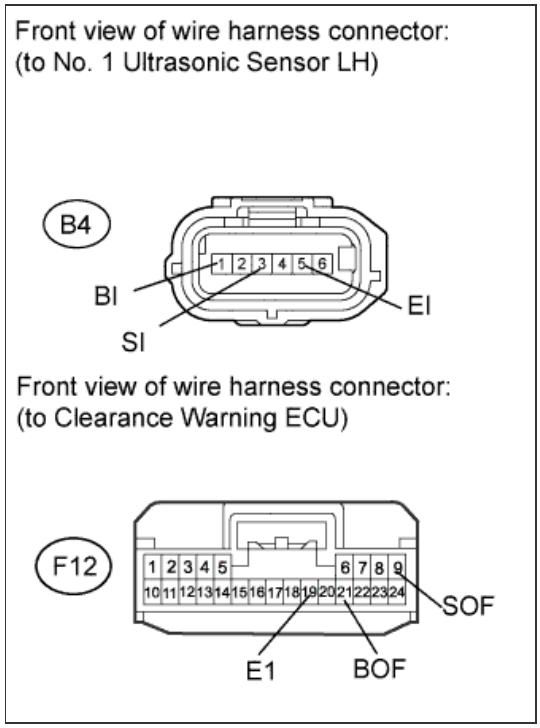
a. Disconnect the B4 sensor connector.

b. Disconnect the F12 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| B4-1 (BI) - F12-21 (BOF) | Always | Below 1 Ω |
| B4-3 (SI) - F12-9 (SOF) | Always | Below 1 Ω |
| B4-5 (EI) - F12-19 (E1) | Always | Below 1 Ω |
| B4-1 (BI) - Body ground | Always | 10 kΩ or higher |
| B4-3 (SI) - Body ground | Always | 10 kΩ or higher |
| B4-5 (EI) - Body ground | Always | 10 kΩ or higher |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

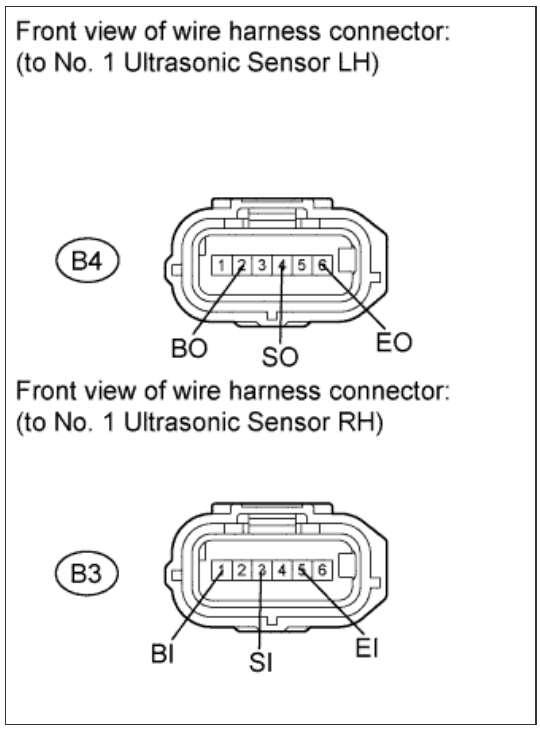
## 12.CHECK HARNESS AND CONNECTOR (NO. 1 ULTRASONIC SENSOR LH - NO. 1 ULTRASONIC SENSOR RH)

a. Disconnect the B4 and B3 sensor connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| B4-2 (BO) - B3-1 (BI) | Always | Below 1 Ω |
| B4-4 (SO) - B3-3 (SI) | Always | Below 1 Ω |
| B4-6 (EO) - B3-5 (EI) | Always | Below 1 Ω |
| B4-2 (BO) - Body ground | Always | 10 kΩ or higher |
| B4-4 (SO) - Body ground | Always | 10 kΩ or higher |
| B4-6 (EO) - Body ground | Always | 10 kΩ or higher |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 13.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AEC is output | A |
| No DTC is output | B |

B → USE SIMULATION METHOD TO CHECK (**Click here**)

A

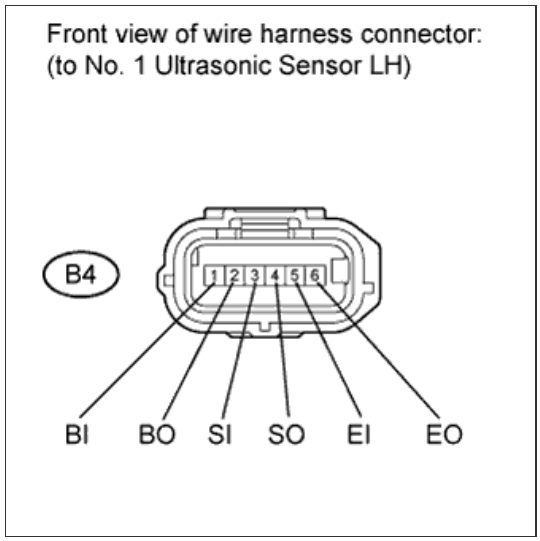
## 14.INSPECT NO. 1 ULTRASONIC SENSOR LH

a. Disconnect the B4 sensor connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| B4-1 (BI) - B4-5 (EI) | Always | 10 kΩ or higher |
| B4-1 (BI) - B4-2 (BO) | Always | 10 kΩ or higher |
| B4-3 (SI) - B4-4 (SO) | Always | Below 1 Ω |
| B4-5 (EI) - B4-6 (EO) | Always | Below 1 Ω |




NG → REPLACE NO. 1 ULTRASONIC SENSOR LH (**Click here**)

OK

## 15.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AEC is output | A |
| No DTC is output | B |

B → END

A

## 16.REPLACE NO. 1 ULTRASONIC SENSOR RH

a. Replace the No. 1 ultrasonic sensor RH with a normally functioning sensor ( Click here).

NEXT

## 17.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AEC is output | A |
| No DTC is output | B |

B → END

A

REPLACE CLEARANCE WARNING ECU (**Click here**)

## DTC C1AE4 Front Right Sensor Malfunction

**for Preparation** Click here

### DESCRIPTION

The No. 1 ultrasonic sensor (FR sensor) is installed on the front bumper. The ECU detects obstacles based on signals received from the No. 1 ultrasonic sensor (FR sensor). If the No. 1 ultrasonic sensor (FR sensor) has an open circuit or other malfunction, it will not function normally.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1AE4 | A malfunction of the No. 1 ultrasonic sensor (FR sensor). | • No. 1 ultrasonic sensor (FR sensor)<br>• Parking assist ECU*1<br>• Clearance warning ECU assembly*2 |

*1: w/ Side Monitor System
*2: w/o Side Monitor System

### INSPECTION PROCEDURE

**NOTICE:**

If the DTC is output after repairs, turn the engine switch on (IG) and move the shift lever to R. Then clear the DTC.

**1.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C1AE4 is not output.**

NG → Go to step 2

OK ↓

**USE SIMULATION METHOD TO CHECK (Click here)**

**2.REPLACE NO. 1 ULTRASONIC SENSOR (FR SENSOR)**

a. Replace the No. 1 ultrasonic sensor (FR sensor) with a normally functioning one ( Click here).

NEXT ↓

**3.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AE4 is not output | A |
| DTC C1AE4 is output (w/ Side Monitor System) | B |
| DTC C1AE4 is output (w/o Side Monitor System) | C |

B → REPLACE PARKING ASSIST ECU (Click here)

C → REPLACE CLEARANCE WARNING ECU ASSEMBLY (Click here)

A ↓

**END (NO. 1 ULTRASONIC SENSOR [FR SENSOR] IS DEFECTIVE)**

## DTC C1AEC Front Sensor Communication Malfunction

**for Preparation** Click here

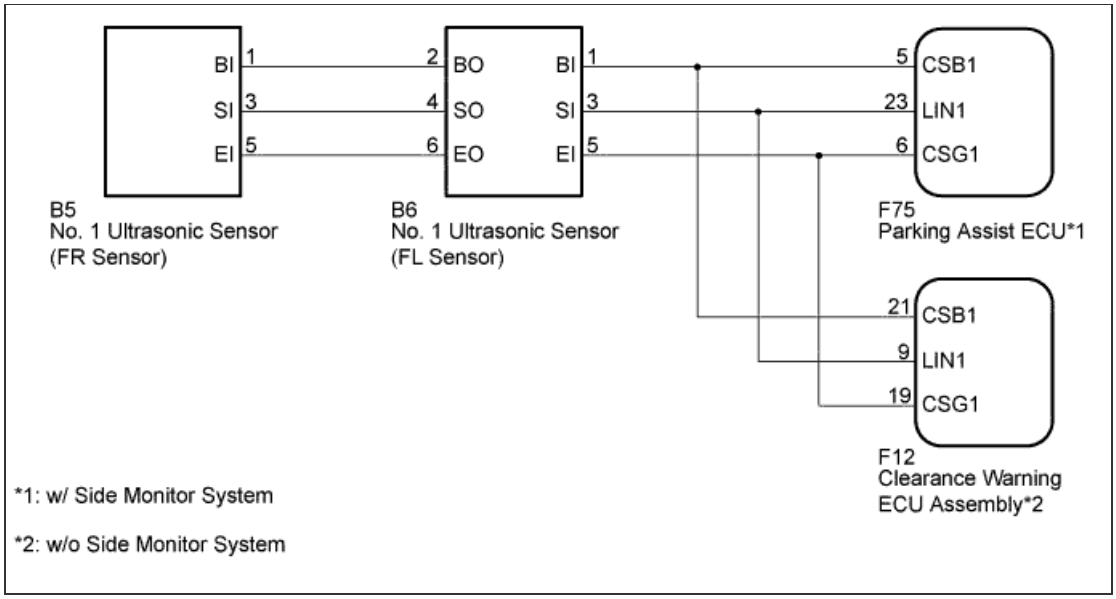
### DESCRIPTION

This DTC is stored when there is an open or short circuit in the communication line between the front sensors and the ECU, or when there is a malfunction in a front sensor.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1AEC | An open or short circuit in the communication line between the front sensors and ECU or a malfunction in a front sensor during initialization mode after the engine switch is turned on (IG). | • No. 1 ultrasonic sensor (front side)<br>• Harness or connector<br>• Parking assist ECU*1<br>• Clearance warning ECU assembly*2 |

*1: w/ Side Monitor System
*2: w/o Side Monitor System

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**1.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AEC is output (w/ Side Monitor System) | A |
| DTC C1AEC is output (w/o Side Monitor System) | B |
| DTC C1AEC is not output | C |

B → Go to step 10

C → USE SIMULATION METHOD TO CHECK (Click here)

A

**2.CHECK HARNESS AND CONNECTOR (NO. 1 ULTRASONIC SENSOR [FL SENSOR] - PARKING ASSIST ECU)**

a. Disconnect the B6 No. 1 ultrasonic sensor (FL sensor) connector.

b. Disconnect the F75 parking assist ECU connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| B6-1 (BI) - F75-5 (CSB1) | Always | Below 1 Ω |
| B6-3 (SI) - F75-23 (LIN1) | Always | Below 1 Ω |
| B6-5 (EI) - F75-6 (CSG1) | Always | Below 1 Ω |
| B6-1 (BI) - Body ground | Always | 10 kΩ or higher |
| B6-3 (SI) - Body ground | Always | 10 kΩ or higher |
| B6-5 (EI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**3.CHECK HARNESS AND CONNECTOR (NO. 1 ULTRASONIC SENSOR [FL SENSOR] - NO. 1 ULTRASONIC SENSOR [FR SENSOR])**

a. Disconnect the B6 No. 1 ultrasonic sensor (FL sensor) connector.

b. Disconnect the B5 No. 1 ultrasonic sensor (FR sensor) connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| B6-2 (BO) - B5-1 (BI) | Always | Below 1 Ω |
| B6-4 (SO) - B5-3 (SI) | Always | Below 1 Ω |
| B6-6 (EO) - B5-5 (EI) | Always | Below 1 Ω |
| B6-2 (BO) - Body ground | Always | 10 kΩ or higher |
| B6-4 (SO) - Body ground | Always | 10 kΩ or higher |
| B6-6 (EO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**4.CHECK PARKING ASSIST ECU**

a. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F75-5 (CSB1) - Body ground | Engine switch on (IG) | 7.2 to 8.8 V |

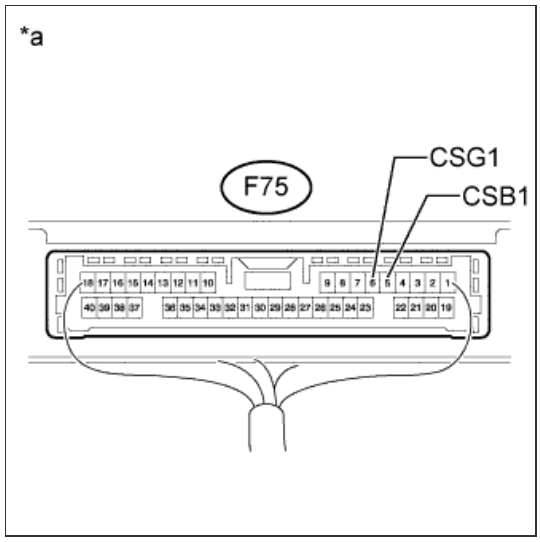
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-6 (CSG1) - Body ground | Always | Below 1 Ω |

**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Parking Assist ECU) |




NG → REPLACE PARKING ASSIST ECU (Click here)

OK

**5.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C1AEC is not output.**

NG → Go to step 6

OK

USE SIMULATION METHOD TO CHECK (Click here)

**6.REPLACE NO. 1 ULTRASONIC SENSOR (FL SENSOR)**

a. Replace the No. 1 ultrasonic sensor (FL sensor) with a normally functioning one ( Click here).

NEXT

**7.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C1AEC is not output.**

NG → Go to step 8

OK

END (NO. 1 ULTRASONIC SENSOR [FL SENSOR] IS DEFECTIVE)

**8.REPLACE NO. 1 ULTRASONIC SENSOR (FR SENSOR)**

a. Replace the No. 1 ultrasonic sensor (FR sensor) with a normally functioning one ( Click here).

NEXT

9.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C1AEC is not output.**

NG → REPLACE PARKING ASSIST ECU (Click here)

OK

END (NO. 1 ULTRASONIC SENSOR [FR SENSOR] IS DEFECTIVE)

10.CHECK HARNESS AND CONNECTOR (NO. 1 ULTRASONIC SENSOR [FL SENSOR] - CLEARANCE WARNING ECU)

a. Disconnect the B6 No. 1 ultrasonic sensor (FL sensor) connector.

b. Disconnect the F12 clearance warning ECU assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| B6-1 (BI) - F12-21 (CSB1) | Always | Below 1 Ω |
| B6-3 (SI) - F12-9 (LIN1) | Always | Below 1 Ω |
| B6-5 (EI) - F12-19 (CSG1) | Always | Below 1 Ω |
| B6-1 (BI) - Body ground | Always | 10 kΩ or higher |
| B6-3 (SI) - Body ground | Always | 10 kΩ or higher |
| B6-5 (EI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

11.CHECK HARNESS AND CONNECTOR (NO. 1 ULTRASONIC SENSOR [FL SENSOR] - NO. 1 ULTRASONIC SENSOR [FR SENSOR])

a. Disconnect the B6 No. 1 ultrasonic sensor (FL sensor) connector.

b. Disconnect the B5 No. 1 ultrasonic sensor (FR sensor) connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| B6-2 (BO) - B5-1 (BI) | Always | Below 1 Ω |
| B6-4 (SO) - B5-3 (SI) | Always | Below 1 Ω |
| B6-6 (EO) - B5-5 (EI) | Always | Below 1 Ω |
| B6-2 (BO) - Body ground | Always | 10 kΩ or higher |
| B6-4 (SO) - Body ground | Always | 10 kΩ or higher |
| B6-6 (EO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 12.CHECK CLEARANCE WARNING ECU ASSEMBLY

a. Measure the voltage according to the value(s) in the table below.

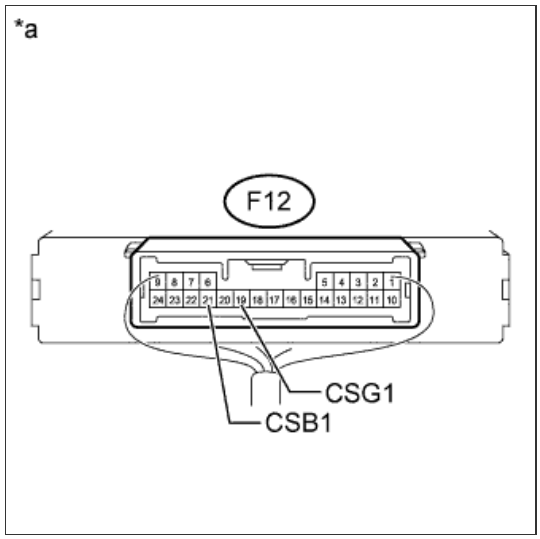
**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F12-21 (CSB1) - Body ground | Engine switch on (IG) | 7.2 to 8.8 V |

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F12-19 (CSG1) - Body ground | Always | Below 1 Ω |




**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Clearance Warning ECU Assembly) |

NG → REPLACE CLEARANCE WARNING ECU ASSEMBLY (Click here)

OK

## 13.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C1AEC is not output.**

NG → Go to step 14

OK

USE SIMULATION METHOD TO CHECK (Click here)

## 14.REPLACE NO. 1 ULTRASONIC SENSOR (FL SENSOR)

a. Replace the No. 1 ultrasonic sensor (FL sensor) with a new functioning one ( Click here).

NEXT

## 15.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C1AEC is not output.**

NG → Go to step 16

OK

END (NO. 1 ULTRASONIC SENSOR [FL SENSOR] IS DEFECTIVE)

16.REPLACE NO. 1 ULTRASONIC SENSOR (FR SENSOR)

a. Replace the No. 1 ultrasonic sensor (FR sensor) with a normally functioning one ( Click here).

NEXT

17.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C1AEC is not output.**

NG → REPLACE CLEARANCE WARNING ECU ASSEMBLY (**Click here**)

OK

END (NO. 1 ULTRASONIC SENSOR [FR SENSOR] IS DEFECTIVE)

## DTC C1AE6 Rear Left Sensor Malfunction

**for Preparation** Click here

### DESCRIPTION

The No. 2 ultrasonic sensor LH is installed on the rear bumper. The ECU detects obstacles based on signals received from the No. 2 ultrasonic sensor LH. If the No. 2 ultrasonic sensor LH has an open circuit or other malfunction, it will not function normally.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1AE6 | A malfunction of the No. 2 ultrasonic sensor LH. | • No. 2 ultrasonic sensor LH<br>• Parking assist ECU*1<br>• Clearance warning ECU*2 |

*1: w/ Parking Assist Monitor System
*2: w/o Parking Assist Monitor System

### INSPECTION PROCEDURE

**NOTICE:**

If the DTC is output after repairs, turn the engine switch on (IG) and move the shift lever to R. Then clear the DTC.

**1.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AE6 is output | A |
| No DTC is output | B |

B → USE SIMULATION METHOD TO CHECK (**Click here**)

A

**2.REPLACE NO. 2 ULTRASONIC SENSOR LH**

a. Replace the No. 2 ultrasonic sensor LH with a normally functioning sensor ( Click here).

NEXT

**3.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AE6 is output (w/ Parking Assist Monitor System) | A |
| DTC C1AE6 is output (w/o Parking Assist Monitor System) | B |
| No DTC is output | C |

B → REPLACE CLEARANCE WARNING ECU (**Click here**)

C → END

A

REPLACE PARKING ASSIST ECU (Click here)

## DTC C1AED Rear Sensor Communication Malfunction

**for Preparation** Click here

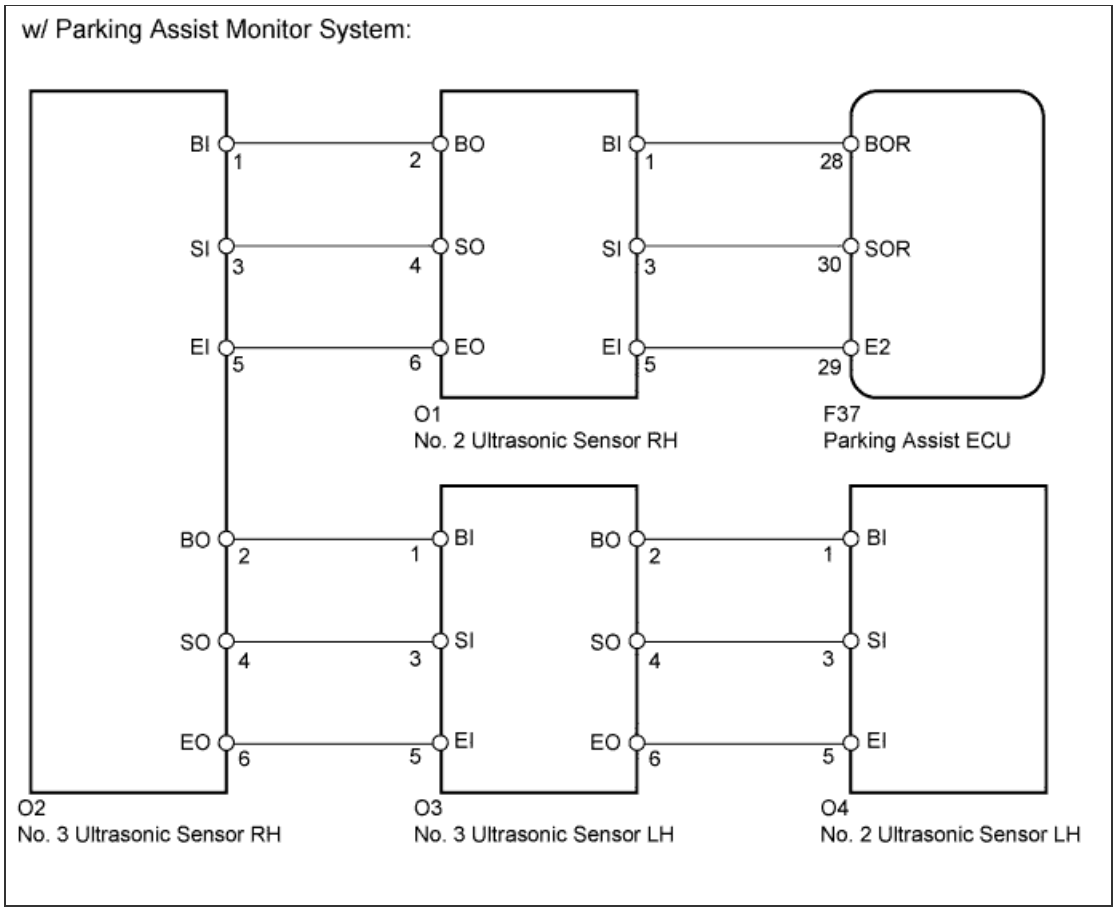
### DESCRIPTION

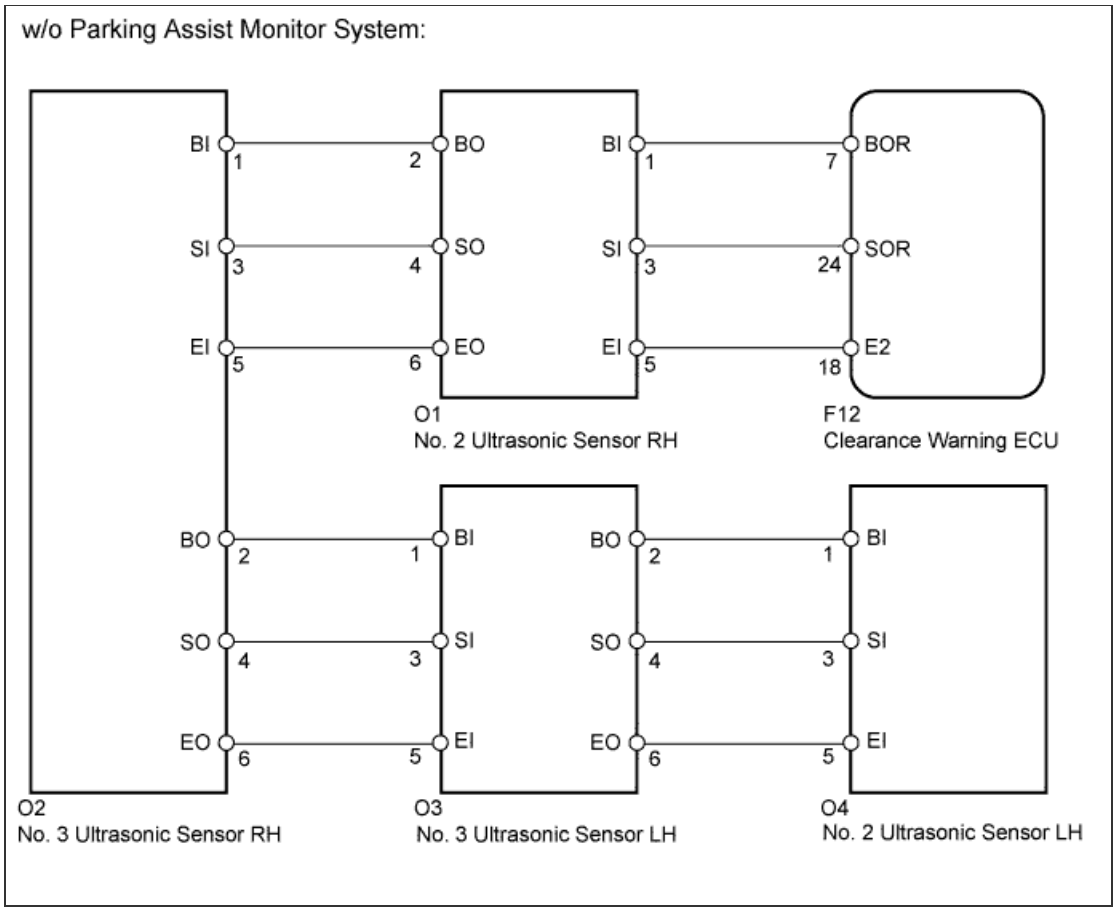
This DTC is stored when there is an open or short circuit in the communication line between the rear sensors and the ECU, or when there is a malfunction in a rear sensor.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1AED | An open or short circuit in the communication line between the rear sensors and ECU or a malfunction in a rear sensor during initialization mode after the engine switch is turned on (IG). | • Rear ultrasonic sensor circuit<br>• Parking assist ECU*1<br>• Clearance warning ECU*2 |

*1: w/ Parking Assist Monitor System
*2: w/o Parking Assist Monitor System

### WIRING DIAGRAM






## INSPECTION PROCEDURE

### 1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AED is output (w/ Parking Assist Monitor System) | A |
| DTC C1AED is output (w/o Parking Assist Monitor System) | B |
| No DTC is output | C |

B → Go to step 16

C → USE SIMULATION METHOD TO CHECK (Click here)

A

### 2.CHECK PARKING ASSIST ECU

a. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F37-28 (BOR) - Body ground | Engine switch on (IG) | 7.2 to 8.8 V |

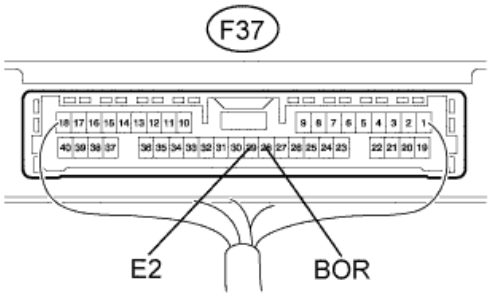
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| F37-29 (E2) - Body ground | Always | Below 1 Ω |

Component with harness connected:
(Parking Assist ECU)




NG → REPLACE PARKING ASSIST ECU (Click here)

OK

### 3.CHECK HARNESS AND CONNECTOR (NO. 2 ULTRASONIC SENSOR RH - PARKING ASSIST ECU)

a. Disconnect the O1 sensor connector.

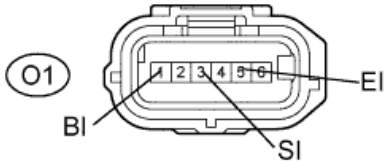
b. Disconnect the F37 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

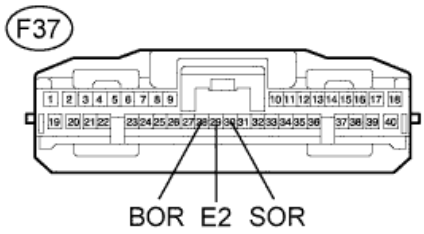
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| O1-1 (BI) - F37-28 (BOR) | Always | Below 1 Ω |
| O1-3 (SI) - F37-30 (SOR) | Always | Below 1 Ω |
| O1-5 (EI) - F37-29 (E2) | Always | Below 1 Ω |
| O1-1 (BI) - Body ground | Always | 10 kΩ or higher |
| O1-3 (SI) - Body ground | Always | 10 kΩ or higher |
| O1-5 (EI) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to No. 2 Ultrasonic Sensor RH)




Front view of wire harness connector:
(to Parking Assist ECU)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

### 4.CHECK HARNESS AND CONNECTOR (NO. 3 ULTRASONIC SENSOR RH - NO. 2 ULTRASONIC SENSOR RH)

a. Disconnect the O1 and O2 sensor connectors.

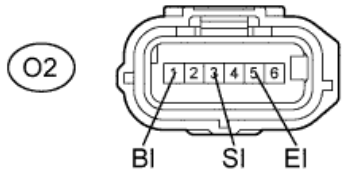
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

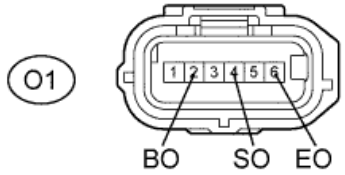
| Tester Connection | Condition | Specified Condition |
|---|---|---|
| O2-1 (BI) - O1-2 (BO) | Always | Below 1 Ω |
| O2-3 (SI) - O1-4 (SO) | Always | Below 1 Ω |
| O2-5 (EI) - O1-6 (EO) | Always | Below 1 Ω |

| | | |
|---|---|---|
| O2-1 (BI) - Body ground | Always | 10 kΩ or higher |
| O2-3 (SI) - Body ground | Always | 10 kΩ or higher |
| O2-5 (EI) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to No. 3 Ultrasonic Sensor RH)




Front view of wire harness connector:
(to No. 2 Ultrasonic Sensor RH)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 5.CHECK HARNESS AND CONNECTOR (NO. 3 ULTRASONIC SENSOR LH - NO. 3 ULTRASONIC SENSOR RH)

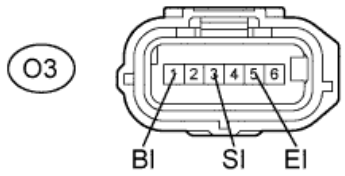
a. Disconnect the O2 and O3 sensor connectors.

b. Measure the resistance according to the value(s) in the table below.

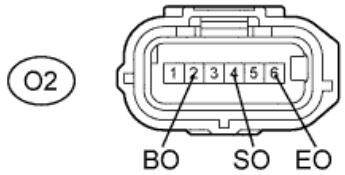
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| O3-1 (BI) - O2-2 (BO) | Always | Below 1 Ω |
| O3-3 (SI) - O2-4 (SO) | Always | Below 1 Ω |
| O3-5 (EI) - O2-6 (EO) | Always | Below 1 Ω |
| O3-1 (BI) - Body ground | Always | 10 kΩ or higher |
| O3-3 (SI) - Body ground | Always | 10 kΩ or higher |
| O3-5 (EI) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to No. 3 Ultrasonic Sensor LH)




Front view of wire harness connector:
(to No. 3 Ultrasonic Sensor RH)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 6.CHECK HARNESS AND CONNECTOR (NO. 2 ULTRASONIC SENSOR LH - NO. 3 ULTRASONIC SENSOR LH)

a. Disconnect the O3 and O4 sensor connectors.

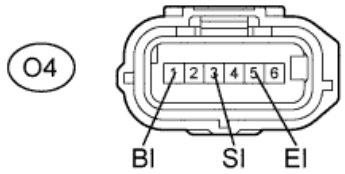
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

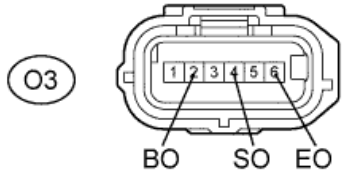
| Tester Connection | Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| O4-1 (BI) - O3-2 (BO) | Always | Below 1 Ω |
| O4-3 (SI) - O3-4 (SO) | Always | Below 1 Ω |
| O4-5 (EI) - O3-6 (EO) | Always | Below 1 Ω |
| O4-1 (BI) - Body ground | Always | 10 kΩ or higher |
| O4-3 (SI) - Body ground | Always | 10 kΩ or higher |
| O4-5 (EI) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to No. 2 Ultrasonic Sensor LH)




Front view of wire harness connector:
(to No. 3 Ultrasonic Sensor LH)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 7.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AED is output and multi-information display indicates open circuit (rear left, rear center and rear right) | A |
| DTC C1AED is output and multi-information display indicates open circuit (rear left and rear center) | B |
| No DTC is output | C |

B → Go to step 12

C → USE SIMULATION METHOD TO CHECK (Click here)

A

## 8.INSPECT NO. 2 ULTRASONIC SENSOR RH

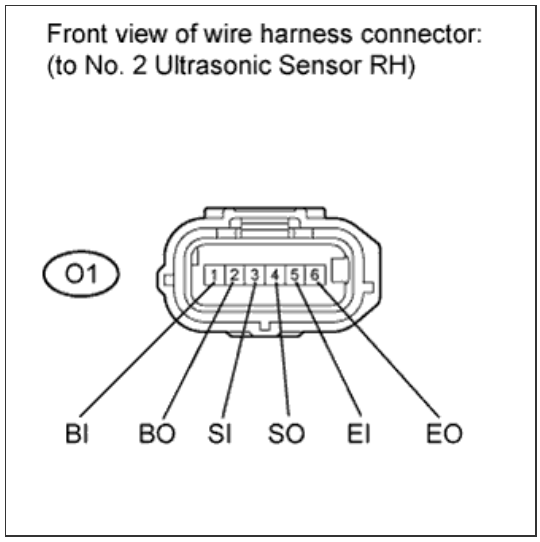
a. Disconnect the O1 sensor connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| O1-1 (BI) - O1-5 (EI) | Always | 10 kΩ or higher |
| O1-1 (BI) - O1-2 (BO) | Always | 10 kΩ or higher |
| O1-3 (SI) - O1-4 (SO) | Always | Below 1 Ω |
| O1-5 (EI) - O1-6 | | |

| | | |
|---|---|---|
| (EO) | Always | Below 1 Ω |




NG → REPLACE NO. 2 ULTRASONIC SENSOR RH (Click here)

OK

### 9.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AED is output and multi-information display indicates open circuit (rear left, rear center and rear right) | A |
| DTC C1AED is output and multi-information display indicates open circuit (rear left and rear center) | B |
| No DTC is output | C |

B → Go to step 12

C → END

A

### 10.REPLACE NO. 2 ULTRASONIC SENSOR LH

a. Replace the No. 2 ultrasonic sensor LH with a normally functioning sensor ( Click here).

NEXT

### 11.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AED is output and multi-information display indicates open circuit (rear left and rear center) | A |
| DTC C1AED is output and multi-information display indicates open circuit (rear left, rear center and rear right) | B |
| No DTC is output | C |

B → REPLACE PARKING ASSIST ECU (Click here)

C → END

A

## 12.INSPECT NO. 3 ULTRASONIC SENSOR RH

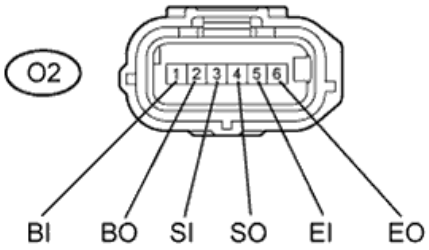
a. Disconnect the O2 sensor connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| O2-1 (BI) - O2-5 (EI) | Always | 10 kΩ or higher |
| O2-1 (BI) - O2-2 (BO) | Always | 10 kΩ or higher |
| O2-3 (SI) - O2-4 (SO) | Always | Below 1 Ω |
| O2-5 (EI) - O2-6 (EO) | Always | Below 1 Ω |

Front view of wire harness connector:
(to No. 3 Ultrasonic Sensor RH)




NG → REPLACE NO. 3 ULTRASONIC SENSOR RH (Click here)

OK

## 13.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AED is output | A |
| No DTC is output | B |

B → END

A

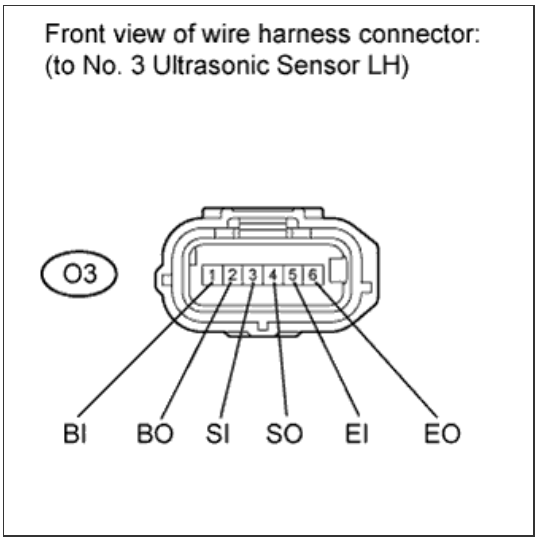
## 14.INSPECT NO. 3 ULTRASONIC SENSOR LH

a. Disconnect the O3 sensor connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| O3-1 (BI) - O3-5 (EI) | Always | 10 kΩ or higher |
| O3-1 (BI) - O3-2 (BO) | Always | 10 kΩ or higher |
| O3-3 (SI) - O3-4 (SO) | Always | Below 1 Ω |
| O3-5 (EI) - O3-6 (EO) | Always | Below 1 Ω |




NG → REPLACE NO. 3 ULTRASONIC SENSOR LH (Click here)

OK

## 15.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AED is output | A |
| No DTC is output | B |

B → END

A

REPLACE PARKING ASSIST ECU (Click here)

## 16.CHECK CLEARANCE WARNING ECU

a. Measure the voltage according to the value(s) in the table below.

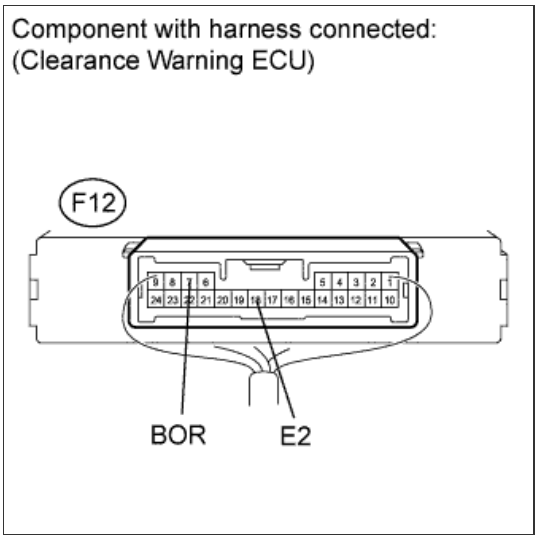
**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F12-7 (BOR) - Body ground | Engine switch on (IG) | 7.2 to 8.8 V |

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F12-18 (E2) - Body ground | Always | Below 1 Ω |




NG → REPLACE CLEARANCE WARNING ECU (Click here)

OK

## 17.CHECK HARNESS AND CONNECTOR (NO. 2 ULTRASONIC SENSOR RH - CLEARANCE WARNING ECU)

a. Disconnect the O1 sensor connector.

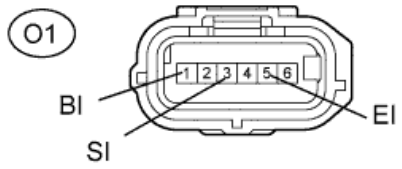
b. Disconnect the F12 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

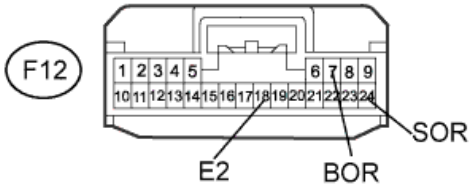
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| O1-1 (BI) - F12-7 (BOR) | Always | Below 1 Ω |
| O1-3 (SI) - F12-24 (SOR) | Always | Below 1 Ω |
| O1-5 (EI) - F12-18 (E2) | Always | Below 1 Ω |
| O1-1 (BI) - Body ground | Always | 10 kΩ or higher |
| O1-3 (SI) - Body ground | Always | 10 kΩ or higher |
| O1-5 (EI) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to No. 2 Ultrasonic Sensor RH)




Front view of wire harness connector:
(to Clearance Warning ECU)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 18.CHECK HARNESS AND CONNECTOR (NO. 3 ULTRASONIC SENSOR RH - NO. 2 ULTRASONIC SENSOR RH)

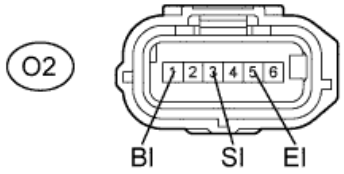
a. Disconnect the O1 and O2 sensor connectors.

b. Measure the resistance according to the value(s) in the table below.

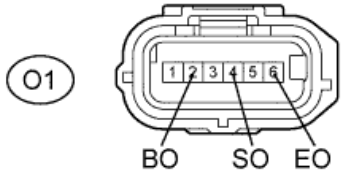
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| O2-1 (BI) - O1-2 (BO) | Always | Below 1 Ω |
| O2-3 (SI) - O1-4 (SO) | Always | Below 1 Ω |
| O2-5 (EI) - O1-6 (EO) | Always | Below 1 Ω |
| O2-1 (BI) - Body ground | Always | 10 kΩ or higher |
| O2-3 (SI) - Body ground | Always | 10 kΩ or higher |
| O2-5 (EI) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to No. 3 Ultrasonic Sensor RH)




Front view of wire harness connector:
(to No. 2 Ultrasonic Sensor RH)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 19.CHECK HARNESS AND CONNECTOR (NO. 3 ULTRASONIC SENSOR LH - NO. 3 ULTRASONIC SENSOR RH)

a. Disconnect the O2 and O3 sensor connectors.

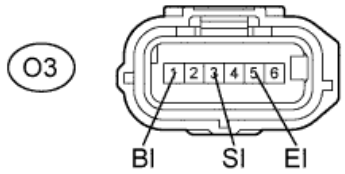
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

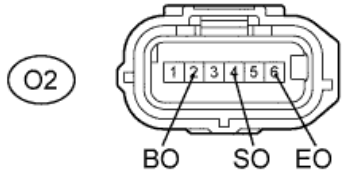
| Tester Connection | Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| O3-1 (BI) - O2-2 (BO) | Always | Below 1 Ω |
| O3-3 (SI) - O2-4 (SO) | Always | Below 1 Ω |
| O3-5 (EI) - O2-6 (EO) | Always | Below 1 Ω |
| O3-1 (BI) - Body ground | Always | 10 kΩ or higher |
| O3-3 (SI) - Body ground | Always | 10 kΩ or higher |
| O3-5 (EI) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to No. 3 Ultrasonic Sensor LH)




Front view of wire harness connector:
(to No. 3 Ultrasonic Sensor RH)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 20.CHECK HARNESS AND CONNECTOR (NO. 2 ULTRASONIC SENSOR LH - NO. 3 ULTRASONIC SENSOR LH)

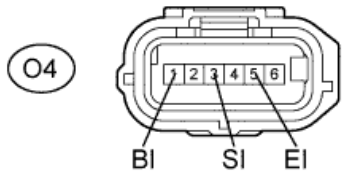
a. Disconnect the O3 and O4 sensor connectors.

b. Measure the resistance according to the value(s) in the table below.

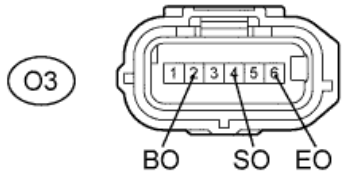
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| O4-1 (BI) - O3-2 (BO) | Always | Below 1 Ω |
| O4-3 (SI) - O3-4 (SO) | Always | Below 1 Ω |
| O4-5 (EI) - O3-6 (EO) | Always | Below 1 Ω |
| O4-1 (BI) - Body ground | Always | 10 kΩ or higher |
| O4-3 (SI) - Body ground | Always | 10 kΩ or higher |
| O4-5 (EI) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to No. 2 Ultrasonic Sensor LH)




Front view of wire harness connector:
(to No. 3 Ultrasonic Sensor LH)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 21.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|

| | |
|---|---|
| DTC C1AED is output and multi-information display indicates open circuit (rear left, rear center and rear right) | A |
| DTC C1AED is output and multi-information display indicates open circuit (rear left and rear center) | B |
| No DTC is output | C |

B → Go to step 26

C → USE SIMULATION METHOD TO CHECK (Click here)

A

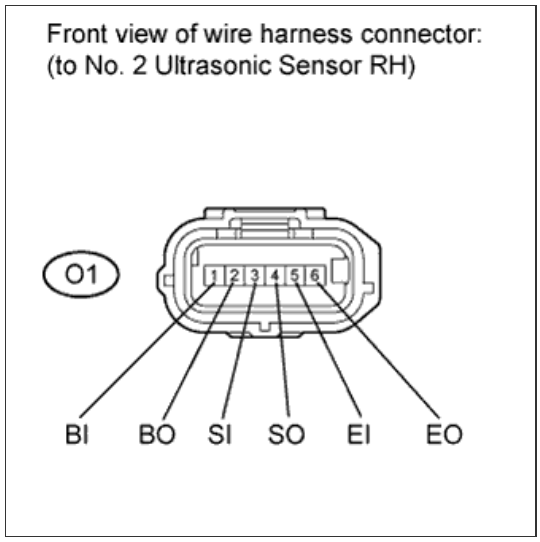
## 22.INSPECT NO. 2 ULTRASONIC SENSOR RH

a. Disconnect the O1 sensor connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| O1-1 (BI) - O1-5 (EI) | Always | 10 kΩ or higher |
| O1-1 (BI) - O1-2 (BO) | Always | 10 kΩ or higher |
| O1-3 (SI) - O1-4 (SO) | Always | Below 1 Ω |
| O1-5 (EI) - O1-6 (EO) | Always | Below 1 Ω |




NG → REPLACE NO. 2 ULTRASONIC SENSOR RH (Click here)

OK

## 23.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AED is output and multi-information display indicates open circuit (rear left, rear center and rear right) | A |
| DTC C1AED is output and multi-information display indicates open circuit (rear left and rear center) | B |
| No DTC is output | C |

B → Go to step 26

C → END

A

## 24.REPLACE NO. 2 ULTRASONIC SENSOR LH

a. Replace the No. 2 ultrasonic sensor LH with a normally functioning sensor ( Click here).

NEXT

## 25.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AED is output and multi-information display indicates open circuit (rear left and rear center) | A |
| DTC C1AED is output and multi-information display indicates open circuit (rear left, rear center and rear right) | B |
| No DTC is output | C |

B → REPLACE CLEARANCE WARNING ECU (Click here)

C → END

A

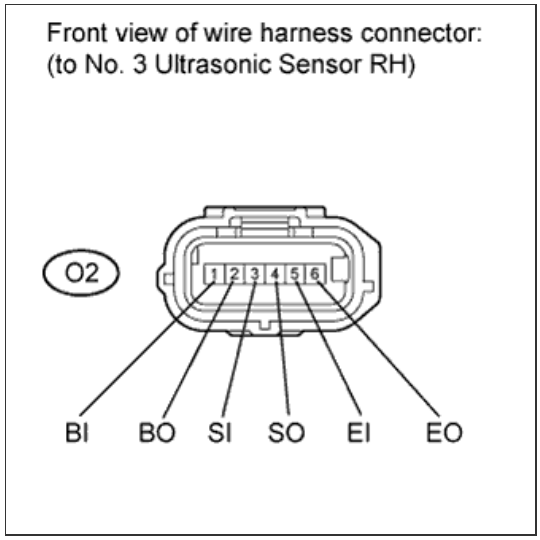
## 26.INSPECT NO. 3 ULTRASONIC SENSOR RH

a. Disconnect the O2 sensor connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| O2-1 (BI) - O2-5 (EI) | Always | 10 kΩ or higher |
| O2-1 (BI) - O2-2 (BO) | Always | 10 kΩ or higher |
| O2-3 (SI) - O2-4 (SO) | Always | Below 1 Ω |
| O2-5 (EI) - O2-6 (EO) | Always | Below 1 Ω |




NG → REPLACE NO. 3 ULTRASONIC SENSOR RH (Click here)

OK

## 27.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AED is output | A |
| No DTC is output | B |

B → END

A

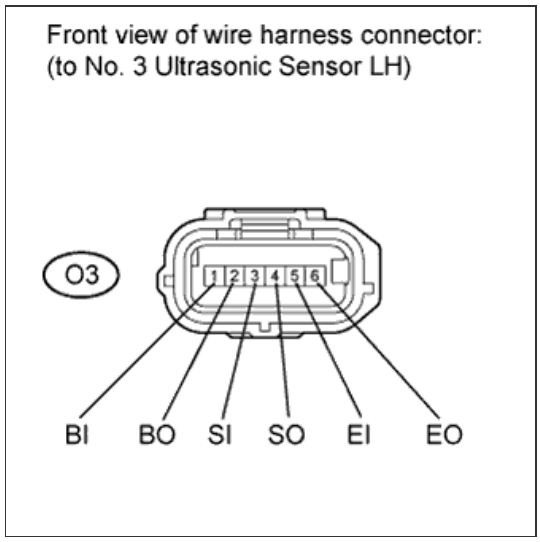
## 28.INSPECT NO. 3 ULTRASONIC SENSOR LH

a. Disconnect the O3 sensor connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| O3-1 (BI) - O3-5 (EI) | Always | 10 kΩ or higher |
| O3-1 (BI) - O3-2 (BO) | Always | 10 kΩ or higher |
| O3-3 (SI) - O3-4 (SO) | Always | Below 1 Ω |
| O3-5 (EI) - O3-6 (EO) | Always | Below 1 Ω |




NG → REPLACE NO. 3 ULTRASONIC SENSOR LH (Click here)

OK

**29.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AED is output | A |
| No DTC is output | B |

B → END

A

REPLACE CLEARANCE WARNING ECU (Click here)

## DTC C1AE6 Rear Left Sensor Malfunction

**for Preparation** Click here

### DESCRIPTION

The No. 1 ultrasonic sensor (RL sensor) is installed on the rear bumper. The ECU detects obstacles based on signals received from the No. 1 ultrasonic sensor (RL sensor). If the No. 1 ultrasonic sensor (RL sensor) has an open circuit or other malfunction, it will not function normally.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1AE6 | A malfunction of the No. 1 ultrasonic sensor (RL sensor). | • No. 1 ultrasonic sensor (RL sensor)<br>• Parking assist ECU*1<br>• Clearance warning ECU assembly*2 |

*1: w/ Side Monitor System
*2: w/o Side Monitor System

### INSPECTION PROCEDURE

**NOTICE:**

If the DTC is output after repairs, turn the engine switch on (IG) and move the shift lever to R. Then clear the DTC.

**1.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C1AE6 is not output.**

NG → Go to step 2

OK ↓

**USE SIMULATION METHOD TO CHECK (Click here)**

**2.REPLACE NO. 1 ULTRASONIC SENSOR (RL SENSOR)**

a. Replace the No. 1 ultrasonic sensor (RL sensor) with a normally functioning one ( Click here).

NEXT ↓

**3.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AE6 is not output | A |
| DTC C1AE6 is output (w/ Side Monitor System) | B |
| DTC C1AE6 is output (w/o Side Monitor System) | C |

B → REPLACE PARKING ASSIST ECU (Click here)

C → REPLACE CLEARANCE WARNING ECU ASSEMBLY (Click here)

A ↓

**END (NO. 1 ULTRASONIC SENSOR [RL SENSOR] IS DEFECTIVE)**

## DTC C1AED Rear Sensor Communication Malfunction

**for Preparation** Click here

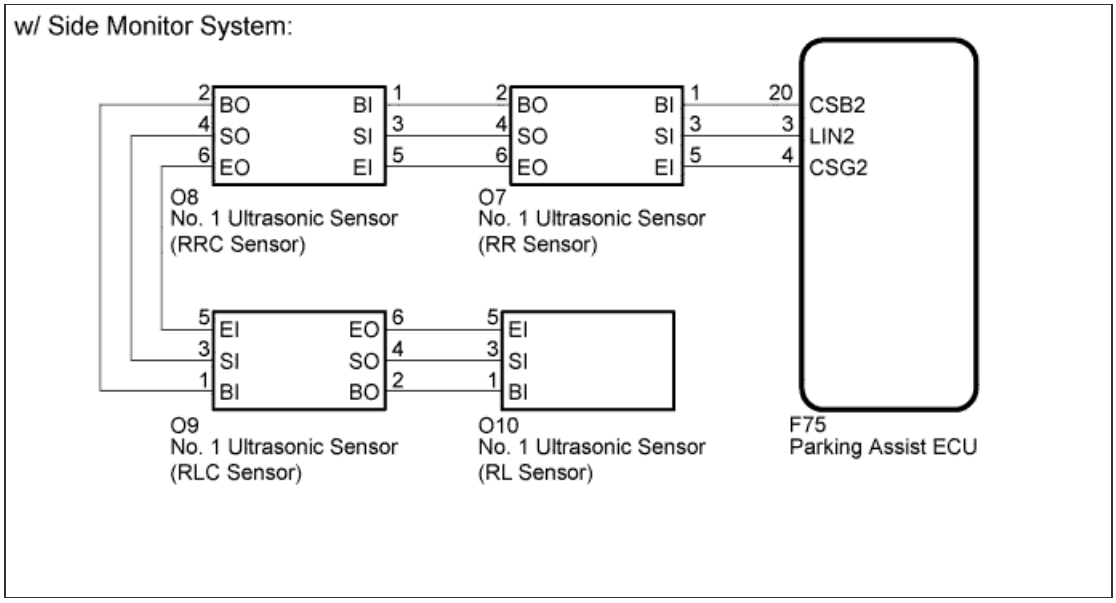
### DESCRIPTION

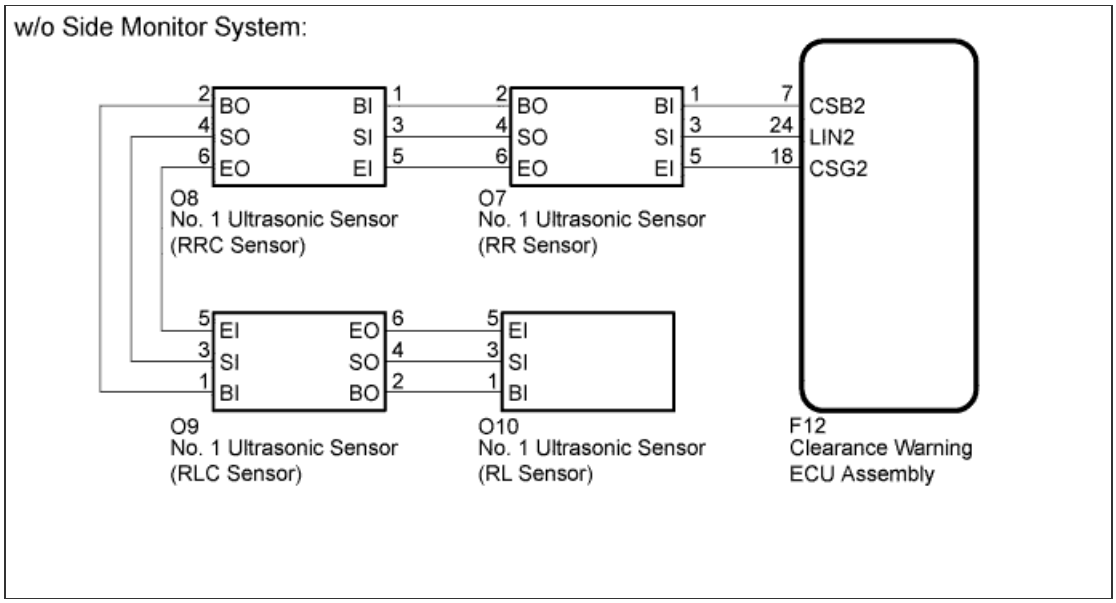
This DTC is stored when there is an open or short circuit in the communication line between the rear sensors and the ECU, or when there is a malfunction in a rear sensor.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1AED | An open or short circuit in the communication line between the rear sensors and ECU or a malfunction in a rear sensor during initialization mode after the engine switch is turned on (IG). | • No. 1 ultrasonic sensor (rear side)<br>• Harness or connector<br>• Parking assist ECU*1<br>• Clearance warning ECU assembly*2 |

*1: w/ Side Monitor System
*2: w/o Side Monitor System

### WIRING DIAGRAM




### INSPECTION PROCEDURE

1.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AED is output (w/ Side Monitor System) | A |
| DTC C1AED is output (w/o Side Monitor System) | B |
| DTC C1AED is not output | C |

B → Go to step 16

C → USE SIMULATION METHOD TO CHECK (Click here)

A

**2.CHECK HARNESS AND CONNECTOR (NO. 1 ULTRASONIC SENSOR [RR SENSOR] - PARKING ASSIST ECU)**

a. Disconnect the O7 No. 1 ultrasonic sensor (RR sensor) connector.

b. Disconnect the F75 parking assist ECU connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| O7-1 (BI) - F75-20 (CSB2) | Always | Below 1 Ω |
| O7-3 (SI) - F75-3 (LIN2) | Always | Below 1 Ω |
| O7-5 (EI) - F75-4 (CSG2) | Always | Below 1 Ω |
| O7-1 (BI) - Body ground | Always | 10 kΩ or higher |
| O7-3 (SI) - Body ground | Always | 10 kΩ or higher |
| O7-5 (EI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

Go to step 4

**3.CHECK HARNESS AND CONNECTOR (NO. 1 ULTRASONIC SENSOR [RR SENSOR] - NO. 1 ULTRASONIC SENSOR [RRC SENSOR])**

a. Disconnect the O7 No. 1 ultrasonic sensor (RR sensor) connector.

b. Disconnect the O8 No. 1 ultrasonic sensor (RRC sensor) connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| O7-2 (BO) - O8-1 (BI) | Always | Below 1 Ω |
| O7-4 (SO) - O8-3 (SI) | Always | Below 1 Ω |
| O7-6 (EO) - O8-5 (EI) | Always | Below 1 Ω |
| O7-2 (BO) - Body ground | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| O7-4 (SO) - Body ground | Always | 10 kΩ or higher |
| O7-6 (EO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**4.CHECK HARNESS AND CONNECTOR (NO. 1 ULTRASONIC SENSOR [RRC SENSOR] - NO. 1 ULTRASONIC SENSOR [RLC SENSOR])**

a. Disconnect the O8 No. 1 ultrasonic sensor (RRC sensor) connector.

b. Disconnect the O9 No. 1 ultrasonic sensor (RLC sensor) connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| O8-2 (BO) - O9-1 (BI) | Always | Below 1 Ω |
| O8-4 (SO) - O9-3 (SI) | Always | Below 1 Ω |
| O8-6 (EO) - O9-5 (EI) | Always | Below 1 Ω |
| O8-2 (BO) - Body ground | Always | 10 kΩ or higher |
| O8-4 (SO) - Body ground | Always | 10 kΩ or higher |
| O8-6 (EO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**5.CHECK HARNESS AND CONNECTOR (NO. 1 ULTRASONIC SENSOR [RLC SENSOR] - NO. 1 ULTRASONIC SENSOR [RL SENSOR])**

a. Disconnect the O9 No. 1 ultrasonic sensor (RLC sensor) connector.

b. Disconnect the O10 No. 1 ultrasonic sensor (RL sensor) connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| O9-2 (BO) - O10-1 (BI) | Always | Below 1 Ω |
| O9-4 (SO) - O10-3 (SI) | Always | Below 1 Ω |
| O9-6 (EO) - O10-5 (EI) | Always | Below 1 Ω |
| O9-2 (BO) - Body ground | Always | 10 kΩ or higher |
| O9-4 (SO) - Body ground | Always | 10 kΩ or higher |
| O9-6 (EO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 6.CHECK PARKING ASSIST ECU

a. Measure the voltage according to the value(s) in the table below.

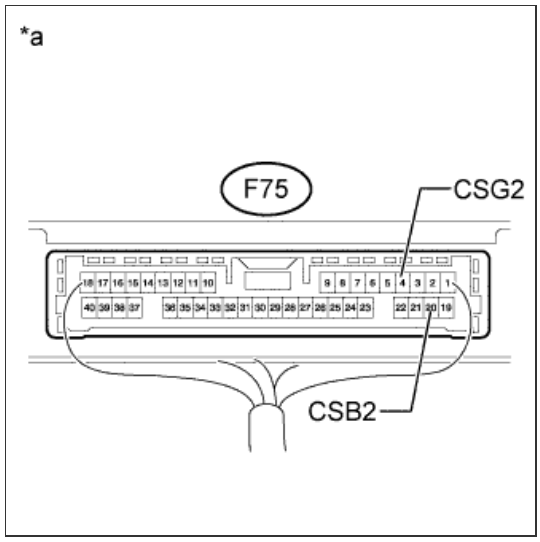
**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F75-20 (CSB2) - Body ground | Engine switch on (IG) | 7.2 to 8.8 V |

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-4 (CSG2) - Body ground | Always | Below 1 Ω |




**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Parking Assist ECU) |

NG → REPLACE PARKING ASSIST ECU (Click here)

OK

## 7.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AED is output and multi-information display indicates open circuit (rear left, rear center and rear right) | A |
| DTC C1AED is output and multi-information display indicates open circuit (rear left and rear center) | B |
| DTC C1AED is not output | C |

B → Go to step 12

C → USE SIMULATION METHOD TO CHECK (Click here)

A

## 8.REPLACE NO. 1 ULTRASONIC SENSOR (RR SENSOR)

a. Replace the No. 1 ultrasonic sensor (RR sensor) with a normally functioning one ( Click here).

NEXT

## 9.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AED is output and multi-information display indicates open circuit (rear left, rear center and rear right) | A |
| DTC C1AED is output and multi-information display indicates open circuit (rear left and rear center) | B |
| DTC C1AED is not output | C |

B → Go to step 12

C → END (NO. 1 ULTRASONIC SENSOR [RR SENSOR] IS DEFECTIVE)

A

### 10.REPLACE NO. 1 ULTRASONIC SENSOR (RL SENSOR)

a. Replace the No. 1 ultrasonic sensor (RL sensor) with a normally functioning one ( Click here).

NEXT

### 11.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AED is output and multi-information display indicates open circuit (rear left and rear center) | A |
| DTC C1AED is output and multi-information display indicates open circuit (rear left, rear center and rear right) | B |
| DTC C1AED is not output | C |

B → REPLACE PARKING ASSIST ECU (Click here)

C → END (NO. 1 ULTRASONIC SENSOR [RL SENSOR] IS DEFECTIVE)

A

### 12.REPLACE NO. 1 ULTRASONIC SENSOR RH (RRC SENSOR)

a. Replace the No. 1 ultrasonic sensor (RRC sensor) with a normally functioning one ( Click here).

NEXT

### 13.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C1AED is not output.**

NG → Go to step 14

OK

END (NO. 1 ULTRASONIC SENSOR [RRC SENSOR] IS DEFECTIVE)

14.REPLACE NO. 1 ULTRASONIC SENSOR (RLC SENSOR)

a. Replace the No. 1 ultrasonic sensor (RLC sensor) with a normally functioning one ( Click here).

NEXT

15.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C1AED is not output.**

NG → REPLACE PARKING ASSIST ECU (**Click here**)

OK

END (NO. 1 ULTRASONIC SENSOR [RLC SENSOR] IS DEFECTIVE)

16.CHECK HARNESS AND CONNECTOR (NO. 1 ULTRASONIC SENSOR [RR SENSOR] - CLEARANCE WARNING ECU)

a. Disconnect the O7 No. 1 ultrasonic sensor (RR sensor) connector.

b. Disconnect the F12 clearance warning ECU assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| O7-1 (BI) - F12-7 (CSB2) | Always | Below 1 Ω |
| O7-3 (SI) - F12-24 (LIN2) | Always | Below 1 Ω |
| O7-5 (EI) - F12-18 (CSG2) | Always | Below 1 Ω |
| O7-1 (BI) - Body ground | Always | 10 kΩ or higher |
| O7-3 (SI) - Body ground | Always | 10 kΩ or higher |
| O7-5 (EI) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

17.CHECK HARNESS AND CONNECTOR (NO. 1 ULTRASONIC SENSOR [RR SENSOR] - NO. 1 ULTRASONIC SENSOR [RRC SENSOR])

a. Disconnect the O7 No. 1 ultrasonic sensor (RR sensor) connector.

b. Disconnect the O8 No. 1 ultrasonic sensor (RRC sensor) connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| O7-2 (BO) - O8-1 | | |

| | | |
|---|---|---|
| (BI) | Always | Below 1 Ω |
| O7-4 (SO) - O8-3 (SI) | Always | Below 1 Ω |
| O7-6 (EO) - O8-5 (EI) | Always | Below 1 Ω |
| O7-2 (BO) - Body ground | Always | 10 kΩ or higher |
| O7-4 (SO) - Body ground | Always | 10 kΩ or higher |
| O7-6 (EO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**18.CHECK HARNESS AND CONNECTOR (NO. 1 ULTRASONIC SENSOR [RRC SENSOR] - NO. 1 ULTRASONIC SENSOR [RLC SENSOR])**

a. Disconnect the O8 No. 1 ultrasonic sensor (RRC sensor) connector.

b. Disconnect the O9 No. 1 ultrasonic sensor (RLC sensor) connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| O8-2 (BO) - O9-1 (BI) | Always | Below 1 Ω |
| O8-4 (SO) - O9-3 (SI) | Always | Below 1 Ω |
| O8-6 (EO) - O9-5 (EI) | Always | Below 1 Ω |
| O8-2 (BO) - Body ground | Always | 10 kΩ or higher |
| O8-4 (SO) - Body ground | Always | 10 kΩ or higher |
| O8-6 (EO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**19.CHECK HARNESS AND CONNECTOR (NO. 1 ULTRASONIC SENSOR [RLC SENSOR] - NO. 1 ULTRASONIC SENSOR [RL SENSOR])**

a. Disconnect the O9 No. 1 ultrasonic sensor (RLC sensor) connector.

b. Disconnect the O10 No. 1 ultrasonic sensor (RL sensor) connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| O9-2 (BO) - O10-1 (BI) | Always | Below 1 Ω |
| O9-4 (SO) - O10-3 (SI) | Always | Below 1 Ω |
| O9-6 (EO) - O10-5 (EI) | Always | Below 1 Ω |
| O9-2 (BO) - Body ground | Always | 10 kΩ or higher |
| O9-4 (SO) - Body ground | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| O9-6 (EO) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 20.CHECK CLEARANCE WARNING ECU ASSEMBLY

a. Measure the voltage according to the value(s) in the table below.

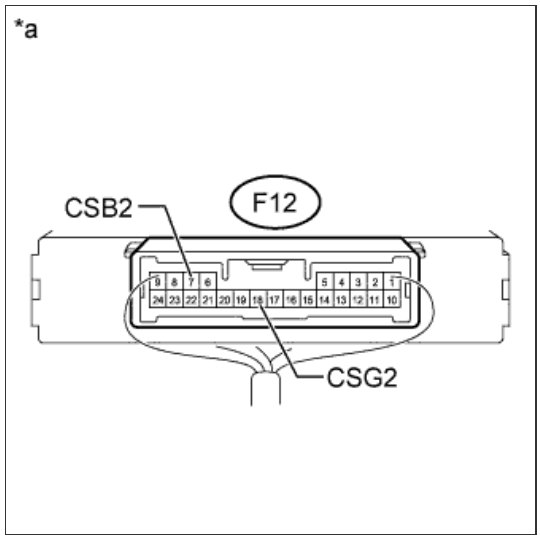
**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F12-7 (CSB2) - Body ground | Engine switch on (IG) | 7.2 to 8.8 V |

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F12-18 (CSG2) - Body ground | Always | Below 1 Ω |




**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Clearance Warning ECU Assembly) |

NG → REPLACE CLEARANCE WARNING ECU ASSEMBLY (Click here)

OK

## 21.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AED is output and multi-information display indicates open circuit (rear left, rear center and rear right) | A |
| DTC C1AED is output and multi-information display indicates open circuit (rear left and rear center) | B |
| DTC C1AED is not output | C |

B → Go to step 26

C → USE SIMULATION METHOD TO CHECK (Click here)

A

## 22.REPLACE NO. 1 ULTRASONIC SENSOR (RR SENSOR)

a. Replace the No. 1 ultrasonic sensor (RR sensor) with a normally functioning one ( Click here).

NEXT

### 23.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AED is output and multi-information display indicates open circuit (rear left, rear center and rear right) | A |
| DTC C1AED is output and multi-information display indicates open circuit (rear left and rear center) | B |
| DTC C1AED is not output | C |

B → Go to step 26

C → END (NO. 1 ULTRASONIC SENSOR [RR SENSOR] IS DEFECTIVE)

A

### 24.REPLACE NO. 1 ULTRASONIC SENSOR (RL SENSOR)

a. Replace the No. 1 ultrasonic sensor (RL sensor) with a normally functioning one ( Click here).

NEXT

### 25.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AED is output and multi-information display indicates open circuit (rear left and rear center) | A |
| DTC C1AED is output and multi-information display indicates open circuit (rear left, rear center and rear right) | B |
| DTC C1AED is not output | C |

B → REPLACE CLEARANCE WARNING ECU ASSEMBLY (Click here)

C → END (NO. 1 ULTRASONIC SENSOR [RL SENSOR] IS DEFECTIVE)

A

### 26.REPLACE NO. 1 ULTRASONIC SENSOR (RRC SENSOR)

a. Replace the No. 1 ultrasonic sensor (RRC sensor) with a normally functioning on ( Click here).

NEXT

### 27.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C1AED is not output.**

NG → Go to step 28

OK

END (NO. 1 ULTRASONIC SENSOR [RRC SENSOR] IS DEFECTIVE)

## 28.INSPECT NO. 1 ULTRASONIC SENSOR (RLC SENSOR)

a. Replace the No. 1 ultrasonic sensor (RLC sensor) with a normally functioning one ( Click here).

NEXT

## 29.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C1AED is not output.**

NG → REPLACE CLEARANCE WARNING ECU ASSEMBLY (Click here)

OK

END (NO. 1 ULTRASONIC SENSOR [RLC SENSOR] IS DEFECTIVE)

## DTC C1AE7 Rear Left Center Sensor Malfunction

**for Preparation** Click here

### DESCRIPTION

The No. 3 ultrasonic sensor LH is installed on the rear bumper. The ECU detects obstacles based on signals received from the No. 3 ultrasonic sensor LH. If the No. 3 ultrasonic sensor LH has an open circuit or other malfunction, it will not function normally.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1AE7 | A malfunction of the No. 3 ultrasonic sensor LH. | • No. 3 ultrasonic sensor LH<br>• Parking assist ECU*1<br>• Clearance warning ECU*2 |

*1: w/ Parking Assist Monitor System
*2: w/o Parking Assist Monitor System

### INSPECTION PROCEDURE

**NOTICE:**

If the DTC is output after repairs, turn the engine switch on (IG) and move the shift lever to R. Then clear the DTC.

#### 1.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AE7 is output | A |
| No DTC is output | B |

B → USE SIMULATION METHOD TO CHECK (**Click here**)

A

#### 2.REPLACE NO. 3 ULTRASONIC SENSOR LH

a. Replace the No. 3 ultrasonic sensor LH with a normally functioning sensor ( Click here).

NEXT

#### 3.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AE7 is output (w/ Parking Assist Monitor System) | A |
| DTC C1AE7 is output (w/o Parking Assist Monitor System) | B |
| No DTC is output | C |

B → REPLACE CLEARANCE WARNING ECU (**Click here**)

C → END

A

REPLACE PARKING ASSIST ECU (Click here)

# DTC C1AEF Shift Position Information

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when a problem with the shift position information sent through the CAN communication system is detected.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1AEF | A problem with the shift position information. | CAN communication system |

## INSPECTION PROCEDURE

### 1.CHECK FOR DTC

a. Clear DTCs (Click here).

b. Check DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AEF is output (for LHD) | A |
| DTC C1AEF is output (for RHD) | B |
| No DTC is output | C |

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → USE SIMULATION METHOD TO CHECK (Click here)

A

GO TO CAN COMMUNICATION SYSTEM (Click here)

# DTC C1AE7 Rear Left Center Sensor Malfunction

**for Preparation** Click here

## DESCRIPTION

The No. 1 ultrasonic sensor (RLC sensor) is installed on the rear bumper. The ECU detects obstacles based on signals received from the No. 1 ultrasonic sensor (RLC sensor). If the No. 1 ultrasonic sensor (RLC sensor) has an open circuit or other malfunction, it will not function normally.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1AE7 | A malfunction of the No. 1 ultrasonic sensor (RLC sensor). | • No. 1 ultrasonic sensor (RLC sensor)<br>• Parking assist ECU*1<br>• Clearance warning ECU assembly*2 |

*1: w/ Side Monitor System
*2: w/o Side Monitor System

## INSPECTION PROCEDURE

**NOTICE:**

If the DTC is output after repairs, turn the engine switch on (IG) and move the shift lever to R. Then clear the DTC.

**1.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C1AE7 is not output.**

NG → Go to step 2

OK ↓

**USE SIMULATION METHOD TO CHECK (Click here)**

**2.REPLACE NO. 1 ULTRASONIC SENSOR (RLC SENSOR)**

a. Replace the No. 1 ultrasonic sensor (RLC sensor) with a normally functioning one ( Click here).

NEXT ↓

**3.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AE7 is not output | A |
| DTC C1AE7 is output (w/ Side Monitor System) | B |
| DTC C1AE7 is output (w/o Side Monitor System) | C |

B → REPLACE PARKING ASSIST ECU (Click here)

C → REPLACE CLEARANCE WARNING ECU ASSEMBLY (Click here)

A ↓

**END (NO. 1 ULTRASONIC SENSOR [RLC SENSOR] IS DEFECTIVE)**

## DTC C1AEF Shift Position Information

**for Preparation** Click here

### DESCRIPTION

This DTC is stored when a problem with the shift position information sent through the CAN communication system is detected.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1AEF | A problem with the shift position information. | CAN communication system |

### INSPECTION PROCEDURE

**1.CHECK FOR DTC**

a. Clear DTCs.

- for LHD: Click here
- for RHD: Click here

b. Check DTCs.

- for LHD: Click here
- for RHD: Click here

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AEF is not output | A |
| DTC C1AEF is output (for LHD) | B |
| DTC C1AEF is output (for RHD) | C |

B → Go to CAN COMMUNICATION SYSTEM (Click here)

C → Go to CAN COMMUNICATION SYSTEM (Click here)

A

**USE SIMULATION METHOD TO CHECK (Click here)**

# DTC C1AE8 Rear Right Center Sensor Malfunction

**for Preparation** Click here

## DESCRIPTION

The No. 3 ultrasonic sensor RH is installed on the rear bumper. The ECU detects obstacles based on signals received from the No. 3 ultrasonic sensor RH. If the No. 3 ultrasonic sensor RH has an open circuit or other malfunction, it will not function normally.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1AE8 | A malfunction of the No. 3 ultrasonic sensor RH. | • No. 3 ultrasonic sensor RH<br>• Parking assist ECU*1<br>• Clearance warning ECU*2 |

*1: w/ Parking Assist Monitor System
*2: w/o Parking Assist Monitor System

## INSPECTION PROCEDURE

**NOTICE:**

If the DTC is output after repairs, turn the engine switch on (IG) and move the shift lever to R. Then clear the DTC.

### 1.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AE8 is output | A |
| No DTC is output | B |

B → USE SIMULATION METHOD TO CHECK (**Click here**)

A

### 2.REPLACE NO. 3 ULTRASONIC SENSOR RH

a. Replace the No. 3 ultrasonic sensor RH with a normally functioning sensor ( Click here).

NEXT

### 3.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AE8 is output (w/ Parking Assist Monitor System) | A |
| DTC C1AE8 is output (w/o Parking Assist Monitor System) | B |
| No DTC is output | C |

B → REPLACE CLEARANCE WARNING ECU (**Click here**)

C → END

A

REPLACE PARKING ASSIST ECU (Click here)

# DTC U0155 Lost Communication with Instrument Panel Cluster Control Module (Combination Meter)

**for Preparation** Click here

## DESCRIPTION

When the clearance warning ECU self-diagnosis determines that the CAN communication system is malfunctioning, this DTC is stored.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0155 | Lost communication with the Instrument Panel Cluster (IPC) control module. | CAN communication system |

**HINT:**

When 2 or more DTCs starting with "U" are output simultaneously, inspect the connectors and wire harness of each ECU.

## INSPECTION PROCEDURE

**1.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC U0155 is output (for LHD) | A |
| DTC U0155 is output (for RHD) | B |
| No DTC is output | C |

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → USE SIMULATION METHOD TO CHECK (Click here)

A

**GO TO CAN COMMUNICATION SYSTEM (Click here)**

# DTC C1AE8 Rear Right Center Sensor Malfunction

**for Preparation** Click here

## DESCRIPTION

The No. 1 ultrasonic sensor (RRC sensor) is installed on the rear bumper. The ECU detects obstacles based on signals received from the No. 1 ultrasonic sensor (RRC sensor). If the No. 1 ultrasonic sensor (RRC sensor) has an open circuit or other malfunction, it will not function normally.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1AE8 | A malfunction of the No. 1 ultrasonic sensor (RRC sensor). | • No. 1 ultrasonic sensor (RRC sensor)<br>• Parking assist ECU*1<br>• Clearance warning ECU assembly*2 |

*1: w/ Side Monitor System
*2: w/o Side Monitor System

## INSPECTION PROCEDURE

**NOTICE:**

If the DTC is output after repairs, turn the engine switch on (IG) and move the shift lever to R. Then clear the DTC.

**1.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C1AE8 is not output.**

NG → Go to step 2

OK ↓

**USE SIMULATION METHOD TO CHECK (Click here)**

**2.REPLACE NO. 1 ULTRASONIC SENSOR (RRC SENSOR)**

a. Replace the No. 1 ultrasonic sensor (RRC sensor) with a normally functioning one ( Click here).

NEXT ↓

**3.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1AE8 is not output | A |
| DTC C1AE8 is output (w/ Side Monitor System) | B |
| DTC C1AE8 is output (w/o Side Monitor System) | C |

B → REPLACE PARKING ASSIST ECU (Click here)

C → REPLACE CLEARANCE WARNING ECU ASSEMBLY (Click here)

A ↓

**END (NO. 1 ULTRASONIC SENSOR [RRC SENSOR] IS DEFECTIVE)**

# DTC U0155 Lost Communication with Instrument Panel Cluster Control Module (Combination Meter)

**for Preparation** Click here

## DESCRIPTION

When the clearance warning ECU self-diagnosis determines that the CAN communication system is malfunctioning, this DTC is stored.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0155 | Lost communication with the Instrument Panel Cluster (IPC) control module. | CAN communication system |

**HINT:**

When 2 or more DTCs starting with "U" are output simultaneously, inspect the connectors and wire harness of each ECU.

## INSPECTION PROCEDURE

### 1.CHECK FOR DTC

a. Clear the DTCs.

- for LHD: Click here
- for RHD: Click here

b. Check for DTCs.

- for LHD: Click here
- for RHD: Click here

**Result**

| Result | Proceed to |
|---|---|
| DTC U0155 is not output | A |
| DTC U0155 is output (for LHD) | B |
| DTC U0155 is output (for RHD) | C |

B → Go to CAN COMMUNICATION SYSTEM (Click here)

C → Go to CAN COMMUNICATION SYSTEM (Click here)

A

### USE SIMULATION METHOD TO CHECK (Click here)

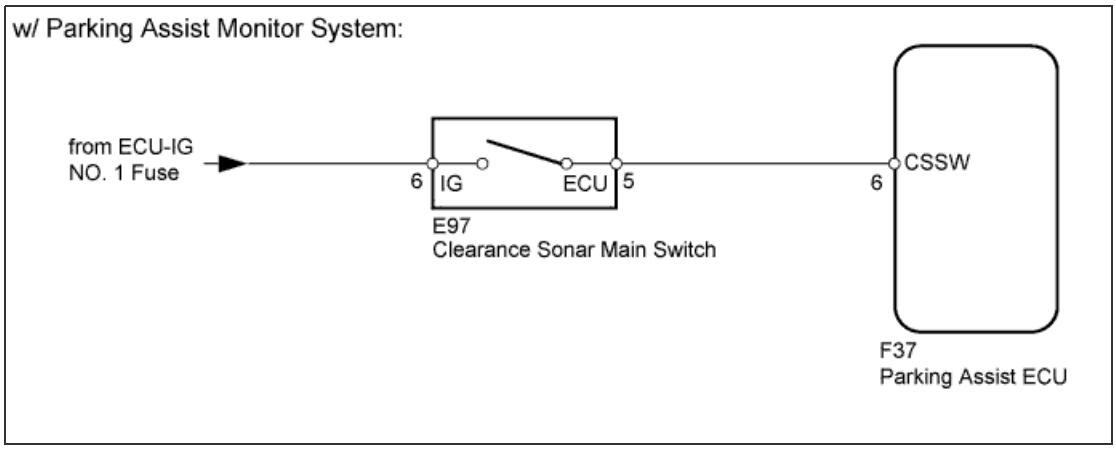
**for Preparation** Click here

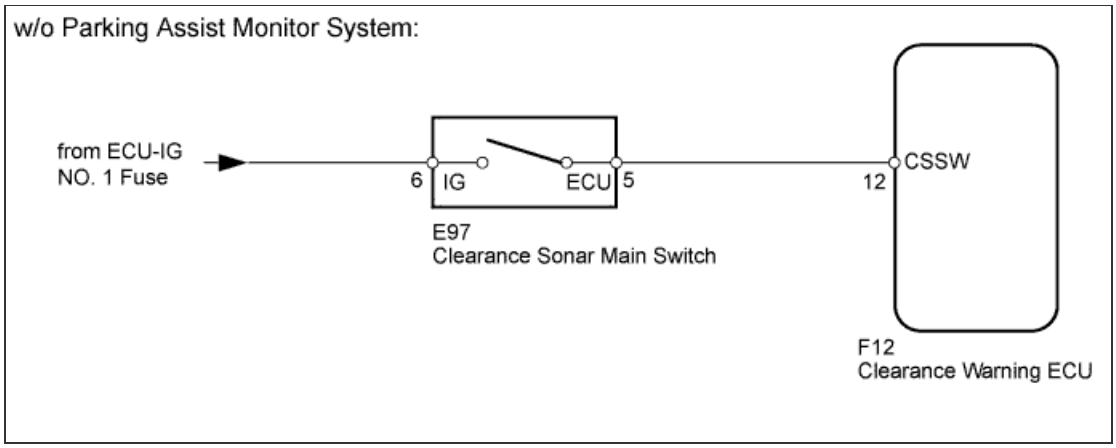
## DESCRIPTION

When the clearance sonar main switch turns on, the ON signal is input into the parking assist ECU*1 or clearance warning ECU*2.

*1: w/ Parking Assist Monitor System
*2: w/o Parking Assist Monitor System

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.READ VALUE USING INTELLIGENT TESTER (CLEARANCE SONAR MAIN SWITCH)

a. Check the Data List for proper functioning of the clearance sonar main switch.

Clearance Sonar

| Tester Display | Measurement Item/Range | Normal Condition | Diagnostic Note |
|---|---|---|---|
| Main Switch | Clearance sonar main switch/ON or OFF | OFF: Clearance sonar main switch off<br>ON: Clearance sonar main switch on | - |

**OK:**
**The intelligent tester display changes according to operation of clearance sonar main switch.**

NG → Go to step 2

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

### 2.INSPECT CLEARANCE SONAR MAIN SWITCH

a. Remove the clearance sonar main switch (Click here).

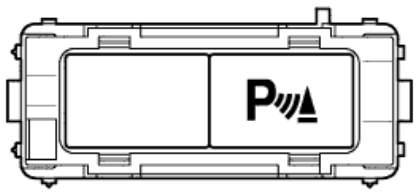
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

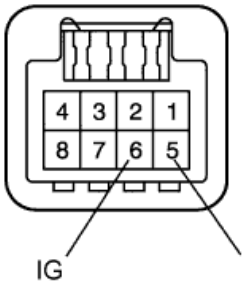
| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| 6 (IG) - 5 (ECU) | Clearance sonar main switch on | Below 1 Ω |
| 6 (IG) - 5 (ECU) | Clearance sonar main switch off | 10 kΩ or higher |

**Result**

| Result | Proceed to |
|---|---|
| OK (w/ Parking Assist Monitor System) | A |
| OK (w/o Parking Assist Monitor System) | B |
| NG | C |



Component without harness connected:
(Clearance Sonar Main Switch)




B → Go to step 4

C → REPLACE CLEARANCE SONAR MAIN SWITCH (Click here)

A

## 3.CHECK HARNESS AND CONNECTOR (MAIN SWITCH - ECU AND BATTERY)

a. Disconnect the E97 switch connector.

b. Disconnect the F37 ECU connector.

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

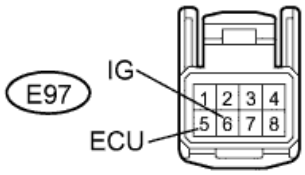
| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| E97-6 (IG) - Body ground | Engine switch on (IG) | 11 to 14 V |
| E97-6 (IG) - Body ground | Engine switch off | Below 1 V |

d. Measure the resistance according to the value(s) in the table below.

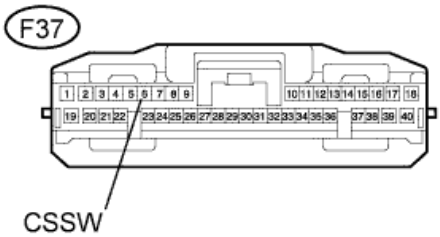
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E97-5 (ECU) - F37-6 (CSSW) | Always | Below 1 Ω |
| E97-5 (ECU) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to Clearance Sonar Main Switch)




Front view of wire harness connector:
(to Parking Assist ECU)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE PARKING ASSIST ECU (Click here)

## 4.CHECK HARNESS AND CONNECTOR (MAIN SWITCH - ECU AND BATTERY)

a. Disconnect the E97 switch connector.

b. Disconnect the F12 ECU connector.

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

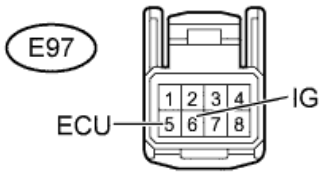
| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| E97-6 (IG) - Body ground | Engine switch on (IG) | 11 to 14 V |
| E97-6 (IG) - Body ground | Engine switch off | Below 1 V |

d. Measure the resistance according to the value(s) in the table below.

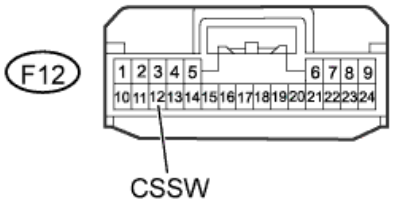
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E97-5 (ECU) - F12-12 (CSSW) | Always | Below 1 Ω |
| E97-5 (ECU) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to Clearance Sonar Main Switch)




Front view of wire harness connector:
(to Clearance Warning ECU)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE CLEARANCE WARNING ECU (Click here)

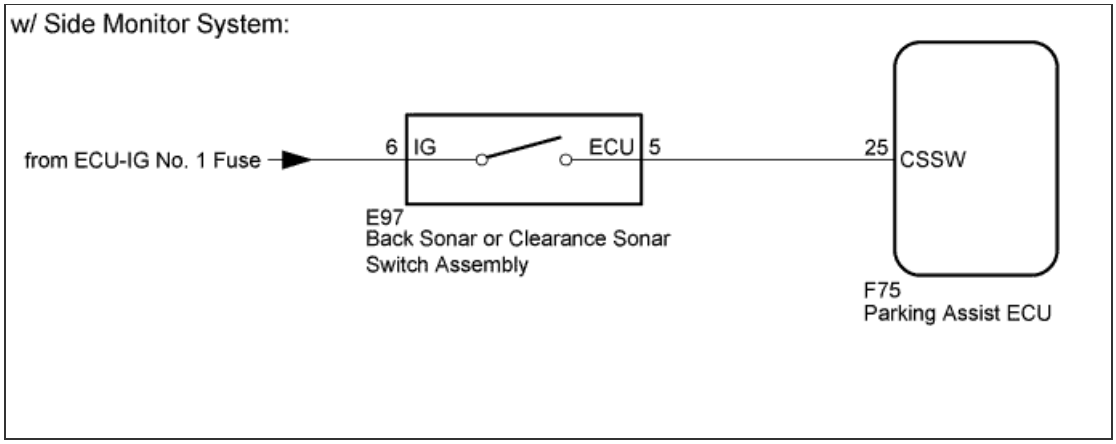
**for Preparation** Click here

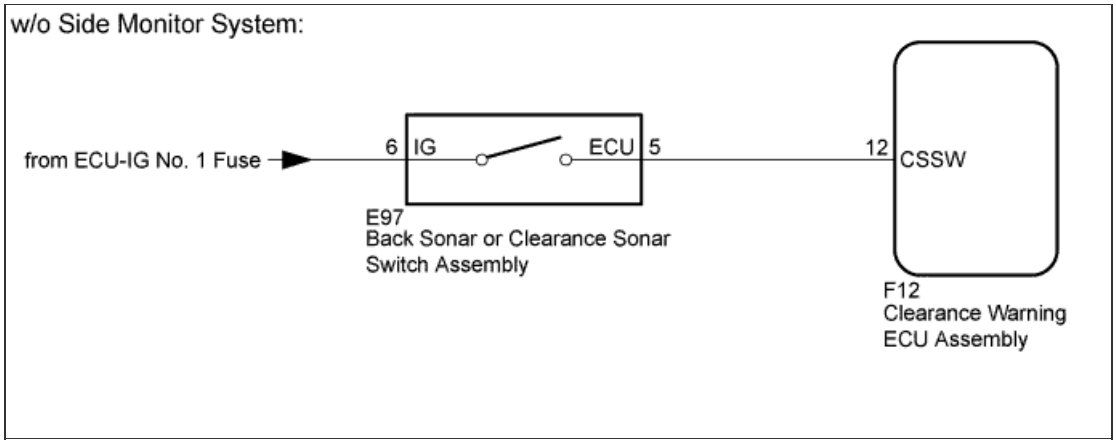
## DESCRIPTION

When the Back sonar or clearance sonar switch assembly turns on, the ON signal is input into the parking assist ECU*1 or clearance warning ECU assembly*2.

*1: w/ Side Monitor System
*2: w/o Side Monitor System

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.READ VALUE USING INTELLIGENT TESTER (BACK SONAR OR CLEARANCE SONAR SWITCH ASSEMBLY)

a. Check the Data List for proper functioning of the back sonar or clearance sonar switch assembly ( Click here).

**Clearance Sonar**

| Tester Display | Measurement Item/Range | Normal Condition | Diagnostic Note |
|---|---|---|---|
| Main Switch | Back sonar or clearance sonar switch assembly / ON or OFF | OFF: Back sonar or clearance sonar switch assembly off<br>ON: Back sonar or clearance sonar switch assembly on | - |

**OK:**

**The intelligent tester display changes according to operation of back sonar or clearance sonar switch assembly.**

NG → Go to step 2

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

2.INSPECT BACK SONAR OR CLEARANCE SONAR SWITCH ASSEMBLY

a. Remove the back sonar or clearance sonar switch assembly (Click here).

b. Inspect the back sonar or clearance sonar switch assembly (Click here).

**Result**

| Result | Proceed to |
|---|---|
| OK (w/ Side Monitor System) | A |
| OK (w/o Side Monitor System) | B |
| NG | C |

B → Go to step 4

C → REPLACE BACK SONAR OR CLEARANCE SONAR SWITCH ASSEMBLY (Click here)

A

3.CHECK HARNESS AND CONNECTOR (BACK SONAR OR CLEARANCE SONAR SWITCH - PARKING ASSIST ECU AND BATTERY)

a. Disconnect the E97 back sonar or clearance sonar switch assembly connector.

b. Disconnect the F75 parking assist ECU connector.

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| E97-6 (IG) - Body ground | Engine switch on (IG) | 11 to 14 V |
| E97-6 (IG) - Body ground | Engine switch off | Below 1 V |

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E97-5 (ECU) - F75-25 (CSSW) | Always | Below 1 Ω |
| E97-5 (ECU) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE PARKING ASSIST ECU (Click here)

4.CHECK HARNESS AND CONNECTOR (BACK SONAR OR CLEARANCE SONAR SWITCH - CLEARANCE WARNING ECU AND BATTERY)

a. Disconnect the E97 back sonar or clearance sonar switch assembly connector.

b. Disconnect the F12 clearance warning ECU assembly connector.

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| E97-6 (IG) - Body ground | Engine switch on (IG) | 11 to 14 V |
| E97-6 (IG) - Body | | |

| | | |
|---|---|---|
| ground | Engine switch off | Below 1 V |

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E97-5 (ECU) - F12-12 (CSSW) | Always | Below 1 Ω |
| E97-5 (ECU) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

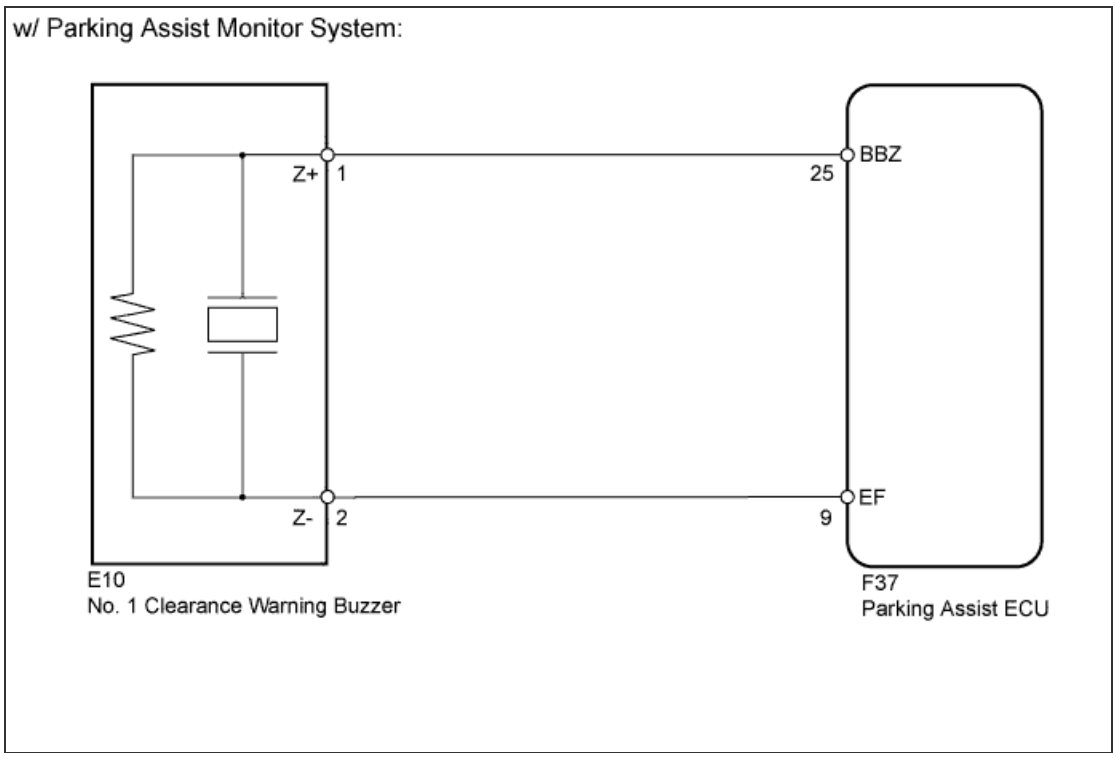
OK → REPLACE CLEARANCE WARNING ECU ASSEMBLY (Click here)

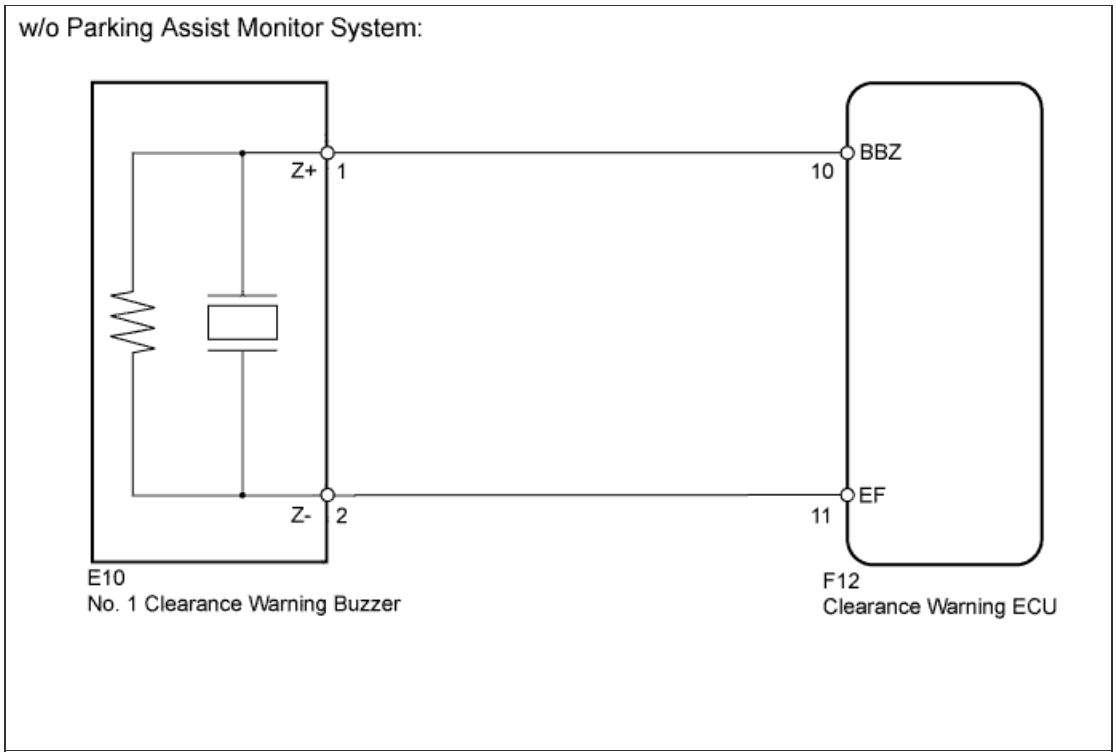
**for Preparation** Click here

## DESCRIPTION

The No. 1 clearance warning buzzer sounds to alert the driver and the buzzed frequency changes depending on the distance to an obstacle.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (NO. 1 CLEARANCE WARNING BUZZER)

a. Select the Active Test, use the intelligent tester to generate a control command, and then check that the buzzer operates.

**Clearance Sonar**

| Tester Display | Test Part | Control Range | Diagnostic Note |
|---|---|---|---|
| Buzzer | No. 1 clearance warning buzzer | Operate or Stop | - |

**OK:**

**No. 1 clearance warning buzzer sounds.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (w/ Parking Assist Monitor System) | B |
| NG (w/o Parking Assist Monitor System) | C |

B → Go to step 2

C → Go to step 3

A

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

2.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - NO. 1 CLEARANCE WARNING BUZZER)

a. Disconnect the F37 ECU connector.

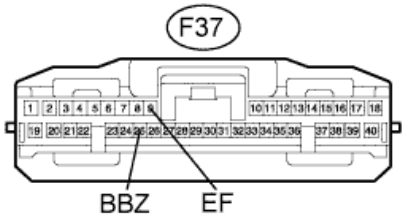
b. Disconnect the E10 buzzer connector.

c. Measure the resistance according to the value(s) in the table below.

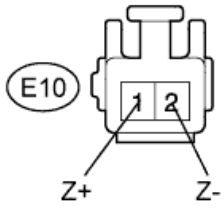
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F37-25 (BBZ) - E10-1 (Z+) | Always | Below 1 Ω |
| F37-9 (EF) - E10-2 (Z-) | Always | Below 1 Ω |
| F37-25 (BBZ) - Body ground | Always | 10 kΩ or higher |
| F37-9 (EF) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to Parking Assist ECU)




Front view of wire harness connector:
(to No. 1 Clearance Warning Buzzer)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE NO. 1 CLEARANCE WARNING BUZZER ( Click here)

3.CHECK HARNESS AND CONNECTOR (CLEARANCE WARNING ECU - NO. 1 CLEARANCE WARNING BUZZER)

a. Disconnect the F12 ECU connector.

b. Disconnect the E10 buzzer connector.

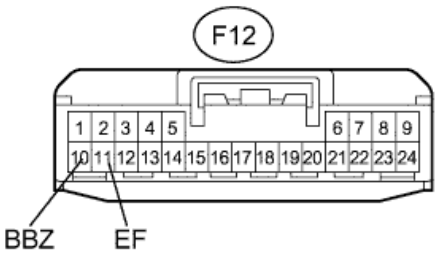
c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

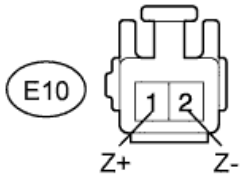
| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F12-10 (BBZ) - E10-1 (Z+) | Always | Below 1 Ω |

| | | |
|---|---|---|
| F12-11 (EF) - E10-2 (Z-) | Always | Below 1 Ω |
| F12-10 (BBZ) - Body ground | Always | 10 kΩ or higher |
| F12-11 (EF) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to Clearance Warning ECU)




Front view of wire harness connector:
(to No. 1 Clearance Warning Buzzer)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

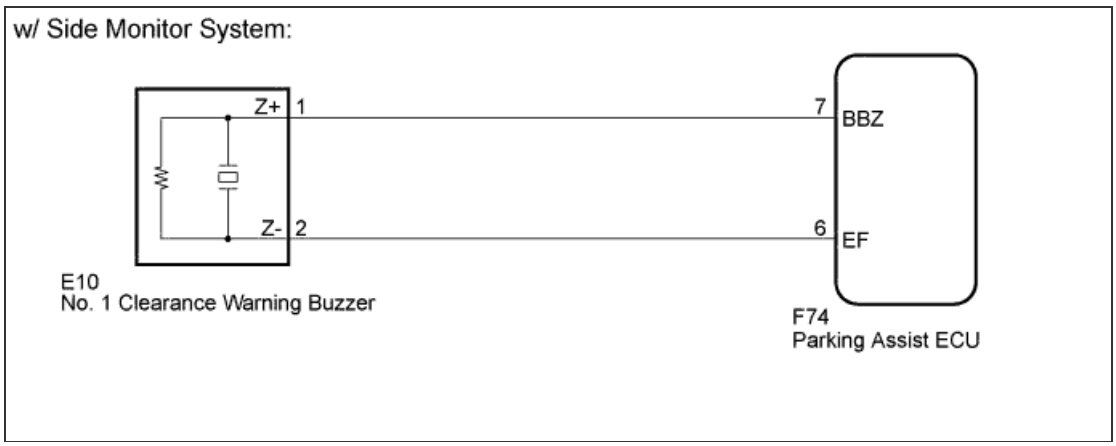
REPLACE NO. 1 CLEARANCE WARNING BUZZER (Click here)

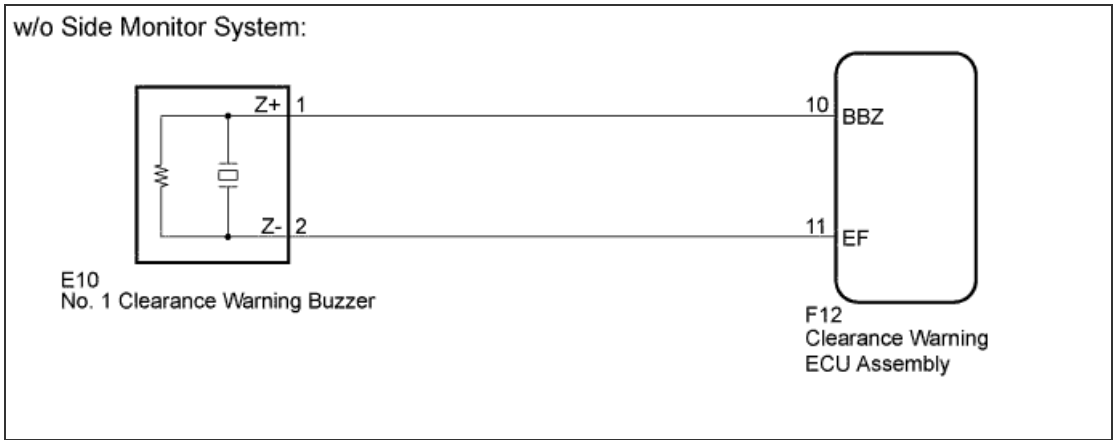
**for Preparation** Click here

## DESCRIPTION

The No. 1 clearance warning buzzer sounds to alert the driver and the buzzed frequency changes depending on the distance to an obstacle.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (NO. 1 CLEARANCE WARNING BUZZER)

a. Select the Active Test, use the intelligent tester to generate a control command, and then check that the buzzer operates.

**Clearance Sonar**

| Tester Display | Test Part | Control Range | Diagnostic Note |
|---|---|---|---|
| Buzzer | No. 1 clearance warning buzzer | Operate or Stop | - |

**OK:**

**No. 1 clearance warning buzzer sounds.**

**Result**

| Result | Proceed to |
|---|---|
| OK | A |
| NG (w/ Side Monitor System) | B |
| NG (w/o Side Monitor System) | C |

B → Go to step 2

C → Go to step 3

A

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

2.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - NO. 1 CLEARANCE WARNING BUZZER)

a. Disconnect the F74 parking assist ECU connector.

b. Disconnect the E10 No. 1 clearance warning buzzer connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F74-7 (BBZ) - E10-1 (Z+) | Always | Below 1 Ω |
| F74-6 (EF) - E10-2 (Z-) | Always | Below 1 Ω |
| F74-7 (BBZ) - Body ground | Always | 10 kΩ or higher |
| F74-6 (EF) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE NO. 1 CLEARANCE WARNING BUZZER ( Click here)

3.CHECK HARNESS AND CONNECTOR (CLEARANCE WARNING ECU - NO. 1 CLEARANCE WARNING BUZZER)

a. Disconnect the F12 clearance warning ECU assembly connector.

b. Disconnect the E10 No. 1 clearance warning buzzer connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F12-10 (BBZ) - E10-1 (Z+) | Always | Below 1 Ω |
| F12-11 (EF) - E10-2 (Z-) | Always | Below 1 Ω |
| F12-10 (BBZ) - Body ground | Always | 10 kΩ or higher |
| F12-11 (EF) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

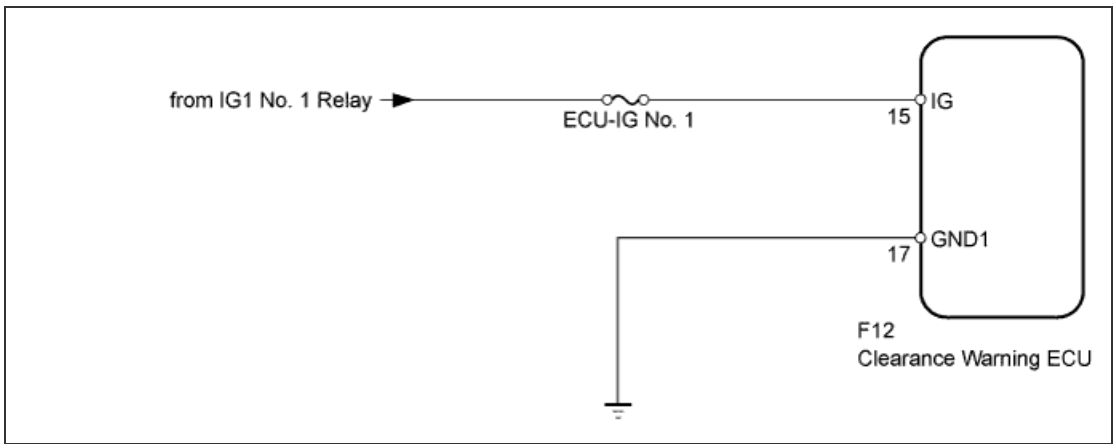
REPLACE NO. 1 CLEARANCE WARNING BUZZER ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit is the power source circuit to operate the clearance warning ECU.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.INSPECT FUSE (ECU-IG NO. 1)

a. Remove the ECU-IG No. 1 fuse from the main body ECU.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| ECU-IG No. 1 fuse | Always | Below 1 Ω |

NG → REPLACE FUSE

OK

### 2.CHECK HARNESS AND CONNECTOR (CLEARANCE WARNING ECU - BATTERY AND BODY GROUND)

a. Disconnect the F12 ECU connector.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

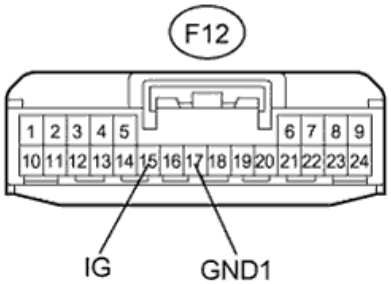
| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F12-15 (IG) - Body ground | Engine switch on (IG) | 11 to 14 V |
| F12-15 (IG) - Body ground | Engine switch off | Below 1 V |

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F12-17 (GND1) - Body ground | Always | Below 1 Ω |

Front view of wire harness connector:
(to Clearance Warning ECU)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

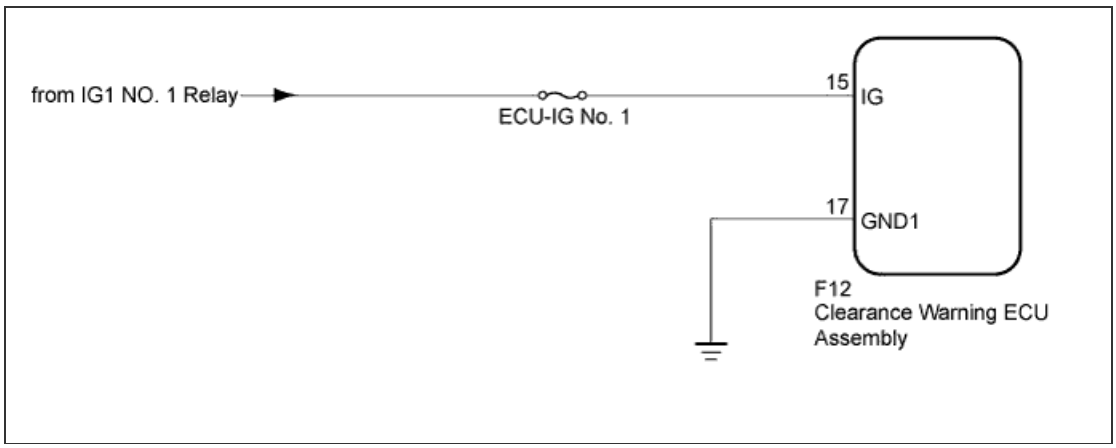
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit is the power source circuit to operate the clearance warning ECU.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuse for circuits related to this system before performing the following inspection procedure.

### 1.CHECK HARNESS AND CONNECTOR (CLEARANCE WARNING ECU - BATTERY AND BODY GROUND)

a. Disconnect the F12 clearance warning ECU assembly connector.

b. Measure the voltage according to the value(s) in the table below.

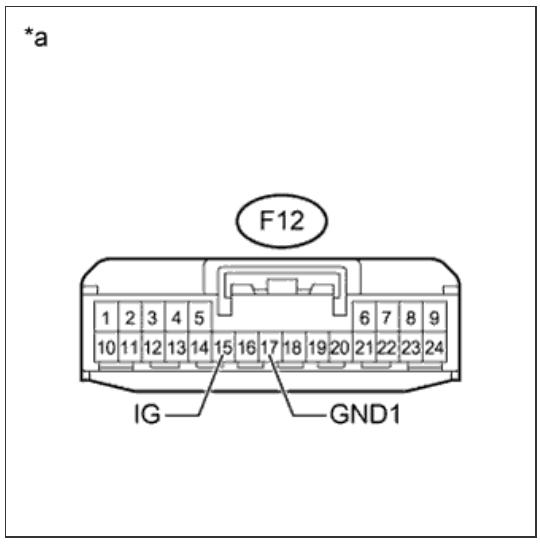
**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F12-15 (IG) - Body ground | Engine switch on (IG) | 11 to 14 V |
| F12-15 (IG) - Body ground | Engine switch off | Below 1 V |

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F12-17 (GND1) - Body ground | Always | Below 1 Ω |




**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (Clearance Warning ECU Assembly) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

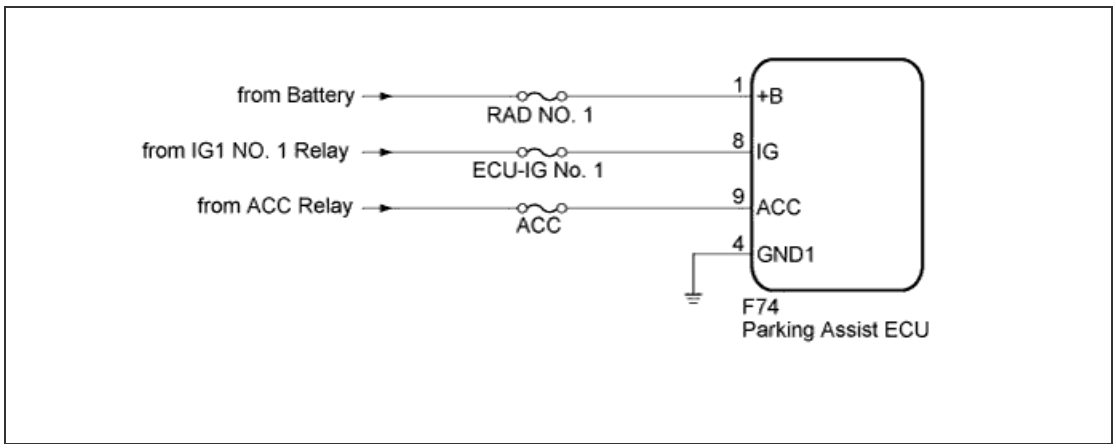
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

This circuit is the power source circuit to operate the parking assist ECU.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

### 1.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - BATTERY AND BODY GROUND)

a. Disconnect the F74 parking assist ECU connector.

b. Measure the resistance according to the value(s) in the table below.

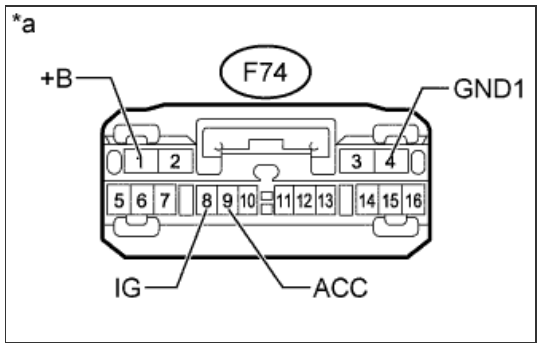
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F74-4 (GND1) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F74-1 (+B) - F74-4 (GND1) | Always | 11 to 14 V |
| F74-8 (IG) - F74-4 (GND1) | Engine switch on (IG) | 11 to 14 V |
| F74-9 (ACC) - F74-4 (GND1) | Engine switch on (ACC) | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Parking Assist ECU) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## 1.POINTS TO NOTE WHEN SERVICING

a. The maximum steering angle setting must be carried out with the engine running. Apply the parking brake, depress the brake pedal, move the shift lever to N, and ensure that the vehicle is not moving.

b. Pay attention to the following points when servicing.

i. When disconnecting the cable from the negative (-) battery terminal, "System initializing" appears on the multi-display. In this case, correct the steering angle and steering angle neutral point, and adjust the line display position (Click here).

ii. When replacing the parking assist ECU, "System not ready" appears on the multi-display. In this case, set the maximum steering angle and steering angle neutral point, and adjust the line display position (Click here).

iii. When the rear television camera is replaced or its installation angle changes, readjustment of the line display position is required (Click here).

**for Preparation** Click here

## 1.PRECAUTION FOR DISCONNECTING CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

- **After the engine switch is turned off, the display and navigation module display records various types of memory and settings. As a result, after turning the engine switch off, make sure to wait for the time specified in the following table before disconnecting the cable from the negative (-) battery terminal.**

  **Waiting Time before Disconnecting Cable from Negative (-) Battery Terminal**

| Specification | Waiting Time |
|---|---|
| w/o Telematics transceiver | 60 sec. |
| w/ Telematics transceiver | 120 sec. |

- **When disconnecting the cable from the negative (-) battery terminal, initialize the following system after the terminal is reconnected.**

| System Name | See Procedure |
|---|---|
| Parking Assist Monitor System | Click here |
| Side Monitor System | |
| Back Door Closer System | |
| Power Back Door System | |

## 2.POINTS TO NOTE WHEN SERVICING

a. Pay attention to the following points when servicing.

i. When disconnecting the cable from the negative (-) battery terminal, "System initializing" may appear on the display and navigation module display. In this case, restore the steering angle neutral point (Click here).

ii. Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system may be needed (Click here).

**HINT:**

Each adjusted value for the calibration of the parking assist monitor system will be stored in the parking assist ECU.

iii. When the lens of the rear television camera assembly is dirty, wash the lens with water and wipe it off with a soft cloth to obtain clear images. For heavy dirt, use neutral detergent to clean the lens.

## 3.NOTES FOR REAR TELEVISION CAMERA

a. Notes for the rear television camera assembly

i. The parking assist monitor system may not function properly if subjected to a severe blow by any hard object.

ii. Do not scrub the outer casing part of the camera (made of transparent resin). Scrubbing may scratch the cover and affect the image. Prevent organic solvents, waxes, bond removing solvents or glass coating from adhering to the cover. If such material adheres to the cover, clean it off immediately and wash with water.

iii. Exposing the camera to a sudden temperature change may affect proper functioning of the camera.

iv. A clear image may not appear if the camera is dirty with snow, mud, etc. In that case, wash it with water and wipe off the lens. Use a detergent to remove dirt if necessary.

b. Images can be difficult to discern even in normal conditions. For example:

i. Noise may occur in the image during power back door operation. (w/ power back door system)

ii. Noise may occur in the image depending on electrical devices used in the cabin.

iii. Noise may occur in the image if accessories that generate radio waves have been installed.

iv. The camera screen is extremely cold (the image immediately after turning the engine switch on (IG) may be blurred or darker than normal).

v. The camera lens is dirty with snow, mud, etc.

vi. A strong beam of light, such as a sunbeam or headlight, hits the camera.

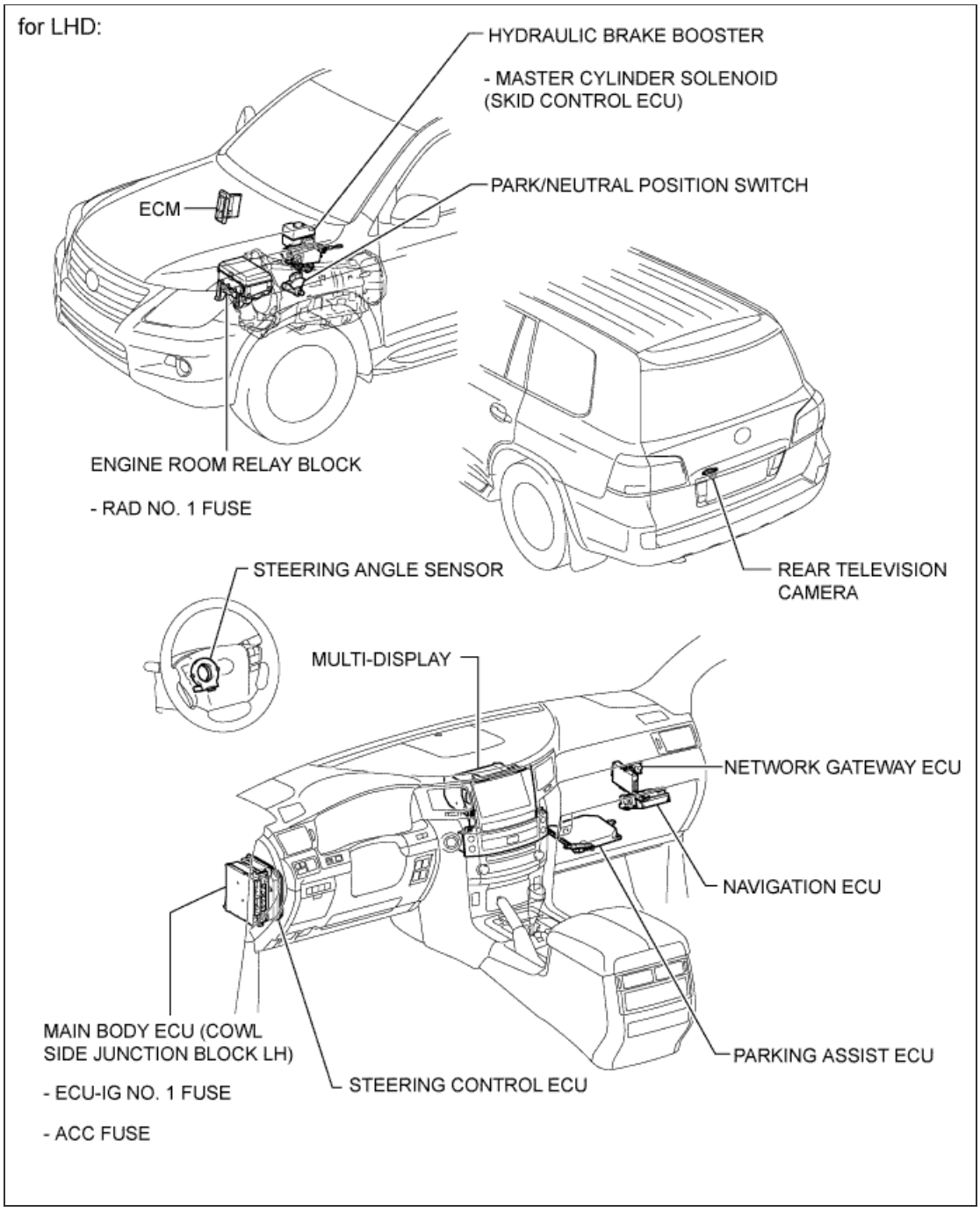
vii. It is too dark around the camera (at night etc.).

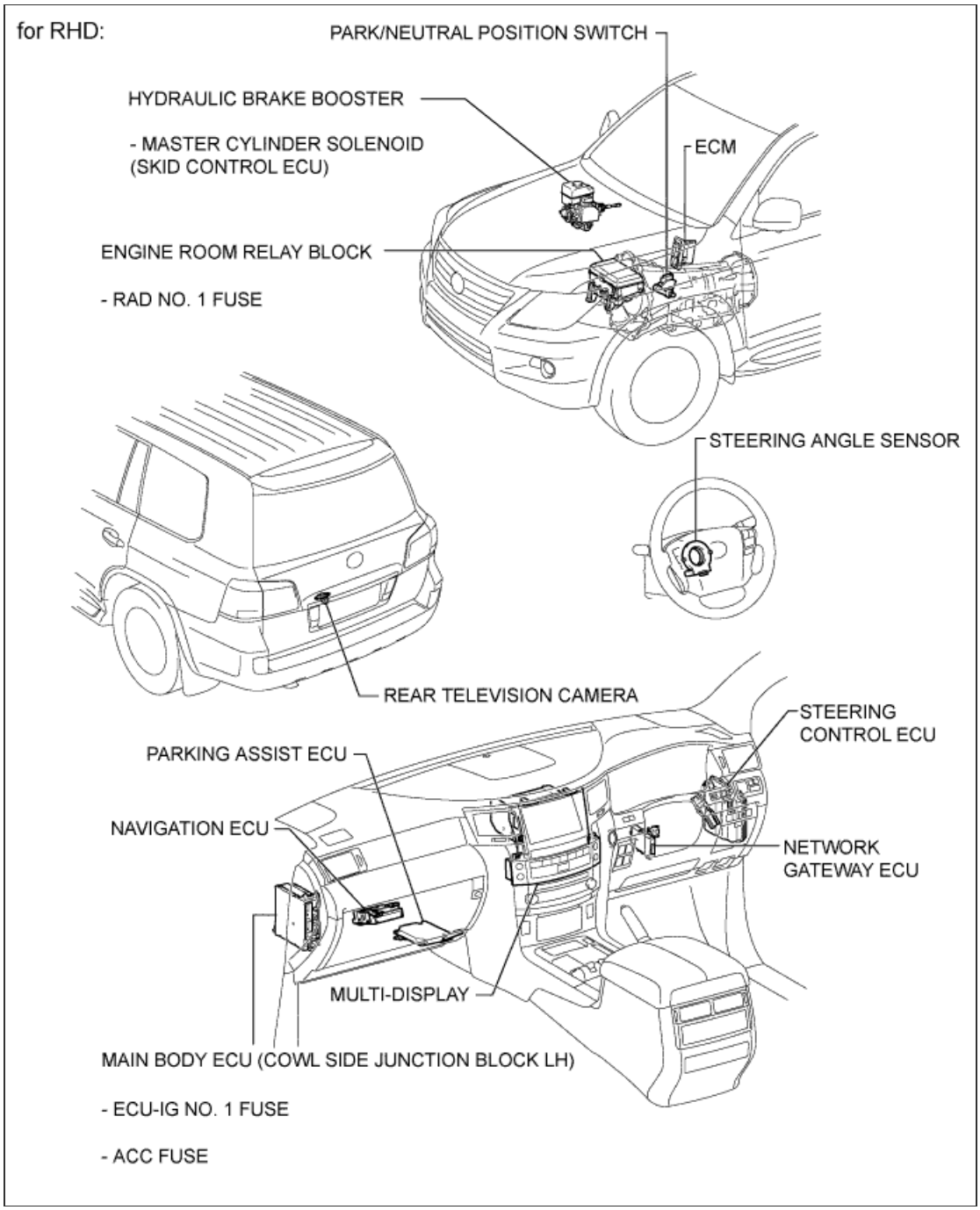
viii. The ambient temperature around the camera is either too high or too low.

ix. The vehicle is tilted at a steep angle.

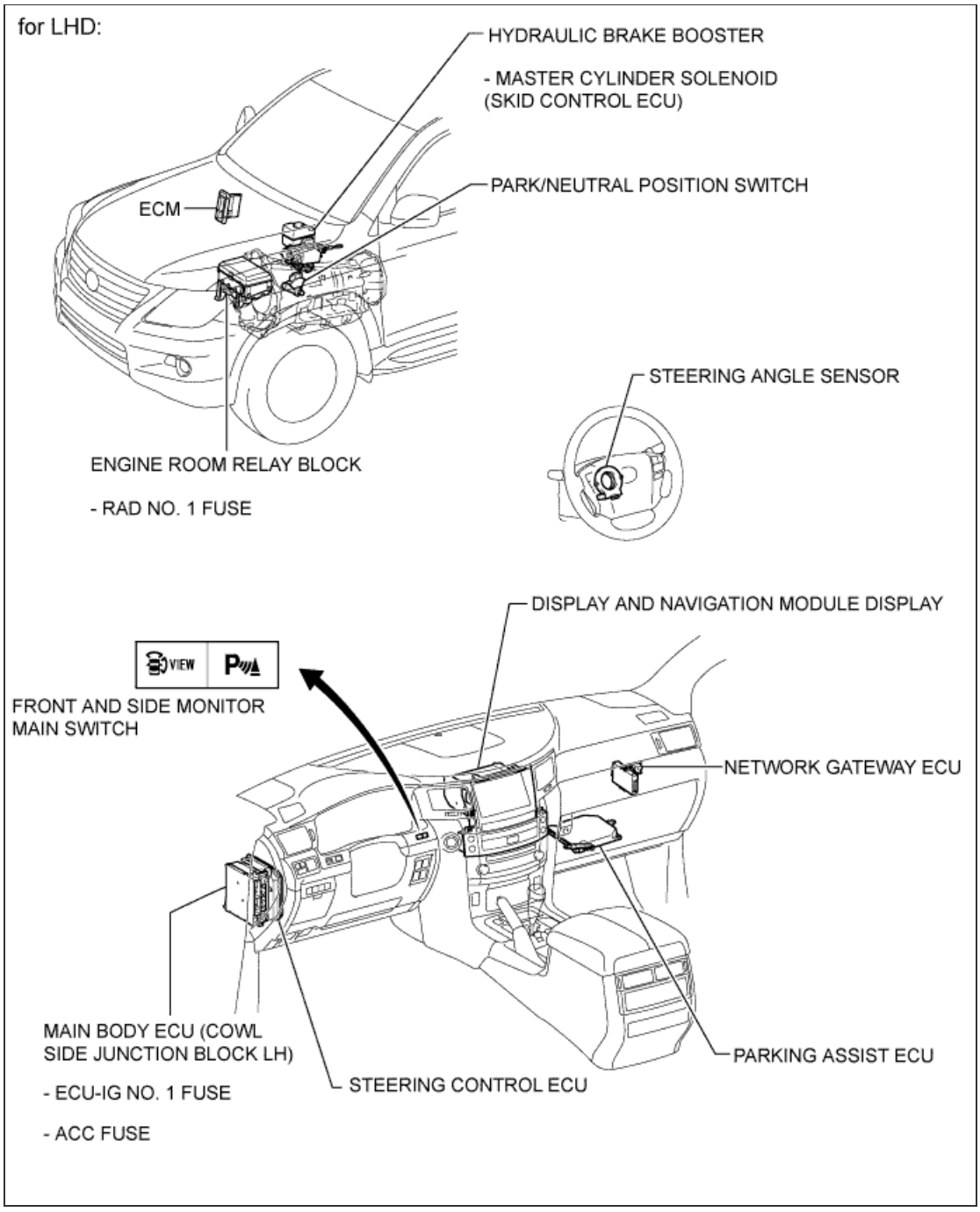
x. The ambience of the camera is too bright. (When a strong light, such as a sunbeam reflected off the vehicle body, hits the camera, the image may be blurred. This is called the "SMEAR" phenomenon, peculiar to the CCD camera.)

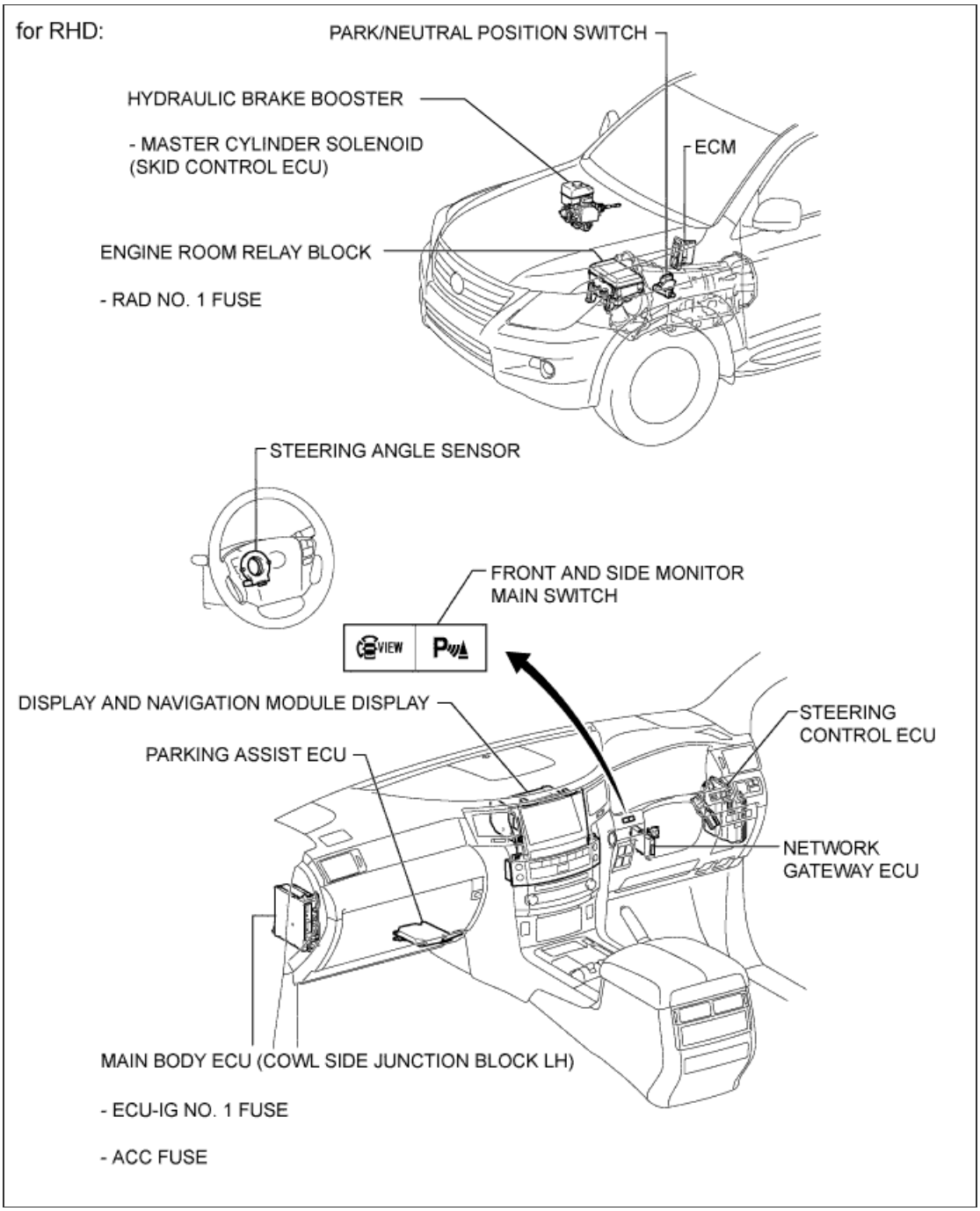
**for Preparation** Click here



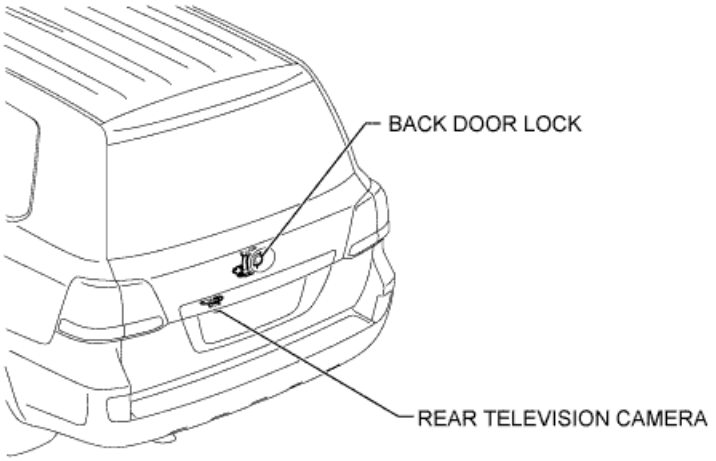

for RHD:
PARK/NEUTRAL POSITION SWITCH
HYDRAULIC BRAKE BOOSTER
- MASTER CYLINDER SOLENOID
(SKID CONTROL ECU)
ECM
ENGINE ROOM RELAY BLOCK
- RAD NO. 1 FUSE
STEERING ANGLE SENSOR
REAR TELEVISION CAMERA
STEERING
CONTROL ECU
PARKING ASSIST ECU
NAVIGATION ECU
NETWORK
GATEWAY ECU
MULTI-DISPLAY
MAIN BODY ECU (COWL SIDE JUNCTION BLOCK LH)
- ECU-IG NO. 1 FUSE
- ACC FUSE

**for Preparation** Click here

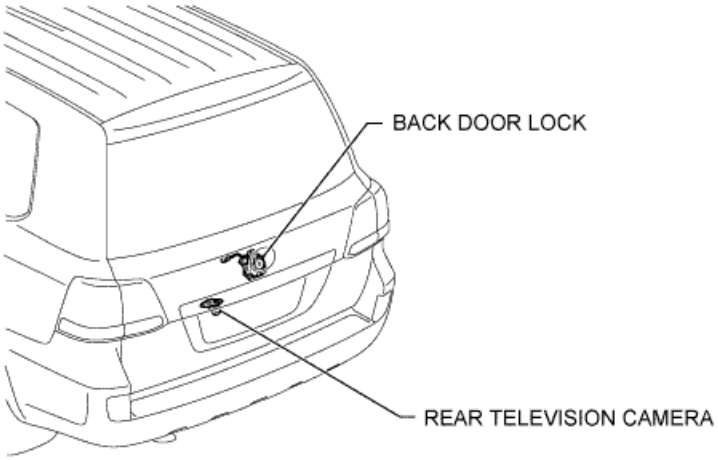



for RHD:
PARK/NEUTRAL POSITION SWITCH
HYDRAULIC BRAKE BOOSTER
- MASTER CYLINDER SOLENOID
(SKID CONTROL ECU)
ECM
ENGINE ROOM RELAY BLOCK
- RAD NO. 1 FUSE
STEERING ANGLE SENSOR
FRONT AND SIDE MONITOR
MAIN SWITCH
VIEW
DISPLAY AND NAVIGATION MODULE DISPLAY
PARKING ASSIST ECU
STEERING
CONTROL ECU
NETWORK
GATEWAY ECU
MAIN BODY ECU (COWL SIDE JUNCTION BLOCK LH)
- ECU-IG NO. 1 FUSE
- ACC FUSE

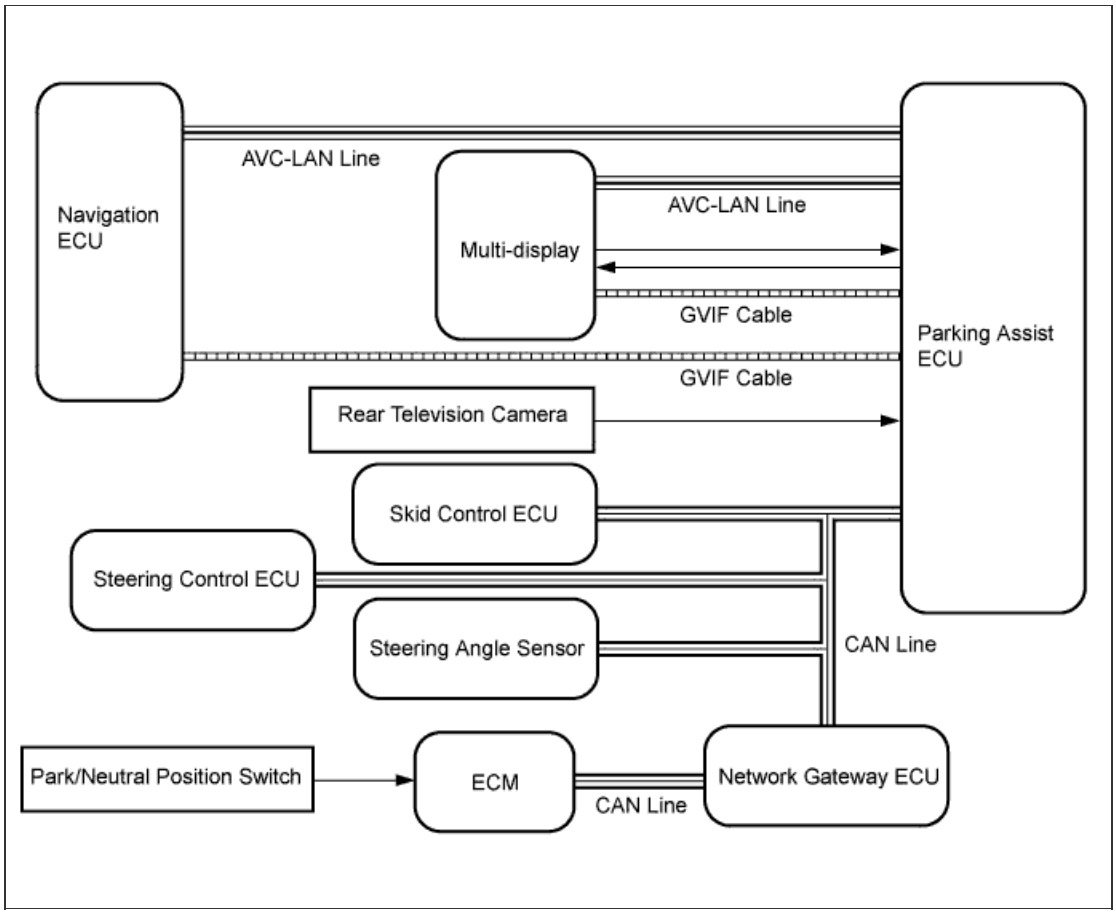
w/o Power Back Door System:




w/ Power Back Door System:



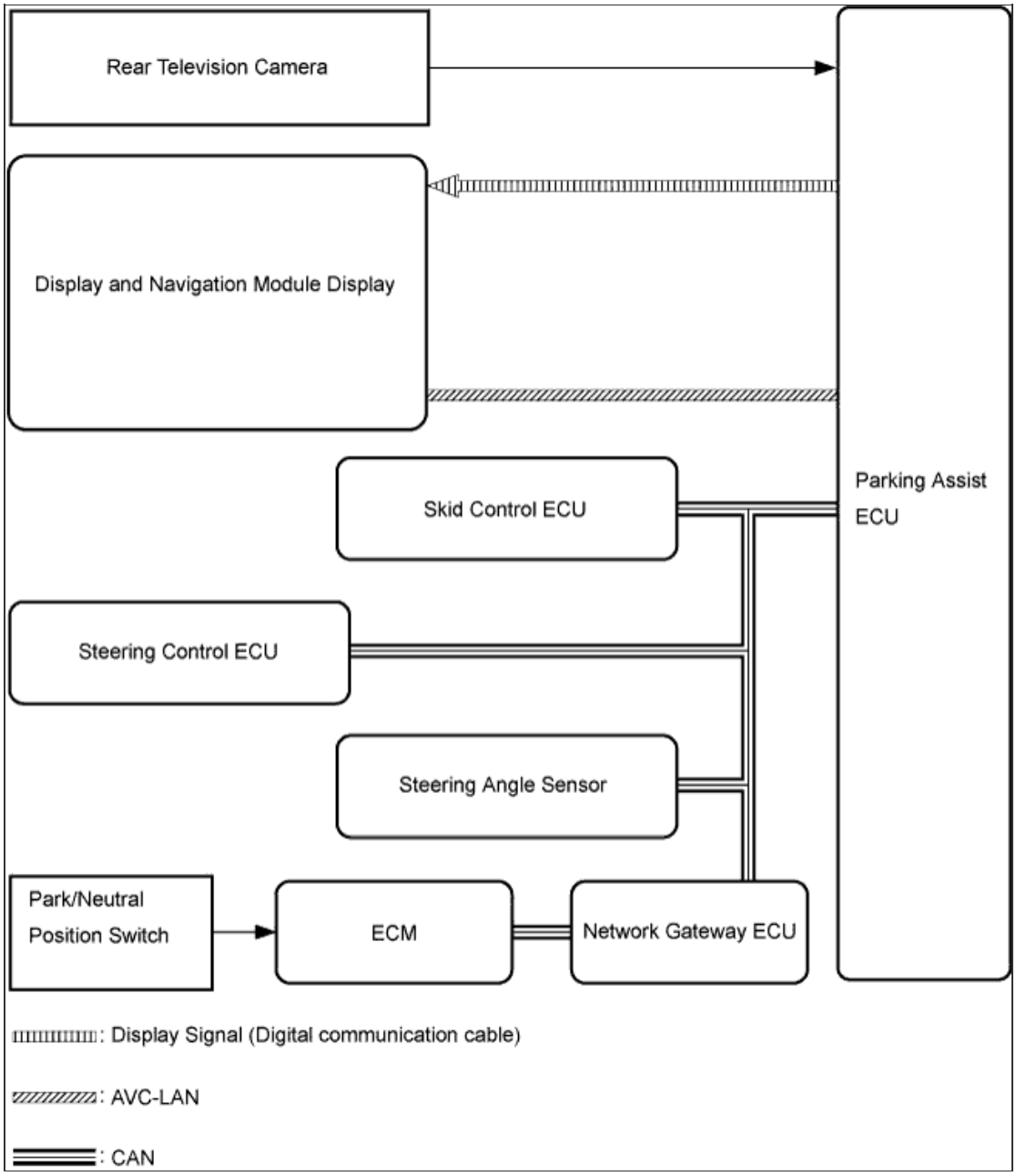
**for Preparation** Click here




**Communication Table**

| Sender | Receiver | Signal | Line |
|---|---|---|---|
| Steering Angle Sensor | Parking Assist ECU | Steering angle signal | CAN |
| Steering Control ECU | Parking Assist ECU | Variable gear ratio steering signal | CAN |
| Navigation ECU | Parking Assist ECU | Vehicle angle data signal | AVC-LAN |
| ECM | Parking Assist ECU | Shift position signal | CAN |
| Skid Control ECU | Parking Assist ECU | Vehicle speed signal | CAN |
| Parking Assist ECU | Multi-display | Picture signal | GVIF |

**for Preparation** Click here




**Communication Table**

| Sender | Receiver | Signal | Line |
|---|---|---|---|
| Parking Assist ECU | Display and navigation module display | Display | Digital communication cable |
| Steering Angle Sensor | Parking Assist ECU | Steering angle signal | CAN |
| Steering Control ECU | Parking Assist ECU | Variable gear ratio steering signal | CAN |
| ECM | Parking Assist ECU | Shift position signal | CAN |
| Skid Control ECU | Parking Assist ECU | Vehicle speed signal | CAN |

**for Preparation** Click here

## GENERAL

a. This system has a rear television camera mounted on the back door to display the rear view of the vehicle on the multi-display. The display panel also shows a composite view consisting of the area behind the vehicle and parking guidelines to assist the driver in parking the vehicle by monitoring the area behind the vehicle.

b. This system consists of the following components: the parking assist ECU, rear television camera, multi-display, navigation ECU, park/neutral position switch, combination meter, steering control ECU, and steering angle sensor.

c. This system is equipped with a self-diagnosis system, which is operated on a designated window that appears on the display panel, just as in the navigation system.

## FUNCTION OF COMPONENTS

a. The parking assist ECU controls the system by using information from the following components.

| Item | Function |
|---|---|
| Rear television camera | • Mounted on the back door to transmit the rear view of the vehicle to the parking assist ECU.<br>• Has a color video camera that uses a CCD (Charge Coupled Device) and a wide-angle lens. |
| Parking assist ECU | • Transmits video signals, which contain a composite consisting of the rear view of the vehicle taken with the television camera and parking assist guidelines, to the multi-display.<br>• Performs overall control of the system by receiving signals from the sensors and multi-display. |
| Multi-display | Receives the video signals containing a composite of the rear view of the vehicle and parking assist guideline signals from the parking assist ECU, and displays them on the display panel. |
| Navigation ECU | Uses the yaw rate detected by the gyro sensor that is built into the navigation ECU to transmit the movement of the vehicle to the parking assist ECU. |
| Steering angle sensor | Detects the angle of the steering wheel and sends the resulting signals to the parking assist ECU through CAN communication. |
| Park/neutral position switch | Sends the shift position signal to the ECM. |
| Steering control ECU | Receives the variable gear ratio steering signal from the steering angle sensor. |
| Skid control ECU | Transmits a vehicle speed signal to the parking assist ECU. |

## OPERATION EXPLANATION

a. The reverse position signal is sent from the shift lever position switch to the parking assist ECU when the shift lever is moved to R. After receiving the reverse position signal, the parking assist ECU switches the display signal for the multi-display from the navigation system to the parking assist monitor system.

b. In parallel parking assist mode, an appropriate steering angle and timing information can be provided for the driver when parallel parking. This is based on the information from the steering angle sensor signal and the vehicle angle data signal that are sent to the parking assist ECU.

**HINT:**

- **In manual assist mode, the steering angle sensor signal is used to control parking assist.**
- **The vehicle speed signal is required to adjust the steering angle neutral point.**

## COMMUNICATION SYSTEM OUTLINE

a. The components of the parking assist monitor system communicate with each other through the AVC-LAN. Also, parallel parking assist mode judges the vehicle angle data transmitted via the AVC-LAN from the navigation ECU (the data is calculated by the navigation ECU by integrating the yaw rate of the gyro sensor built into the navigation ECU).

b. If a short circuit or open circuit occurs in the AVC-LAN, communication is interrupted and the parking assist monitor system will stop functioning.

## DIAGNOSTIC FUNCTION OUTLINE

a. This parking assist monitor system has a diagnostic function (displayed in "NAVIGATION SYSTEM" of the navigation ECU).

b. A three-digit "unit code (physical address)" number (in hexadecimal notation) is set in each component that makes up the AVC-LAN.

## NOTES FOR PARKING ASSIST MONITOR

a. Notes for the parking assist monitor:

i. The parking assist monitor may not function properly if subjected to a severe blow by a hard object.

ii. Do not "scrub" the cover part of the camera (resin made). Scrubbing it may scratch the cover and affect the image. Prevent organic solvents, waxes, bond removing solvents, or glass coating from adhering to the cover. Clean it off immediately, and wash with water.

iii. Exposing the camera to sudden temperature changes may affect proper function.

iv. A clear image may not appear if the camera is dirty with snow, mud, etc. In that case, wash with water and wipe to clean the lens. Use a detergent to remove dirt if necessary.

b. Images will be difficult to discern even in normal conditions if:

i. The display screen is frosted over (the image immediately after turning the engine switch on (IG) may be blurred or darker than normal).

ii. A strong beam of light, such as a sunbeam or headlight, hits the camera.

**HINT:**

When a strong light, such as a sunbeam reflected off a vehicle body, hits the camera, the image may be blurred. This is called the "SMEAR" phenomenon, peculiar to the CCD camera.

iii. It is too dark around the camera (at night, for example).

iv. The ambient temperature around the camera is either too high or too low.

**for Preparation** Click here

## GENERAL

a. This system has a rear television camera assembly mounted on the back door to display the rear view of the vehicle on the display and navigation module display. The display panel also shows a composite view consisting of the area behind the vehicle and parking guidelines to assist the driver in parking the vehicle by monitoring the area behind the vehicle.

b. This system consists of the following components:

i. Parking assist ECU

ii. Rear television camera assembly

iii. Display and navigation module display

iv. Steering control ECU

v. Steering angle sensor

vi. Skid control ECU

c. This system is equipped with a self-diagnosis system, which is operated on a designated window that appears on the display panel, just as in the navigation system.

## FUNCTION OF COMPONENTS

a. The parking assist ECU controls the system by using information from the following components.

| Item | Function |
|---|---|
| Rear Television Camera | • Mounted on the back door to transmit the rear view of the vehicle to the parking assist ECU.<br>• Has a color video camera that uses a CCD (Charge Coupled Device) and a wide-angle lens. |
| Parking Assist ECU | • Transmits video signals, which contain a composite consisting of the rear view of the vehicle taken with the television camera and parking assist guidelines, to the display and navigation module display.<br>• Performs overall control of the system by receiving signals from the sensors and display and navigation module display. |
| Display and navigation module display | Receives the video signals containing a composite of the rear view of the vehicle and parking assist guideline signals from the parking assist ECU, and displays them on the display panel. |
| Steering angle sensor | Detects the angle of the steering wheel and sends the resulting signals to the parking assist ECU through CAN communication. |
| Park/neutral position switch | Sends the shift position signal to the ECM. |
| Steering control ECU | Receives the variable gear ratio steering signal from the steering angle sensor. |
| Skid control ECU | Transmits a vehicle speed signal to the parking assist ECU. |

## OPERATION EXPLANATION

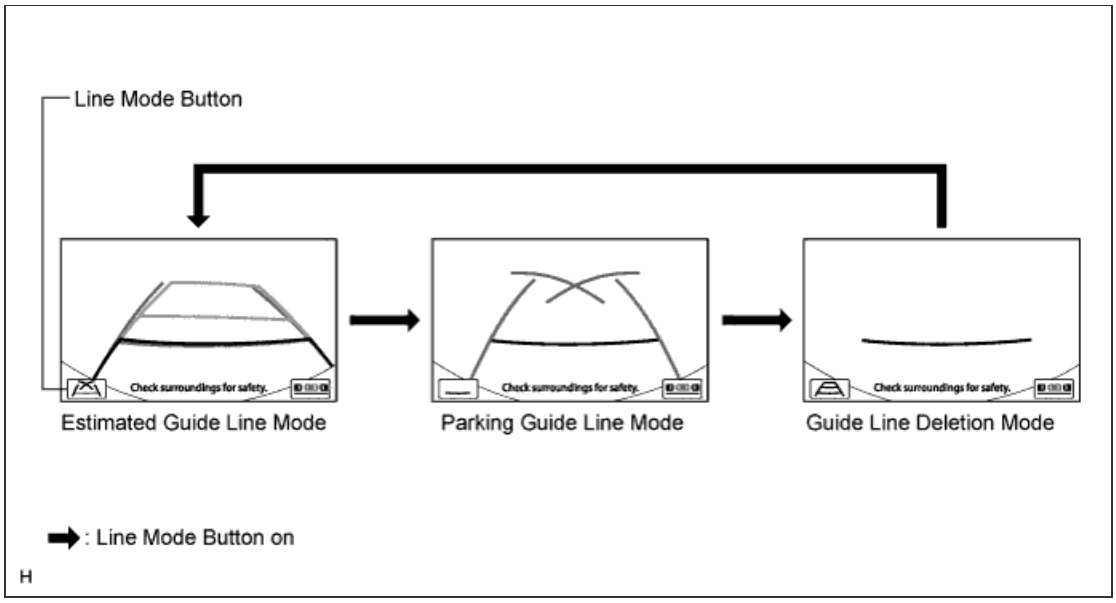
a. The reverse position signal is sent from the shift lever position switch to the parking assist ECU when the shift lever is moved to R.

b. In parallel parking assist mode, an appropriate steering angle and timing information can be provided for the driver. This is based on the information from the steering angle sensor signal and the vehicle angle data signal that are sent to the parking assist ECU.

**HINT:**

The steering angle sensor signal is used to control parking assist for only estimated guide line mode.

## DISPLAY MODE SETTING




a. While the parking assist monitor is displayed, pressing the line mode button switches the parking assist monitor display mode.

**Parking Assist Monitor Display Mode**

| Parking Assist Monitor Display Mode | Distance Guide Line (Red with Black) | Vehicle Width Extension Line (Green) | Predicted Path Line (Yellow) | Parking Guide Line (Green) |
|---|---|---|---|---|
| Estimated Guide Line Mode | Displayed | Displayed | Displayed | Not displayed |
| Parking Guide Line Mode | Displayed | Displayed | Not displayed | Displayed |
| Guide Line Deletion Mode | Displayed | Not displayed | Not displayed | Not displayed |

## COMMUNICATION SYSTEM OUTLINE

a. The components of the parking assist monitor system communicate with each other through the AVC-LAN. Also, parallel parking assist mode judges the vehicle angle data transmitted via the AVC-LAN from the display and navigation module display (the data is calculated by the display and navigation module display by integrating the yaw rate of the gyro sensor built into the display and navigation module display).

b. If a short circuit or open circuit occurs in the AVC-LAN, communication is interrupted and the parking assist monitor system will stop functioning.

## DIAGNOSTIC FUNCTION OUTLINE

a. This parking assist monitor system has a diagnostic function displayed in the display and navigation module display. This function enables the calibration (adjustment and verification) of the parking assist monitor system (Click here).

b. The parking assist monitor system can check the following items by using the intelligent tester.

| Item | Proceed to |
|---|---|
| DTC | Click here |
| Data List / Active Test | Click here |

**for Preparation** Click here

**HINT:**

- **Use the following procedures to troubleshoot the parking assist monitor system.**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

NEXT

## 2.INSPECT BATTERY VOLTAGE

**Standard voltage:**
**11 to 14 V**

If the voltage is below 11 V, replace or recharge the battery before proceeding.

NEXT

## 3.CHECK IF SAME SYMPTOM APPEARS IN NAVIGATION SYSTEM

a. Refer to the navigation system ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| Symptom does not appear | A |
| Symptom appears | B |

B. → FOLLOW NAVIGATION SYMPTOMS CHART TO PERFORM TROUBLESHOOTING

A

## 4.CHECK COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM*

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

**Result**

| Result | Proceed to |
|---|---|
| CAN DTC is not output | A |
| CAN DTC is output (for LHD) | B |
| CAN DTC is output (for RHD) | C |

B. → Go to CAN COMMUNICATION SYSTEM (Click here)

C. → Go to CAN COMMUNICATION SYSTEM (Click here)

A

## 5.CHECK DTC OUTPUT*

a. Check for DTCs and note any codes that are output ( Click here).

b. Clear the DTC (Click here).

c. Recheck for DTCs. Based on the DTC output in the first step, try to force output of the parking assist monitor system DTC by simulating the conditions indicated by the DTC.

**Result**

| Result | Proceed to |
|---|---|
| DTC is not output | A |
| DTC is output | B |

B. → Go to step 8

A

## 6.PROBLEM SYMPTOMS TABLE

a. Refer to the Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in problem symptoms table | A |
| Fault is listed in problem symptoms table | B |

B. → Go to step 8

A

## 7.OVERALL ANALYSIS AND TROUBLESHOOTING

a. Terminals of ECU (Click here).

NEXT

## 8.ADJUST, REPAIR OR REPLACE

NEXT

## 9.CONFIRMATION TEST

NEXT

END

**for Preparation** Click here

**HINT:**

- **Use the following procedure to troubleshoot the parking assist monitor system.**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

NEXT

## 2.INSPECT BATTERY VOLTAGE

a. Measure the battery voltage with the engine switch off.

**Standard Voltage:**
**11 to 14 V**

If the voltage is below 11 V, replace or recharge the battery before proceeding to the next step.

NEXT

## 3.CHECK NAVIGATION SYSTEM

a. Refer to the navigation system (for HDD) (Click here).

b. Refer to the navigation system (for DVD) (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Navigation system is normal | A |
| Navigation system (for HDD) is abnormal | B |
| Navigation system (for DVD) is abnormal | C |

B. → GO TO NAVIGATION SYSTEM (for HDD)

C. → GO TO NAVIGATION SYSTEM (for DVD)

A

## 4.CHECK COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM*

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

**Result**

| Result | Proceed to |
|---|---|
| CAN DTC is not output | A |
| CAN DTC is output (for LHD) | B |
| CAN DTC is output (for LHD) | C |

B. → GO TO CAN COMMUNICATION SYSTEM (Click here)

C. → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

## 5.CHECK FOR DTC*

a. Check for DTCs and note any codes that are output ( Click here).

b. Clear the DTC (Click here).

c. Recheck for DTCs. Try to prompt the DTC by simulating the original activity that the DTC suggests.

**NOTICE:**

The parking assist ECU may store the DTCs of the following system. If DTCs other than those specified in Diagnostic Trouble Code Chart of the parking assist monitor system are output, refer to Diagnostic Trouble Code Chart for the applicable system.

| System | Proceed to |
|---|---|
| Side Monitor System | Click here |
| Wide View Front Monitor System | Click here |

**Result**

| Result | Proceed to |
|---|---|
| DTC is not output | A |
| DTC is output | B |

B. → Go to step 8

A

## 6.PROBLEM SYMPTOMS TABLE

a. Refer to the Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in Problem Symptoms Table | A |
| Fault is listed in Problem Symptoms Table | B |

B. → Go to step 8

A

## 7.OVERALL ANALYSIS AND TROUBLESHOOTING*

a. Data List / Active Test (Click here)

b. Terminals of ECU (Click here)

NEXT

## 8.ADJUST, REPAIR OR REPLACE

NEXT

## 9.CONFIRMATION TEST

NEXT

END

**for Preparation** Click here

## INITIALIZE PARKING ASSIST MONITOR SYSTEM

a. If the following operations are performed, "System initializing" is displayed on the multi-display.

| Part Name | Operation | Initialization Item |
|---|---|---|
| Battery cable | Disconnect | Store the steering angle neutral point in memory |
| Steering angle sensor connector | Disconnect | Store the steering angle neutral point in memory |

b. When "System initializing" is displayed, correct the steering angle neutral point using either of the following methods.

i. METHOD 1:
Fully turn the steering wheel to the right and left.

ii. METHOD 2:

1. Drive the vehicle at more than 20 km/h (12 mph) for more than 5 minutes on a straight road with as little traffic congestion as possible.

   **HINT:**

   While driving at a constant vehicle speed, the ECU recognizes the point where the steering angle changes the least and memorizes it as the steering angle neutral point.

2. Stop the vehicle and check whether the neutral point is stored or not. If it is not stored, drive the vehicle according to the previous step again (the neutral point is stored by driving the vehicle straight).

**for Preparation** Click here

## INITIALIZE PARKING ASSIST MONITOR SYSTEM

a. If the following operations are performed, "System initializing" is displayed on the display and navigation module display.

| Part Name | Operation | Initialization Item |
|---|---|---|
| Battery cable | Disconnect | Store the steering angle neutral point in memory |
| Steering angle sensor connector | Disconnect | Store the steering angle neutral point in memory |

b. When "System initializing" is displayed, correct the steering angle neutral point using either of the following methods.

i. METHOD 1:
Fully turn the steering wheel to the right and left.

ii. METHOD 2:

1. Drive the vehicle at more than 20 km/h (12 mph) for more than 5 minutes on a straight road with as little traffic congestion as possible.

   **HINT:**

   While driving at a constant vehicle speed, the ECU recognizes the point where the steering angle changes the least and memorizes it as the steering angle neutral point.

2. Stop the vehicle and check whether the neutral point is stored or not. If it is not stored, drive the vehicle according to the previous step again (the neutral point is stored by driving the vehicle straight).

**for Preparation** Click here

## ADJUST PARKING ASSIST MONITOR SYSTEM

a. This parking assist monitor system can be set from the diagnostic screen of the "NAVIGATION SYSTEM".

b. If the following operations are performed, it is necessary to perform adjustments and checks on the diagnostic screen.

| Part Name | Operation | Adjustment Item |
|---|---|---|
| Rear television camera | • Replace<br>• Installation angle of the rear television camera changes because of the removal and installation of the rear television camera, etc. | Rear television camera optical axis (Camera position setting) |
| Parking assist ECU | Replace | • Store the steering angle neutral point in memory<br>• Store the left and right maximum steering angles<br>• Rear television camera optical axis (Camera position setting) |

## PREPARATION FOR ADJUSTMENT

**HINT:**

Create a target bar for adjustment only when adjusting the optical axis of the camera.

a. Park the vehicle with the steering wheel centered.

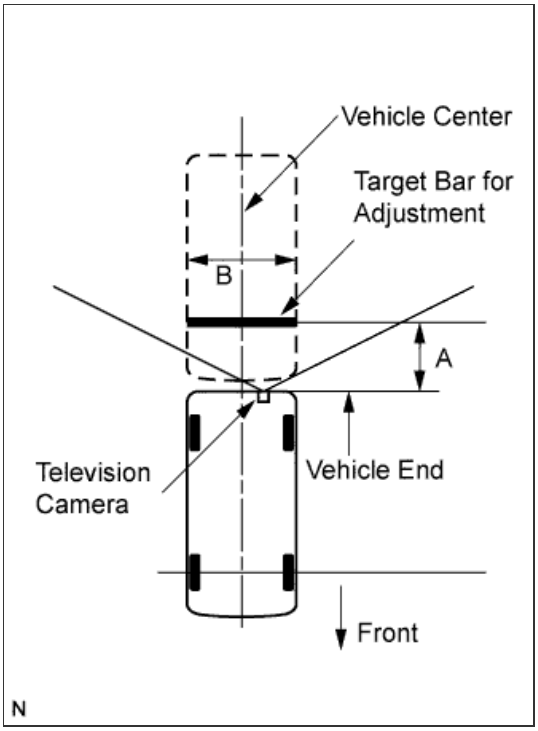
b. Set a target bar for adjustment.

**Dimension**

| Area | Specification |
|---|---|
| A | 830 +/-5 mm (32.7 +/-0.194 in.) |
| B | 2000 +/-5 mm (78.7 +/-0.194 in.) |

**HINT:**

- **Set a piece of tape on the ground as the target bar for adjustment. Its width and length are 25 +/-5 mm (0.984 +/-0.194 in.) and 2000 +/-5 mm (78.7 +/-0.194 in.), respectively. Check the color on the multi-display and choose a tape color which can be easily seen.**
- **Before parking the vehicle, be sure to move the vehicle forward and in reverse to check that the tires are facing straight ahead with the steering wheel centered.**

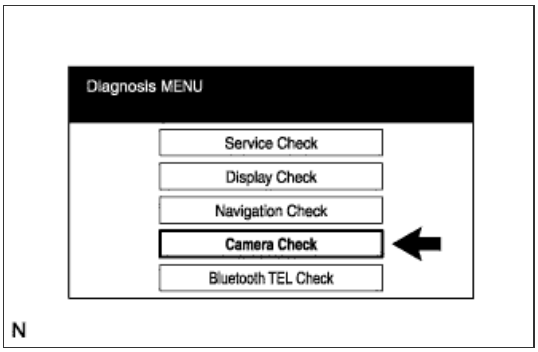



## START DIAGNOSIS MODE

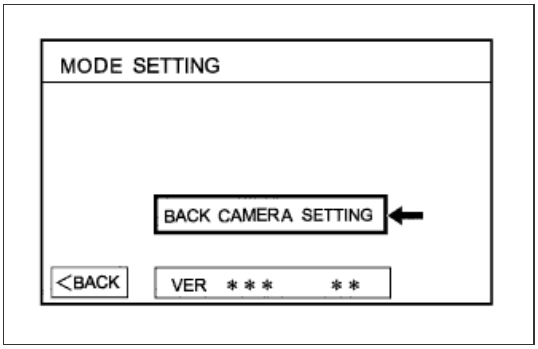
a. Start the engine.

b. Start the diagnostic system (Click here).

c. Select "Camera Check" on the "Diagnosis MENU" screen.




d. Select "BACK CAMERA SETTING" on the "MODE SETTING" screen.

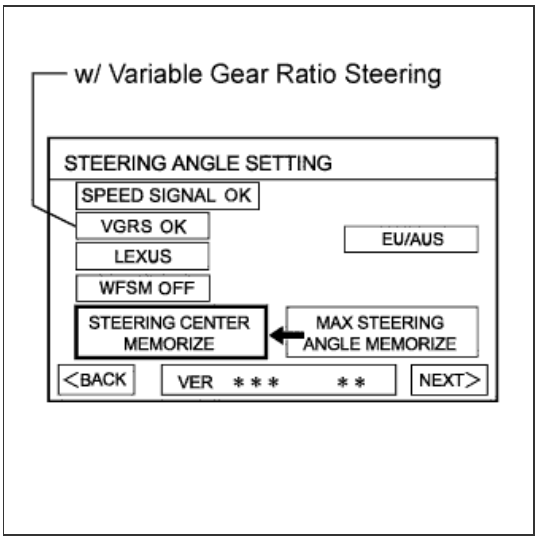



**HINT:**

After performing the rear camera position setting, the option on the menu display will dim. To perform the adjustment again, touch the dimmed button for 2 seconds or more (when the calibration is performed for a new ECU, the screen will not be displayed).

## SET STEERING ANGLE

a. Perform the STEERING CENTER MEMORIZE operation.




**HINT:**

When performing removal and installation, or replacement of the television camera, steering angle adjustment is not required.

i. Check that the steering wheel is centered, and then press "STEERING CENTER MEMORIZE".

ii. Press "NEXT" on the steering angle setting screen.

**HINT:**

- **Make sure that the steering wheel is centered before pressing "NEXT". The current steering angle is automatically stored as the steering angle neutral point when the display returns to the steering angle setting screen.**
- **When performing removal and installation, or replacement of the television camera, steering angle adjustment is not required.**
- Even when storing the steering angle neutral point only, the system cannot store it unless the operation is completed by following the prompts from "NEXT" to "OK".
- When the system displays "SPEED SIGNAL CHK", first press "SPEED SIGNAL CHK", and then press "MAX STEERING ANGLE MEMORIZE". The display does not change to the next screen if this procedure is not completed.

b. Perform the MAX STEERING ANGLE MEMORIZE operation.

i. After adjusting the steering angle neutral point, turn the steering wheel to the left and right lock positions and press "MAX STEERING ANGLE MEMORIZE". The maximum steering angle is then stored.

**HINT:**

While performing the MAX STEERING ANGLE MEMORIZE operation, "NEXT" does not respond until the system stores the steering angle neutral point and maximum steering angle.

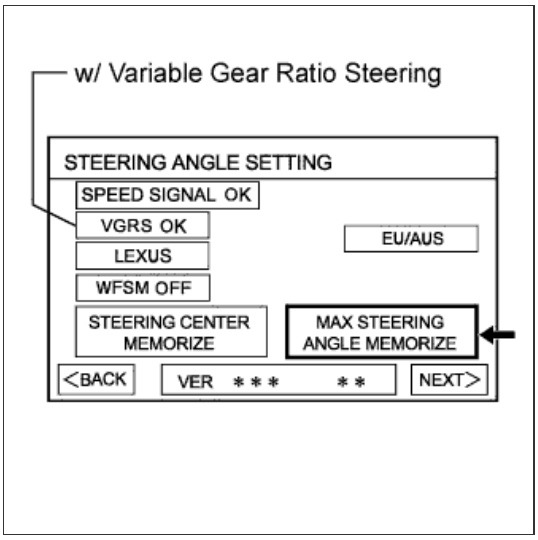
c. w/ Variable Gear Ratio Steering (VGRS) system:

Perform the VGRS inspection.

i. Check that "VGRS OK" is displayed. If the VGRS is malfunctioning, "VGRS CHK" will be displayed, and pressing "NEXT" will not change the screen to the next display.

**HINT:**

For vehicles without VGRS, nothing is displayed.



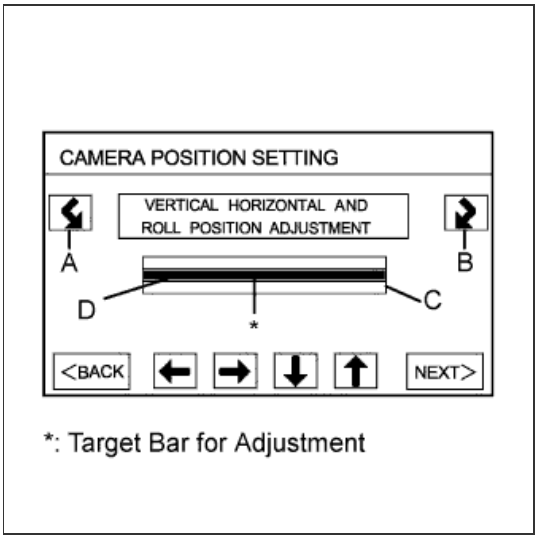

## SET CAMERA POSITION

a. Perform the roll angle adjustment.

i. Press switches A and B to rotate C so that it is parallel to the target adjustment bar D.

b. Perform the vertical and horizontal position adjustment.

i. Press the directional switches to move C so that the target adjustment bar D is centered in C.




## VERIFY MODE

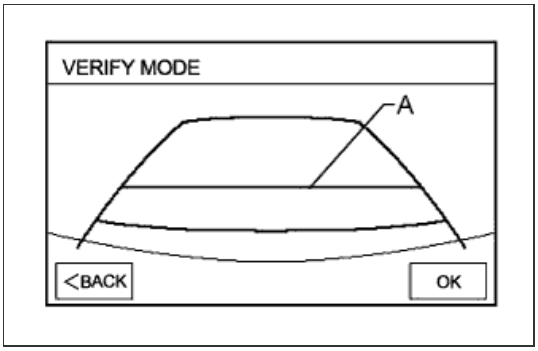
a. Check that A and the target adjustment bar are overlapping.

- If the steering angle neutral point is not aligned, perform the STEERING CENTER MEMORIZE and MAX STEERING ANGLE MEMORIZE operations.
- If A and the target adjustment bar are not aligned even if the tires are aligned straight ahead, perform the camera position setting operation.

b. Selecting "OK" will return the screen to the Diagnosis MENU, and complete the adjustment.

**HINT:**

The update is not completed until "OK" is pressed.



**for Preparation** Click here

## ADJUST PARKING ASSIST MONITOR SYSTEM

a. This parking assist monitor system can be set from the diagnostic screen of the display and navigation module display.

b. If the following operations are performed, it is necessary to perform adjustments and checks on the diagnostic screen.

| Part Name | Operation | Adjustment Item | Proceed to |
|---|---|---|---|
| Steering angle sensor | • Removal and installation of the Steering angle sensor<br>• Removal and installation of the connector of the Steering angle sensor | Steering angle neutral point | Click here |
| | | Steering angle setting | Click here |
| Steering angle sensor | Replacement | Steering angle neutral point | Click here |
| | | Steering angle setting | Click here |
| Parking assist ECU | Replacement | Parking assist ECU initialization | Step 2 |
| Suspension, tires, etc. | The vehicle height changes because of suspension or tire replacement | Rear television camera optical axis (Camera position setting) | Step 3 |
| | | Side television camera optical axis (Camera position setting) | Click here |
| Rear television camera assembly | • Replacement<br>• Installation angle of the rear television camera changes because of the removal and installation of the rear television camera, etc. | Rear television camera optical axis (Camera position setting) | Step 3 |
| Display and navigation module display (HDD navigation system) | Replacement | Vehicle contract setting | Click here |
| Display and navigation module display (DVD navigation system) | Replacement | Vehicle contract setting | Click here |

**HINT:**

- **The adjustment values stored while performing parking assist monitor system calibration are stored in the parking assist ECU.**
- **After the engine switch is turned off, the display and navigation module display records various types of memory and settings. As a result, after turning the engine switch off, make sure to wait for the time specified in the following table before disconnecting the cable from the negative (-) battery terminal.**

**Waiting Time before Disconnecting Cable from Negative (-) Battery Terminal**

| Specification | Waiting Time |
|---|---|
| w/o Telematics transceiver | 60 sec. |
| w/ Telematics transceiver | 120 sec. |

## PARKING ASSIST ECU INITIALIZATION

**HINT:**

Be sure to check for DTCs before performing this procedure ( Click here).

a. Preparation for adjustment

i. Park the vehicle with the steering wheel centered.

ii. Set a target bar for optical axis adjustment of the rear television camera.

**HINT:**

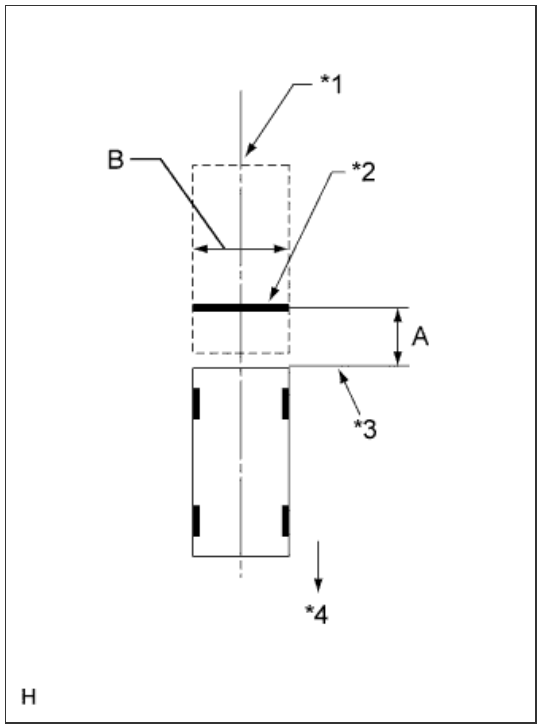
Only when adjusting the optical axis of the camera, create a target bar for adjustment.

**Dimension:**

| Area | Specification |
|---|---|
| A | 825 to 835 mm (2.71 to 2.74 ft.) |
| B | 1995 to 2005 mm (6.545 to 6.578 ft.) |

**Text in Illustration**

| | |
|---|---|
| *1 | Vehicle Center |
| *2 | Target Bar for Back Camera Adjustment |
| *3 | Vehicle End |
| *4 | Front Side |



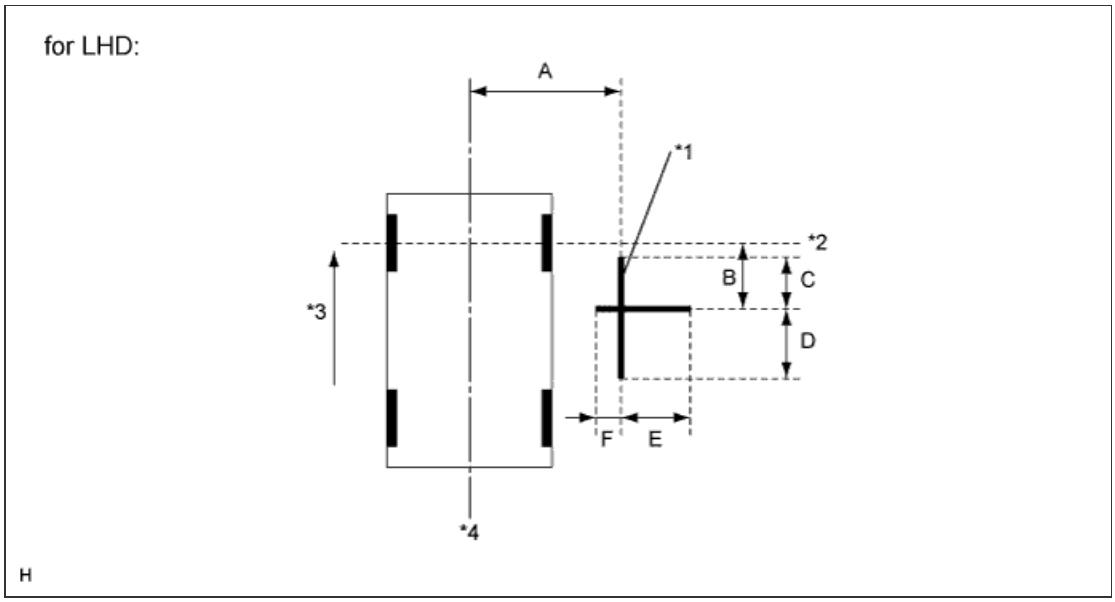

**HINT:**

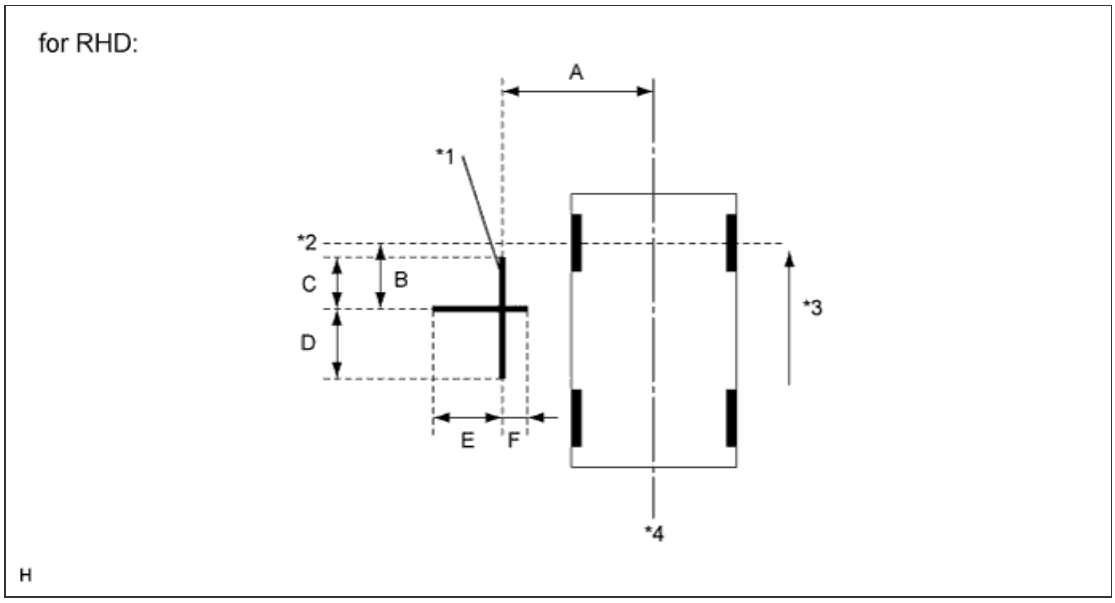
- **Set a piece of tape on the ground as the target bar for adjustment. Its width and length are 20 to 30 mm (0.787 to 1.181 in.) and 1995 to 2005 mm (6.545 to 6.578 ft.), respectively. Check the color on the display and navigation module display and choose a tape color which can be easily seen.**
- **Before parking the vehicle, be sure to move the vehicle forward and in reverse to check that the tires are facing straight ahead with the steering wheel centered.**
- **Check that the back door is fully closed.**

iii. Set a target bar for optical axis adjustment of the side television camera.

**HINT:**

Only when adjusting the optical axis of the camera, create a target bar for adjustment.






**Dimension:**

| A | B | C | D | E | F |
|---|---|---|---|---|---|
| 1183 mm (3.88 ft.) | 1181 mm (3.87 ft.) | 500 mm (1.64 ft.) | 500 mm (1.64 ft.) | 500 mm (1.64 ft.) | 180 mm (7.09 in.) |

**Text in Illustration**

| | | | |
|---|---|---|---|
| *1 | Target Bar for Side Camera Adjustment | *2 | Front Wheel Axis |
| *3 | Front Side | *4 | Vehicle Center |

**HINT:**

Target bars for side camera adjustment should be made with 2 pieces of 2.5 cm wide tape; one piece should be 100 cm (3.28 ft.) (C+D) and the other should be 68 cm (2.23 ft.) (E+F) long. Check the tape color on the display and navigation module display and choose a tape color which can be easily seen.

**b.** Start diagnostic mode .

- for HDD (Click here).
- for DVD (Click here).

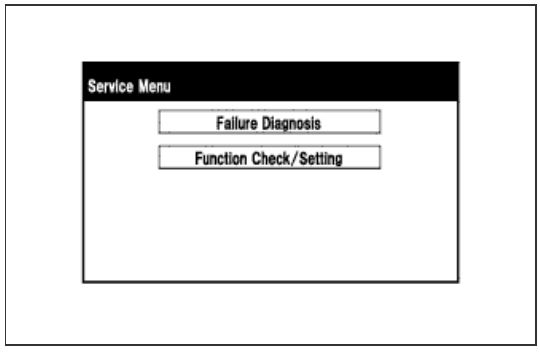
**NOTICE:**

Alignment must be performed with the engine running. For this reason, it is necessary to apply the parking brake, depress the brake pedal, and move the shift lever into the P position, and to exercise all other necessary caution to ensure that the vehicle does not begin moving unexpectedly.

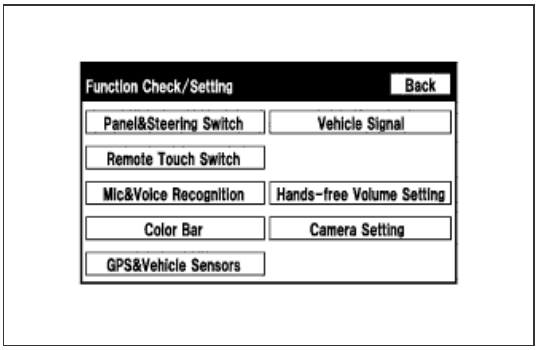
**HINT:**

The displayed items may differ depending on vehicle specifications.

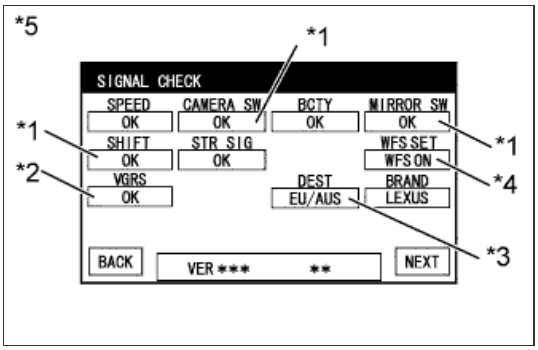
**i.** Select "Function Check/Setting" on the Service Menu screen.



ii. Select "Camera Setting" on the Function Check/Setting screen.




iii. Select "NEXT" on the SIGNAL CHECK screen.




**Text in Illustration**

| | |
|---|---|
| *1 | w/ Side Monitor System |
| *2 | w/ VGRS |
| *3 | "EU/AUS" or "GCC/ZAF" |
| *4 | "WFS ON" (w/ Side Monitor System)<br>"WFS OFF" (w/o Side Monitor System) |
| *5 | Example |

**NOTICE:**

- **When "CHK" (red) is displayed for any items on the SIGNAL CHECK screen, selecting "NEXT" will not change the screen to the SIDE CAMERA POSITION SETTING screen.**
- **When "CHK" (red) is displayed for any items on the SIGNAL CHECK screen, perform inspections using the SIGNAL CHECK screen (Click here).**

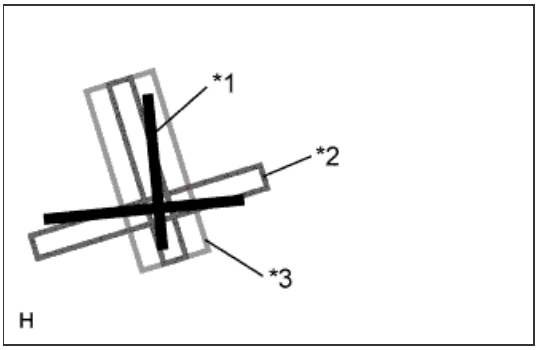
**HINT:**

- **When the outer mirrors are retracted, selecting "NEXT" will not change the screen to the SIDE CAMERA POSITION SETTING screen.**
- **If the screen does not change to the SIDE CAMERA POSITION SETTING screen even though the outer mirrors are extended, perform the MIRROR SW check on the SIGNAL CHECK screen (Click here).**
- **If the screen does not change to the SIDE CAMERA POSITION SETTING screen even after "OK" (blue) is displayed as a result of the MIRROR SW check on the SIGNAL CHECK screen, replace the parking assist ECU (Click here).**

c. SIDE CAMERA POSITION SETTING

**HINT:**

Colors used on the side camera position setting screen




**Text in Illustration**

| | |
|---|---|
| *1 | Target Adjustment Bar for Side Camera Position Setting |
| *2 | Red Frame |
| *3 | Yellow Frame |

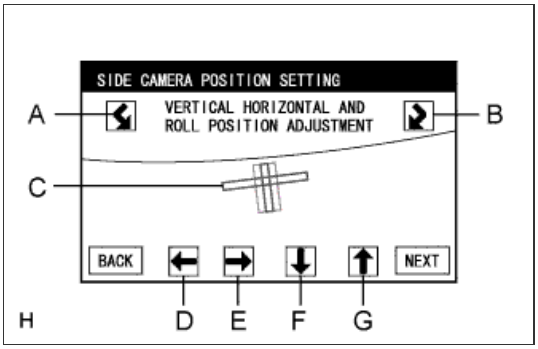
i. Perform the roll angle adjustment.

- Select switches A and B to rotate C so that it is parallel to the target adjustment bar.

ii. Perform the vertical and horizontal position adjustment.

- Select the directional switches D, E, F and G to move C so that the target adjustment bar is centered in C.

iii. Select "NEXT" to display SIDE VERIFY MODE.



d. SIDE VERIFY MODE

i. Check that the red cross and the target adjustment bar are aligned.

**HINT:**

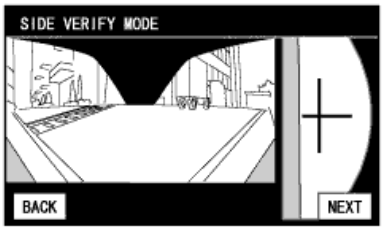
If they are not aligned, select "BACK" and perform SIDE CAMERA POSITION SETTING again.

ii. Select "NEXT" to store the side camera aiming adjustment value and change the screen to the STEERING ANGLE SETTING screen.

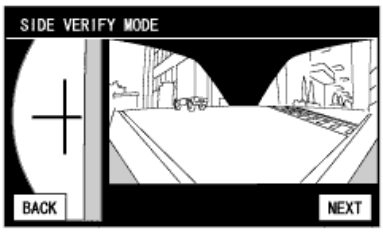
**HINT:**

- **When "NEXT" is selected, a beep will sound to confirm that the side camera aiming adjustment values have been stored.**
- **The adjustment value will not be stored unless "NEXT" is selected.**

for LHD:




for RHD:




H

e. STEERING ANGLE SETTING

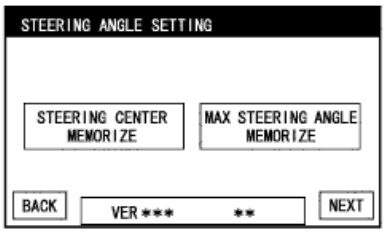
i. Perform the STEERING CENTER MEMORIZE operation.

- Check that the steering wheel is centered, and then select "STEERING CENTER MEMORIZE".

**HINT:**

When performing removal and installation, or replacement of the television camera, steering angle adjustment is not required.

ii. Perform the MAX STEERING ANGLE MEMORIZE operation.




H

- After adjusting the steering angle neutral point, turn the steering wheel to the left and right lock positions and select "MAX STEERING ANGLE MEMORIZE". The maximum steering angle is then stored and the screen changes to the BACK CAMERA POSITION SETTING screen.

**HINT:**

The "NEXT" button does not respond until the system stores the steering angle neutral point and maximum steering angle.

**HINT:**

- **It is also possible to start by initially turning the steering to the right side.**
- **When "MAX STEERING ANGLE MEMORIZE" is selected, a beep will sound to confirm that the steering adjustment values have been stored.**
- **The adjustment value will not be stored unless "MAX STEERING ANGLE MEMORIZE" is selected after turning the steering wheel side to side.**
- **When "BACK" is selected, the screen changes to SIDE VERIFY MODE without storing the set values.**
- **Even if no DTCs are detected, selecting "MAX STEERING ANGLE MEMORIZE" may not cause the adjustment value to be stored if the steering sensor is malfunctioning.**
- **If selecting "MAX STEERING ANGLE MEMORIZE" does not cause the adjustment value to be stored after adjusting the steering angle, replace the spiral with sensor cable sub-assembly.**

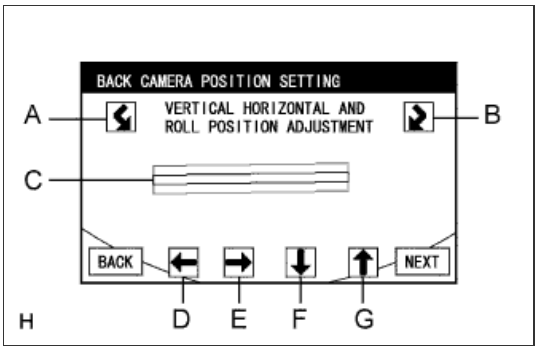
f. BACK CAMERA POSITION SETTING

**HINT:**

- **When the back door is open, the "Back door is open. Do not use**

**the rear view monitor when the back door is not completely closed." message will be displayed and camera position setting will not be possible.**

- **If the "Back door is open. Do not use the rear view monitor when the back door is not completely closed." message is displayed even when the back door is closed, perform inspections according to Problem Symptoms Table (A back door open warning message is displayed even after back door is closed) (Click here).**




i. Perform the roll angle adjustment.

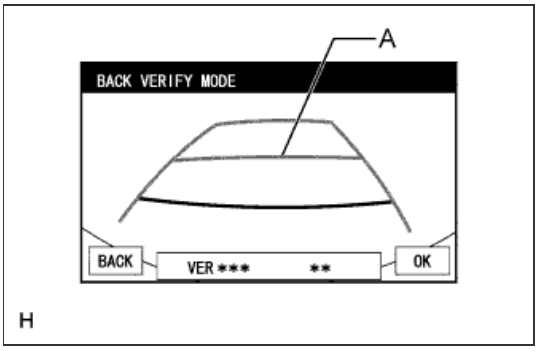
- Select switches A and B to rotate C so that it is parallel to the target adjustment bar.

ii. Perform the vertical and horizontal position adjustment.

- Select the directional switches D, E, F and G to move C so that the target adjustment bar is centered in C.

iii. Select the "NEXT" button on the BACK CAMERA POSITION SETTING screen.

g. BACK VERIFY MODE




i. Check that A and the target adjustment bar are overlapping.

- If the steering angle neutral point is not aligned, perform the STEERING CENTER MEMORIZE and MAX STEERING ANGLE MEMORIZE operations.
- If A and the target adjustment bar are not aligned even if the tires are aligned straight ahead, perform the camera position setting operation.

ii. Selecting "OK" will return the screen to the Service Menu screen, and complete the adjustment.

**HINT:**

- **The update is not completed until "OK" is selected.**
- **When "OK" is selected, a beep will sound to confirm that the rear camera aiming adjustment values have been stored.**

h. Finish diagnostic mode.

- for HDD (Click here).
- for DVD (Click here).

## BACK CAMERA POSITION SETTING

**HINT:**

Be sure to check for DTCs before performing this procedure ( Click here).

a. Preparation for adjustment

i. Park the vehicle with the steering wheel centered.

ii. Set a target bar for optical axis adjustment of the rear television camera.

**HINT:**

Only when adjusting the optical axis of the camera, create a target bar for adjustment.

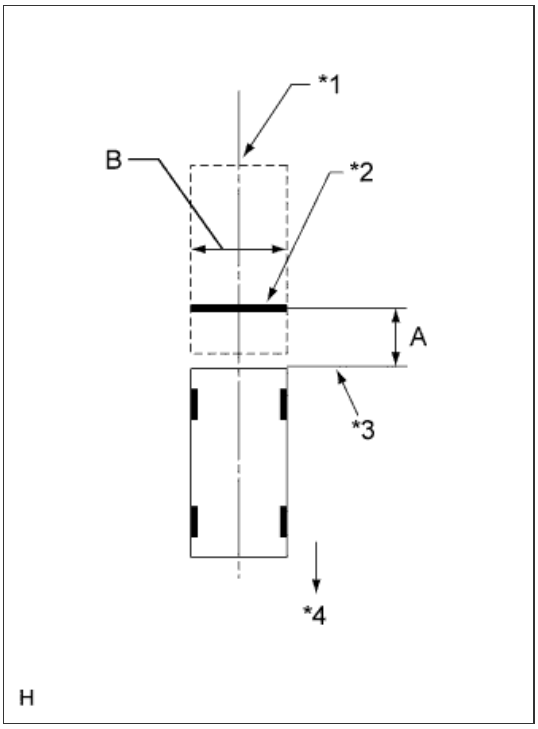
**Dimension:**

| Area | Specification |
|---|---|
| | 825 to 835 mm (2.71 to |

| | |
|---|---|
| A | 2.74 ft.) |
| B | 1995 to 2005 mm (6.545 to 6.578 ft.) |

**Text in Illustration**

| | |
|---|---|
| *1 | Vehicle Center |
| *2 | Target Bar for Back Camera Adjustment |
| *3 | Vehicle End |
| *4 | Front Side |




**HINT:**

- **Set a piece of tape on the ground as the target bar for adjustment. Its width and length should be 20 to 30 mm (0.787 to 1.181 in.) and 1995 to 2005 mm (6.545 to 6.578 ft.), respectively. Check the color on the multi-display and choose a tape color which can be easily seen.**
- **Before parking the vehicle, be sure to move the vehicle forward and in reverse to check that the tires are facing straight ahead with the steering wheel centered.**
- **Check that the back door is fully closed.**

b. Start diagnostic mode.

- for HDD (Click here).
- for DVD (Click here).

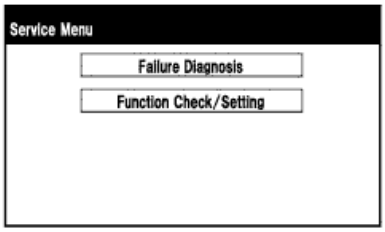
**NOTICE:**

Alignment must be performed with the engine running. For this reason, it is necessary to apply the parking brake, depress the brake pedal, and move the shift lever into the P position, and to exercise all other necessary caution to ensure that the vehicle does not begin moving unexpectedly.

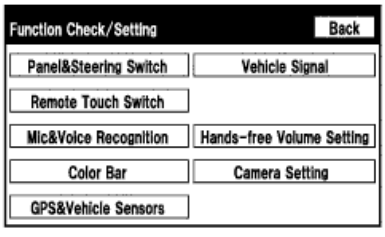
**HINT:**

The displayed items may differ depending on vehicle specifications.

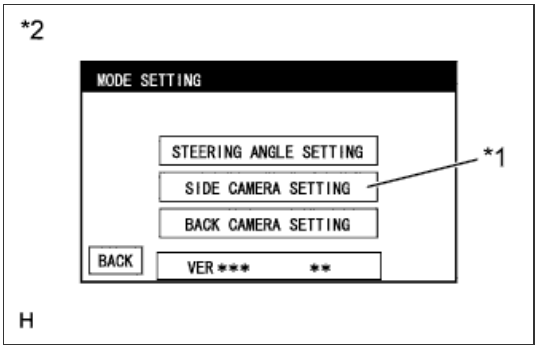
i. Select "Function Check/Setting" on the "Service Menu" screen.




ii. Select "Camera Setting" on the Function Check/Setting screen.



iii. Select "BACK CAMERA SETTING" on the MODE SETTING screen.



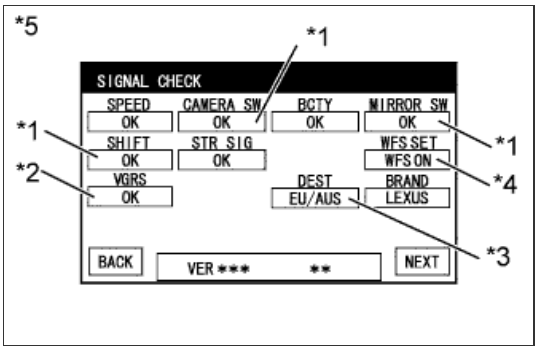

**Text in Illustration**

| | |
|---|---|
| *1 | w/ Side Monitor System |
| *2 | Example |

**HINT:**

To select a grayed out item, select and hold the item for 2 seconds or more.

iv. Select "NEXT" on the SIGNAL CHECK screen.



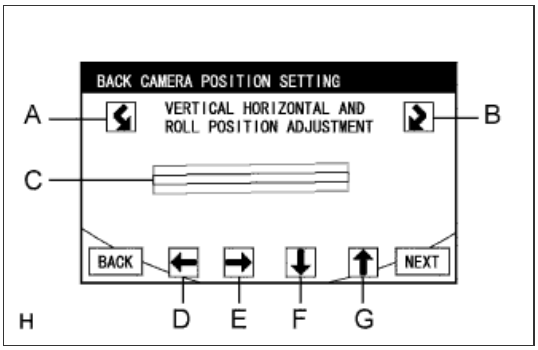

**Text in Illustration**

| | |
|---|---|
| *1 | w/ Side Monitor System |
| *2 | w/ VGRS |
| *3 | "EU/AUS" or "GCC/ZAF" |
| *4 | "WFS ON" (w/ Side Monitor System)<br>"WFS OFF" (w/o Side Monitor System) |
| *5 | Example |

**NOTICE:**

- **When "CHK" (red) is displayed for any items on the SIGNAL CHECK screen, selecting "NEXT" will not change the screen to the BACK CAMERA POSITION SETTING screen.**
- **When "CHK" (red) is displayed for any items on the SIGNAL CHECK screen, perform inspections using the SIGNAL CHECK screen (Click here).**

c. BACK CAMERA POSITION SETTING




**HINT:**

- **When the back door is open, the "Back door is open. Do not use the rear view monitor when the back door is not completely closed." message will be displayed and camera position setting will not be possible.**
- **If the "Back door is open. Do not use the rear view monitor when the back door is not completely closed." message is displayed even when the back door is closed, perform inspections according to Problem Symptoms Table (A back door open warning message is displayed even after back door is closed) (Click here).**

i. Perform the roll angle adjustment.

- Select switches A and B to rotate C so that it is parallel to the target adjustment bar.

ii. Perform the vertical and horizontal position adjustment.

- Select the directional switches D, E, F and G to move C so that the target adjustment bar is centered in C.

iii. Select the "NEXT" button on the "BACK CAMERA POSITION SETTING" screen.

d. BACK VERIFY MODE

i. Check that A and the target adjustment bar are overlapping.

- If the steering angle neutral point is not aligned, perform the STEERING CENTER MEMORIZE and MAX STEERING ANGLE MEMORIZE operations.
- If A and the target adjustment bar are not aligned even if the tires are aligned straight ahead, perform the camera position setting operation.

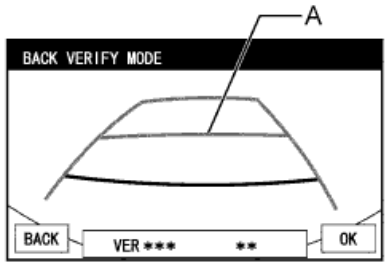
ii. Selecting "OK" will return the screen to the Service Menu, and complete the adjustment.

**HINT:**

- **The update is not completed until "OK" is selected.**
- **When "OK" is selected, a beep will sound to confirm that the rear camera aiming adjustment values have been stored.**

e. Finish diagnostic mode.

- for HDD (Click here).
- for DVD (Click here).




H

**for Preparation** Click here

**HINT:**

Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms the listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

**NOTICE:**

The following inspection procedures of the parking assist monitor system are described on the assumption that the navigation system is normal. If any navigation system DTC is output, first proceed with troubleshooting of the navigation system.

### Parking Assist Monitor System

| Symptom | Suspected Area | See page |
|---|---|---|
| When shift lever is in R, parking assist monitor image is not displayed (Screen is not black) | ECU Power Source Circuit | Click here |
| | GVIF Cable (Navigation ECU - Parking Assist ECU) | - |
| | Reverse Signal Circuit | Click here |
| | Parking Assist ECU | Click here |
| When shift lever is in R, parking assist monitor image is not displayed (Screen is black) | GVIF Cable (Parking Assist ECU - Multi-display) | - |
| | Harness or Connector (Rear Television Camera - Parking Assist ECU) | - |
| | Rear Television Camera Assembly | Click here |
| | Parking Assist ECU | Click here |
| When shift lever is not in R, parking assist monitor image is displayed | Reverse Signal Circuit | Click here |
| | Parking Assist ECU | Click here |
| Projected course guidelines are not displayed | Steering Angle Sensor | Click here |
| | Steering Angle Sensor Power Supply | - |
| | Parking Assist ECU | Click here |
| Manual assist mode screen is normal but pressing switch to change to parallel parking assist mode does not change screen | AVC-LAN Circuit | Click here |
| | Parking Assist ECU | Click here |
| Problem with the parking assist monitor image (color, distortion of picture) | GVIF Cable (Navigation ECU - Parking Assist ECU) | - |
| | GVIF Cable (Parking Assist ECU - Multi-display) | - |
| | Rear Television Camera Assembly | Click here |
| | Parking Assist ECU | Click here |
| | This may occur when reversing at very low speed | - |
| During parallel parking assist mode, screen changes even though vehicle has not moved | If vehicle is stopped for extended period of time, screen may not change | - |
| "System initializing" is displayed | Correct the steering angle neutral point | Click here |

**for Preparation** Click here

**HINT:**

Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms the listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

**NOTICE:**

The following inspection procedure of the parking assist monitor system is described on the assumption that the navigation system is normal. If navigation system has any malfunction, first proceed with troubleshooting of the navigation system.

### General

| Symptom | Suspected Area | See page |
|---|---|---|
| When the shift lever is in R, the parking assist monitor image is not displayed (screen is not black). | ECU power source circuit | Click here |
| | Images from all cameras are abnormal | Click here |
| | Parking assist ECU | Click here |
| When the shift lever is in R, the parking assist monitor image is not displayed (screen is black). | Image from camera for parking assist monitor is abnormal | Click here |
| | Display and navigation module display (for HDD) | Click here |
| | Display and navigation module display (for DVD) | Click here |
| | Parking assist ECU | Click here |
| When the shift lever is not in R, the parking assist monitor image is displayed. | Display and navigation module display (for HDD) | Click here |
| | Display and navigation module display (for DVD) | Click here |
| | Parking assist ECU | Click here |

### Display Malfunction

| Symptom | Suspected Area | See page |
|---|---|---|
| Image from camera for the parking assist monitor is abnormal (side monitor system is also abnormal). | Images from all cameras are abnormal | Click here |
| | Parking assist ECU | Click here |
| Image from camera for the parking assist monitor is abnormal (side monitor system is normal). | Image from camera for parking assist monitor is abnormal | Click here |
| | Parking assist ECU | Click here |

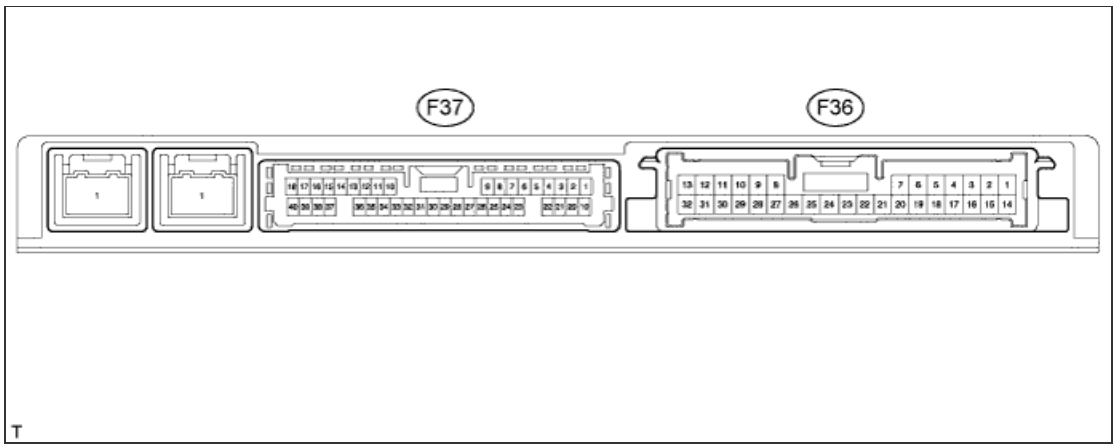
### Parking Assist Monitor System Malfunction

| Symptom | Suspected Area | See page |
|---|---|---|
| Projected course guidelines are not displayed. | Parking assist ECU | Click here |
| "System initializing" is displayed. | Correct the steering angle neutral point | Click here |
| "System initializing" is displayed even after correcting the steering angle neutral point. | Spiral with sensor cable sub-assembly | Click here |
| | Steering angle setting (Diagnosis System) | Click here |
| | | Click |

| | | |
|---|---|---|
| | Parking assist ECU | here |
| "System not ready" is displayed. | Parking assist ECU initialization (Calibration) | Click here |
| "System not ready" is displayed even after parking assist ECU initialization. | Parking assist ECU | Click here |
| During parallel parking assist mode, the screen does not change even though the vehicle has moved. | If vehicle is reversing at very low speed, screen may not change | - |
| During parallel parking assist mode, the screen changes even though the vehicle has not moved. | If vehicle is stopped for extended period of time, screen may change | - |
| "CHK" message(s) are displayed on the SIGNAL CHECK screen. | "CHK" message(s) are displayed on the SIGNAL CHECK screen | Click here |
| A back door open warning message is displayed even after back door is closed. | Message indicating back door is open is displayed even after back door is closed | Click here |

**for Preparation** Click here

## CHECK PARKING ASSIST ECU




a. Disconnect the F36 ECU connector.

b. Measure the resistance and voltage according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F36-6 (+B) - Body ground | L - Body ground | Power source | Always | 11 to 14 V |
| F36-1 (IG) - F36-4 (GND1) | G - W-B | Ignition signal input | Engine switch on (IG) | 11 to 14 V |
| F36-1 (IG) - F36-4 (GND1) | G - W-B | Ignition signal input | Engine switch off | Below 1 V |
| F36-14 (ACC) - F36-4 (GND1) | GR - W-B | Accessory | Engine switch on (ACC) | 11 to 14 V |
| F36-14 (ACC) - F36-4 (GND1) | GR - W-B | Accessory | Engine switch off | Below 1 V |
| F36-4 (GND1) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |

If the result is not as specified, there may be a malfunction on the wire harness side.

c. Reconnect the F36 ECU connector.

d. Measure the voltage according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F37-10 (CV+) - F37-34 (CV-) | R - Shielded | Television camera display signal (NTSC) input | Engine switch on (IG), shift lever moved to R | Waveform |
| F37-11 (CGND) - F36-4 (GND1) | W - W-B | Television camera ground | Always | Below 1 V |
| F37-34 (CV-) - F36-4 (GND1) | Shielded - W-B | Television camera ground (shielded) | Always | Below 1 V |
| F37-35 (CB+) - F36-4 (GND1) | B - W-B | Power source to television camera | Engine switch on (IG), shift lever moved to R | 5.8 to 6.5 V |

If the result is not as specified, the ECU may have a malfunction.

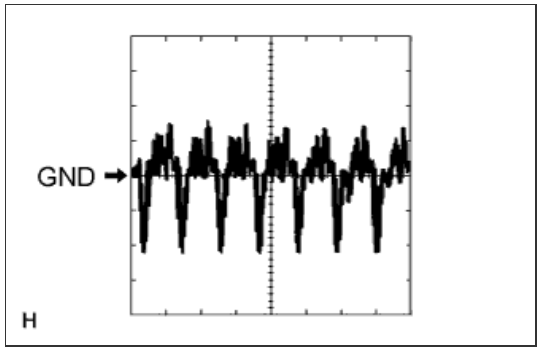
**HINT:**

Using an oscilloscope, check the waveform.

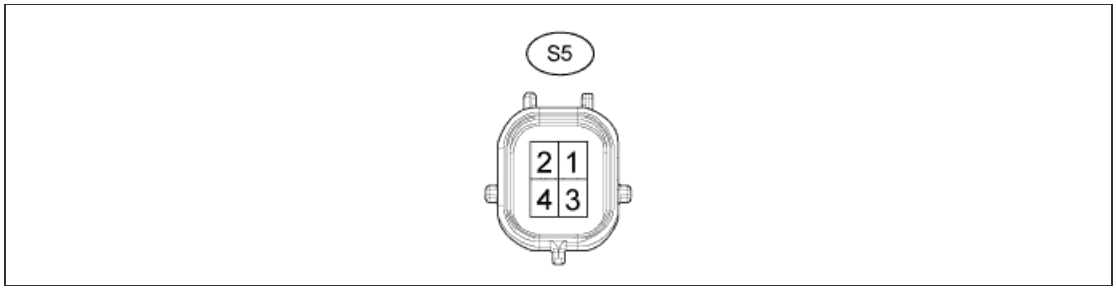
**Waveform (Reference)**

| Item | Content |
|---|---|

| | |
|---|---|
| Terminal No. (Symbol) | F37-10 (CV+) - F37-34 (CV-) |
| Tool Setting | 0.2 V/DIV., 50 µs/DIV. |
| Condition | Engine switch on (IG), shift lever moved to R |




**CHECK REAR TELEVISION CAMERA ASSEMBLY**




a. Measure the voltage and resistance according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| S5-3 (CGND) - Body ground | W - Body ground | Ground | Always | Below 1 Ω |
| S5-4 (CB+) - S5-3 (CGND) | B - W | Power source | Engine switch on (IG), shift lever moved to R | 5.8 to 6.5 V |
| S5-2 (CV+) - S5-1 (CV-) | R - BR | Display signal | Engine switch on (IG), shift lever moved to R | Waveform |

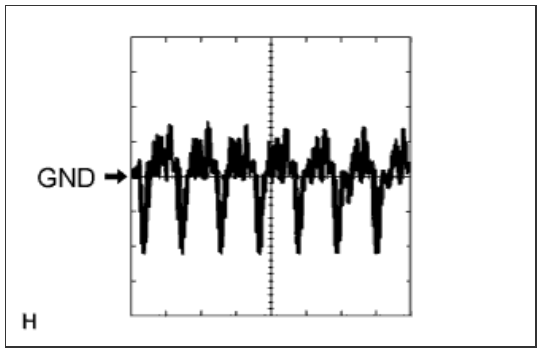
If the result is not as specified, the camera may have a malfunction.

**HINT:**

Using an oscilloscope, check the waveform.

**Waveform (Reference)**

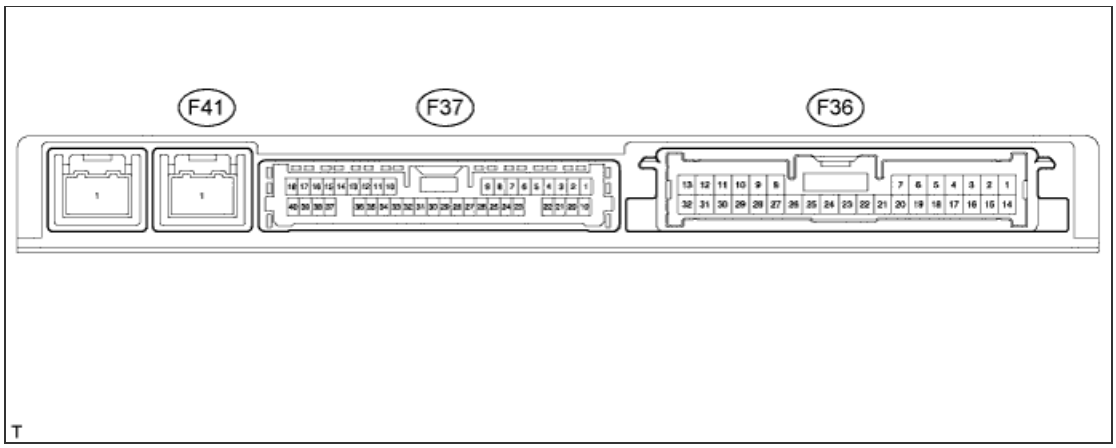
| Item | Content |
|---|---|
| Terminal No. (Symbol) | S5-2 (CV+) - S5-1 (CV-) |
| Tool Setting | 0.2 V/DIV., 50 µs/DIV. |
| Condition | Engine switch on (IG), shift lever moved to R |




**CHECK MULTI-DISPLAY (Click here)**

**for Preparation** Click here

## PARKING ASSIST ECU




a. Disconnect the F36 connector from the ECU.

b. Measure the voltage and resistance of each terminal of the wire harness side connector.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F36-6 (+B) - F36-4 (GND1) | L - W-B | Power source signal | Always | 11 to 14 V |
| F36-4 (GND1) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F36-1 (IG) - F36-4 (GND1) | G - W-B | IG power source signal | Engine switch on (IG) | 11 to 14 V |
| F36-14 (ACC) - F36-4 (GND1) | GR - W-B | ACC power source signal | Engine switch on (ACC) | 11 to 14 V |
| F37-22 (BLSW) - F36-4 (GND1) | G - W-B | Front and side monitor main switch power source signal | Engine switch on (IG), front and side monitor main switch on | 11 to 14 V |

If the result is not as specified, there may be a malfunction on the wire harness side.

c. Reconnect the F36 connector to the ECU.

d. Measure the voltage and check for pulses according to the value(s) in the table below.

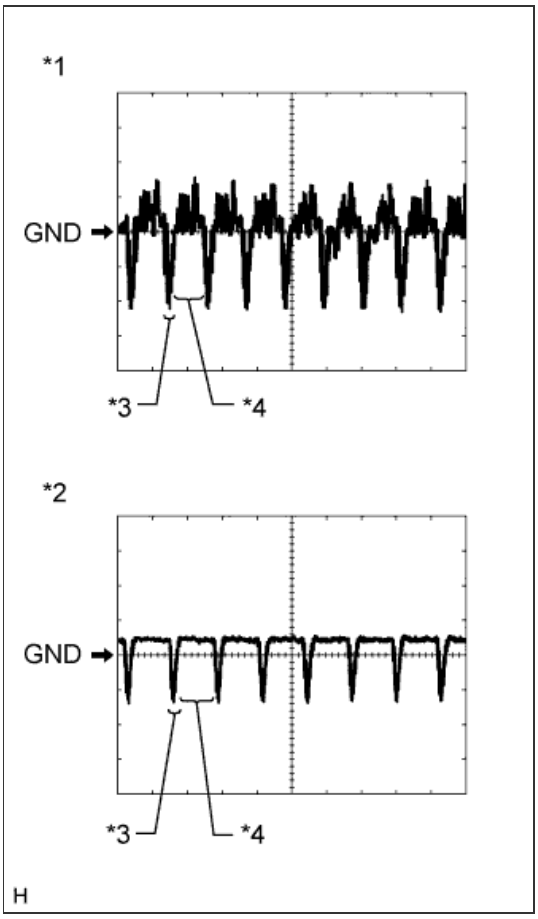
| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F36-10 (CANL) - F36-4 (GND1) | L - W-B | CAN communication signal | CAN communication circuit | Pulse generation |
| F36-9 (CANH) - F36-4 (GND1) | V - W-B | CAN communication signal | CAN communication circuit | Pulse generation |
| F36-32 (TX-) - F36-31 (TX+) | L - W | AVC-LAN communication signal | - | - |
| F37-34 (CV-) - F36-4 (GND1) | W - W-B | Rear television camera ground | Always | Below 1 V |
| F37-10 (CV+) - F36-4 (GND1) | R - W-B | Rear television camera display signal (NTSC) input | Engine switch on (IG)<br>Shift lever in R<br>Under normal conditions | Pulse generation<br>(See waveform 1) |
| | | | Engine switch on (IG)<br>Shift lever in R<br>Camera lens is covered, blacking out screen | Pulse generation<br>(See waveform 2) |
| F37-11 (CGND) - F36-4 (GND1) | Shield - W-B | Rear television camera ground (shield) | Always | Below 1 V |
| F37-35 (CB+) - F36-4 (GND1) | B - W-B | Power source to rear television camera | Engine switch on (IG)<br>Shift lever in R | 5.8 to 7.0 V |

If the result is not as specified, the ECU may have a malfunction.

e. Reference (Oscilloscope waveform):

**HINT:**

A waterproof connector is used for the rear television camera assembly. Therefore, inspect the waveform at the parking assist ECU with the connector connected.




i. Waveform 1 (under normal conditions)

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F37-10 (CV+) - F36-4 (GND1) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), shift lever in R |

**HINT:**

The video waveform changes according to the image sent by the rear television camera assembly.

ii. Waveform 2 (camera lens is covered, blacking out the screen)

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F37-10 (CV+) - F36-4 (GND1) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), shift lever in R |

**HINT:**

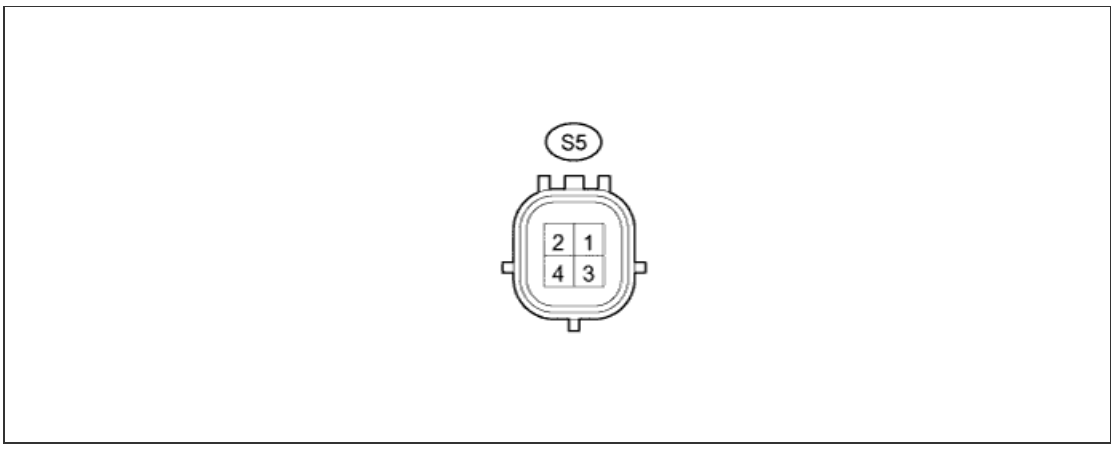
The video waveform changes according to the image sent by the rear television camera assembly.

**Text in Illustration**

| | |
|---|---|
| *1 | Waveform 1 (under normal conditions) |
| *2 | Waveform 2 (camera lens is covered, blacking out the screen) |
| *3 | Synchronized Signal |
| *4 | Video Waveform |

## REAR TELEVISION CAMERA ASSEMBLY

a. Disconnect the S5 connector from the rear television camera assembly.




b. Measure the voltage of each terminal of the wire harness side connector.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| S5-4 (CB+) - Body ground | B - Body ground | Power source | Engine switch on (IG)<br>Shift lever in R | 5.8 to 7.0 V |

If the result is not as specified, there may be a malfunction on the wire harness side.

c. Reconnect the S5 connector to the rear television camera assembly.

d. Check for pulses between each terminal of the connector.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| S5-2 (CV+) - S5-1 (CV-) | R - W | Display signal | Engine switch on (IG)<br>Shift lever in R<br>Under normal conditions | Pulse generation<br>(See waveform 1) |
| | | | Engine switch on (IG)<br>Shift lever in R<br>Camera lens covered, blacking out screen | Pulse generation<br>(See waveform 2) |

**HINT:**

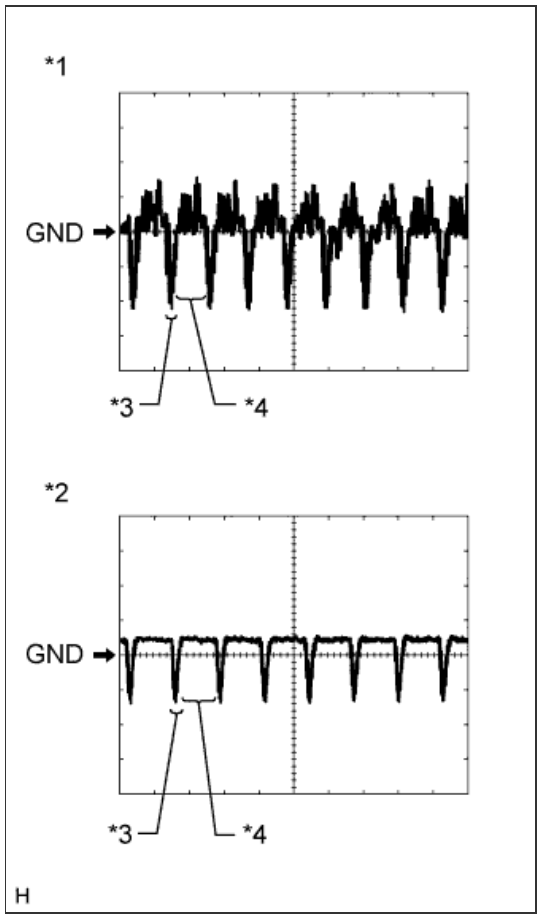
A waterproof connector is used for the rear television camera assembly. Therefore, inspect the waveform at the parking assist ECU with the connector connected.

If the result is not as specified, the camera may have a malfunction.

e. Reference (Oscilloscope waveform):

**HINT:**

A waterproof connector is used for the rear television camera assembly. Therefore, inspect the waveform at the parking assist ECU with the connector connected.




i. Waveform 1 (under normal conditions)

| Item | Content |
|---|---|
| Terminal No. (Symbol) | S5-2 (CV+) - S5-1 (CV-) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), shift lever in R |

**HINT:**

The video waveform changes according to the image sent by the rear television camera assembly.

ii. Waveform 2 (camera lens is covered, blacking out the screen)

| Item | Content |
|---|---|
| Terminal No. (Symbol) | S5-2 (CV+) - S5-1 (CV-) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), shift lever in R |

**HINT:**

The video waveform changes according to the image sent by the rear television camera assembly.

**Text in Illustration**

| | |
|---|---|
| *1 | Waveform 1 (under normal conditions) |
| *2 | Waveform 2 (camera lens is covered, blacking out the screen) |
| *3 | Synchronized Signal |
| *4 | Video Waveform |

## DISPLAY AND NAVIGATION MODULE DISPLAY

for DVD (Click here)
for HDD (Click here)

**for Preparation** Click here

## PARKING ASSIST MONITOR DIAGNOSIS SYSTEM

a. For parking assist monitor system diagnosis, signals received by the parking assist ECU can be checked and the parking assist monitor system can be calibrated, adjusted and checked using the multi-display.

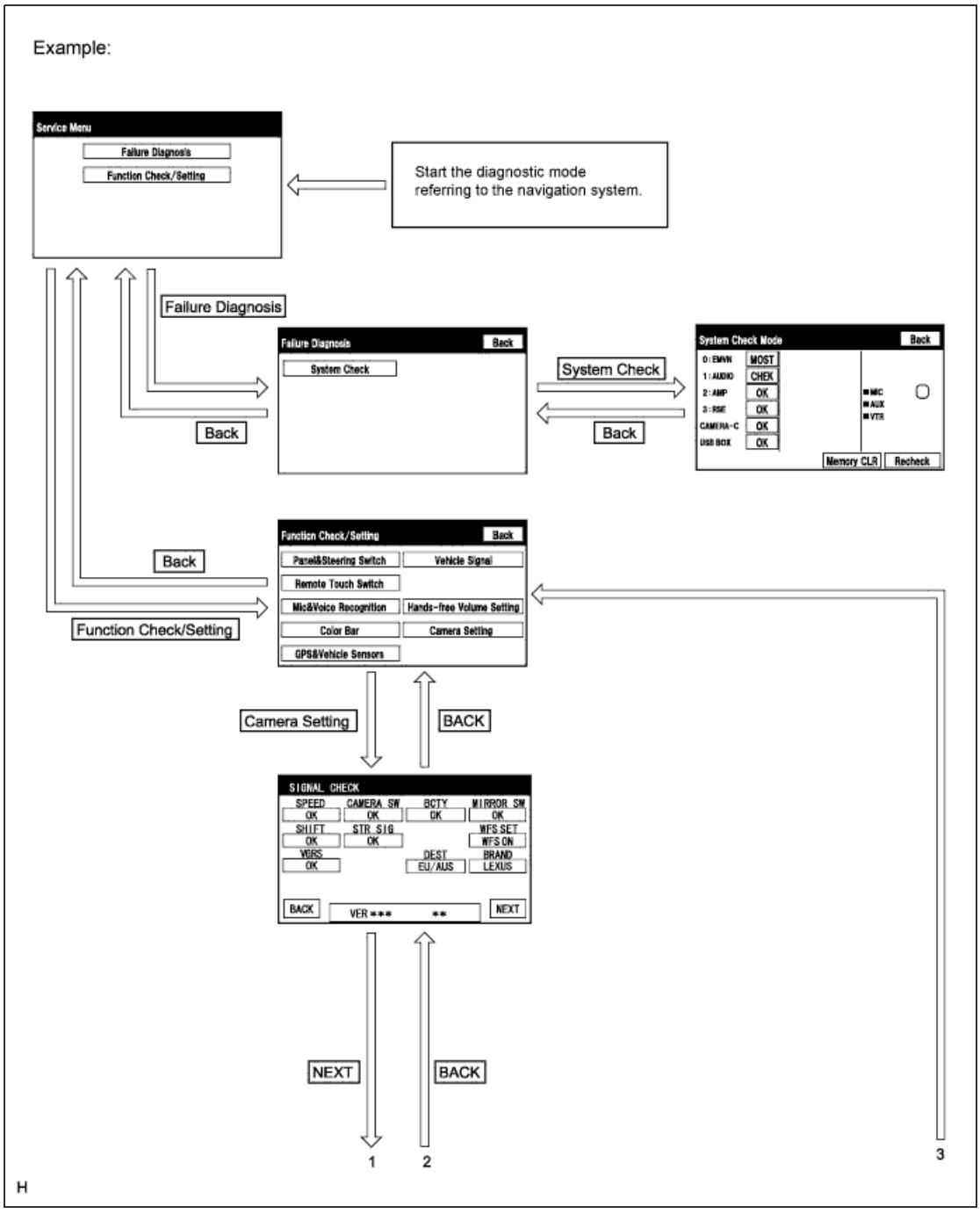
**NOTICE:**

Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system may be needed (Click here).

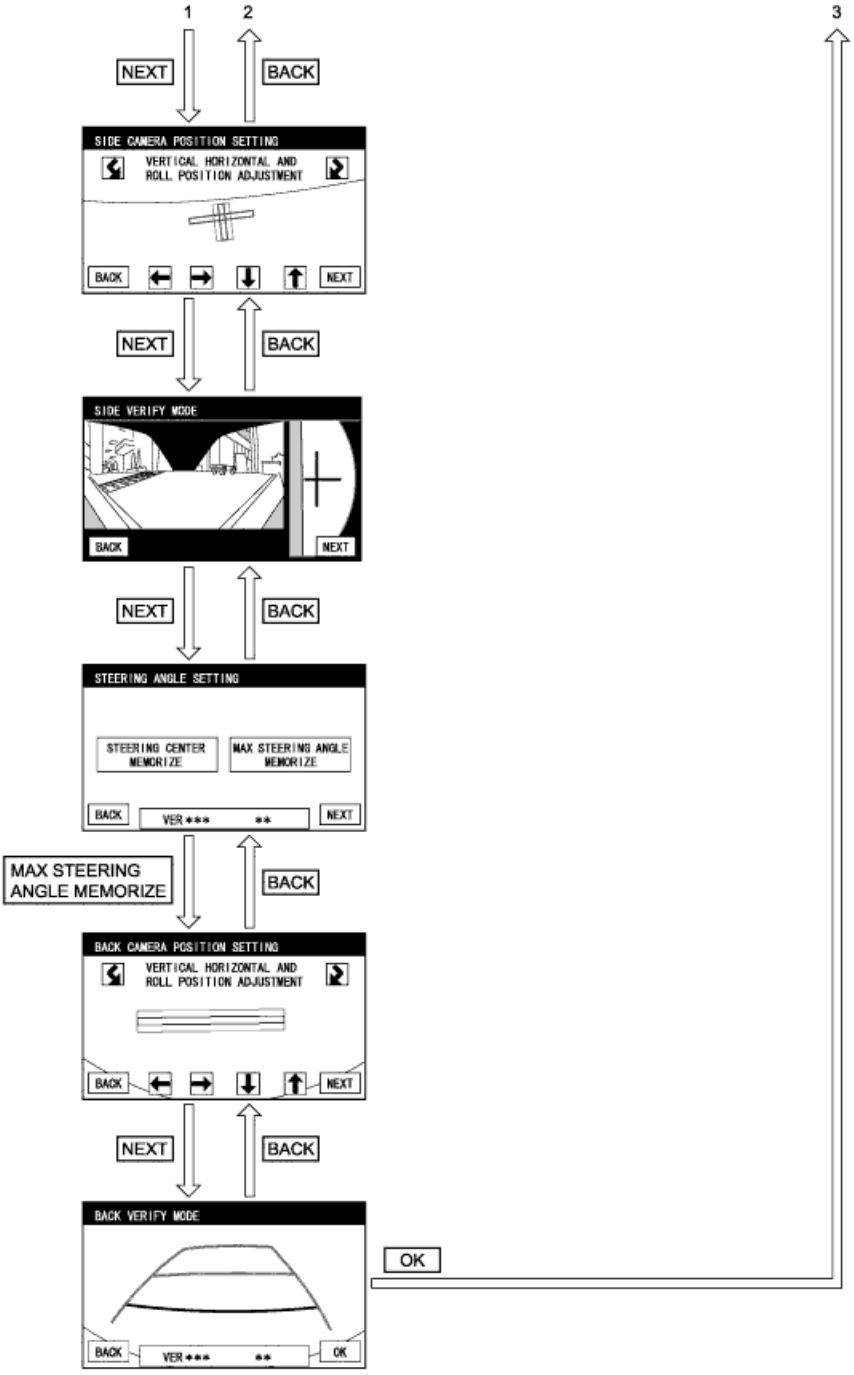
**HINT:**

The displayed screens and items may differ depending on vehicle specifications.

## DIAGNOSIS SCREEN TRANSITION (during parking assist ECU initialization)

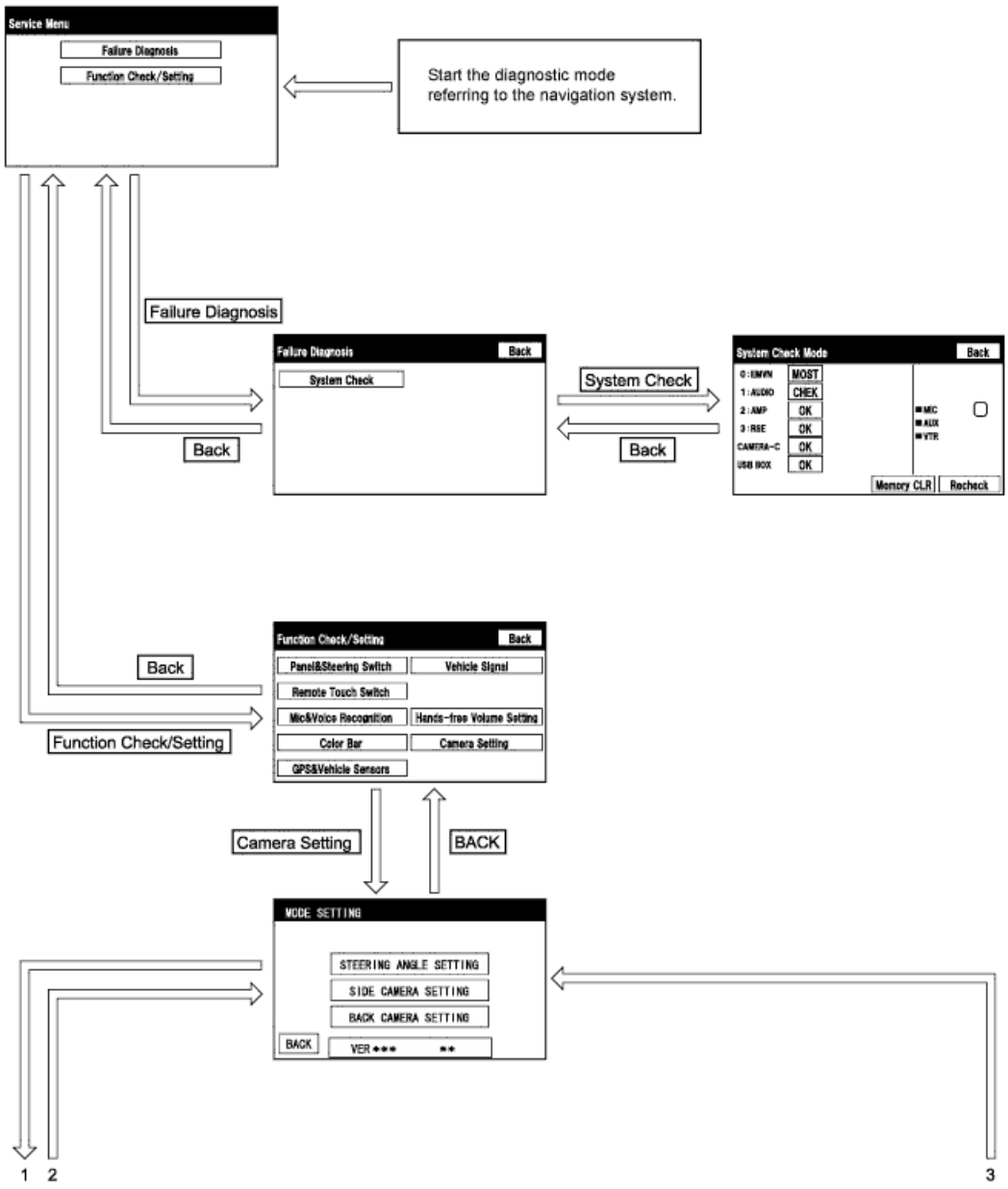


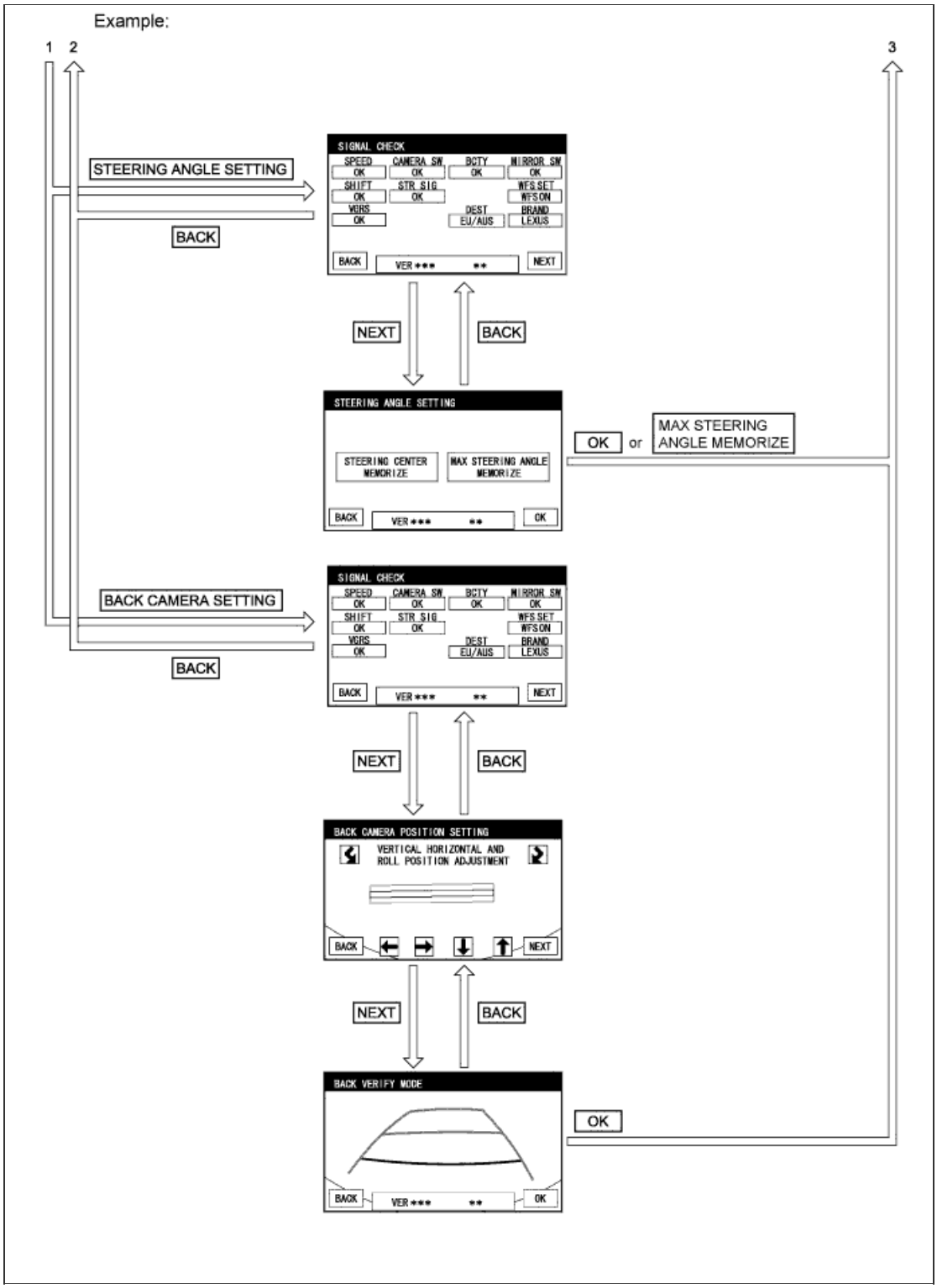
Example:




**DIAGNOSIS SCREEN TRANSITION (after parking assist ECU initialization)**

Example:


Service Menu
Failure Diagnosis
Function Check/Setting
Start the diagnostic mode referring to the navigation system.
Failure Diagnosis
Back
Failure Diagnosis
Back
System Check
System Check
Back
System Check Mode
Back
0 : BMVN
MOST
1 : AUDIO
CHEK
2 : AMP
OK
3 : RSE
OK
CAMERA-C
OK
USB BOX
OK
MIC
AUX
VTR
Memory CLR
Recheck
Back
Function Check/Setting
Function Check/Setting
Back
Panel&Steering Switch
Vehicle Signal
Remote Touch Switch
Mic&Voice Recognition
Hands-free Volume Setting
Color Bar
Camera Setting
GPS&Vehicle Sensors
Camera Setting
BACK
MODE SETTING
STEERING ANGLE SETTING
SIDE CAMERA SETTING
BACK CAMERA SETTING
BACK
VER***
**
1
2
3




## DIAGNOSTIC MODE

a. Start diagnostic mode.

- for HDD (Click here).
- for DVD (Click here).

b. Failure diagnosis.

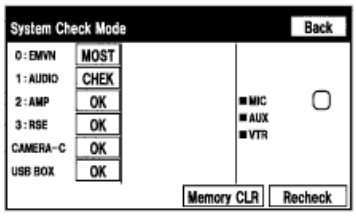
- for HDD (Click here).
- for DVD (Click here).

c. System check (check using system check mode screen).

- for HDD (Click here).
- for DVD (Click here).

d. Finish diagnostic mode.

- for HDD (Click here).
- for DVD (Click here).

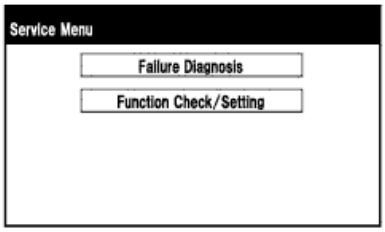



## SIGNAL CHECK (parking assist ECU input signal)

a. Start diagnostic mode.

- for HDD (Click here).
- for DVD (Click here).

i. Select "Function Check/Setting" on the Service Menu screen to display the Function Check/Setting screen.

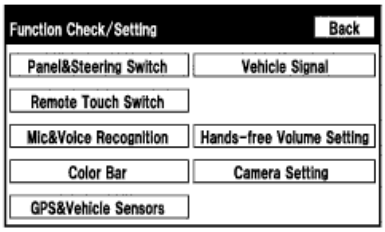



ii. Select "Camera Setting" on the Function Check/Setting screen.

**HINT:**

After "Camera Setting" is selected, the screen transitions differ depending on whether initialization of the parking assist ECU was performed after parking assist ECU replacement.

| Parking Assist ECU Initialization | Screen Transition |
|---|---|
| Not performed | SIGNAL CHECK screen |
| Performed | MODE SETTING screen |



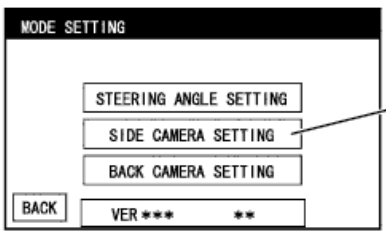

iii. When the screen changes to the MODE SETTING screen, select "BACK CAMERA SETTING" to display the SIGNAL CHECK screen.

**HINT:**

To select a grayed out item, select and hold the item for 2 seconds or more.

**Text in Illustration**

| | |
|---|---|
| *1 | w/ Side Monitor System |



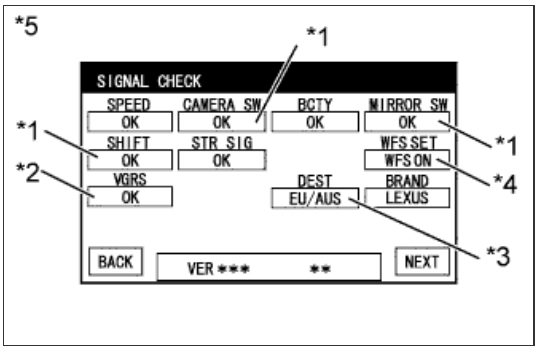

H

b. SIGNAL CHECK

**Text in Illustration**

| | |
|---|---|
| *1 | w/ Side Monitor System |

| | |
|---|---|
| *2 | w/ VGRS |
| *3 | "EU/AUS" or "GCC/ZAF" |
| *4 | "WFS ON" (w/ Side Monitor System)<br>"WFS OFF" (w/o Side Monitor System) |
| *5 | Example |




i. On the SIGNAL CHECK screen, it is possible to inspect the state of signals sent to the parking assist ECU and check the settings.

| Item | Inspection Detail | Note |
|---|---|---|
| SPEED | Speed signal input | When "CHK" (red) is displayed, selecting "NEXT" will not change to the next screen. |
| CAMERA SW *1 | Front and side monitor main switch signal input | |
| BCTY | CAN communication condition with main body ECU | |
| MIRROR SW *1 | Outer rear view mirror retract signal input | |
| SHIFT *1 | Shift signal input | |
| STR SIG | Steering angle sensor signal input | |
| WFS SET | Front monitor signal input *1 | |
| VGRS *2 | VGRS signal input | |
| DEST | Destination information signal input | |
| BRAND | Brand information input | |

*1: w/ Side Monitor System
*2: w/ VGRS

**HINT:**

- **When "CHK" (red) is displayed, perform inspections based on the result of the following inspections.**
- **If performing the adjustment after proceeding to the next screen, confirm that all items display "OK" (blue) before selecting "NEXT".**

c. SPEED inspection

**HINT:**

If "CHK" (red) is displayed for "SPEED", check for DTCs and perform troubleshooting based on the output DTCs ( Click here).

d. CAMERA SW inspection (w/ Side Monitor System)

i. Check that "OK" (blue) is displayed for "CAMERA SW" and select "OK".

ii. Check that "OK" (blue) changes to "CHK" (red). Press the front and side monitor main switch (steering pad switch assembly) and check that "CHK" (red) returns to "OK" (blue).

**HINT:**

If "CHK" (red) remains displayed or the "CAMERA SW" inspection result is not normal, perform troubleshooting according to Problem Symptoms Table ("CHK" message(s) are displayed on the SIGNAL CHECK screen) (Click here).

e. BCTY inspection

**HINT:**

If "CHK" (red) is displayed for "BCTY", check for DTCs and perform troubleshooting based on the output DTCs ( Click here).

f. MIRROR SW inspection (w/ Side Monitor System)

i. Check that "OK" (blue) is displayed for "MIRROR SW" and select "OK".

ii. Check that "OK" (blue) changes to "CHK" (red). Press the outer mirror switch and check that "CHK" (red) returns to "OK" (blue).

**HINT:**

After operating the outer mirror retract switch, if the outer mirror remains in the retracted state, return the outer mirror to the driving position. If "CHK" (red) remains displayed or the "MIRROR SW" inspection result is not normal, perform troubleshooting according to Problem Symptoms Table ("CHK" message(s) are displayed on the SIGNAL CHECK screen) (Click here)

g. SHIFT inspection (w/ Side Monitor System)

**HINT:**

If "CHK" (red) is displayed for "SHIFT", check for DTCs and perform troubleshooting based on the output DTCs ( Click here).

h. STR SIG inspection

**HINT:**

If "CHK" (red) is displayed for "STR SIG", check for DTCs and perform troubleshooting based on the output DTCs ( Click here).

i. WFS SET inspection (w/ Side Monitor System)

**HINT:**

If "CHK" is displayed, perform a CAMERA SW check and a camera connection check ( Click here).

j. DEST inspection

**HINT:**

If "CHK" (red) is displayed for "DEST", check for DTCs and perform troubleshooting based on the output DTCs ( Click here).

k. VGRS inspection (w/ VGRS)

**HINT:**

If "CHK" (red) is displayed for "VGRS", check for DTCs and perform troubleshooting based on the output DTCs ( Click here).

l. BRAND inspection

**HINT:**

If "CHK" (red) is displayed for "BRAND", check for DTCs and perform troubleshooting based on the output DTCs ( Click here).

m. Finish diagnostic mode.

- for HDD (Click here).
- for DVD (Click here).

## CALIBRATION WHEN SERVICING VEHICLE

**NOTICE:**

Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system may be needed (Click here).

## STEERING ANGLE SETTING (after parking assist ECU is initialized)

**HINT:**

If the vehicle width extension lines and predicted path lines are not aligned when the steering wheel is centered, or if the predicted path line does not move before the steering wheel is fully turned to either the left or right, adjust the steering angle settings.

a. Center the steering wheel and stop the vehicle.

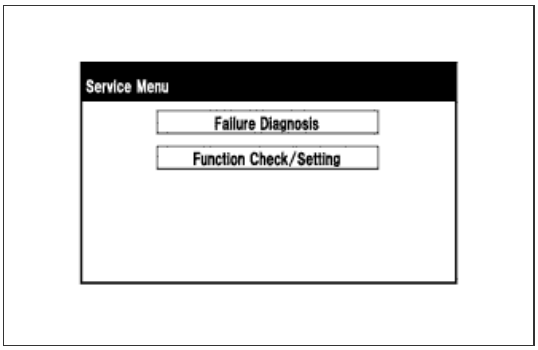
b. Start diagnostic mode.

- for HDD (Click here).
- for DVD (Click here).

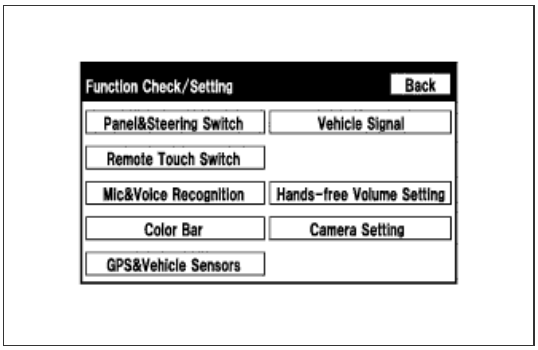
**NOTICE:**

Alignment must be performed with the engine running. For this reason, it is necessary to apply the parking brake, depress the brake pedal, and move the shift lever into the P position, and to exercise all other necessary caution to ensure that the vehicle does not begin moving unexpectedly.

i. Select "Function Check/Setting" on the Service Menu screen.




ii. Select "Camera Setting" on the Function Check/Setting screen.



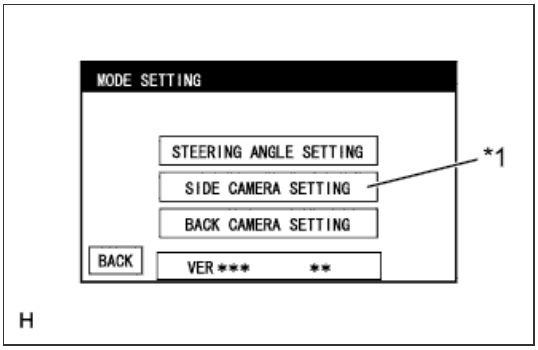

iii. Select "STEERING ANGLE SETTING" on the MODE SETTING screen.

**Text in Illustration**

| | |
|---|---|
| *1 | w/ Side Monitor System |

**HINT:**

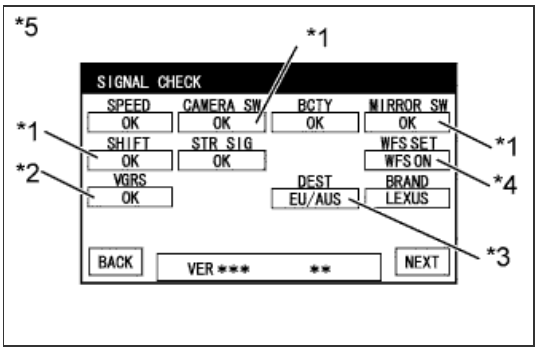
To select a grayed out item, select and hold the item for 2 seconds or more.




iv. Select "NEXT" on the SIGNAL CHECK screen to display the STEERING ANGLE SETTING screen.

**Text in Illustration**

| | |
|---|---|
| *1 | w/ Side Monitor System |
| *2 | w/ VGRS |
| *3 | "EU/AUS" or "GCC/ZAF" |
| *4 | "WFS ON" (w/ Side Monitor System)<br>"WFS OFF" (w/o Side Monitor System) |
| *5 | Example |




**NOTICE:**

- **When "CHK" (red) is displayed for any items on the SIGNAL CHECK screen, selecting "NEXT" will not change the screen to the STEERING ANGLE SETTING screen.**
- **When "CHK" is displayed for any items on the SIGNAL CHECK screen, perform inspections using the SIGNAL CHECK screen.**

c. Steering angle setting

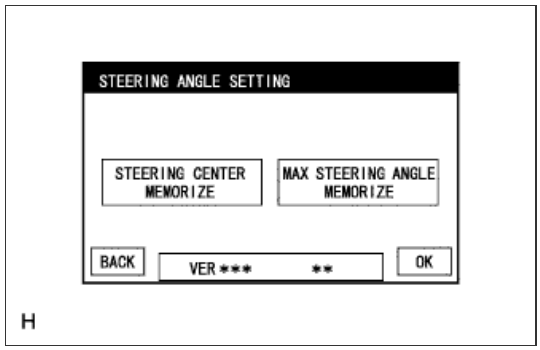
i. Check that the steering wheel is centered (approximately +/- 5 degrees or less) and select "STEERING CENTER MEMORIZE".

ii. After the centered steering position is memorized, turn the steering wheel to the left and then to the right full lock positions and select "MAX STEERING ANGLE MEMORIZE" or "OK".

**HINT:**

It is also possible to start by initially turning the steering wheel to the right side.

iii. Select "MAX STEERING ANGLE MEMORIZE" or "OK" to store the steering angle adjustment value and change the screen to the MODE SETTING screen.



H

**HINT:**

- **When "MAX STEERING ANGLE MEMORIZE" or "OK" is selected, a beep will sound to confirm that the steering angle adjustment values have been stored.**
- **The adjustment values will not be stored unless "MAX STEERING ANGLE MEMORIZE" or "OK" is selected.**
- **When "BACK" is selected, the screen changes to SIGNAL CHECK without storing the set values.**
- **If the steering angle settings have not been adjusted, selecting "MAX STEERING ANGLE MEMORIZE" or "OK" will not cause the adjustment values to be stored.**
- **Even if no DTCs are detected, selecting "MAX STEERING ANGLE MEMORIZE" or "OK" may not cause the adjustment value to be stored if the steering sensor is malfunctioning.**
- **If selecting "MAX STEERING ANGLE MEMORIZE" or "OK" does not cause the adjustment value to be stored after adjusting the steering angle, replace the spiral with sensor cable sub-assembly.**

d. Finish diagnostic mode.

- for HDD (Click here).
- for DVD (Click here).

e. Confirm steering angle adjustment.

**HINT:**

If the steering angle has been adjusted, confirm the steering angle adjustment on the parking assist monitor screen after finishing diagnosis mode.

i. Check on the parking assist screen that the predicted path line moves until the steering wheel is fully turned to either the left or right.

**HINT:**

If the predicted path line stops moving before the steering wheel is fully turned to either the left or right, the steering angle adjustment values have not been stored correctly. In this case, perform "STEERING CENTER MEMORIZE" and "MAX STEERING ANGLE MEMORIZE" again.

**for Preparation** Click here

**HINT:**

- **Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be exactly the same as the actual vehicle display.**
- **If the system cannot enter the diagnostic mode, inspect all AVC-LAN communication components and repair or replace problem parts (Click here).**
- **After turning the engine switch on (IG), check that the map is displayed before starting the diagnostic mode. Otherwise, some items cannot be checked.**

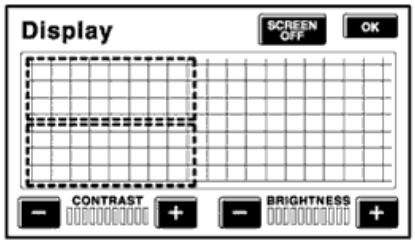
## START DIAGNOSTIC MODE

a. Start the engine.

b. Switch to the "Display Check" screen.

c. From the display quality adjustment screen, touch the corners of the screen in the following order: upper left → lower left → upper left → lower left → upper left → lower left.

d. The diagnostic mode starts and the "Diagnosis Inspection" screen will be displayed. Service inspection starts automatically and the result will be displayed.

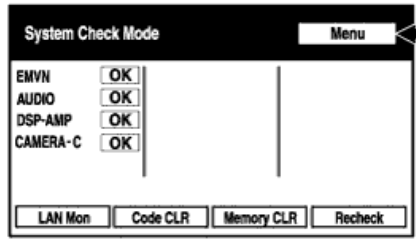



## FINISH DIAGNOSTIC MODE

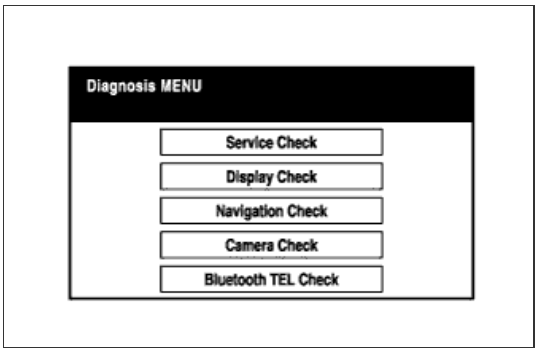
a. Turn the engine switch off.

## DIAGNOSIS MENU

a. Press the "Menu" switch on the "System Check Mode" screen.



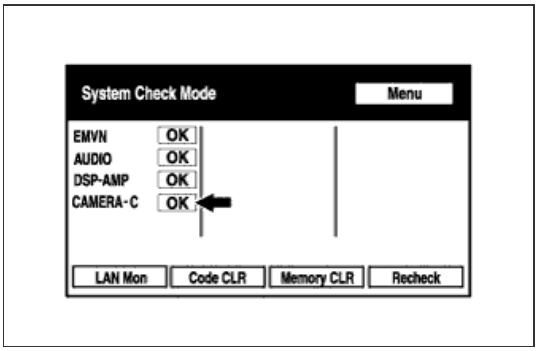

b. The "Diagnosis MENU" screen will be displayed.




## CHECK DTC

a. Read the system check result.

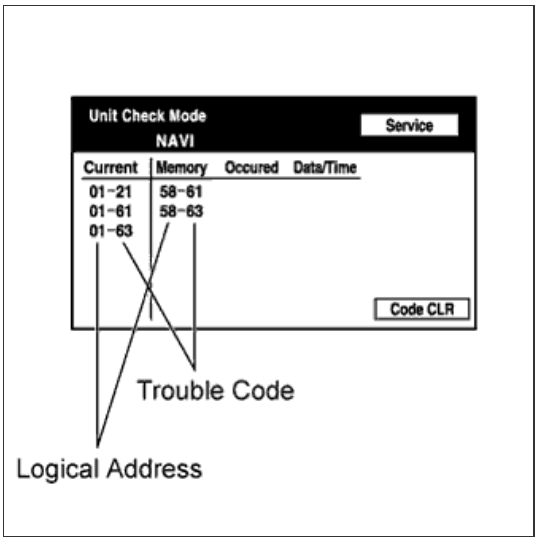
i. If the check result is "EXCH", "CHEK" or "Old", touch the displayed check result.



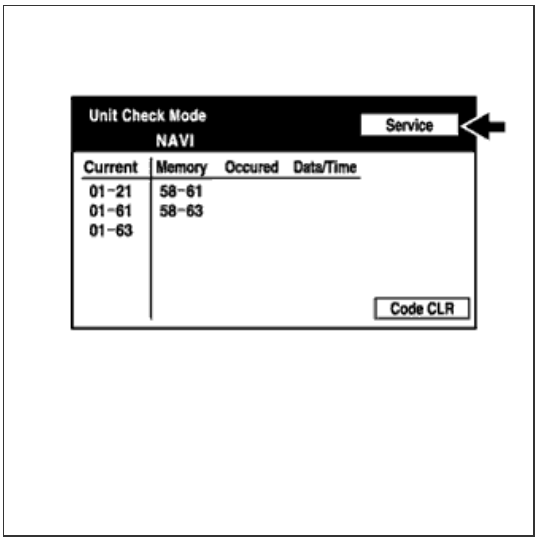

ii. View the results on the "Unit Check Mode" screen and record them.

**HINT:**

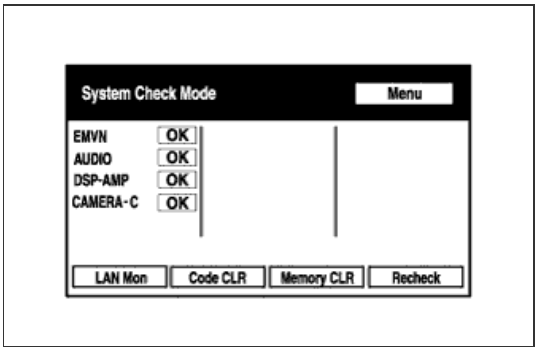
- **If all check results are "OK", go to the communication DTC check.**
- **If a device name is not known, its physical address is displayed.**




iii. When proceeding to view the results of another device, press the "Service" switch.




iv. Return to the "System Check Mode" screen. Repeat the steps above to read the other results of the system check.

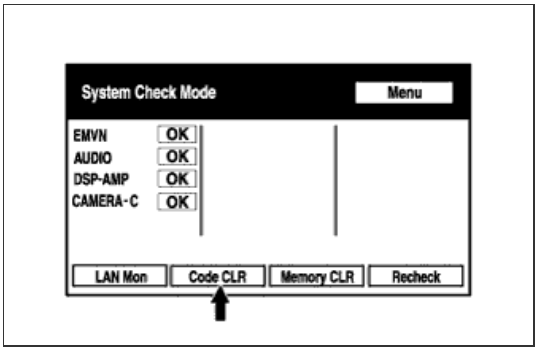



## DTC CLEAR / RECHECK

a. Clear DTC

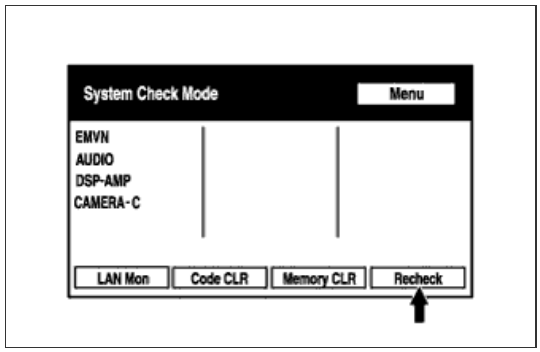
i. Press the "Code CLR" switch for 3 seconds.

ii. The check results are cleared.

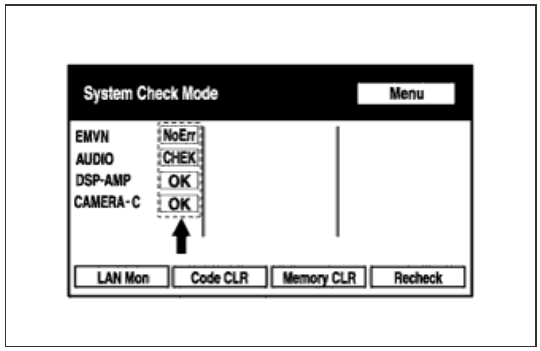



b. Recheck

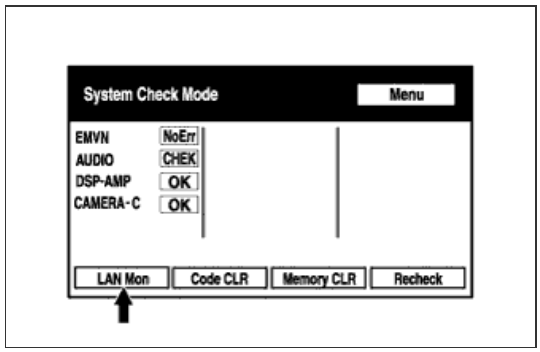
i. Press the "Recheck" switch.



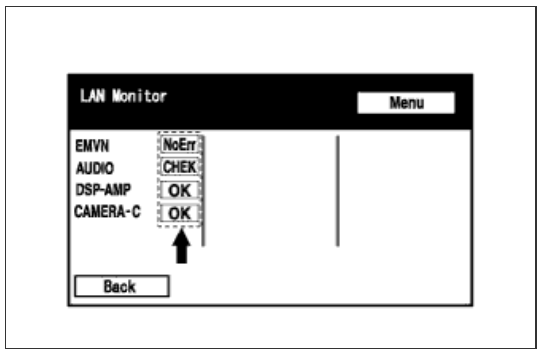

ii. Confirm that all diagnostic codes are "OK" when the check results are displayed. If a code other than "OK" is displayed, troubleshoot again.




iii. Press the "LAN Mon" switch to change to the "LAN Monitor" screen.




iv. Confirm that all diagnostic codes are "No Err". If a code other than "No Err" is displayed, troubleshoot again.



**for Preparation** Click here

## CHECK DTC

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Chassis / Parking Assist Monitor System / DTC.

e. Check the details of the DTCs ( Click here).

**HINT:**

The parking assist ECU may store the DTCs of the following system. If DTCs other than those specified in Diagnostic Trouble Code Chart of the parking assist monitor system are output, refer to Diagnostic Trouble Code Chart for the applicable system.

| System | Proceed to |
|---|---|
| Side Monitor System | Click here |
| Wide View Front Monitor System | Click here |

## CLEAR DTC

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Chassis / Parking Assist Monitor System / DTC.

e. According to the display on the intelligent tester, select the trouble code data display with the clear button.

**for Preparation** Click here

If the parking assist ECU detects a malfunction, the fail-safe functions shown in the table below operate.

| Malfunctioning Parts | Detection Condition | Function "Manual Assist Mode" | Function "Parallel Parking Assist Mode" |
|---|---|---|---|
| Steering angle sensor | • Transmission of sensor malfunction signal<br>• Open circuit in sensor signal | If in projected path guidance mode, displays "Guidance unavailable". | Displays "Guidance unavailable". |
| | Transmission of neutral steering point correction incomplete signal | If in projected path guidance mode, displays "System initializing". | Displays "System initializing". |
| | Communication malfunction between steering angle sensor and parking assist ECU | If in projected path guidance mode, displays "Guidance unavailable". | Displays "Guidance unavailable". |
| Rear television camera | Transmission of rear television camera malfunction signal | Stops signal reception and displays a dark screen. | |
| Parking assist ECU | Malfunction of parking assist ECU unit | Stops the system operation. | |
| Navigation ECU | • No response from navigation ECU<br>• Transmission of navigation ECU malfunction signal | - | Displays "Guidance unavailable". |

**for Preparation** Click here

## DATA LIST

**HINT:**

Using the intelligent tester to read the Data List allows the values or states of switches, sensors, actuators and other items to be read without removing any parts. This non-intrusive inspection can be very useful because intermittent conditions or signals may be discovered before parts or wiring is disturbed. Reading the Data List information early in troubleshooting is one way to save diagnostic time.

**NOTICE:**

In the table below, the values listed under "Normal Condition" are reference values. Do not depend solely on these reference values when deciding whether a part is faulty or not.

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Chassis / Parking Assist Monitor System / Data List.

e. According to the display on the tester, read the Data List.

**Parking Assist Monitor System**

| Tester Display | Measurement Item/Range | Normal Condition | Diagnostic Note |
|---|---|---|---|
| AVC-LAN Master Connect Status | AVC-LAN communication condition/OK or NG | OK: AVC-LAN communication condition is normal<br>NG: AVC-LAN communication condition is abnormal | - |
| AVC-LAN Master Reset Status | AVC-LAN communication condition/OK or NG | OK: AVC-LAN communication condition is normal<br>NG: AVC-LAN communication condition is abnormal | - |
| AVC-LAN Master Status | AVC-LAN communication condition/OK or NG | OK: AVC-LAN communication condition is normal<br>NG: AVC-LAN communication condition is abnormal | - |
| AVC-LAN Connect Status | AVC-LAN communication condition/OK or NG | OK: AVC-LAN communication condition is normal<br>NG: AVC-LAN communication condition is abnormal | - |
| AVC-LAN Sending Status | AVC-LAN communication condition/OK or NG | OK: AVC-LAN communication condition is normal<br>NG: AVC-LAN communication condition is abnormal | - |
| AVC-LAN Regist Complete Status | AVC-LAN communication condition/OK or NG | OK: AVC-LAN communication condition is normal<br>NG: AVC-LAN communication condition is abnormal | - |
| AVC-LAN Regist Request Status | AVC-LAN communication condition/OK or NG | OK: AVC-LAN communication condition is normal<br>NG: AVC-LAN communication condition is abnormal | - |
| ON/OFF Parameter Status | AVC-LAN communication condition/OK or NG | OK: AVC-LAN communication condition is normal<br>NG: AVC-LAN communication condition is abnormal | - |
| VGRS With or Without Status | Displays "Parking Assist ECU's internal data may or may not match the "with/without VGRS" data that has been input"/OK or NG. | OK: Data Verification Normal<br>NG: Data Verification Abnormal | - |
| Destination Data Check | Verification of Destination Data/OK or NG | OK: Data Verification Normal<br>NG: Data Verification Abnormal | - |
| EEPROM Status | | OK: Parking assist ECU is normal | |

| | | | |
|---|---|---|---|
| (Initial read) | Parking assist ECU information/ OK or NG | NG: Parking assist ECU is abnormal | - |
| IG Voltage Low Status | IG voltage input to parking assist ECU/OK or NG | OK: IG voltage is normal<br>NG: IG voltage is abnormal (too low) | - |
| IG Voltage High Status | IG voltage input to parking assist ECU/OK or NG | OK: IG voltage is normal<br>NG: IG voltage is abnormal (too high) | - |
| ACC Voltage Low Status | ACC voltage input to parking assist ECU/OK or NG | OK: ACC voltage is normal<br>NG: ACC voltage is abnormal (too low) | - |
| ACC Voltage High Status | ACC voltage input to parking assist ECU/OK or NG | OK: ACC voltage is normal<br>NG: ACC voltage is abnormal (too high) | - |
| AISIC Output Status | Output condition of camera display signal/OK or NG | OK: Output condition of camera display signal is normal<br>NG: Output condition of camera display signal is abnormal | - |
| VGRS Relative Angle Status | Displays "VGRS may be active or inactive" /OK or NG | OK: VGRS normal<br>NG: VGRS abnormal | - |
| Wheel Speed Sensor (4wheel) | Effectivity of speed signal from speed signal sensor/OK or NG | OK: Speed signal is effective<br>NG: Speed signal is not effective | - |
| Number of DTC | Number of stored trouble codes/min.: 0, max.: 255 | Number of DTCs will be displayed | - |

**for Preparation** Click here

**HINT:**

If a trouble code is output during the DTC check, inspect the trouble areas listed for that code. For details of the code, refer to the "See page" in the DTC chart. Inspect fuses and relays before inspecting the trouble areas shown in the table below.

**Parking Assist Monitor System**

| DTC Code | Detection Item | Trouble Area | See page |
|---|---|---|---|
| 5C-40 | Camera Picture Error | - Rear television camera<br>- Harness or connector<br>- Parking assist ECU | Click here |
| 5C-41 | Steering Sensor Error | Steering angle sensor | Click here |
| 5C-42 | Steering Sensor Communication Error | - Steering angle sensor<br>- CAN communication system<br>- Parking assist ECU | Click here |
| 5C-43 | Steering Control ECU Error | Steering control ECU | Click here |
| 5C-44 | Steering Control ECU Communication Error | - Steering control ECU<br>- CAN communication system<br>- Parking assist ECU | Click here |
| 5C-45 | Shift Signal Communication Error | - ECM<br>- CAN communication system<br>- Parking assist ECU | Click here |

**for Preparation** Click here

**HINT:**

If a trouble code is output during the DTC check, inspect the trouble areas listed for that code. For details of the code, refer to the "See page" in the DTC chart. Inspect fuses and relays before investigating the trouble areas shown in the table below.

**Parking Assist Monitor System**

| DTC Code | Detection Item | Trouble Area | See page |
|---|---|---|---|
| C1611 | ECU Malfunction | 1. Parking assist ECU initialization (not initialized parking assist ECU)<br>2. Back camera position setting (initialized parking assist ECU)<br>3. Side camera position setting (initialized parking assist ECU)*1<br>4. Steering Angle setting (initialized parking assist ECU)</ptxt><br>5. Parking assist ECU | Click here |
| C1612 | IG Voltage is Low or High | 1. Harness or connector<br>2. Parking assist ECU | Click here |
| C1613 | ACC Voltage is Low or High | 1. Harness or connector<br>2. Parking assist ECU | Click here |
| C1622 | Open or Short Circuit in Back Camera Signal | 1. Harness or connector<br>2. Rear television camera assembly<br>3. Parking assist ECU | Click here |
| C1625 | Open or Short in Steering Angle Sensor +B | 1. Harness or connector<br>2. Steering sensor (spiral with sensor cable sub-assembly) | Click here |
| C1626 | Steering Angle Sensor Failure | 1. Steering sensor (spiral with sensor cable sub-assembly)<br>2. Parking assist ECU | Click here |
| C1649 | Lost Communication with VGRS ECU | VGRS system | Click here |
| C168B | AVC-LAN Communication Malfunction | AVC-LAN communication | Click here |
| C168C | AVC-LAN Command Time Out | AVC-LAN communication | Click here |
| U0073 | Control Module Communication Bus Off | CAN communication system | Click here |
| U0100 | Lost Communication with ECM | CAN communication system | Click here |
| U0126 | Lost Communication with Steering Angle Sensor Module | CAN communication system | Click here |
| U0129 | Lost Communication with Brake System Control Module | CAN communication system | Click here |
| U0130 | Lost Communication with VGRS | CAN communication system | Click here |
| U0140 | Lost Communication with Main Body ECU | CAN communication system | Click here |
| U1110 | Lost Communication with Clearance Warning ECU | CAN communication system | Click here |

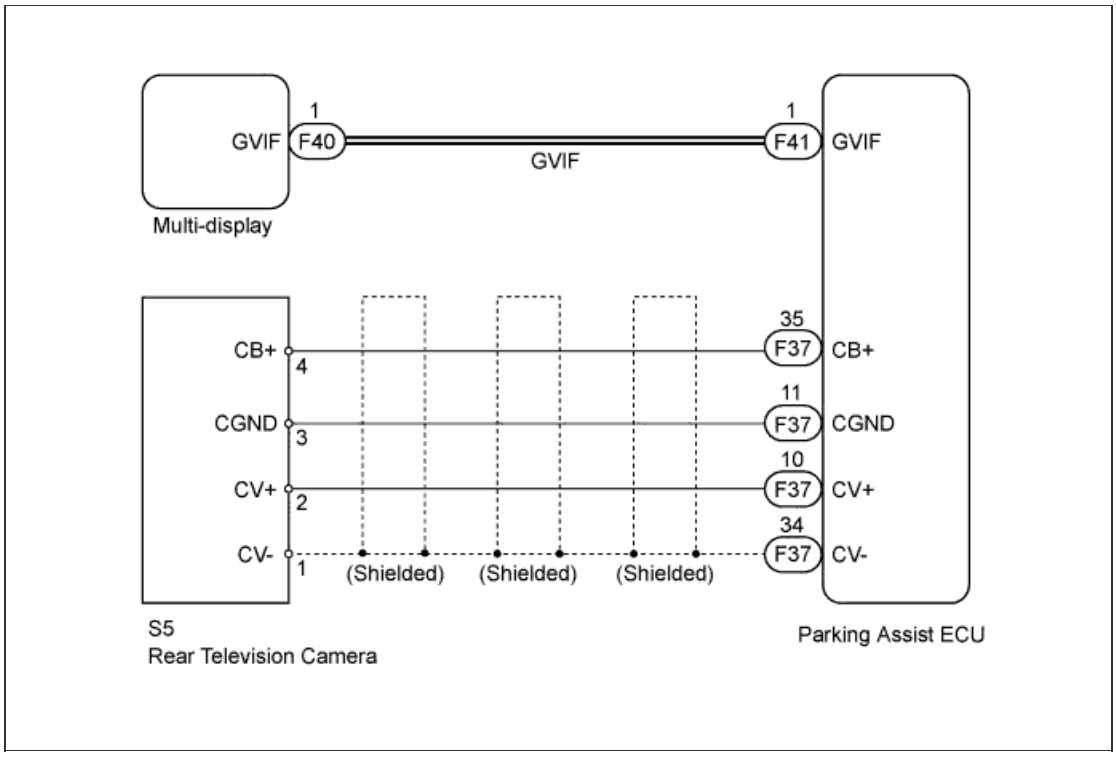
*1: w/ Side Monitor System

**for Preparation** Click here

## DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 5C-40 | An open or short in the rear television camera signal circuit. | • Rear television camera<br>• Harness or connector<br>• Parking assist ECU |

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

When replacing the parking assist ECU, perform initialization of the rear television camera and calibration of the steering angle sensor.

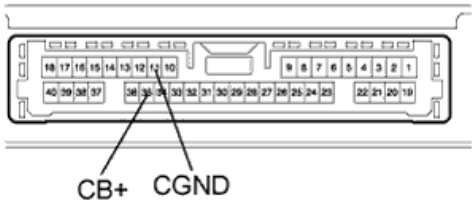
### 1.CHECK PARKING ASSIST ECU

a. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F37-35 (CB+) - F37-11 (CGND) | Engine switch on (IG), shift lever is moved to R | 5.8 to 6.5 V |

Component with harness connected:
(Parking Assist ECU)

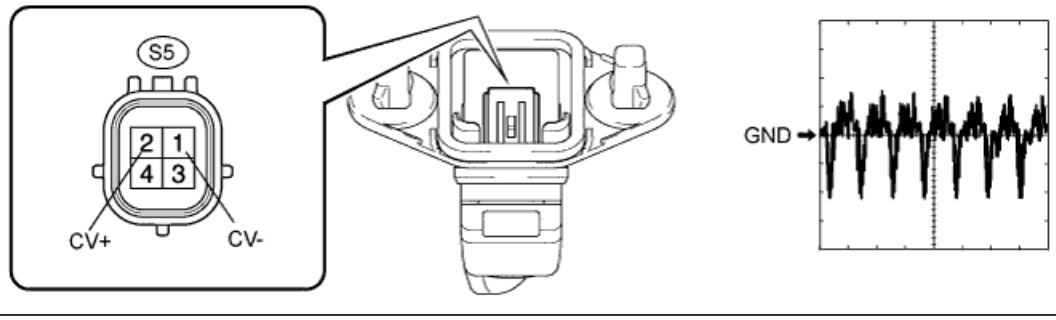


NG → REPLACE PARKING ASSIST ECU (Click here)

OK

## 2.CHECK REAR TELEVISION CAMERA ASSEMBLY

Component with harness connected:
(Rear Television Camera Assembly)




a. Using an oscilloscope, check the waveform.

**Measurement Condition**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | S5-2 (CV+) - S5-1 (CV-) |
| Tool Setting | 0.2 V/DIV., 50 µs/DIV. |
| Condition | Engine switch on (IG), shift lever in R |

NG → REPLACE REAR TELEVISION CAMERA ASSEMBLY (Click here)

OK

## 3.CHECK HARNESS AND CONNECTOR (REAR TELEVISION CAMERA - PARKING ASSIST ECU)

a. Disconnect the S5 camera connector.

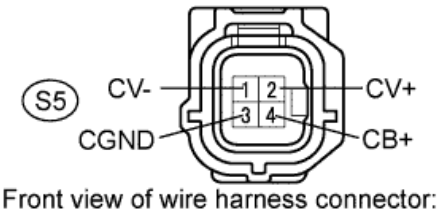
b. Disconnect the F37 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

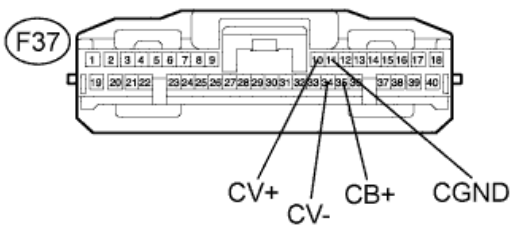
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F37-10 (CV+) - S5-2 (CV+) | Always | Below 1 Ω |
| F37-34 (CV-) - S5-1 (CV-) | Always | Below 1 Ω |
| F37-35 (CB+) - S5-4 (CB+) | Always | Below 1 Ω |
| F37-11 (CGND) - S5-3 (CGND) | Always | Below 1 Ω |
| F37-10 (CV+) - Body ground | Always | 10 kΩ or higher |
| F37-34 (CV-) - Body ground | Always | 10 kΩ or higher |
| F37-35 (CB+) - Body ground | Always | 10 kΩ or higher |
| F37-11 (CGND) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to Rear Television Camera Assembly)




Front view of wire harness connector:
(to Parking Assist ECU)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.REPLACE HARNESS AND CONNECTOR (GVIF CABLE)

a. Replace the harness and connector (GVIF cable).

NEXT

5.CHECK DTC OUTPUT

a. Clear the DTC (Click here).

b. Recheck for DTC (Click here).

**OK:**
**DTC 5C-40 is not output.**

NG → REPLACE PARKING ASSIST ECU (**Click here**)

OK

END (GVIF CABLE IS DEFECTIVE)

# DTC C1626 Steering Angle Sensor Failure

**for Preparation** Click here

## DESCRIPTION

This DTC is stored if the parking assist ECU receives a signal via CAN communication from the spiral with sensor cable sub-assembly that indicates an internal malfunction.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1626 | A fail flag is transmitted from the steering angle sensor. | • Steering sensor (spiral with sensor cable sub-assembly)<br>• Parking assist ECU |

## INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the display and navigation module display after the battery terminal disconnected, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system may be needed (Click here).**

### 1.REPLACE SPIRAL WITH SENSOR CABLE SUB-ASSEMBLY

a. Replace the spiral with sensor cable sub-assembly ( Click here).

NEXT

### 2.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1626 is output | A |
| No DTC is output | B |

B → END

A

### REPLACE PARKING ASSIST ECU (Click here)

## DTC 5C-41 Steering Sensor Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 5C-41 | A fail flag is transmitted from the steering angle sensor. | Steering angle sensor |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs.

**1.REPLACE STEERING SENSOR**

a. Replace the steering angle sensor ( Click here).

**NEXT**

**END**

## DTC C1649 Lost Communication with VGRS ECU

**for Preparation** Click here

### DESCRIPTION

This DTC is set when the Parking Assist ECUs self-diagnosis determines that the connection with the Steering Control ECU of the VGRS System (via CAN communication) is inoperative.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1649 | Steering Control ECU malfunction | VGRS System |

### INSPECTION PROCEDURE

**1.CHECK DTC OUTPUT**

a. Clear the DTCs (Click here).

b. Check the DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| No DTC is output | A |
| DTC C1649 is output | B |

B → GO TO VGRS SYSTEM (Click here)

A → END

## DTC 5C-42 Steering Sensor Communication Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 5C-42 | No signal is transmitted from the steering angle sensor. | • Steering angle sensor<br>• CAN communication system<br>• Parking assist ECU |

### INSPECTION PROCEDURE

**1.CHECK CAN COMMUNICATION SYSTEM (PARKING ASSIST ECU - STEERING ANGLE SENSOR)**

a. for LHD:
Refer to the CAN communication system (Click here).

b. for RHD:
Refer to the CAN communication system (Click here).

**NEXT**

**END**

## DTC C168B AVC-LAN Communication Malfunction

## DTC C168C AVC-LAN Command Time Out

**for Preparation** Click here

### DESCRIPTION

This DTC is stored if the parking assist ECU judges that there is a problem with the AVC-LAN communication system as a result of self check.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| C168B | • AVC-LAN communication malfunction: No master<br>• AVC-LAN communication malfunction: Master reset<br>• AVC-LAN communication malfunction: Master malfunction<br>• AVC-LAN communication malfunction: Abnormal connection check<br>• AVC-LAN communication malfunction: Transmission not completed<br>• AVC-LAN communication malfunction: Abnormal transmission completion notification<br>• AVC-LAN communication malfunction: Registration request transmission<br>• AVC-LAN communication malfunction: Abnormal ON/OFF parameter | AVC-LAN Communication |
| C168C | • AVC-LAN command time out: Output ON request notification command time out<br>• AVC-LAN command time out: Output OFF request notification command time out<br>• AVC-LAN command time out: Voice production start request notification command time out<br>• AVC-LAN command time out: Voice production end request notification command time out | |

### INSPECTION PROCEDURE

**1.CHECK DTC OUTPUT**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| No DTC is output | A |
| DTC C168B or C168C is output (w/ navigation system for DVD) | B |
| DTC C168B or C168C is output (w/ navigation system for HDD) | C |

**HINT:**

If DTC C168B or C168C is output frequently, duplicate the problem symptoms and perform the inspection again, even though the DTC is not output when rechecking for DTCs (Click here).

B → GO TO NAVIGATION SYSTEM (for DVD) (Click here)

C → GO TO NAVIGATION SYSTEM (for HDD) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

## DTC 5C-43 Steering Control ECU Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 5C-43 | VGRS=1 is sent from the steering control ECU. | Steering control ECU |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs.

**1.CHECK DTC OUTPUT**

a. Clear the DTC (Click here).

b. Check for DTC (Click here).

**OK:**
**DTC 5C-43 is not output.**

NG → **Go to step 2**

OK ↓

**USE SIMULATION METHOD TO CHECK (Click here)**

**2.REPLACE STEERING CONTROL ECU**

a. for LHD:
Replace the steering control ECU (Click here).

b. for RHD:
Replace the steering control ECU (Click here).

NEXT ↓

**3.CHECK DTC OUTPUT**

a. Clear the DTC (Click here).

b. Check for DTC (Click here).

**OK:**
**DTC 5C-43 is not output.**

NG → **GO TO VARIABLE GEAR RATIO STEERING SYSTEM (Click here)**

OK ↓

**END (STEERING CONTROL ECU IS DEFECTIVE)**

## DTC C168B AVC-LAN Communication Malfunction

## DTC C168C AVC-LAN Command Time Out

**for Preparation** Click here

### DESCRIPTION

This DTC is stored if the parking assist ECU judges that there is a problem with the AVC-LAN communication system as a result of self check.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| C168B | • AVC-LAN communication malfunction: No master<br>• AVC-LAN communication malfunction: Master reset<br>• AVC-LAN communication malfunction: Master malfunction<br>• AVC-LAN communication malfunction: Abnormal connection check<br>• AVC-LAN communication malfunction: Transmission not completed<br>• AVC-LAN communication malfunction: Abnormal transmission completion notification<br>• AVC-LAN communication malfunction: Registration request transmission<br>• AVC-LAN communication malfunction: Abnormal ON/OFF parameter | AVC-LAN Communication |
| C168C | • AVC-LAN command time out: Output ON request notification command time out<br>• AVC-LAN command time out: Output OFF request notification command time out<br>• AVC-LAN command time out: Voice production start request notification command time out<br>• AVC-LAN command time out: Voice production end request notification command time out | |

### INSPECTION PROCEDURE

**1.CHECK DTC OUTPUT**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| No DTC is output | A |
| DTC C168B or C168C is output (w/ navigation system for DVD) | B |
| DTC C168B or C168C is output (w/ navigation system for HDD) | C |

**HINT:**

If DTC C168B or C168C is output frequently, duplicate the problem symptoms and perform the inspection again, even though the DTC is not output when rechecking for DTCs (Click here).

B → GO TO NAVIGATION SYSTEM (for DVD) (Click here)

C → GO TO NAVIGATION SYSTEM (for HDD) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

## DTC 5C-44 Steering Control ECU Communication Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 5C-44 | "VGRS available" information is received normally from the steering angle sensor, but the signal from the steering control ECU is not received for 1 second or more. | • Steering control ECU<br>• CAN communication system<br>• Parking assist ECU |

### INSPECTION PROCEDURE

**1.CHECK CAN COMMUNICATION SYSTEM (PARKING ASSIST ECU - STEERING CONTROL ECU)**

a. for LHD:
Refer to the CAN communication system (Click here).

b. for RHD:
Refer to the CAN communication system (Click here).

**NEXT**

**END**

DTC U0073 Control Module Communication Bus Off

DTC U0100 Lost Communication with ECM

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0129 Lost Communication with Brake System Control Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

## DESCRIPTION

These DTCs are stored if there is a malfunction in the CAN communication system connected to the parking assist ECU.

**HINT:**

If CAN communication system DTCs are stored, they may also be stored in other systems.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | Control module communication bus off | CAN communication system |
| U0100 | Lost communication with ECM | |
| U0126 | Lost communication with steering angle sensor | |
| U0129 | Lost communication with brake system | |
| U0130 | Lost communication with VGRS | |
| U0140 | Lost communication with main body ECU | |
| U1100 | Lost communication with clearance warning ECU | |

## INSPECTION PROCEDURE

1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| No DTC is output | A |
| DTC is output (for LHD) | B |
| DTC is output (for RHD) | C |

**HINT:**

- **If CAN communication system DTCs are stored, they may also be stored in other systems.**
- **If the CAN communication system has been inspected and repaired in other systems, the DTCs will not be output when rechecking for DTCs.**
- **If these DTCs are output frequently, duplicate the conditions that cause the problem symptoms and perform the inspection again, even though the DTC was not output when rechecking for DTCs (Click here).**

B → GO TO CAN COMMUNICATION SYSTEM (for LHD) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (for RHD) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

## DTC 5C-45 Shift Signal Communication Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 5C-45 | No signal is transmitted from the ECM. | • ECM<br>• CAN communication system<br>• Parking assist ECU |

### INSPECTION PROCEDURE

**1.CHECK CAN COMMUNICATION SYSTEM (PARKING ASSIST ECU - ECM)**

a. for LHD:
Refer to the CAN communication system (Click here).

b. for RHD:
Refer to the CAN communication system (Click here).

**NEXT**

**END**

DTC U0073 Control Module Communication Bus Off

DTC U0100 Lost Communication with ECM

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0129 Lost Communication with Brake System Control Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

## DESCRIPTION

These DTCs are stored if there is a malfunction in the CAN communication system connected to the parking assist ECU.

**HINT:**

If CAN communication system DTCs are stored, they may also be stored in other systems.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | Control module communication bus off | CAN communication system |
| U0100 | Lost communication with ECM | |
| U0126 | Lost communication with steering angle sensor | |
| U0129 | Lost communication with brake system | |
| U0130 | Lost communication with VGRS | |
| U0140 | Lost communication with main body ECU | |
| U1100 | Lost communication with clearance warning ECU | |

## INSPECTION PROCEDURE

1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| No DTC is output | A |
| DTC is output (for LHD) | B |
| DTC is output (for RHD) | C |

**HINT:**

- **If CAN communication system DTCs are stored, they may also be stored in other systems.**
- **If the CAN communication system has been inspected and repaired in other systems, the DTCs will not be output when rechecking for DTCs.**
- **If these DTCs are output frequently, duplicate the conditions that cause the problem symptoms and perform the inspection again, even though the DTC was not output when rechecking for DTCs (Click here).**

B → GO TO CAN COMMUNICATION SYSTEM (for LHD) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (for RHD) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

# DTC C1611 ECU Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored if the parking assist ECU judges that there is an internal malfunction as a result of its self check.

**HINT:**

The parking assist ECU stores different types of information during initialization. If the parking assist ECU cannot read the stored information when it is activated, the parking assist ECU judges that there is an internal malfunction and stores this DTC.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1611 | • EEPROM Status (Initial read)<br>• AISIC Output Status | • Parking assist ECU initialization (not initialized parking assist ECU)<br>• Back camera position setting (initialized parking assist ECU)<br>• Side camera position setting (initialized parking assist ECU)*1<br>• Steering Angle setting (initialized parking assist ECU)<br>• Parking assist ECU |

*1: w/ Side Monitor System

## INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the display and navigation module display after the battery terminal disconnected, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system may be needed (Click here).**

### 1.READ VALUE USING INTELLIGENT TESTER

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Chassis / Parking Assist Monitor System / Data List.

e. Check the Data List for proper functioning of the following items.

**Parking Assist Monitor System**

| Tester Display | Measurement Item/Range | Normal Condition | Diagnostic Note |
|---|---|---|---|
| EEPROM Status (Initial read) | Parking assist ECU information/OK or NG | OK: Parking assist ECU is normal<br>NG: Parking assist ECU is abnormal | - |
| AISIC Output Status | Output condition of camera display signal/OK or NG | OK: Output condition of camera display signal is normal<br>NG: Output condition of camera display signal is abnormal | - |

**Result**

| Result | Proceed to |
|---|---|
| OK is displayed for both items. | A |
| NG is displayed for EEPROM Status (Initial read). | A |
| NG is displayed for AISIC Output Status | B |

B → REPLACE PARKING ASSIST ECU (Click here)

A

### 2.SETTINGS (PARKING ASSIST ECU INITIALIZATION)

**HINT:**

- **The parking assist ECU stores different types of information during initialization. If the parking assist ECU cannot read the stored information when it is activated, the parking assist ECU judges that there is an internal malfunction and stores this DTC.**
- **If the parking assist ECU cannot read the stored information when it is activated, allowing the ECU to store the information again may return the system to normal.**

a. Use the transition of diagnosis screens (note which transition pattern occurs) to confirm if the parking assist ECU was able to properly store the information from initialization (Click here).

**HINT:**

The procedure to make the parking assist ECU store the vehicle information differs when the parking assist ECU has stored the information (initialized) and when the information has not been stored (not initialized).

b. Perform the following procedure depending on the memory conditions to register the vehicle information into the parking assist ECU.

| Condition | Procedure |
|---|---|
| Not initialized | Parking assist ECU initialization (Click here) |
| Initialized | • Back camera position setting (Click here)<br>• Steering angle setting (Diagnosis system) (Click here)<br>• Side camera position setting (Click here ) |

**NEXT**

**3.CHECK DTC OUTPUT**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1611 is output | A |
| No DTC is output | B |

**HINT:**

- **If DTC C1611 is output, perform the procedure to allow the parking assist ECU to store the vehicle information again.**
- **If DTC C1611 is still output after performing the procedure to make the parking assist ECU store the vehicle information 3 times, replace the parking assist ECU.**
- **If DTC C1611 is output frequently, replace the parking assist ECU even though the DTC is not output when rechecking for DTCs.**

**B** → **END**

**A**

**REPLACE PARKING ASSIST ECU (Click here)**

DTC U0073 Control Module Communication Bus Off

DTC U0100 Lost Communication with ECM

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0129 Lost Communication with Brake System Control Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

## DESCRIPTION

These DTCs are stored if there is a malfunction in the CAN communication system connected to the parking assist ECU.

**HINT:**

If CAN communication system DTCs are stored, they may also be stored in other systems.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | Control module communication bus off | CAN communication system |
| U0100 | Lost communication with ECM | |
| U0126 | Lost communication with steering angle sensor | |
| U0129 | Lost communication with brake system | |
| U0130 | Lost communication with VGRS | |
| U0140 | Lost communication with main body ECU | |
| U1100 | Lost communication with clearance warning ECU | |

## INSPECTION PROCEDURE

1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| No DTC is output | A |
| DTC is output (for LHD) | B |
| DTC is output (for RHD) | C |

**HINT:**

- **If CAN communication system DTCs are stored, they may also be stored in other systems.**
- **If the CAN communication system has been inspected and repaired in other systems, the DTCs will not be output when rechecking for DTCs.**
- **If these DTCs are output frequently, duplicate the conditions that cause the problem symptoms and perform the inspection again, even though the DTC was not output when rechecking for DTCs (Click here).**

B → GO TO CAN COMMUNICATION SYSTEM (for LHD) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (for RHD) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

## DTC C1612 IG Voltage is Low or High

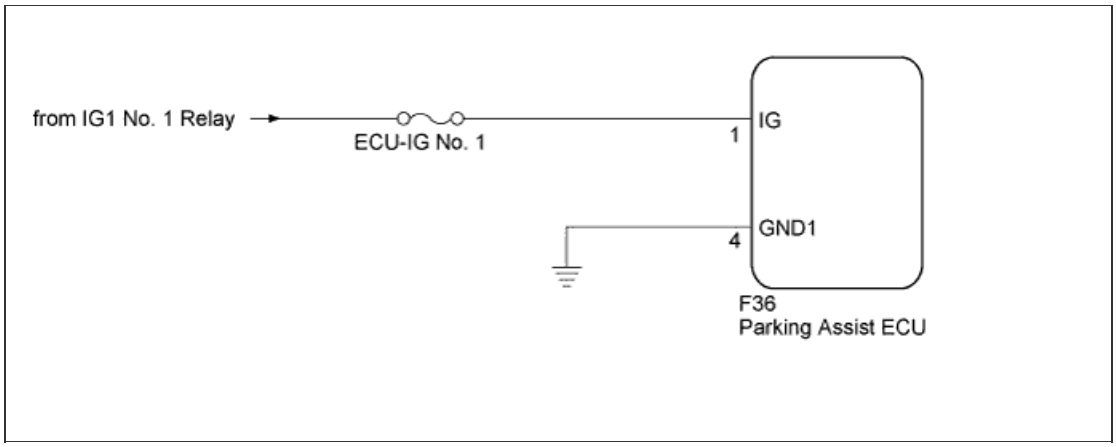
**for Preparation** Click here

### DESCRIPTION

This DTC is stored if the parking assist ECU judges as a result of its self check that the voltage received by terminal IG is low or high.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1612 | • IG voltage is low<br>• IG voltage is high | • Harness or connector<br>• Parking assist ECU |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the display and navigation module display after the battery terminal disconnected, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system may be needed (Click here).**
- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**

#### 1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1612 is output | A |
| No DTC is output | B |

**HINT:**

If the parking assist ECU cannot read the stored information when it is activated, allowing the ECU to store the information again may return the system to normal.

B → USE SIMULATION METHOD TO CHECK (Click here)

A

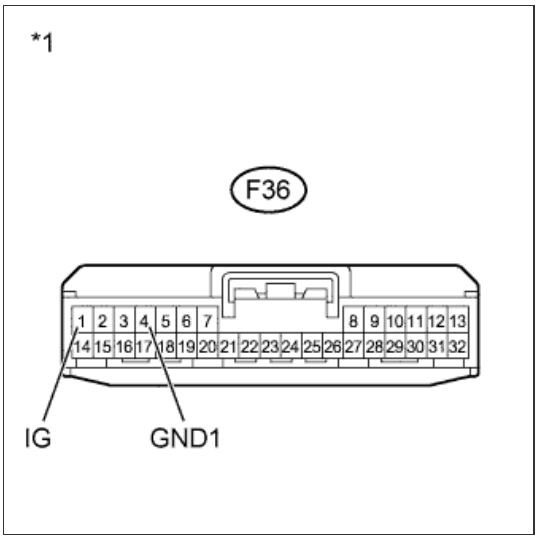
#### 2.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU IG VOLTAGE)

a. Disconnect the F36 connector from the parking assist ECU.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F36-1 (IG) - F36-4 (GND1) | Engine switch on (IG) | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Parking Assist ECU) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE PARKING ASSIST ECU (Click here)

DTC U0073 Control Module Communication Bus Off

DTC U0100 Lost Communication with ECM

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0129 Lost Communication with Brake System Control Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

## DESCRIPTION

These DTCs are stored if there is a malfunction in the CAN communication system connected to the parking assist ECU.

**HINT:**

If CAN communication system DTCs are stored, they may also be stored in other systems.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | Control module communication bus off | CAN communication system |
| U0100 | Lost communication with ECM | |
| U0126 | Lost communication with steering angle sensor | |
| U0129 | Lost communication with brake system | |
| U0130 | Lost communication with VGRS | |
| U0140 | Lost communication with main body ECU | |
| U1100 | Lost communication with clearance warning ECU | |

## INSPECTION PROCEDURE

1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| No DTC is output | A |
| DTC is output (for LHD) | B |
| DTC is output (for RHD) | C |

**HINT:**

- **If CAN communication system DTCs are stored, they may also be stored in other systems.**
- **If the CAN communication system has been inspected and repaired in other systems, the DTCs will not be output when rechecking for DTCs.**
- **If these DTCs are output frequently, duplicate the conditions that cause the problem symptoms and perform the inspection again, even though the DTC was not output when rechecking for DTCs (Click here).**

B → GO TO CAN COMMUNICATION SYSTEM (for LHD) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (for RHD) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

## DTC C1613 ACC Voltage is Low or High

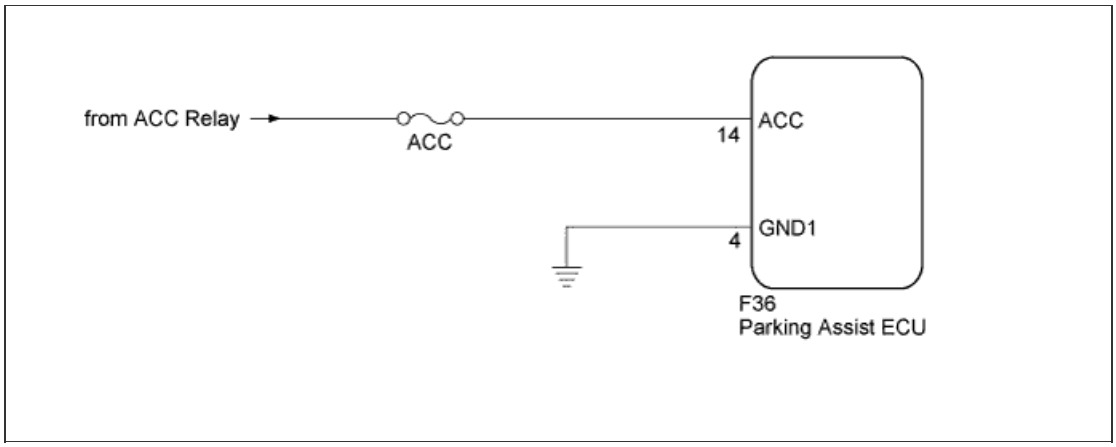
**for Preparation** Click here

### DESCRIPTION

This DTC is stored if the parking assist ECU judges as a result of its self check that the voltage received by terminal ACC is not normal.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1613 | • ACC voltage is low<br>• ACC voltage is high | • Harness or connector<br>• Parking assist ECU |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the display and navigation module display after the battery terminal disconnected, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system may be needed (Click here).**
- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**

#### 1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1613 is output | A |
| No DTC is output | B |

**HINT:**

If the parking assist ECU cannot read the stored information when it is activated, allowing the ECU to store the information again may return the system to normal.

B → USE SIMULATION METHOD TO CHECK (Click here)

A

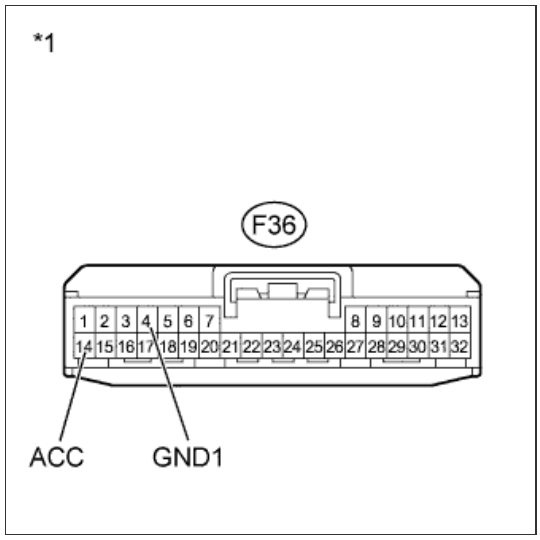
#### 2.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU ACC VOLTAGE)

a. Disconnect the F36 connector from the parking assist ECU.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F36-14 (ACC) - F36-4 (GND1) | Engine switch on (ACC) | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Parking Assist ECU) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE PARKING ASSIST ECU (Click here)

DTC U0073 Control Module Communication Bus Off

DTC U0100 Lost Communication with ECM

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0129 Lost Communication with Brake System Control Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

## DESCRIPTION

These DTCs are stored if there is a malfunction in the CAN communication system connected to the parking assist ECU.

**HINT:**

If CAN communication system DTCs are stored, they may also be stored in other systems.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | Control module communication bus off | CAN communication system |
| U0100 | Lost communication with ECM | |
| U0126 | Lost communication with steering angle sensor | |
| U0129 | Lost communication with brake system | |
| U0130 | Lost communication with VGRS | |
| U0140 | Lost communication with main body ECU | |
| U1100 | Lost communication with clearance warning ECU | |

## INSPECTION PROCEDURE

1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| No DTC is output | A |
| DTC is output (for LHD) | B |
| DTC is output (for RHD) | C |

**HINT:**

- **If CAN communication system DTCs are stored, they may also be stored in other systems.**
- **If the CAN communication system has been inspected and repaired in other systems, the DTCs will not be output when rechecking for DTCs.**
- **If these DTCs are output frequently, duplicate the conditions that cause the problem symptoms and perform the inspection again, even though the DTC was not output when rechecking for DTCs (Click here).**

B → GO TO CAN COMMUNICATION SYSTEM (for LHD) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (for RHD) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

## DTC C1622 Open or Short Circuit in Back Camera Signal

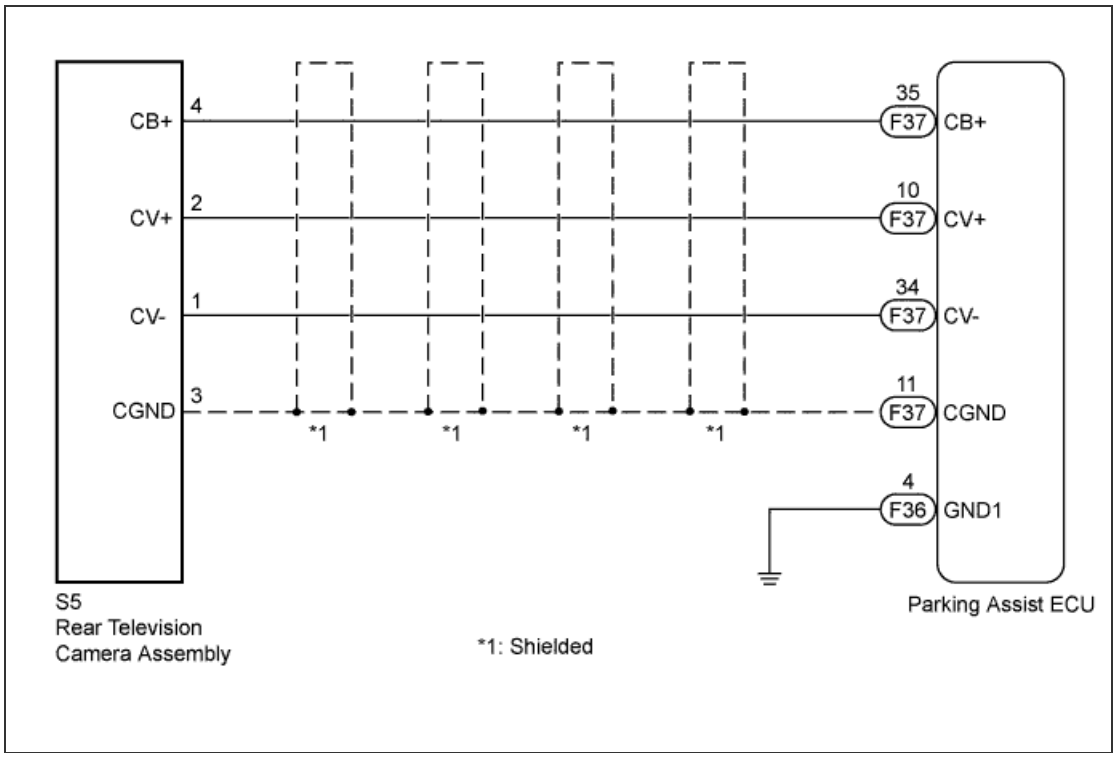
**for Preparation** Click here

### DESCRIPTION

This DTC is stored if the parking assist ECU judges as a result of its self check that the signals or signal lines between the parking assist ECU and the rear television camera assembly are not normal.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1622 | An open or short in the rear television camera signal circuit | • Harness or connector<br>• Rear television camera assembly<br>• Parking assist ECU |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the display and navigation module display after the battery terminal disconnected, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system may be needed (Click here).**

#### 1.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - REAR TELEVISION CAMERA)

a. Disconnect the F37 connector from the parking assist ECU.

b. Disconnect the S5 connector from the rear television camera assembly.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F37-34 (CV-) - S5-1 (CV-) | Always | Below 1 Ω |
| F37-10 (CV+) - S5-2 (CV+) | Always | Below 1 Ω |
| F37-35 (CB+) - S5-4 (CB+) | Always | Below 1 Ω |

| | | |
|---|---|---|
| F37-34 (CV-) - Body ground | Always | 10 kΩ or higher |
| F37-10 (CV+) - Body ground | Always | 10 kΩ or higher |
| F37-11 (CGND) - Body ground | Always | 10 kΩ or higher |
| F37-35 (CB+) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 2.INSPECT PARKING ASSIST ECU (CV-, CGND)

a. Reconnect the F37 connector to the parking assist ECU.

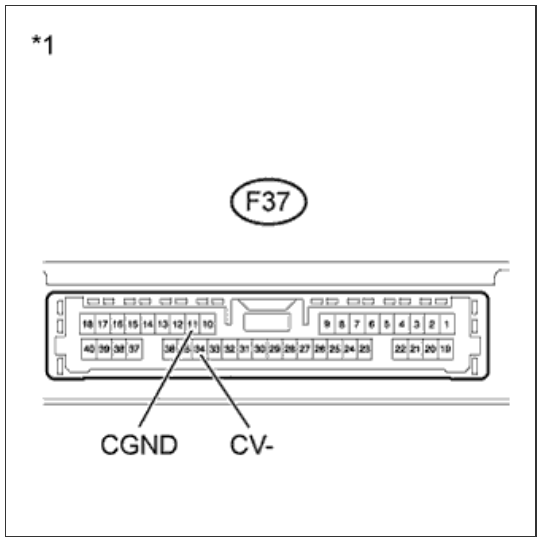
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F37-34 (CV-) - Body ground | Always | Below 1 Ω |
| F37-11 (CGND) - Body ground | Always | Below 1 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Parking Assist ECU) |




NG → REPLACE PARKING ASSIST ECU (Click here)

OK

## 3.INSPECT REAR TELEVISION CAMERA ASSEMBLY (CB+, CGND)

a. Disconnect the S5 connector from the rear television camera assembly.

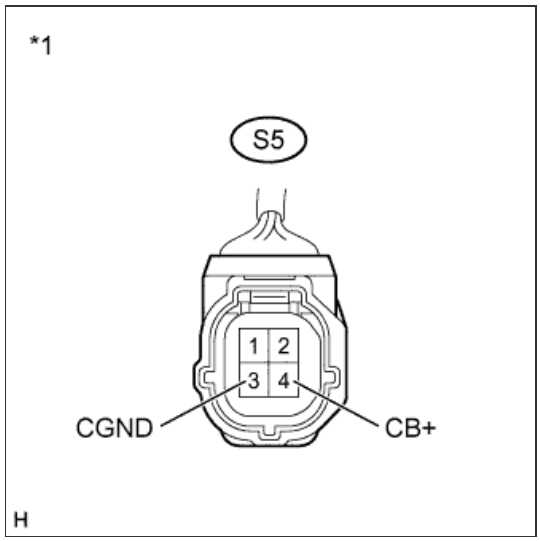
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| S5-3 (CGND) - S5-4 (CB+) | Engine switch on (IG)<br>Shift lever in R | 5.8 to 7.0 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Rear Television Camera Assembly) |



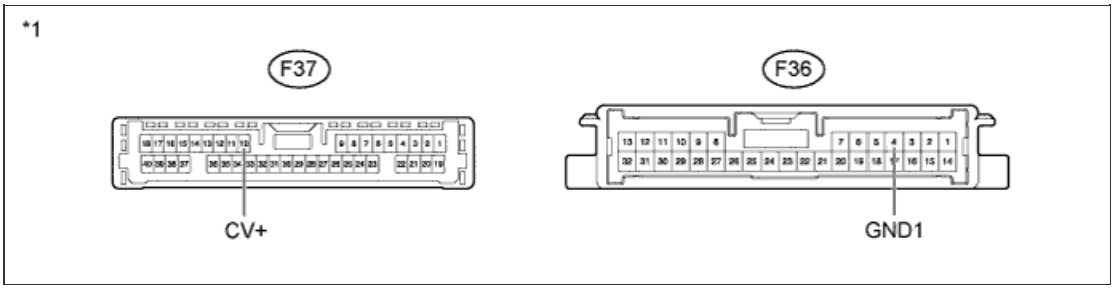
NG → REPLACE PARKING ASSIST ECU (Click here)

OK

## 4.INSPECT PARKING ASSIST ECU (CV+, GND1)

a. Reconnect the S5 connector to the rear television camera assembly.

b. Reconnect the F36 and F37 connectors to the parking assist ECU.




c. Check the waveform of the rear television camera assembly using an oscilloscope.

**HINT:**

A waterproof connector is used for the rear television camera assembly. Therefore, inspect the waveform at the parking assist ECU with the connector connected.

**OK:**

**Waveform is as shown in the illustration.**

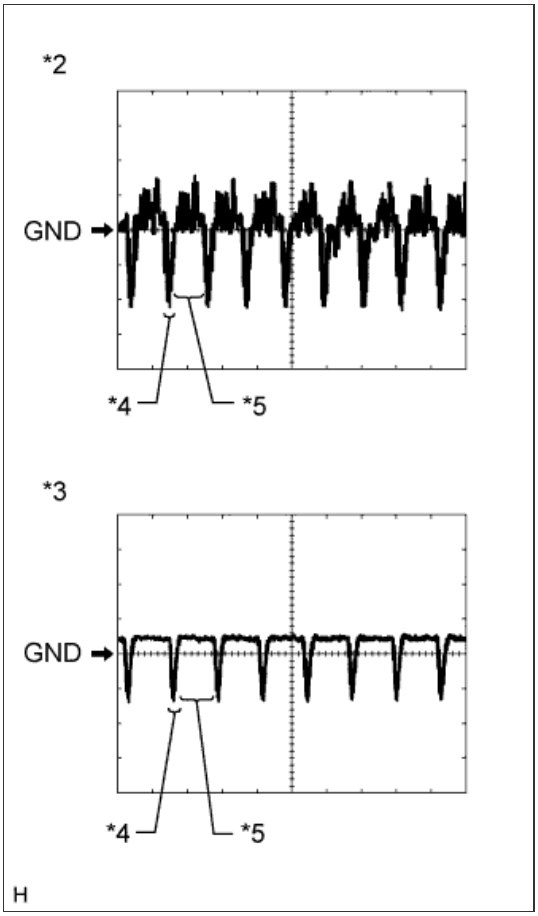
| Item | Content |
|---|---|
| Terminal No. (Symbol) | F37-10 (CV+) - F36-4 (GND1) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), shift lever in R |

**HINT:**

The video waveform changes according to the image sent by the rear television camera assembly.

**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Parking Assist ECU) |
| *2 | Waveform 1 (under normal conditions) |
| *3 | Waveform 2 (camera lens is covered, blacking out the screen) |
| *4 | Synchronized Signal |
| *5 | Video Waveform |




NG → REPLACE REAR TELEVISION CAMERA ASSEMBLY (Click here)

OK

REPLACE PARKING ASSIST ECU (Click here)

DTC U0073 Control Module Communication Bus Off

DTC U0100 Lost Communication with ECM

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0129 Lost Communication with Brake System Control Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

## DESCRIPTION

These DTCs are stored if there is a malfunction in the CAN communication system connected to the parking assist ECU.

**HINT:**

If CAN communication system DTCs are stored, they may also be stored in other systems.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | Control module communication bus off | CAN communication system |
| U0100 | Lost communication with ECM | |
| U0126 | Lost communication with steering angle sensor | |
| U0129 | Lost communication with brake system | |
| U0130 | Lost communication with VGRS | |
| U0140 | Lost communication with main body ECU | |
| U1100 | Lost communication with clearance warning ECU | |

## INSPECTION PROCEDURE

1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| No DTC is output | A |
| DTC is output (for LHD) | B |
| DTC is output (for RHD) | C |

**HINT:**

- **If CAN communication system DTCs are stored, they may also be stored in other systems.**
- **If the CAN communication system has been inspected and repaired in other systems, the DTCs will not be output when rechecking for DTCs.**
- **If these DTCs are output frequently, duplicate the conditions that cause the problem symptoms and perform the inspection again, even though the DTC was not output when rechecking for DTCs (Click here).**

B → GO TO CAN COMMUNICATION SYSTEM (for LHD) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (for RHD) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

## DTC C1625 Open or Short in Steering Angle Sensor +B

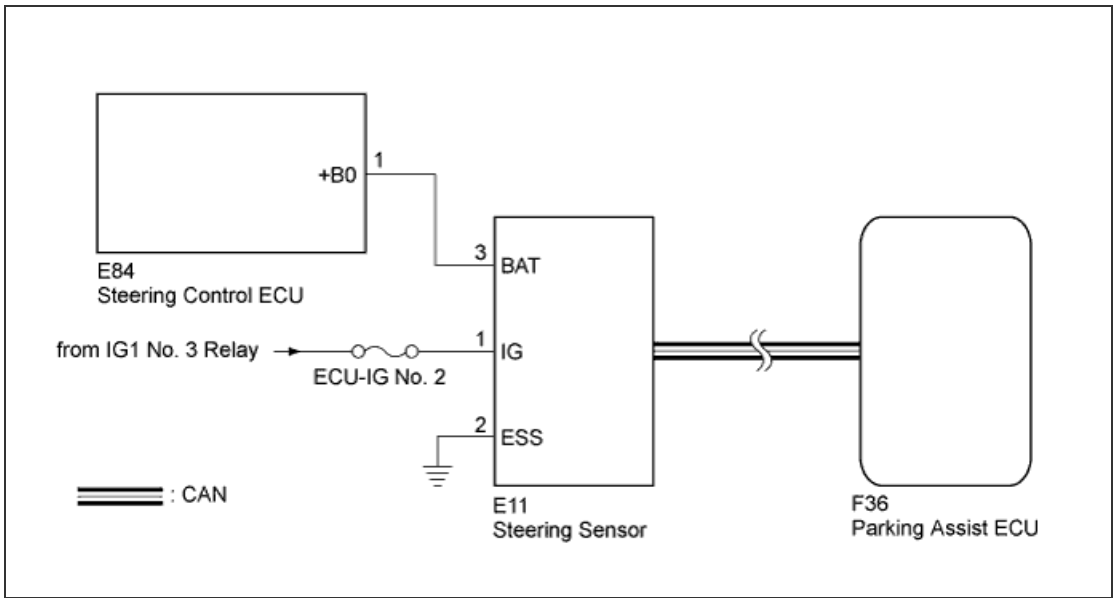
**for Preparation** Click here

### DESCRIPTION

This DTC is stored if the parking assist ECU receives a signal via CAN communication from the spiral with sensor cable sub-assembly that indicates a power supply system problem.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1625 | Open or short in steering angle sensor +B | • Harness or connector<br>• Steering sensor (spiral with sensor cable sub-assembly) |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the display and navigation module display after the battery terminal disconnected, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system may be needed (Click here).**
- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**

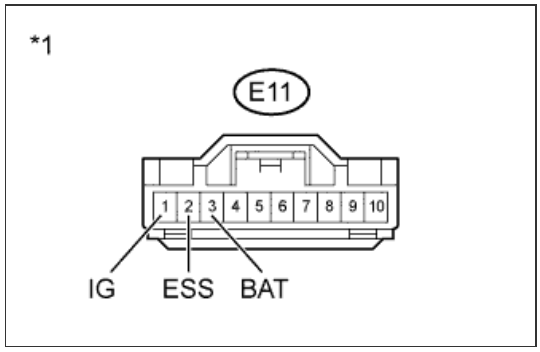
#### 1.CHECK HARNESS AND CONNECTOR (SPIRAL WITH SENSOR CABLE SUB-ASSEMBLY POWER SUPPLY)

a. Disconnect the E11 connector from the steering sensor.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E11-2 (ESS) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| E11-1 (IG) - E11-2 | Engine switch on | |

| | | |
|---|---|---|
| (ESS) | (IG) | 11 to 14 V |
| E11-3 (BAT) - E11-2 (ESS) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Steering Sensor) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEERING SENSOR (Click here)

DTC U0073 Control Module Communication Bus Off

DTC U0100 Lost Communication with ECM

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0129 Lost Communication with Brake System Control Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

DTC U1110 Lost Communication with Clearance Warning ECU

**for Preparation** Click here

## DESCRIPTION

These DTCs are stored if there is a malfunction in the CAN communication system connected to the parking assist ECU.

**HINT:**

If CAN communication system DTCs are stored, they may also be stored in other systems.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | Control module communication bus off | CAN communication system |
| U0100 | Lost communication with ECM | |
| U0126 | Lost communication with steering angle sensor | |
| U0129 | Lost communication with brake system | |
| U0130 | Lost communication with VGRS | |
| U0140 | Lost communication with main body ECU | |
| U1100 | Lost communication with clearance warning ECU | |

## INSPECTION PROCEDURE

1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| No DTC is output | A |
| DTC is output (for LHD) | B |
| DTC is output (for RHD) | C |

**HINT:**

- **If CAN communication system DTCs are stored, they may also be stored in other systems.**
- **If the CAN communication system has been inspected and repaired in other systems, the DTCs will not be output when rechecking for DTCs.**
- **If these DTCs are output frequently, duplicate the conditions that cause the problem symptoms and perform the inspection again, even though the DTC was not output when rechecking for DTCs (Click here).**

B → GO TO CAN COMMUNICATION SYSTEM (for LHD) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (for RHD) (Click here)

A

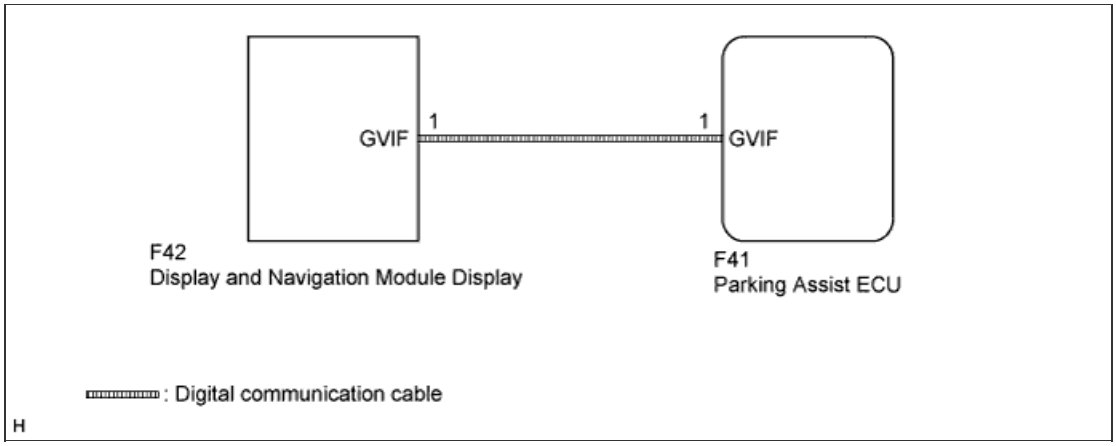
USE SIMULATION METHOD TO CHECK (Click here)

**for Preparation** Click here

## DESCRIPTION

The parking assist ECU displays images for the parking assist monitor, front monitor*1 and side monitor*1 screens. Each image signal is sent from the parking assist ECU to the display and navigation module display through the digital communication cable.
*1: w/ Side Monitor System

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the display and navigation module display after the battery terminal has been disconnected, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system may be needed (Click here).**

**HINT:**

Images can be difficult to discern even in normal conditions. For example:

- **Noise may occur in the image during power back door operation. (w/ power back door system)**
- **Noise may occur in the image depending on electrical devices used in the cabin.**
- **Noise may occur in the image if accessories that generate radio waves have been installed.**
- **The camera screen is frosted over (the image immediately after turning the engine switch on (IG) may be blurred or darker than normal).**
- **The camera lens is dirty with snow, mud, etc.**
- **A strong beam of light, such as a sunbeam or headlight, hits the camera.**
- **It is too dark around the camera (at night etc.).**
- **The ambient temperature around the camera is either too high or too low.**
- **The vehicle is tilted at a steep angle.**
- **The ambience of the camera is too bright. (When a strong light, such as a sunbeam reflected off the vehicle body, hits the camera, the image may be blurred. This is called the "SMEAR" phenomenon, peculiar to the CCD camera.)**

### 1.READ VALUE USING INTELLIGENT TESTER

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Chassis / Parking Assist Monitor System / Data List.

e. Check the Data List for proper functioning of the following items.

**Parking Assist Monitor System**

| Tester Display | Measurement Item/Range | Normal Condition | Diagnostic Note |
|---|---|---|---|
| AISIC Output Status | Output condition of camera display/OK or NG | OK: Output condition of camera display is normal<br>NG: Output condition of camera display is abnormal | - |

NG → REPLACE PARKING ASSIST ECU (Click here)

OK

## 2.CHECK DIGITAL COMMUNICATION CABLE CONNECTOR

a. Check the digital communication cable connector.

   i. Check the digital communication cable connectors between the parking assist ECU and display and navigation module display for any connection problems (Click here).

b. Check if the same malfunction recurs when the parking assist monitor, front monitor and side monitor screens are displayed.

**Result**

| Result | Proceed to |
|---|---|
| Malfunction does not reoccur (returns to normal) | A |
| Malfunction reoccurs | B |

B → Go to step 3

A

END

## 3.REPLACE WIRE HARNESS (DIGITAL COMMUNICATION CABLE)

a. Replace the digital communication cable between the parking assist ECU and display and navigation module display with a new one.

b. Check if the same malfunction recurs when the parking assist monitor, front monitor and side monitor screens are displayed.

**Result**

| Result | Proceed to |
|---|---|
| Malfunction does not reoccur (returns to normal) | A |
| Malfunction reoccurs | B |

B → Go to step 4

A

END

## 4.REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY

a. Replace the display and navigation module display with a new or normally functioning one ( Click here).

b. Check if the same malfunction recurs when the parking assist monitor, front monitor and side monitor screens are displayed.

**Result**

| Result | Proceed to |
|---|---|
| Malfunction does not reoccur (returns to normal) | A |
| Malfunction reoccurs | B |

B → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

A

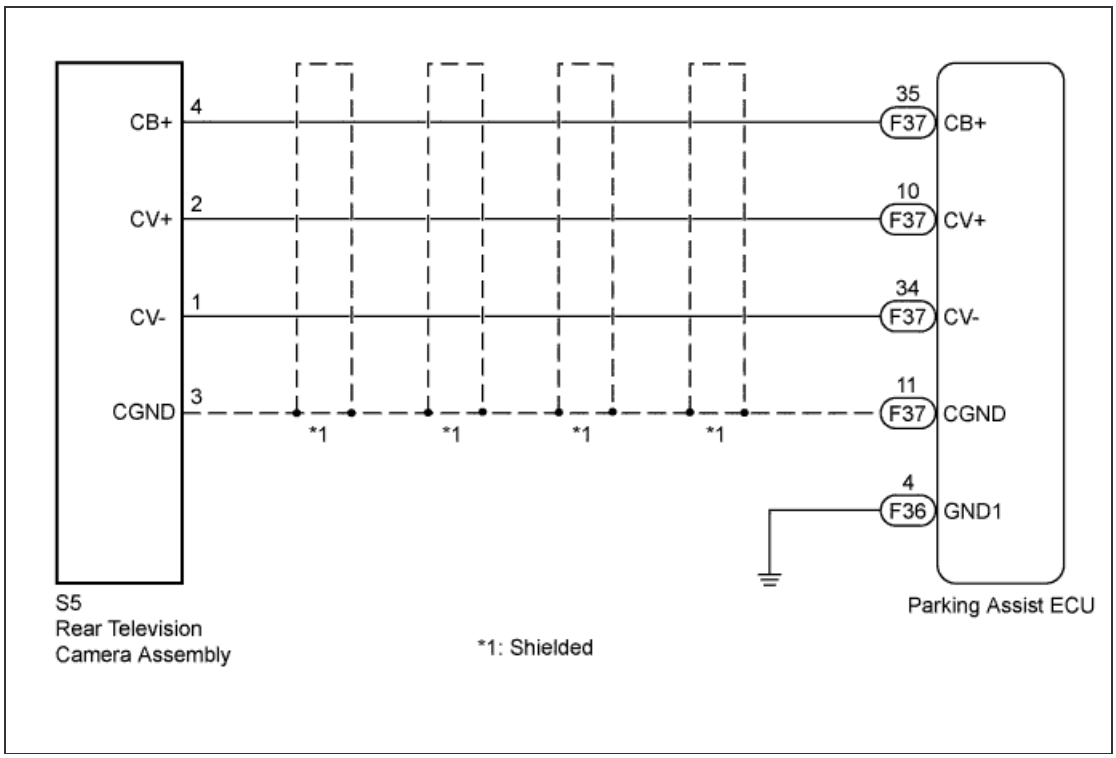
END

**for Preparation** Click here

## DESCRIPTION

The display signal from the rear television camera assembly is transmitted to the display and navigation module display via the parking assist ECU.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the display and navigation module display after the battery terminal has been disconnected, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system may be needed (Click here).**

**HINT:**

Images can be difficult to discern even in normal conditions. For example:

- **Noise may occur in the image during power back door operation. (w/ power back door system)**
- **Noise may occur in the image depending on electrical devices used in the cabin.**
- **Noise may occur in the image if accessories that generate radio waves have been installed.**
- **The camera screen is frosted over (the image immediately after turning the engine switch on (IG) may be blurred or darker than normal).**
- **The camera lens is dirty with snow, mud, etc.**
- **A strong beam of light, such as a sunbeam or headlight, hits the camera.**
- **It is too dark around the camera (at night etc.).**
- **The ambient temperature around the camera is either too high or too low.**
- **The vehicle is tilted at a steep angle.**
- **The ambience of the camera is too bright. (When a strong light, such as a sunbeam reflected off the vehicle body, hits the camera, the image may be blurred. This is called the "SMEAR" phenomenon, peculiar to the CCD camera.)**

### 1.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - REAR TELEVISION CAMERA)

a. Disconnect the F37 connector from the parking assist ECU.

b. Disconnect the S5 connector from the rear television camera assembly.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F37-34 (CV-) - S5-1 (CV-) | Always | Below 1 Ω |
| F37-10 (CV+) - S5-2 (CV+) | Always | Below 1 Ω |
| F37-35 (CB+) - S5-4 (CB+) | Always | Below 1 Ω |
| F37-34 (CV-) - Body ground | Always | 10 kΩ or higher |
| F37-10 (CV+) - Body ground | Always | 10 kΩ or higher |
| F37-11 (CGND) - Body ground | Always | 10 kΩ or higher |
| F37-35 (CB+) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**2.INSPECT PARKING ASSIST ECU (CV-, CGND)**

a. Reconnect the F37 connector to the parking assist ECU.

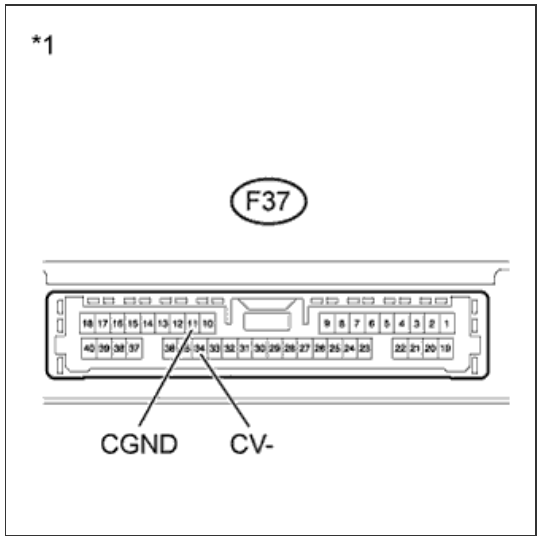
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F37-34 (CV-) - Body ground | Always | Below 1 Ω |
| F37-11 (CGND) - Body ground | Always | Below 1 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Parking Assist ECU) |




NG → REPLACE PARKING ASSIST ECU (Click here)

OK

**3.INSPECT REAR TELEVISION CAMERA ASSEMBLY (CB+, CGND)**

a. Disconnect the S5 connector from the rear television camera assembly.

b. Measure the voltage according to the value(s) in the table below.

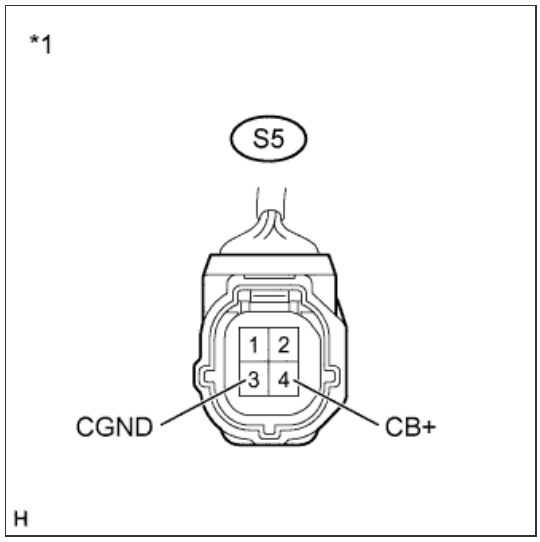
**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| S5-3 (CGND) - S5-4 (CB+) | Engine switch on (IG)<br>Shift lever in R | 5.8 to 7.0 V |

**Text in Illustration**

| | |
|---|---|
| | Front view of wire harness connector |

| | |
|---|---|
| *1 | (to Rear Television Camera Assembly) |



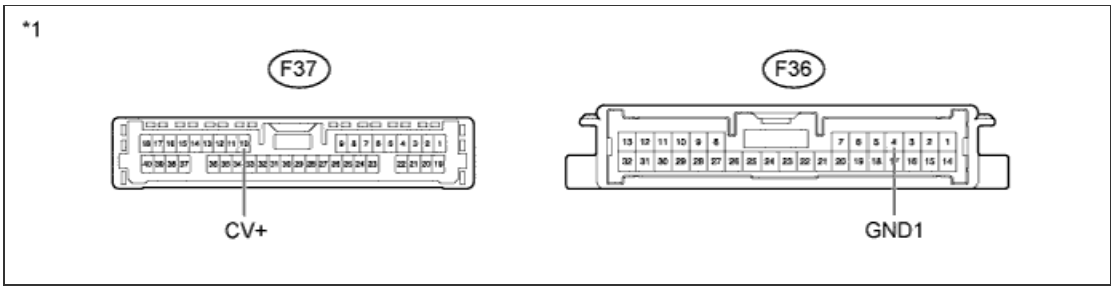

NG → REPLACE PARKING ASSIST ECU (Click here)

OK

## 4.INSPECT PARKING ASSIST ECU (CV+, GND1)

a. Reconnect the S5 connector to the rear television camera assembly.

b. Reconnect the F36 and F37 connectors to the parking assist ECU.




c. Check the waveform of the rear television camera assembly using an oscilloscope.

**HINT:**

A waterproof connector is used for the rear television camera assembly. Therefore, inspect the waveform at the parking assist ECU with the connector connected.

**OK:**

**Waveform is as shown in the illustration.**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F37-10 (CV+) - F36-4 (GND1) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), shift lever in R |

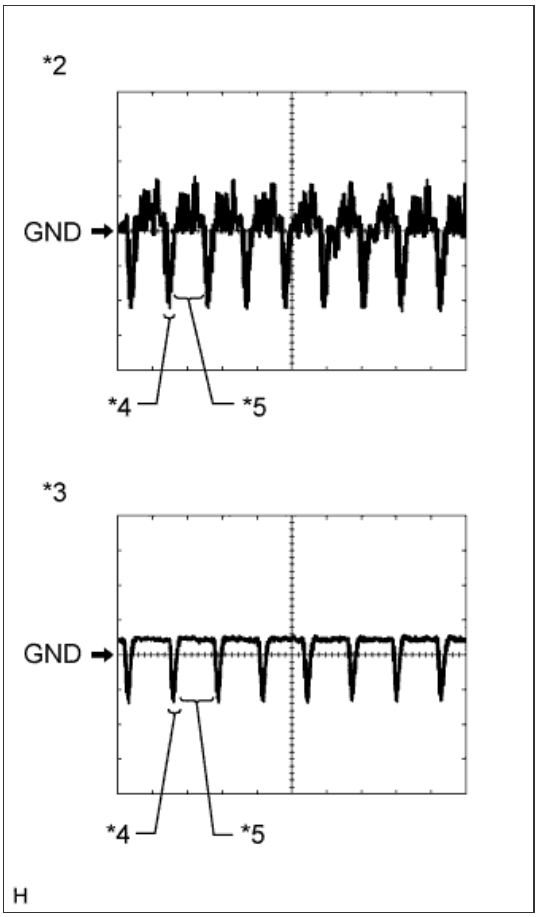
**HINT:**

The video waveform changes according to the image sent by the rear television camera assembly.

**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected |

| | |
|---|---|
| | (Parking Assist ECU) |
| *2 | Waveform 1 (under normal conditions) |
| *3 | Waveform 2 (camera lens is covered, blacking out the screen) |
| *4 | Synchronized Signal |
| *5 | Video Waveform |




NG → REPLACE REAR TELEVISION CAMERA ASSEMBLY (Click here)

OK → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

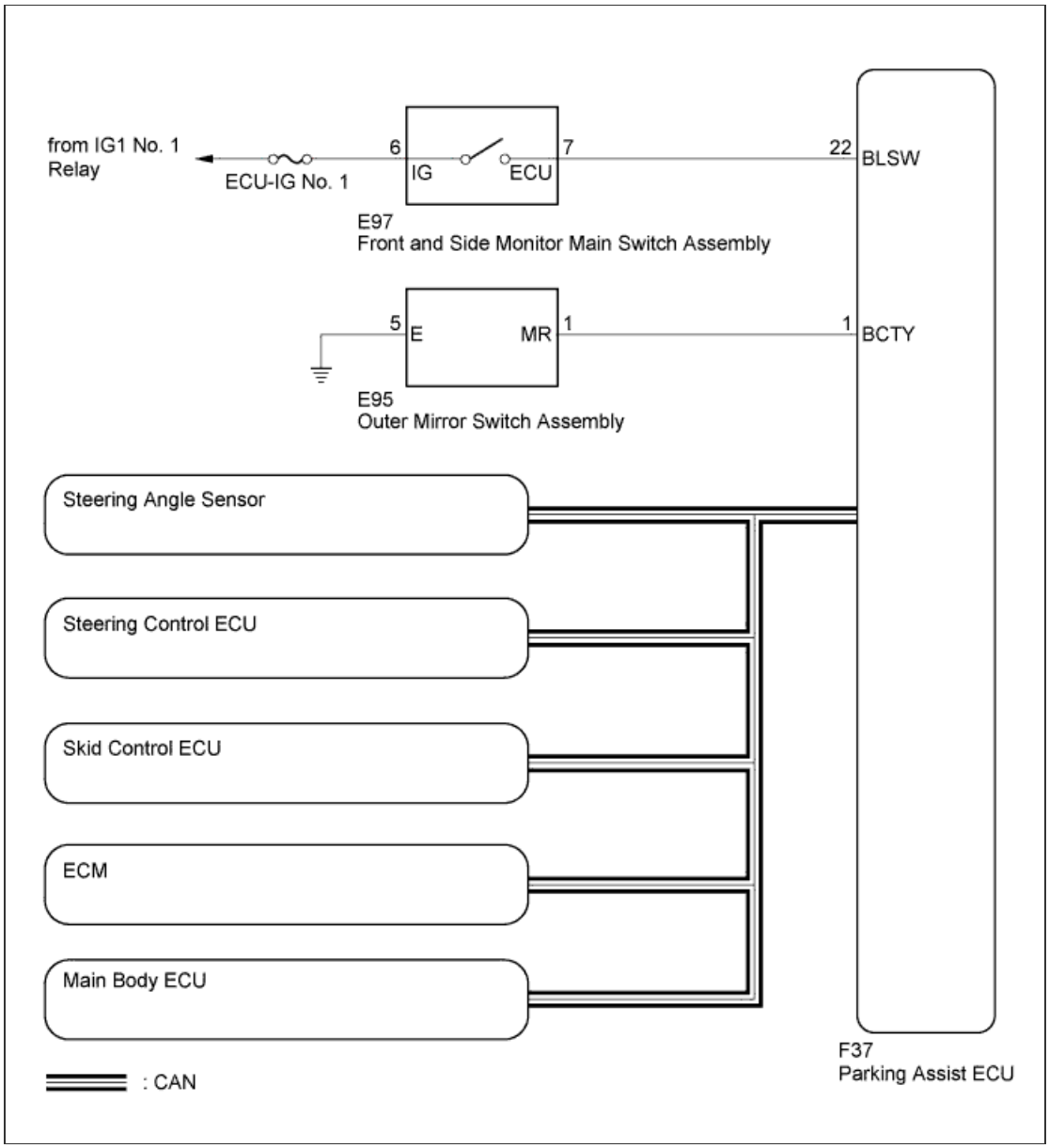
On the SIGNAL CHECK screen, it is possible to check if the state of signals sent to the parking assist ECU is normal ( Click here).

**HINT:**

- **On the SIGNAL CHECK screen, "OK" (blue) is displayed for items with a normal inspection result and input state.**
- **On the SIGNAL CHECK screen, "CHK" (red) is displayed for items with an abnormal inspection result and input state.**
- **Displayed items may differ depending on the specifications.**

| Item | Signal Input Method | Detail | DTC Output when Abnormal Result is Displayed | Signal Receiver |
|---|---|---|---|---|
| SPEED | CAN communication | Speed signal input | DTC is output | Skid control ECU |
| CAMERA SW | Vehicle wire harness | Front and side monitor main switch assembly signal input | DTC is not output | Parking assist ECU |
| BCTY | CAN communication | CAN communication condition with main body ECU | DTC is output | Main body ECU |
| MIRROR SW | Vehicle wire harness | Outer rear view mirror retract signal input | DTC is not output | Parking assist ECU |
| SHIFT | CAN communication | Shift signal input | DTC is output | ECM |
| STR SIG | CAN communication | Steering angle sensor signal input | DTC is output | Spiral with sensor cable sub-assembly |
| WFS SET | Vehicle wire harness | • Front monitor signal input<br>• Side monitor signal input<br>• Front and side monitor main switch signal input | DTC is output | Parking assist ECU |
| VGRS | CAN communication | VGRS signal input | DTC is output | Steering control ECU |
| DEST | CAN communication | Destination information signal input | DTC is output | Main body ECU |
| BRAND | CAN communication | Brand information signal input | DTC is output | Main body ECU |

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the display and navigation module display after the cable has been disconnected from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the side monitor system may be needed (Click here).**
- **When replacing the display and navigation module display, perform vehicle contract setting (w/ G-BOOK system) ( Click here).**
- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**

### 1.CHECK DISPLAY CHECK MODE

a. Check which items display "CHK" (red) on the SIGNAL CHECK screen.

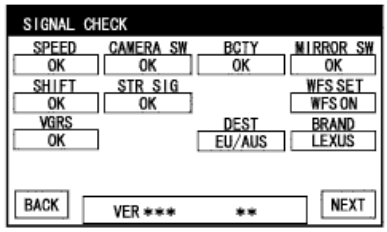
**Text in Illustration**

| | |
|---|---|
| *1 | Example |

**Result**

| Result | Proceed to |
|---|---|
| "MIRROR SW" displays "CHK" (red). | A |
| "CAMERA SW" and "WFS SET" displays "CHK" (red). | B |
| Any of "SPEED", "BCTY", "SHIFT", "STR SIG", "DEST", "VGRS" and "BRAND" display "CHK" (red). | C |

*1



B → Go to step 5

C → CHECK DTC OUTPUT (Click here)

A

## 2.INSPECT OUTER MIRROR SWITCH

a. Inspection outer mirror switch (Click here).

NG → REPLACE OUTER MIRROR SWITCH (Click here)

OK

## 3.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - OUTER MIRROR SWITCH)

a. Disconnect the E37 connector from the parking assist ECU.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E37-1 (BCTY) - E95-1 (MR) | Always | Below 1 Ω |
| E37-1 (BCTY) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 4.CHECK POWER MIRROR CONTROL SYSTEM (POWER RETRACT FUNCTION)

a. Operate the mirror retract switch to check if the power retract mirror function of the outer rear view mirror assembly (passenger side) operates normally (Click here).

NG → GO TO POWER MIRROR CONTROL SYSTEM (Click here)

OK

REPLACE PARKING ASSIST ECU (Click here)

## 5.INSPECT FRONT AND SIDE MONITOR MAIN SWITCH ASSEMBLY

a. Inspection front and side monitor main switch assembly ( Click here).

NG → REPLACE FRONT AND SIDE MONITOR MAIN SWITCH ASSEMBLY (Click here)

OK

## 6.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - MAIN SWITCH ASSEMBLY)

a. Disconnect the F37 connector from the parking assist ECU.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| E97-6 (IG) - Body ground | Engine switch on (IG) | 11 to 14 V |

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F37-22 (BLSW) - Body ground | Always | 10 kΩ or higher |
| E97-7 (ECU) - Body ground | Always | 10 kΩ or higher |
| F37-22 (BLSW) - E97-7 (ECU) | Always | Below 1 Ω |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE PARKING ASSIST ECU (Click here)

**for Preparation** Click here

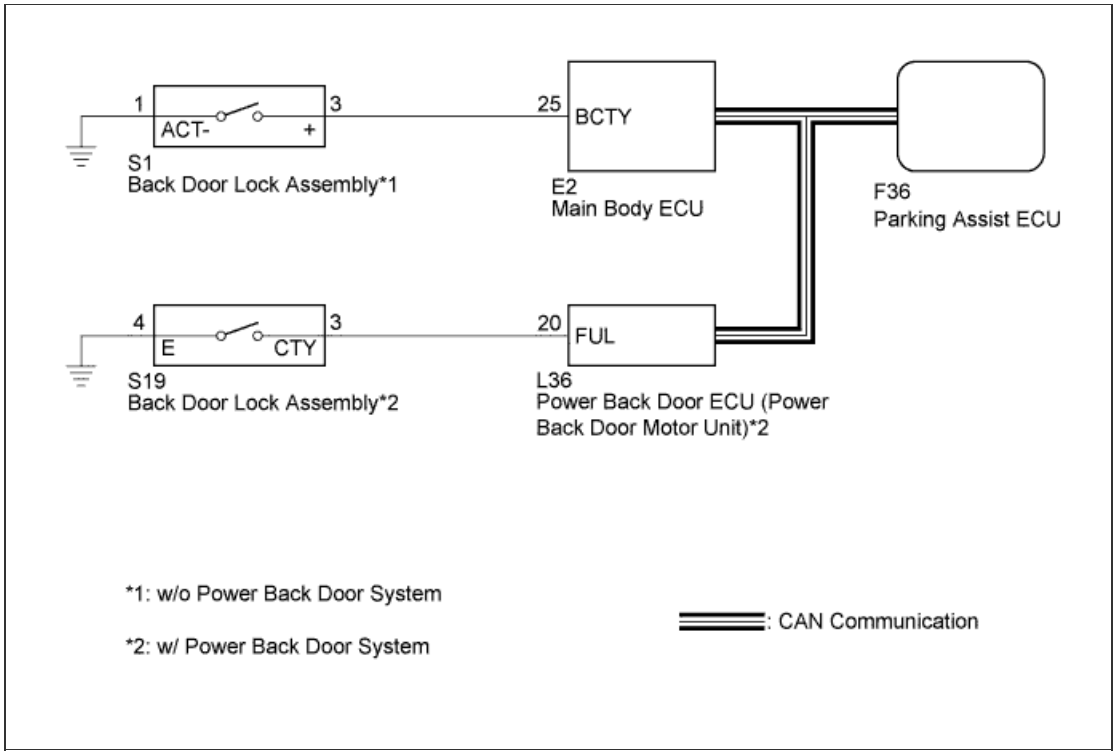
## DESCRIPTION

The parking assist ECU receives back door lock assembly open/close signals from the main body ECU via CAN communication. When the back door is open, the camera aiming cannot be adjusted correctly because the rear television camera assembly is installed on the back door. Therefore, when adjusting the camera aiming calibration while the back door is open, a back door open warning message will be displayed on the screen and camera aiming adjustment will be canceled.

**HINT:**

- **The back door lock assembly is connected to the main body ECU by the vehicle wire harness. (w/o power back door system)**
- **The back door lock assembly is connected to the power back door ECU (power back door motor unit) by the vehicle wire harness. The power back door ECU (power back door motor unit) sends back door lock assembly signals to the main body ECU via CAN communication. (w/ power back door system)**

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the display and navigation module display after the battery terminal disconnected, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system may be needed (Click here).**

### 1.READ VALUE USING INTELLIGENT TESTER

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Body / Main Body / Data List.

e. Check the Data List for proper functioning of the following item.

**Main Body (Main Body ECU)**

| | | | |
|---|---|---|---|
| | | | |

| Tester Display | Measurement Item/Range | Normal Condition | Diagnostic Note |
|---|---|---|---|
| Back Door Courtesy SW | Back door courtesy switch signal/ON or OFF | ON: Back door open<br>OFF: Back door closed | - |

**OK:**

**The back door courtesy switch functions as specified in the normal condition column.**

NG → Go to step 2

OK →

REPLACE PARKING ASSIST ECU (Click here)

## 2.CONFIRM MODEL

a. Choose the model to be inspected.

**Result**

| Result | Proceed to |
|---|---|
| w/o power back door system | A |
| w/ power back door system | B |

B → GO TO BACK DOOR CLOSER SYSTEM (DTC B2251) ( Click here)

A →

## 3.CHECK HARNESS AND CONNECTOR (MAIN BODY ECU - BACK DOOR LOCK)

a. Disconnect the E2 connector from the main body ECU.

b. Disconnect the S1 connector from the back door lock assembly.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E2-25 (BCTY) - Body ground | Always | 10 kΩ or higher |
| S1-1 (ACT-) - Body ground | Always | Below 1 Ω |
| E2-25 (BCTY) - S1-3 (+) | Always | Below 1 Ω |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK →

## 4.INSPECT BACK DOOR LOCK ASSEMBLY

a. Check the operation of the door lock motor.

i. Move the door lock to the lock position.

ii. Apply battery voltage to the door lock motor and check the operation of the door lock motor.

**OK**

| Measurement Condition | Specified Condition |
|---|---|
| | |

| | |
|---|---|
| Battery positive (+) → 2 (ACT+)<br>Battery negative (-) → 1 (ACT-) | Unlocks |

b. Check operation of the door courtesy switch.

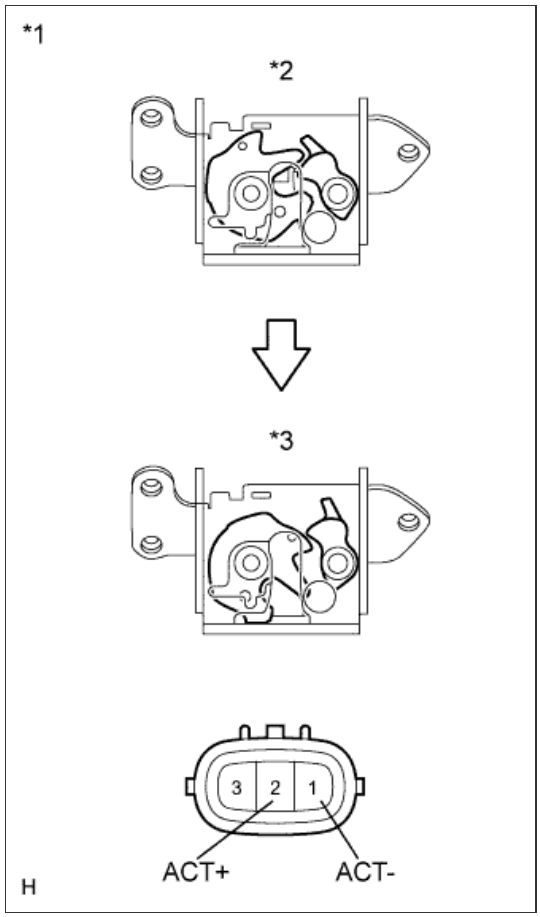
i. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Door Lock Condition | Specified Condition |
|---|---|---|
| 1 (ACT-) - 3 | Locked | 10 kΩ or higher |
| 1 (ACT-) - 3 | Unlocked | Below 1 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component without harness connected (Back Door Lock Assembly) |
| *2 | Lock |
| *3 | Unlock |




NG → REPLACE BACK DOOR LOCK ASSEMBLY (Click here)

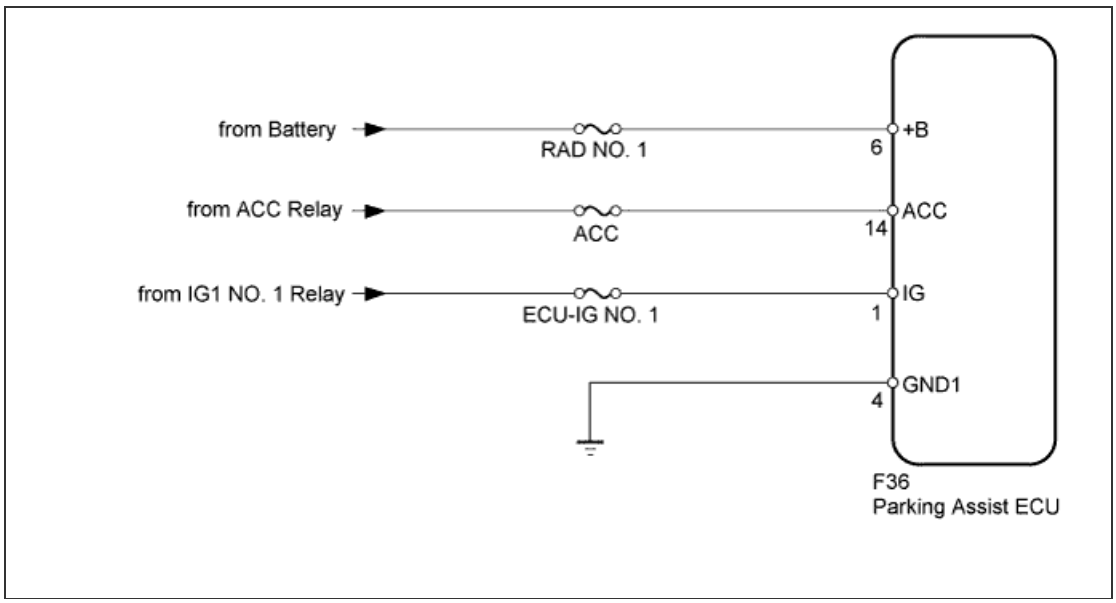
OK → REPLACE MAIN BODY ECU

**for Preparation** Click here

## DESCRIPTION

This circuit is the power source circuit to operate the parking assist ECU.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.INSPECT FUSE (ECU-IG NO. 1, ACC, RAD NO. 1)

a. Remove the ECU-IG NO. 1 and ACC fuses from the main body ECU.

b. Remove the RAD NO. 1 fuse from the engine room relay block.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| ECU-IG NO. 1 fuse | Always | Below 1 Ω |
| ACC fuse | Always | Below 1 Ω |
| RAD NO. 1 fuse | Always | Below 1 Ω |

NG → REPLACE FUSE

OK

### 2.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - BATTERY AND BODY GROUND)

a. Disconnect the F36 ECU connector.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F36-1 (IG) - Body ground | Engine switch on (IG) | 11 to 14 V |
| F36-1 (IG) - Body ground | Engine switch off | Below 1 V |
| F36-14 (ACC) - | Engine switch on | |

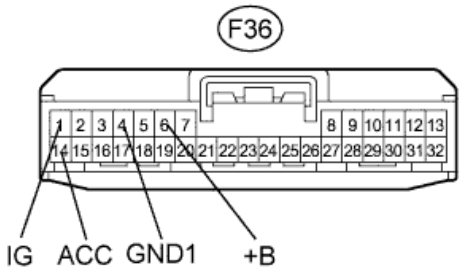
| | | |
|---|---|---|
| Body ground | (ACC) | 11 to 14 V |
| F36-14 (ACC) - Body ground | Engine switch off | Below 1 V |
| F36-6 (+B) - Body ground | Always | 11 to 14 V |

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F36-4 (GND1) - Body ground | Always | Below 1 Ω |

Front view of wire harness connector:
(to Parking Assist ECU)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

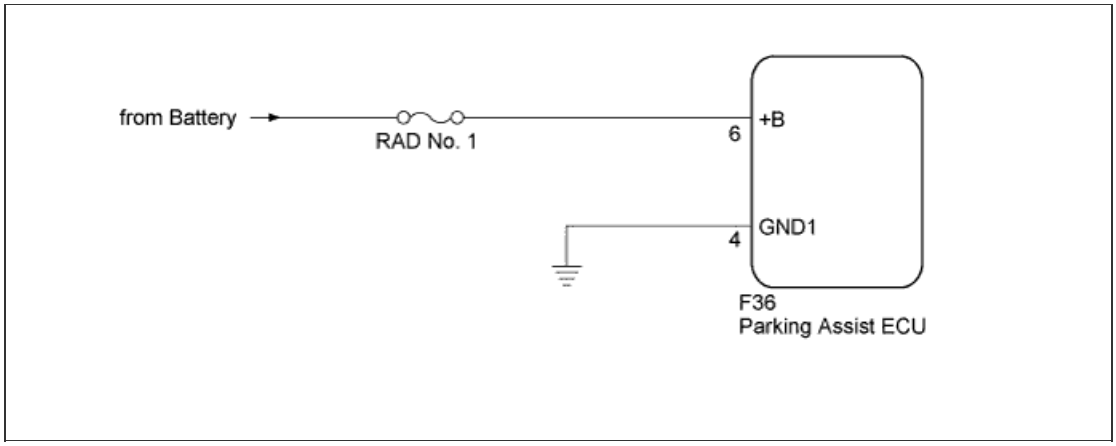
## DESCRIPTION

This circuit is the power source circuit to operate the parking assist ECU. The parking assist ECU controls the parking assist monitor system, side monitor system and Lexus parking assist-sensor system. When a malfunction occurs in this circuit, each system will be abnormal.

**HINT:**

- **The parking assist ECU is connected to other ECUs via CAN communication or AVC-LAN communication.**
- **If the parking assist ECU does not operate due to a power source problem, a navigation system DTC may be stored due to an AVC-LAN communication interruption.**
- **If the parking assist ECU does not operate due to a power source problem, other system DTCs may be stored due to a CAN communication interruption.**

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

**1.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - BATTERY AND BODY GROUND)**

a. Disconnect the F36 connector from the parking assist ECU.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F36-4 (GND1) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F36-6 (+B) - F36-4 (GND1) | Always | 11 to 14 V |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## 1.POINTS TO NOTE WHEN SERVICING

a. Pay attention to the following points when servicing.

i. When disconnecting the cable from the negative (-) battery terminal, "System initializing" may appear on the multi-media module receiver assembly. In this case, restore the steering angle neutral point (Click here).

ii. Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system (w/ Side Monitor System) may be needed (Click here).

**HINT:**

Each adjusted value for the calibration of the parking assist monitor system (w/ Side Monitor System) will be stored in the parking assist ECU.

iii. When the lens of the rear television camera assembly is dirty, wash the lens with water and wipe it off with a soft cloth to obtain clear images. For heavy dirt, use neutral detergent to clean the lens.

## 2.NOTES FOR REAR TELEVISION CAMERA ASSEMBLY

a. Notes for the rear television camera assembly

i. The parking assist monitor system (w/ Side Monitor System) may not function properly if subjected to a severe blow by any hard object.

ii. Do not scrub the cover part of the camera (resin made). Scrubbing may scratch the cover and affect the image. Prevent organic solvents, waxes, bond removing solvents or glass coating from adhering to the cover. If such material adheres to the cover, clean it off immediately and wash it with water.

iii. Exposing the camera to a sudden temperature change may affect proper functioning of the camera.

iv. A clear image may not appear if the camera is dirty with snow, mud, etc. In that case, wash it with water and wipe off the lens. Use a detergent to remove dirt if necessary.

b. Images may be unclear even in normal conditions if:

i. Noise may occur in the image during power back door operation. (w/ Power Back Door System)

ii. Electrical devices are used in the cabin (noise may occur in the image).

iii. Accessories that generate radio waves have been installed (noise may occur in the image).

iv. The outer mirror switch assembly is operated (noise may occur in the image).

v. The camera lens is frosted over (the image immediately after turning the engine switch on (IG) may be blurred or darker than normal).

vi. The camera lens is dirty with snow, mud, etc.

vii. A strong beam of light, such as a sunbeam or headlight, hits the camera.

viii. It is too dark around the camera (at night etc.).

ix. The ambient temperature around the camera is either too high or too low.

x. The vehicle is tilted at a steep angle.

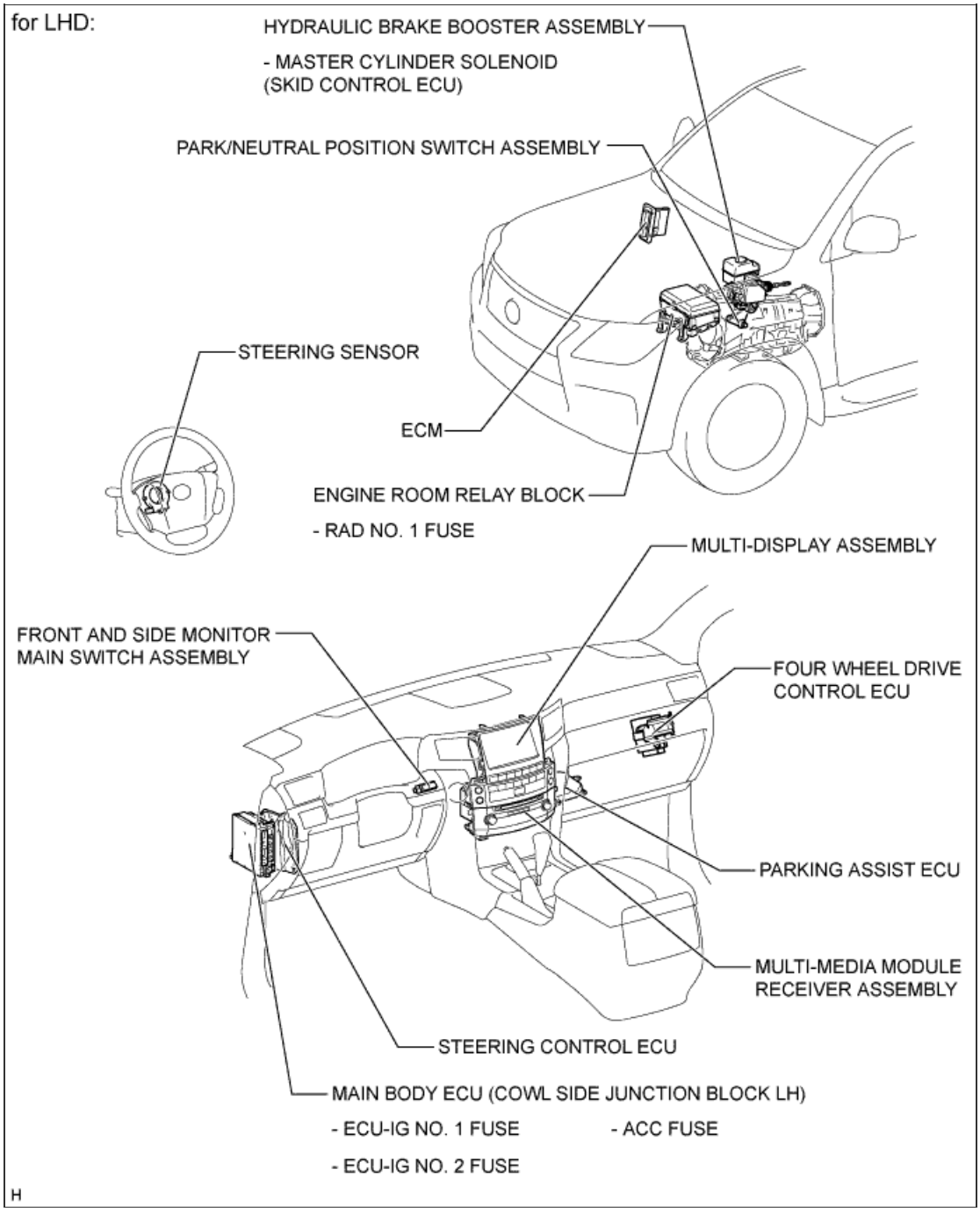
xi. The rear television camera assembly lens is scratched.

xii. The rear television camera assembly lens has drops of water on it or the humidity is high.

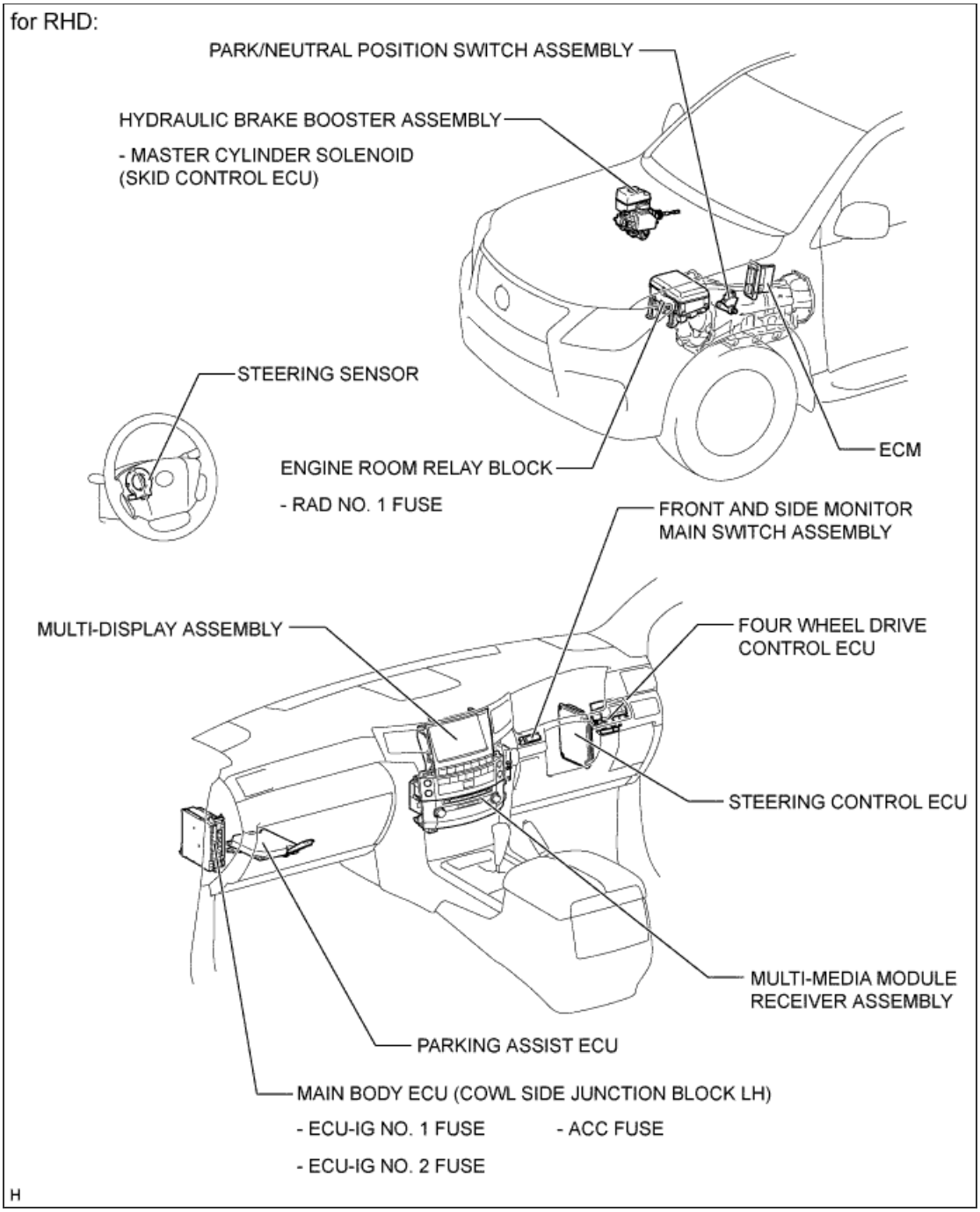
xiii. When the camera is used under fluorescent lights, sodium lights, or mercury lights etc., the lights and the illuminated area may appear to flicker.

xiv. The ambience of the camera is too bright. (When a strong light, such as a sunbeam reflected off the vehicle body, hits the camera, the image may be blurred. This is called the "SMEAR" phenomenon, particular to the CCD camera.)

**for Preparation** Click here

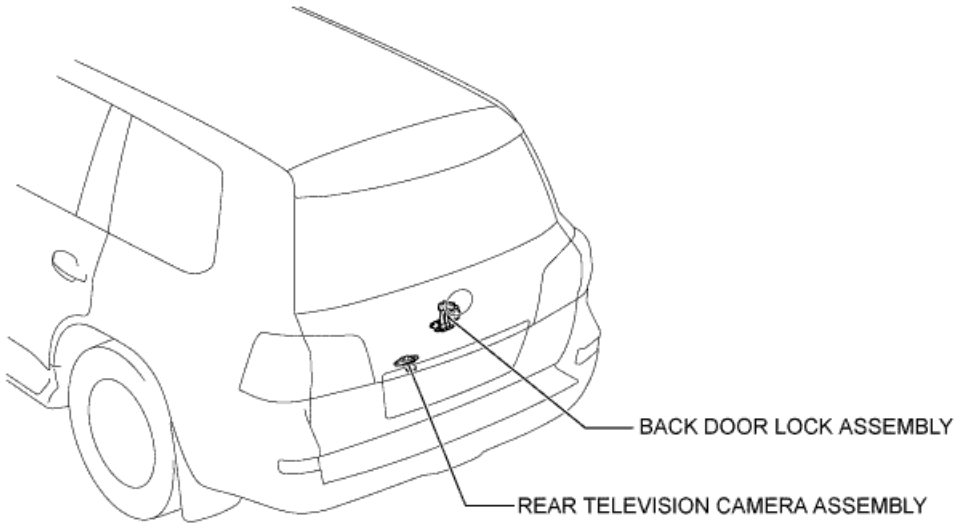


for RHD:

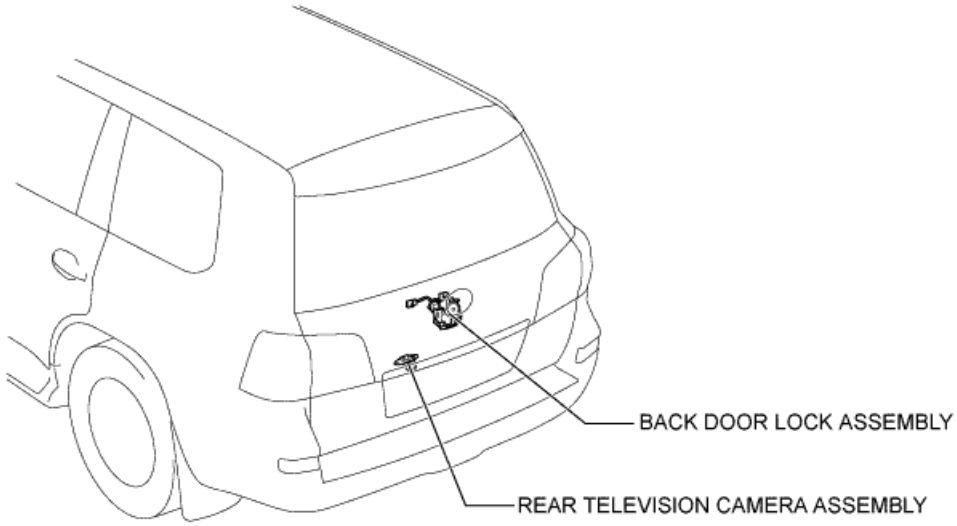

PARK/NEUTRAL POSITION SWITCH ASSEMBLY
HYDRAULIC BRAKE BOOSTER ASSEMBLY
- MASTER CYLINDER SOLENOID
(SKID CONTROL ECU)
STEERING SENSOR
ECM
ENGINE ROOM RELAY BLOCK
- RAD NO. 1 FUSE
FRONT AND SIDE MONITOR
MAIN SWITCH ASSEMBLY
MULTI-DISPLAY ASSEMBLY
FOUR WHEEL DRIVE
CONTROL ECU
STEERING CONTROL ECU
MULTI-MEDIA MODULE
RECEIVER ASSEMBLY
PARKING ASSIST ECU
MAIN BODY ECU (COWL SIDE JUNCTION BLOCK LH)
- ECU-IG NO. 1 FUSE
- ACC FUSE
- ECU-IG NO. 2 FUSE

H

w/o Power Back Door System:

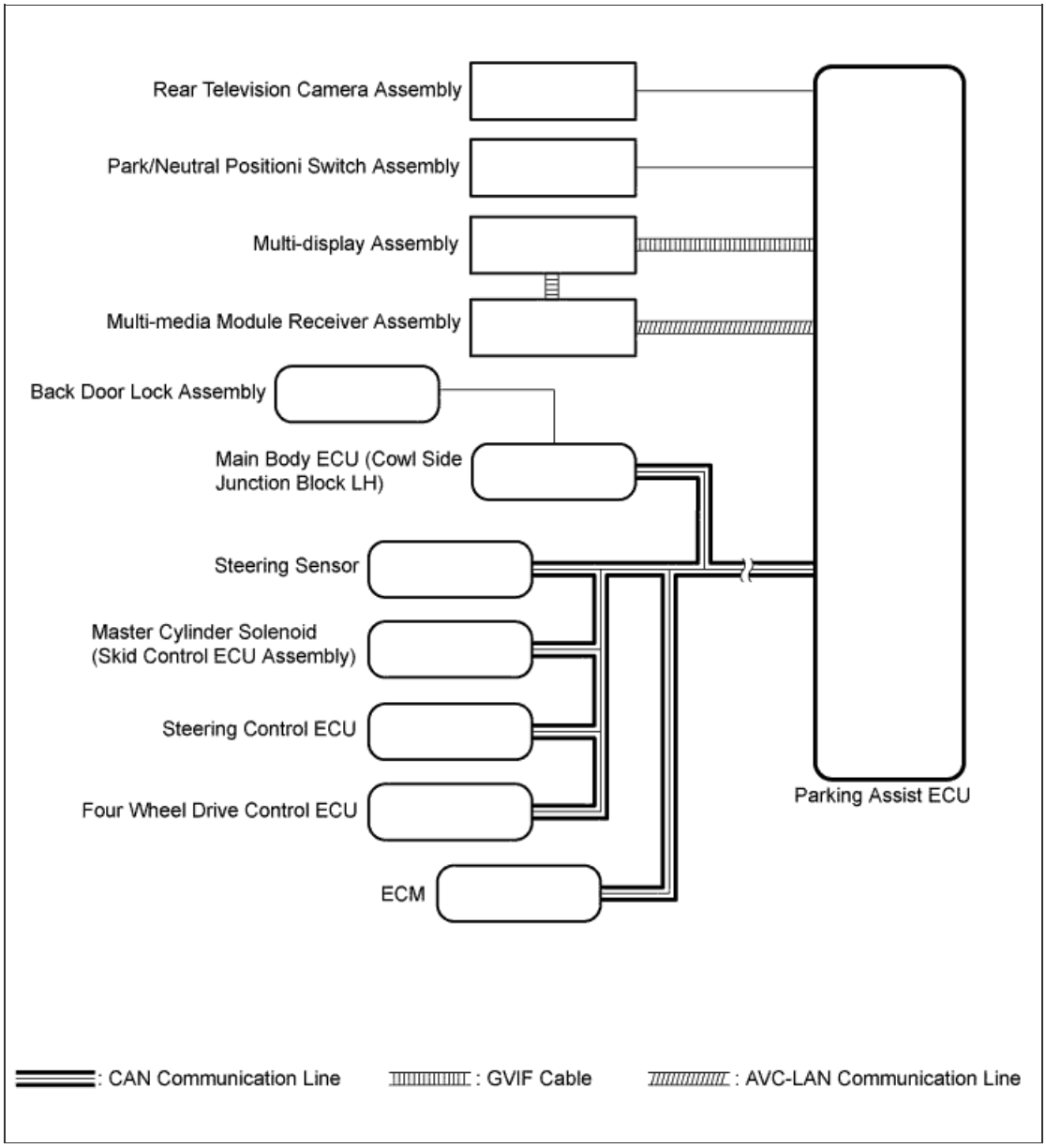



w/ Power Back Door System:




H

**for Preparation** Click here




### Communication Table

| Sender | Receiver | Signal | Line |
|---|---|---|---|
| Multi-media Module Receiver Assembly | Parking Assist ECU | Display | AVC-LAN |
| Parking Assist ECU | Multi-display Assembly | Display | GVIF cable |
| Steering Sensor | Parking Assist ECU | Steering angle | CAN |
| Steering Control ECU | Parking Assist ECU | • VGRS relative angle<br>• Vehicle information | CAN |
| Master Cylinder Solenoid (Skid Control ECU Assembly) | Parking Assist ECU | • Inner brake information<br>• ABS ACT information | CAN |
| Four Wheel Drive Control ECU | Parking Assist ECU | L4 Condition signal | CAN |
| ECM | Parking Assist ECU | • Shift position information<br>• 2WD/4WD information<br>• Vehicle information | CAN |
| Main Body ECU (Cowl Side Junction Block LH) | Parking Assist ECU | • Vehicle information<br>• Back door courtesy light switch | CAN |

**for Preparation** Click here

## GENERAL

a. This system has a rear television camera assembly mounted on the back door to display the rear view of the vehicle on the multi-display assembly. The display panel also shows a composite view consisting of the area behind the vehicle and parking guidelines to assist the driver in parking the vehicle by monitoring the area behind the vehicle.

b. This system consists of the following components:

i. Parking assist ECU

ii. Rear television camera assembly

iii. Multi-media module receiver assembly

iv. Multi-display assembly

v. Steering sensor

vi. Steering control ECU

vii. Master cylinder solenoid (skid control ECU assembly)

viii. Four wheel drive control ECU

ix. ECM

x. Main body ECU (cowl side junction block LH)

c. This system is equipped with a self-diagnosis system, which is operated on a designated window that appears on the display panel, just as in the navigation system.

## FUNCTION OF COMPONENTS

a. The parking assist ECU controls the system by using information from the following components.

| Item | Function |
|---|---|
| Rear Television Camera Assembly | • Mounted on the back door to transmit the rear view of the vehicle to the parking assist ECU.<br>• Has a color video camera that uses a Complementary Metal Oxide Semiconductor (CMOS) and a wide-angle lens. |
| Parking Assist ECU | • Receives video signals, which contain an image of the area behind the vehicle taken with the rear television camera assembly.<br>• Performs overall control of the system by receiving signals from the sensors.<br>• Allows operation via the touch panel of the display when the park assist monitor screen or diagnosis screen is displayed.<br>• Creates images and displays adjustment screens performed on the diagnosis screen.<br>• Stops displaying the guide line and buttons displays "Check surrounding for safety" when an open signal is received for the back door.<br>• Displays "Back door is open" on the back camera position setting screen when an open signal is received for the back door. |
| Multi-media Module Receiver Assembly | Receives the video signals containing a composite of the rear view of the vehicle and parking assist guideline signals from the parking assist ECU, and sends them on the multi-display assembly (display panel). |
| Steering Sensor | Detects the angle of the steering wheel and sends the resulting signals to the parking assist ECU through CAN communication. |
| Steering Control ECU | Sends the VGRS relative angle and vehicle condition to the parking assist ECU through CAN communication. |
| Master Cylinder Solenoid (Skid Control ECU Assembly) | Sends the inner brake information and ABS ACT information to the parking assist ECU through CAN communication. |
| Four Wheel Drive Control ECU | Sends the L4 condition signal to the parking assist ECU through CAN communication. |
| | Sends the vehicle condition, 2WD/4WD information and shift position |

| | |
|---|---|
| ECM | information to the parking assist ECU through CAN communication. |
| Main Body ECU (Cowl Side Junction Block LH) | Sends the back door courtesy light switch signal to the parking assist ECU through CAN communication. |

## OPERATION EXPLANATION

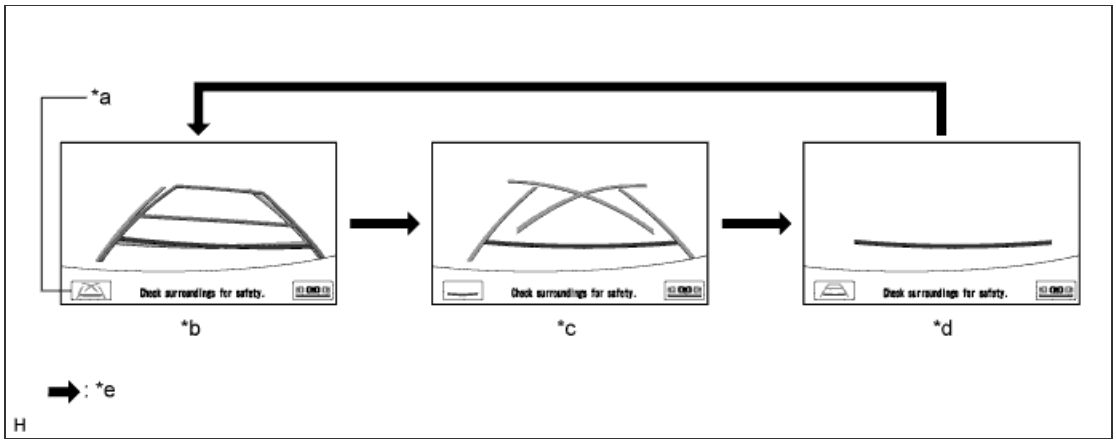
a. The reverse position signal is sent from the shift lever position switch to the parking assist ECU when the shift lever is moved to R.

b. In parallel parking assist mode, an appropriate steering angle and timing information can be provided for the driver. This is based on the information from the steering angle sensor signal and the vehicle angle data signal that are sent to the parking assist ECU.

**HINT:**

The steering angle sensor signal is used to control parking assist for only estimated guide line mode.

## DISPLAY MODE SETTING




### Text in Illustration

| | | | |
|---|---|---|---|
| *a | Line Mode Button | *b | Estimated Guide Line Mode |
| *c | Parking Guide Line Mode | *d | Guide Line Deletion Mode |
| *e | Line Mode Button Pressed | - | - |

a. While the parking assist monitor is displayed, pressing the line mode button switches the parking assist monitor display mode.

### Parking Assist Monitor Display Mode

| Parking Assist Monitor Display Mode | Distance Guide Line (Red) | Vehicle Width Extension Line (Blue) | Predicted Path Line (Yellow) | Parking Guide Line (Blue) |
|---|---|---|---|---|
| Estimated Guide Line Mode | Displayed | Displayed | Displayed | Not displayed |
| Parking Guide Line Mode | Displayed | Displayed | Not displayed | Displayed |
| Guide Line Deletion Mode | Displayed | Not displayed | Not displayed | Not displayed |

## COMMUNICATION SYSTEM OUTLINE

a. The components of the parking assist monitor system (w/ Side Monitor System) communicate with each other through the AVC-LAN. Also, parallel parking assist mode judges the vehicle angle data transmitted via the AVC-LAN from the multi-media module receiver assembly (the data is calculated by the multi-media module receiver assembly by integrating the yaw rate of the gyro sensor built into the multi-media module receiver assembly).

b. If a short circuit or open circuit occurs in the AVC-LAN, communication is interrupted and the parking assist monitor system (w/ Side Monitor System) will stop functioning.

## DIAGNOSTIC FUNCTION OUTLINE

a. This parking assist monitor system (w/ Side Monitor System) has a diagnostic function displayed in the multi-media module receiver assembly. This function enables the calibration (adjustment and verification) of the parking assist monitor system (w/ Side Monitor System) (Click here).

b. The parking assist monitor system (w/ Side Monitor System) can check the following items by using the intelligent tester.

| Item | Proceed to |
|---|---|

| | |
|---|---|
| DTC | Click here |
| Data List / Active Test | Click here |

**for Preparation** Click here

**HINT:**

- **Use the following procedure to troubleshoot the parking assist monitor system (w/ Side Monitor System).**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

NEXT

## 2.INSPECT BATTERY VOLTAGE

a. Measure the battery voltage with the engine switch off.

**Standard voltage:**
**11 to 14 V**

If the voltage is below 11 V, replace or recharge the battery before proceeding.

NEXT

## 3.CHECK NAVIGATION SYSTEM

a. Refer to the navigation system (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Navigation system is normal | A |
| Navigation system is abnormal | B |

B. Go to NAVIGATION SYSTEM (Click here)

A

## 4.CHECK COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM*

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

- for LHD: Click here
- for RHD: Click here

**Result**

| Result | Proceed to |
|---|---|
| CAN DTC is not output | A |
| CAN DTC is output (for LHD) | B |
| CAN DTC is output (for RHD) | C |

B. Go to CAN COMMUNICATION SYSTEM (Click here)

C. Go to CAN COMMUNICATION SYSTEM (Click here)

A

## 5.CHECK FOR DTC*

a. Check for DTCs and note any codes that are output ( Click here).

b. Clear the DTC (Click here).

c. Recheck for DTCs. Try to prompt the DTC by simulating the original activity that the DTC suggests.

**NOTICE:**

The parking assist ECU may store the DTCs of the following system. If DTCs other than those specified in Diagnostic Trouble Code Chart of the parking assist monitor system are output, refer to Diagnostic Trouble Code Chart for the applicable system.

| System | Proceed to |
|---|---|
| Side Monitor System | Click here |
| Wide View Front Monitor System | Click here |

**Result**

| Result | Proceed to |
|---|---|
| DTC is not output | A |
| DTC is output | B |

B. → Go to step 8

A

## 6.PROBLEM SYMPTOMS TABLE

a. Refer to the Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in Problem Symptoms Table | A |
| Fault is listed in Problem Symptoms Table | B |

B. → ADJUST, REPAIR OR REPLACE IN ACCORDANCE WITH PROBLEM SYMPTOMS TABLE

A

## 7.OVERALL ANALYSIS AND TROUBLESHOOTING*

a. Data List / Active Test (Click here).

b. Terminals of ECU (Click here).

NEXT

## 8.ADJUST, REPAIR OR REPLACE

NEXT

## 9.CONFIRMATION TEST

NEXT

END

**for Preparation** Click here

## INITIALIZE PARKING ASSIST MONITOR SYSTEM

a. When "System initializing" is displayed on the multi-display assembly, correct the steering angle neutral point using the following method.

i. Fully turn the steering wheel to the right and left on flat ground.

**NOTICE:**

Memorizing the steering angle neutral point must be carried out with the engine started. Apply the parking brake, depress the brake pedal, check that the shift lever is in P, and ensure that the vehicle is not moving.

**HINT:**

The "?" button is displayed at the same time as "System initializing". If the "?" button is selected, this method is displayed.

**for Preparation** Click here

## ADJUST PARKING ASSIST MONITOR SYSTEM

a. This parking assist monitor system (w/ Side Monitor System) can be set from the diagnostic screen of the multi-display assembly.

b. If the following operations are performed, it is necessary to perform adjustments and checks on the diagnostic screen.

| Part Name | Operation | Adjustment Item | Proceed to |
|---|---|---|---|
| Steering sensor | • Removal and installation of the Steering angle sensor<br>• Removal and installation of the connector of the steering sensor | Steering angle neutral point (Initialize parking assist monitor system [w/ Side Monitor System]) | Click here |
| | | Steering angle setting | Procedure 2 |
| | Replacement | Steering angle neutral point (Initialize parking assist monitor system [w/ Side Monitor System]) | Click here |
| | | Steering angle setting | Procedure 2 |
| Multi-media module receiver assembly | Replacement | Vehicle contract setting | Click here |
| Parking assist ECU | Replacement | Parking assist ECU initialization | Procedure 1 |
| Suspension, tires, etc. | The vehicle height changes because of suspension or tire replacement | Rear television camera optical axis (Back camera position setting) | Procedure 3 |
| | | Side television camera optical axis (Side camera position setting) | Click here |
| Rear television camera assembly | • Replacement<br>• Installation angle of the rear television camera changes because of the removal and installation of the rear television camera, etc. | Rear television camera optical axis (Back camera position setting) | Procedure 3 |

**HINT:**

- **The adjustment values stored while performing parking assist monitor system (w/ Side Monitor System) calibration are stored in the parking assist ECU.**
- **After the engine switch is turned off, the multi-media module receiver assembly records various types of memory and settings. As a result, after turning the engine switch off, make sure to wait for the time specified in the following table before disconnecting the cable from the negative (-) battery terminal.**

**Waiting Time before Disconnecting Cable from Negative (-) Battery Terminal**

| Specification | Waiting Time |
|---|---|
| Vehicle enrolled in G-BOOK system | 6 minutes |
| Vehicle not enrolled in G-BOOK system | 1 minute |

## PARKING ASSIST ECU INITIALIZATION (Procedure 1)

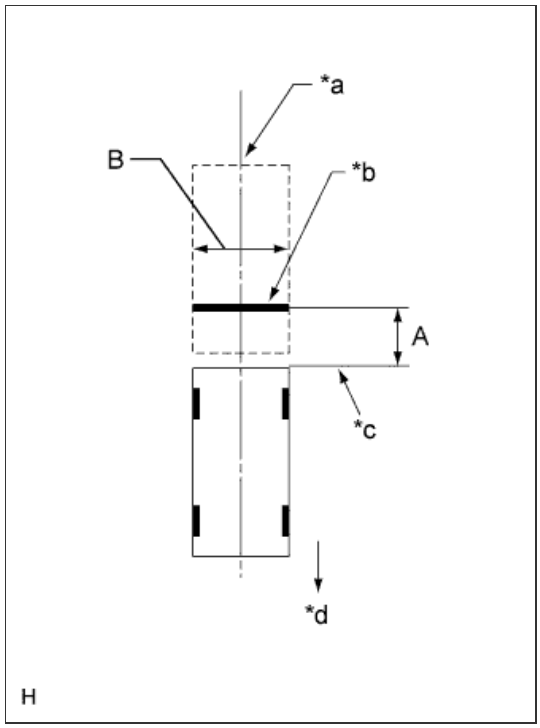
**HINT:**

Be sure to check for DTCs before performing this procedure ( Click here).

a. Preparation for adjustment

i. Park the vehicle with the steering wheel centered.

ii. Set a target bar for optical axis adjustment of the rear television camera assembly.




**HINT:**

Only when adjusting the optical axis of the camera assembly, create a target bar for adjustment.

**Dimension:**

| Area | Specification |
|---|---|
| A | 824 to 834 mm (2.70 to 2.74 ft.) |
| B | 1995 to 2005 mm (6.55 to 6.58 ft.) |

**Text in Illustration**

| | |
|---|---|
| *a | Vehicle Center |
| *b | Target Bar for Back Camera Adjustment |
| *c | Vehicle End |
| *d | Front Side |

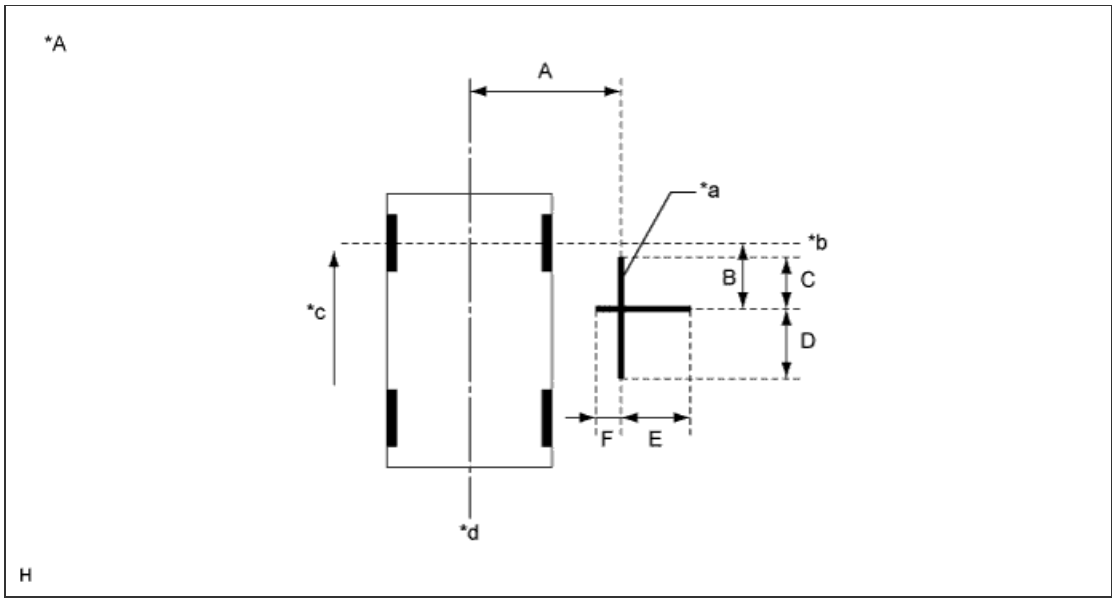
**HINT:**

- **Set a piece of tape on the ground as the target bar for adjustment. Its width and length are 20 to 30 mm (0.787 to 1.18 in.) and 1995 to 2005 mm (6.55 to 6.58 ft.), respectively. Check the color on the multi-display assembly and choose a tape color which can be easily seen.**
- **Before parking the vehicle, be sure to move the vehicle forward and in reverse to check that the tires are facing straight ahead with the steering wheel centered.**
- **Check that the back door is fully closed.**

iii. Set a target bar for optical axis adjustment of the side television camera assembly.

**HINT:**

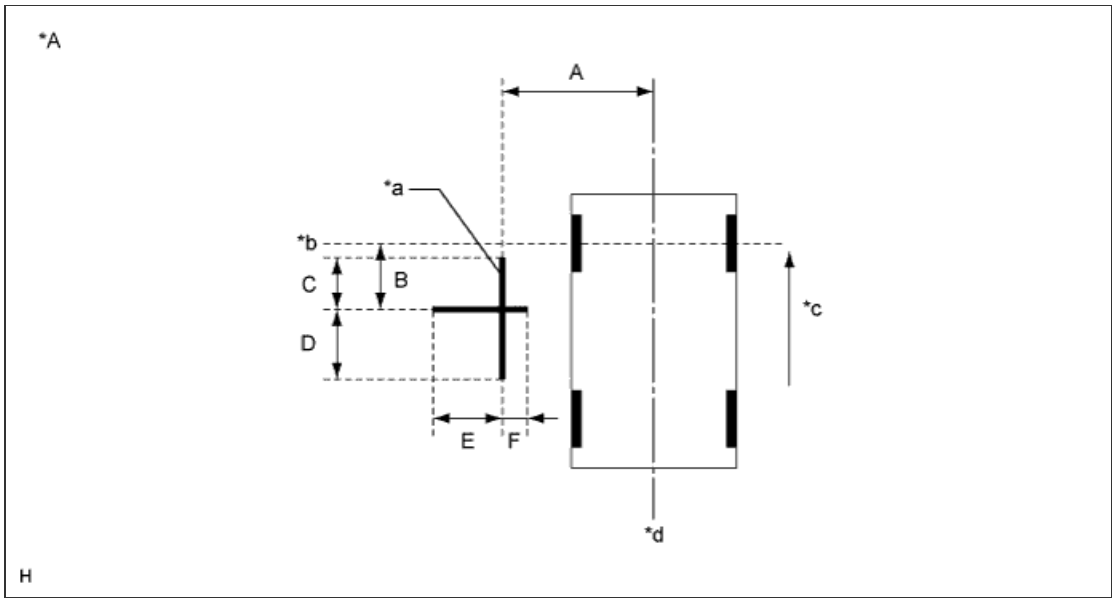
Only when adjusting the optical axis of the camera assembly, create a target bar for adjustment.




**Text in Illustration**

| | | | |
|---|---|---|---|
| *A | for LHD | - | - |
| *a | Target Bar for Side Camera Adjustment | *b | Front Wheel Axis |

| | | | |
|---|---|---|---|
| *c | Front Side | *d | Vehicle Center |




**Text in Illustration**

| | | | |
|---|---|---|---|
| *A | for RHD | - | - |
| *a | Target Bar for Side Camera Adjustment | *b | Front Wheel Axis |
| *c | Front Side | *d | Vehicle Center |

**Dimension:**

| A | B | C | D | E | F |
|---|---|---|---|---|---|
| 1183 mm (3.88 ft.) | 1181 mm (3.87 ft.) | 500 mm (1.64 ft.) | 500 mm (1.64 ft.) | 500 mm (1.64 ft.) | 180 mm (7.09 in.) |

**HINT:**

Target bars for side camera adjustment should be made with 2 pieces of 2.5 cm wide tape; one piece should be 100 cm (3.28 ft.) (C+D) and the other should be 68 cm (2.23 ft.) (E+F) long. Check the tape color on the multi-display assembly and choose a tape color which can be easily seen.

b. Start diagnostic mode (Click here).

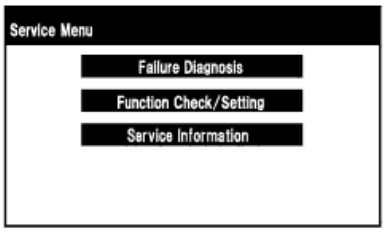
**NOTICE:**

Alignment must be performed with the engine running. For this reason, it is necessary to apply the parking brake, depress the brake pedal, and move the shift lever into the P position, and to exercise all other necessary caution to ensure that the vehicle does not begin moving unexpectedly.

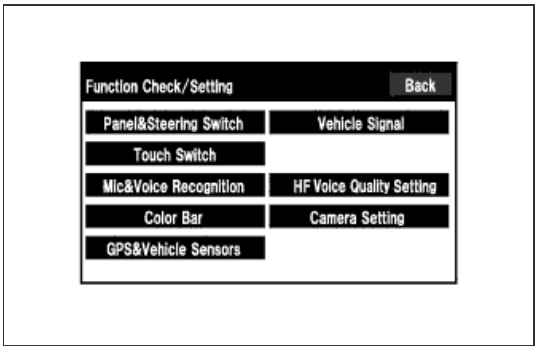
**HINT:**

The displayed items may differ depending on vehicle specifications.

i. Select "Function Check/Setting" on the [Service Menu] screen.



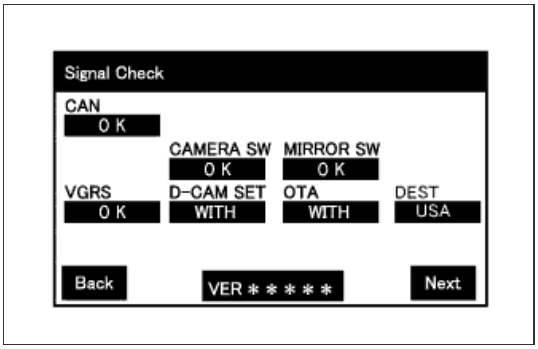
ii. Select "Camera Setting" on the [Function Check/Setting] screen.




iii. Select "Next" on the [Signal Check] screen.

**NOTICE:**

- **When "CHK" (red) is displayed for any items on the [Signal Check] screen, selecting "Next" will not change the screen to the [Side Camera Position Setting] screen.**
- **When "CHK" (red) is displayed for any items on the [Signal Check] screen, perform inspections using the [Signal Check] screen (Click here).**




**HINT:**

- **When the outer mirrors are retracted, selecting "Next" will not change the screen to the [Side Camera Position Setting] screen.**
- **If the screen does not change to the [Side Camera Position Setting] screen even though the outer mirrors are extended, perform the "MIRROR SW" check on the [Signal Check] screen (Click here).**
- **If the screen does not change to the [Side Camera Position Setting] screen even after "OK" (blue) is displayed as a result of the MIRROR SW check on the [Signal Check] screen, replace the parking assist ECU (Click here).**

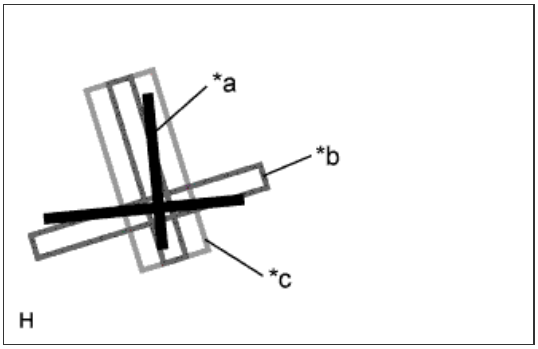
c. Side Camera Position Setting:

**HINT:**

Colors used on the [Side Camera Position Setting] screen

**Text in Illustration**

| | |
|---|---|
| *a | Target Adjustment Bar for Side Camera Position Setting |
| *b | Red Frame |
| *c | Yellow Frame |



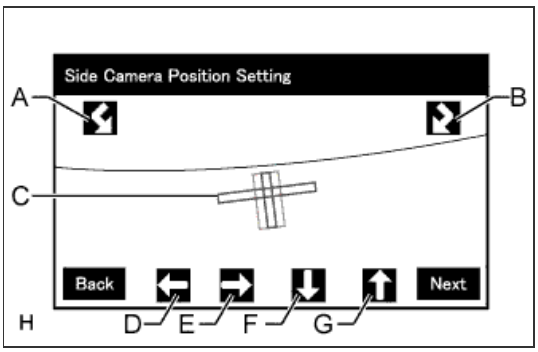

i. Perform the roll angle adjustment.

- Select switches A and B to rotate C so that it is parallel to the target adjustment bar.

ii. Perform the vertical and horizontal position adjustment.

- Select the directional switches D, E, F and G to move C so that the target adjustment bar is centered in C.

iii. Select "Next" to display [Side Verify Mode].



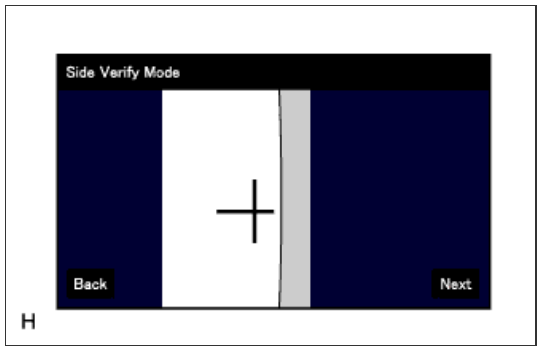

d. Side Verify Mode:

i. Check that the red cross and the target adjustment bar are aligned.

**HINT:**

If they are not aligned, select "Back" and perform [Side Camera Position Setting] again.

ii. Select "Next" to display [Side Camera Signal Check].

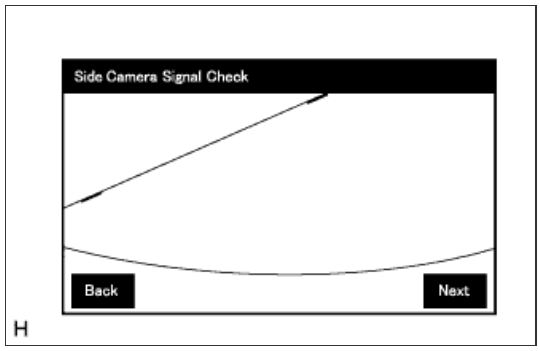



e. Side Camera Signal Check:

i. Select "Next" to store the side camera aiming adjustment value and change the screen to the [Steering Angle Setting] screen.

**HINT:**

- **When "Next" is selected, a beep will sound to confirm that the side camera aiming adjustment values have been stored.**
- **The adjustment value will not be stored unless "Next" is selected.**




f. Steering Angle Setting:

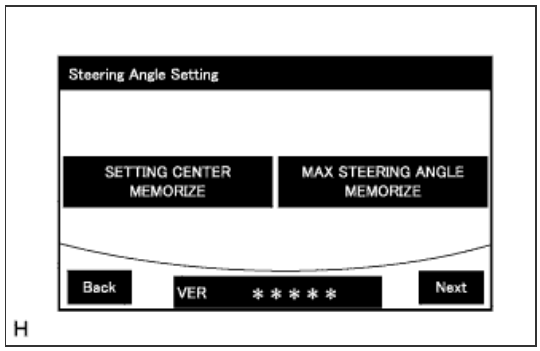
i. Perform the "STEERING CENTER MEMORIZE" operation.

- Check that the steering wheel is centered, and then select "STEERING CENTER MEMORIZE".

**HINT:**

When performing removal and installation, or replacement of the television camera, steering angle adjustment is not required.

ii. Perform the "MAX STEERING ANGLE MEMORIZE" operation.




- After adjusting the steering angle neutral point, turn the steering wheel to the left and right lock positions and select "MAX STEERING ANGLE MEMORIZE". The maximum steering angle is then stored and the screen changes to the [Back Camera Position Setting] screen.

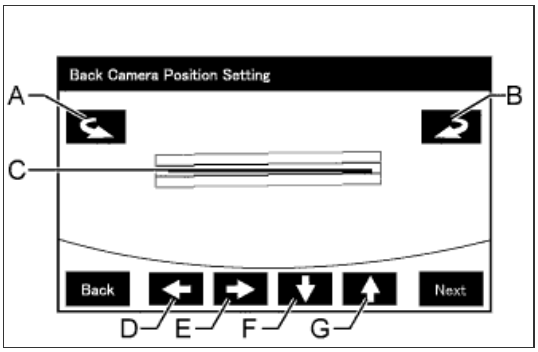
**HINT:**

- **The "Next" button does not respond until the system stores the steering angle neutral point and maximum steering angle.**
- **It is also possible to start by initially turning the steering to the right side.**
- **When "MAX STEERING ANGLE MEMORIZE" is selected, a beep will sound to confirm that the steering adjustment values have been stored.**
- **The adjustment value will not be stored unless "MAX STEERING ANGLE MEMORIZE" is selected after turning the steering wheel side to side.**
- **When "Back" is selected, the screen changes to [Side Verify Mode] without storing the set values.**
- **Even if no DTCs are detected, selecting "MAX STEERING ANGLE MEMORIZE" may not cause the adjustment value to be stored if the steering sensor is malfunctioning.**
- **If selecting "MAX STEERING ANGLE MEMORIZE" does not cause the adjustment value to be stored after adjusting the steering angle, replace the steering sensor.**

g. Back Camera Position Setting:

**HINT:**

- **When the back door is open, the "Back door is open. Do not use the rear view monitor when the back door is not completely closed." message will be displayed and camera position setting will not be possible.**
- **If the "Back door is open. Do not use the rear view monitor when the back door is not completely closed." message is displayed even when the back door is closed, perform inspections according to Problem Symptoms Table (A back door open warning message is displayed even after back door is closed) (Click here).**




i. Perform the roll angle adjustment.

- Select switches A and B to rotate C so that it is parallel to the target adjustment bar.

ii. Perform the vertical and horizontal position adjustment.

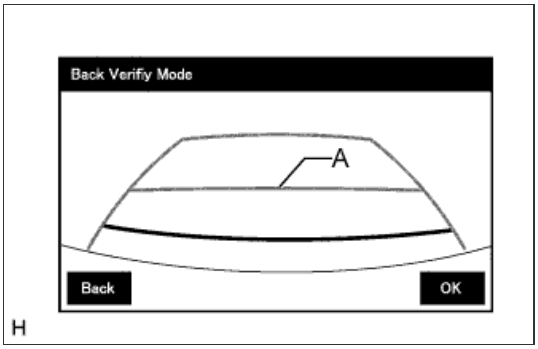
- Select the directional switches D, E, F and G to move C so that the target adjustment bar is centered in C.

iii. Select the "Next" to display [Back Verify Mode].

h. Back Verify Mode:

i. Check that A and the target adjustment bar are overlapping.

- If the steering angle neutral point is not aligned, perform the "STEERING CENTER MEMORIZE" and "MAX STEERING ANGLE MEMORIZE" operations.
- If A and the target adjustment bar are not aligned even if the tires are aligned straight ahead, perform the camera position setting operation.




ii. Selecting "OK" will return the screen to the [Service Menu] screen, and complete the adjustment.

**HINT:**

- **The update is not completed until "OK" is selected.**
- **When "OK" is selected, a beep will sound to confirm that the rear camera aiming adjustment values have been stored.**

i. Finish diagnostic mode (Click here).

## STEERING ANGLE SETTING (Procedure 2)

a. Preparation for adjustment

i. Park the vehicle with the steering wheel centered.

b. Start diagnostic mode (Click here).

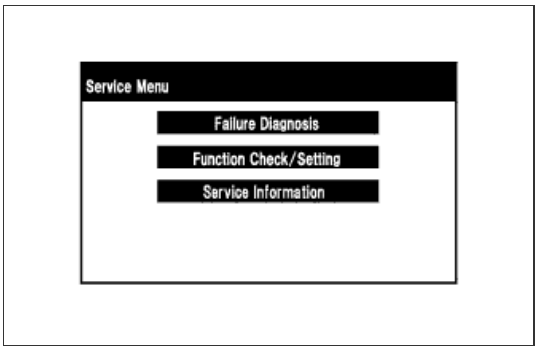
**NOTICE:**

Alignment must be performed with the engine running. For this reason, it is necessary to apply the parking brake, depress the brake pedal, and move the shift lever into the P position, and to exercise all other necessary caution to ensure that the vehicle does not begin moving unexpectedly.

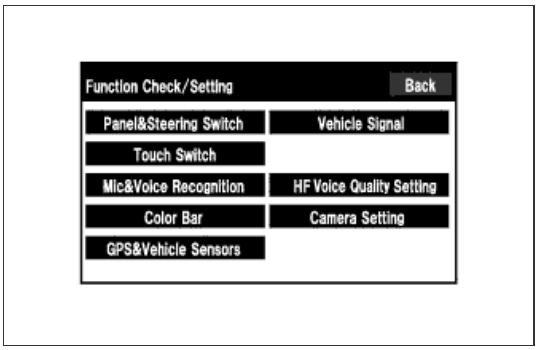
**HINT:**

The displayed items may differ depending on vehicle specifications.

i. Select "Function Check/Setting" on the [Service Menu] screen.



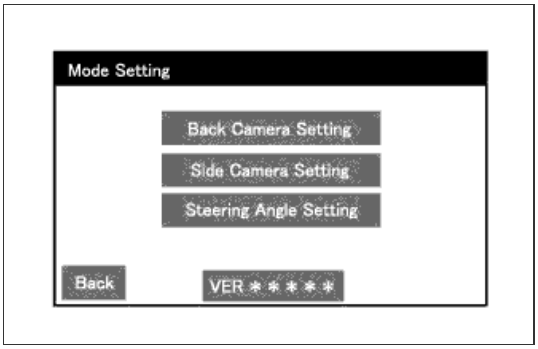

ii. Select "Camera Setting" on the [Function Check/Setting] screen.




iii. Select "Steering Angle Setting" on the [Mode Setting] screen.

**HINT:**

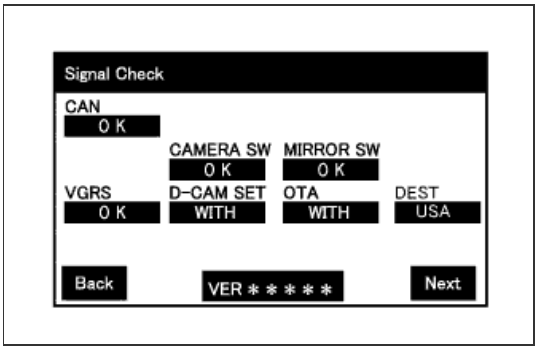
To select a grayed out item, select and hold the item for 2 seconds or more.




iv. Select "Next" on the [Signal Check] screen.

**NOTICE:**

- **When "CHK" (red) is displayed for any items on the [Signal Check] screen, selecting "Next" will not change the screen to the [Steering Angle Setting] screen.**
- **When "CHK" (red) is displayed for any items on the [Signal Check] screen, perform inspections using the [Signal Check] screen (Click here).**




c. Steering Angle Setting:

i. Perform the "STEERING CENTER MEMORIZE" operation.

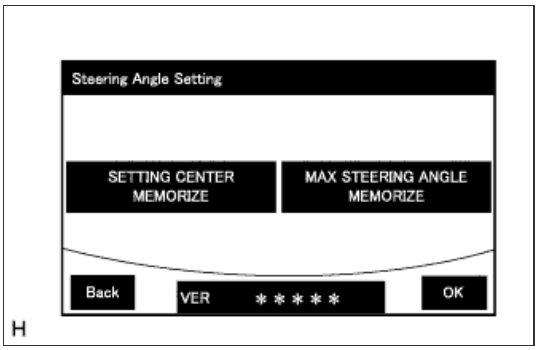
Check that the steering wheel is centered, and then select "STEERING CENTER MEMORIZE".

**HINT:**

When performing removal and installation, or replacement of the television camera, steering angle adjustment is not required.

ii. Perform the "MAX STEERING ANGLE MEMORIZE" operation.

After adjusting the steering angle neutral point, turn the steering wheel to the left and right lock positions and select "MAX STEERING ANGLE MEMORIZE". The maximum steering angle is then stored and the screen changes to the [Mode Setting] screen.



H

**HINT:**

- **The "Next" button does not respond until the system stores the steering angle neutral point and maximum steering angle.**
- **It is also possible to start by initially turning the steering to the right side.**
- **When "MAX STEERING ANGLE MEMORIZE" is selected, a beep will sound to confirm that the steering adjustment values have been stored.**
- **The adjustment value will not be stored unless "MAX STEERING ANGLE MEMORIZE" is selected after turning the steering wheel side to side.**
- **When "Back" is selected, the screen changes to [Signal Check] without storing the set values.**
- **Even if no DTCs are detected, selecting "MAX STEERING ANGLE MEMORIZE" may not cause the adjustment value to be stored if the steering sensor is malfunctioning.**
- **If selecting "MAX STEERING ANGLE MEMORIZE" does not cause the adjustment value to be stored after adjusting the steering angle, replace the steering sensor.**

iii. Select "OK" to display [Mode Setting].

d. Finish diagnostic mode (Click here).

e. Confirm steering angle adjustment.

**HINT:**

If the steering angle has been adjusted, confirm the steering angle adjustment on the parking assist monitor screen after finishing diagnostic mode.

i. Check on the parking assist screen that the predicted path line moves until the steering wheel is fully turned to either the left or right.

**HINT:**

If the predicted path line stops moving before the steering wheel is fully turned to either the left or right, the steering angle adjustment values have not been stored correctly. In this case, perform "STEERING CENTER MEMORIZE" and "MAX STEERING ANGLE MEMORIZE" again.

## BACK CAMERA POSITION SETTING (Procedure 3)

**HINT:**

Be sure to check for DTCs before performing this procedure ( Click here).

a. Preparation for adjustment

i. Park the vehicle with the steering wheel centered.

ii. Set a target bar for optical axis adjustment of the rear television camera.

**HINT:**

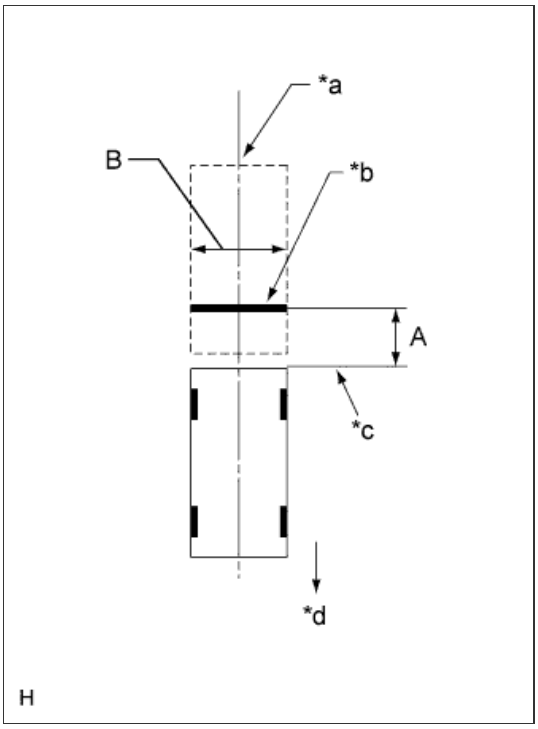
Only when adjusting the optical axis of the camera, create a target bar for adjustment.

**Dimension:**

| Area | Specification |
|---|---|
| A | 824 to 834 mm (2.70 to 2.74 ft.) |
| B | 1995 to 2005 mm (6.55 to 6.58 ft.) |

**Text in Illustration**

| | |
|---|---|
| *a | Vehicle Center |
| *b | Target Bar for Back Camera Adjustment |
| *c | Vehicle End |
| *d | Front Side |




**HINT:**

- **Set a piece of tape on the ground as the target bar for adjustment. Its width and length should be 20 to 30 mm (0.787 to 1.18 in.) and 1995 to 2005 mm (6.55 to 6.58 ft.), respectively. Check the color on the multi-display assembly and choose a tape color which can be easily seen.**
- **Before parking the vehicle, be sure to move the vehicle forward and in reverse to check that the tires are facing straight ahead with the steering wheel centered.**
- **Check that the back door is fully closed.**

b. Start diagnostic mode (Click here).

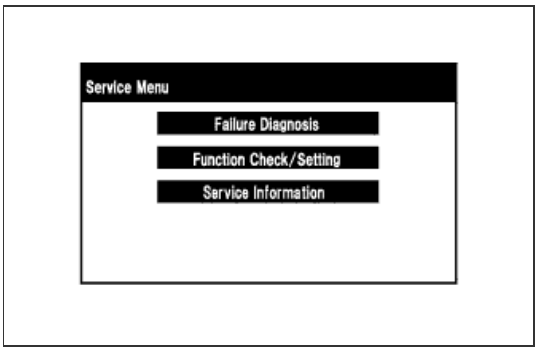
**NOTICE:**

Alignment must be performed with the engine running. For this reason, it is necessary to apply the parking brake, depress the brake pedal, and move the shift lever into the P position, and to exercise all other necessary caution to ensure that the vehicle does not begin moving unexpectedly.

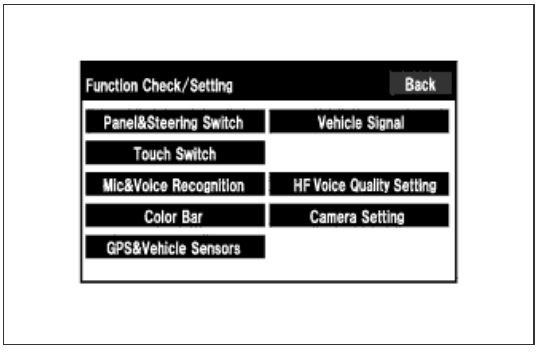
**HINT:**

The displayed items may differ depending on vehicle specifications.

i. Select "Function Check/Setting" on the [Service Menu] screen.



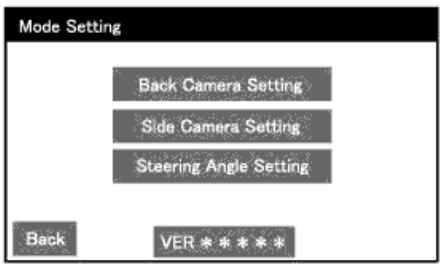

ii. Select "Camera Setting" on the [Function Check/Setting] screen.




iii. Select "Back Camera Setting" on the [Mode Setting] screen.

**HINT:**

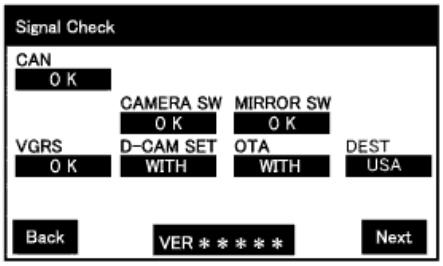
To select a grayed out item, select and hold the item for 2 seconds or more.




iv. Select "Next" on the [Signal Check] screen.

**NOTICE:**

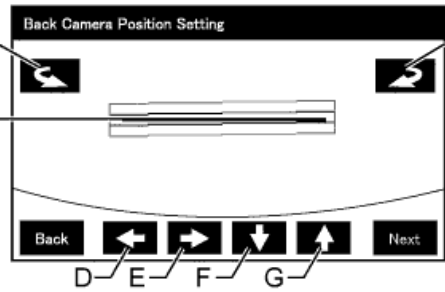
- **When "CHK" (red) is displayed for any items on the [Signal Check] screen, selecting "Next" will not change the screen to the [Back Camera Position Setting] screen.**
- **When "CHK" (red) is displayed for any items on the [Signal Check] screen, perform inspections using the [Signal Check] screen (Click here).**




c. Back Camera Position Setting:

**HINT:**

- **When the back door is open, the "Back door is open. Do not use the rear view monitor when the back door is not completely closed." message will be displayed and camera position setting will not be possible.**
- **If the "Back door is open. Do not use the rear view monitor when the back door is not completely closed." message is displayed even when the back door is closed, perform inspections according to Problem Symptoms Table (A back door open warning message is displayed even after back door is closed) (Click here).**




i. Perform the roll angle adjustment.

- Select switches A and B to rotate C so that it is parallel to the target adjustment bar.

ii. Perform the vertical and horizontal position adjustment.

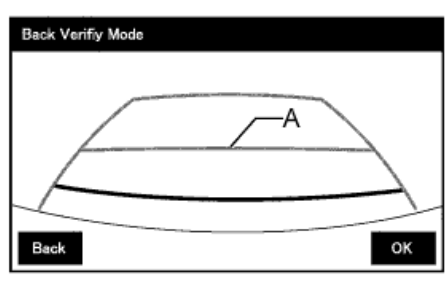
- Select the directional switches D, E, F and G to move C so that the target adjustment bar is centered in C.

iii. Select the "Next" button on the [Back Camera Position Setting] screen.

d. Back Verify Mode:

i. Check that A and the target adjustment bar are overlapping.

- If the steering angle neutral point is not aligned, perform the STEERING CENTER MEMORIZE and MAX STEERING ANGLE MEMORIZE operations.
- If A and the target adjustment bar are not aligned even if the tires are aligned straight ahead, perform the camera position setting operation.




ii. Selecting "OK" will return the screen to the [Service Menu], and complete the adjustment.

**HINT:**

- **The update is not completed until "OK" is selected.**
- **When "OK" is selected, a beep will sound to confirm that the rear camera aiming adjustment values have been**

**stored.**

e. Finish diagnostic mode (Click here).

**for Preparation** Click here

**HINT:**

Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms the listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

**NOTICE:**

The following inspection procedure of the parking assist monitor system is described on the assumption that the navigation system is normal. If navigation system has any malfunction, first proceed with troubleshooting of the navigation system.

### General

| Symptom | Suspected Area | See page |
|---|---|---|
| When the shift lever is in R, the parking assist monitor image is not displayed (screen is not black). | DTC check/clear | Click here |
| | Diagnosis system | Click here |
| | Data List/Active Test - AISIC Output Status | Click here |
| | GVIF cable | - |
| | Parking assist ECU | Click here |
| | Multi-display assembly | Click here |
| When the shift lever is in R, the parking assist monitor image is not displayed (screen is black). | DTC check/clear | Click here |
| | Proceed to [Image from Camera for Parking Assist Monitor is Abnormal] | Click here |
| When the shift lever is not in R, the parking assist monitor image is displayed. | Parking assist ECU | Click here |
| | Multi-display assembly | Click here |

### Display Malfunction

| Symptom | Suspected Area | See page |
|---|---|---|
| Image from camera for the parking assist monitor is abnormal (side monitor system is also abnormal). | Data List/Active Test - AISIC Output Status | Click here |
| | GVIF cable | - |
| | Parking Assist ECU | Click here |
| | Multi-display assembly | Click here |
| Image from camera for the parking assist monitor is abnormal (side monitor system is normal). | Proceed to [Image from Camera for Parking Assist Monitor is Abnormal] | Click here |

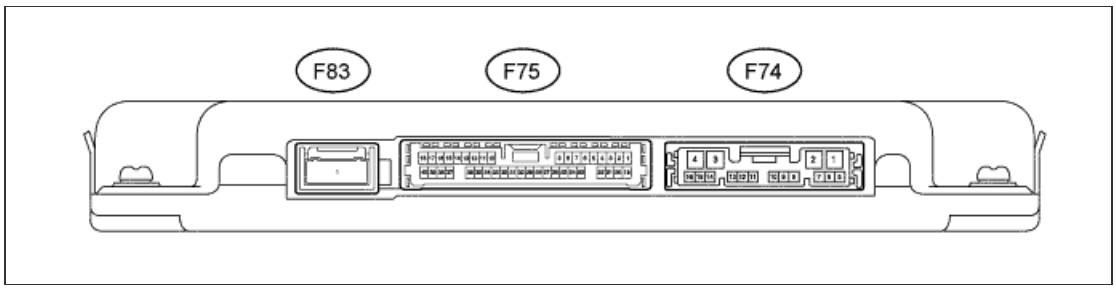
### Parking Assist Monitor System Malfunction

| Symptom | Suspected Area | See page |
|---|---|---|
| Projected course guidelines are not displayed. | Parking assist ECU | Click here |
| "System initializing" is displayed. | Correct the steering angle neutral point | Click here |
| "System initializing" is displayed even after correcting the steering angle neutral point. | Steering sensor | Click here |
| | Steering angle setting | Click here |
| | Parking assist ECU | Click |

| | | |
|---|---|---|
| | | here |
| "System not ready" is displayed. | Parking assist ECU initialization (Calibration) | Click here |
| "System not ready" is displayed even after parking assist ECU initialization. | Parking assist ECU | Click here |
| During parallel parking assist mode, the screen does not change even though the vehicle has moved. | If vehicle is being driven in reverse at very low speed, screen may not change | - |
| During parallel parking assist mode, the screen changes even though the vehicle has not moved. | If vehicle is stopped for extended period of time, screen may change | - |
| "CHK" message(s) are displayed on the [Signal Check] screen. | Proceed to ["CHK" message(s) are displayed on the SIGNAL CHECK screen] | Click here |
| A back door open warning message is displayed even after back door is closed. | Proceed to ["Back Door is Open" is Displayed even after Back Door is Closed"] | Click here |

**for Preparation** Click here

## PARKING ASSIST ECU




a. Disconnect the F74 and F75 parking assist ECU connectors.

b. Measure the voltage and resistance according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F74-1 (+B) - F74-4 (GND1) | L - W-B | Power source signal | Always | 11 to 14 V |
| F74-4 (GND1) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F74-8 (IG) - F74-4 (GND1) | G - W-B | IG power source signal | Engine switch on (IG) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F74-9 (ACC) - F74-4 (GND1) | GR - W-B | ACC power source signal | Engine switch on (ACC) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F75-7 (BLSW) - F74-4 (GND1) | G - W-B | Front and side monitor main switch power source signal | Engine switch on (IG), front and side monitor main switch on | 11 to 14 V |

c. Reconnect the F74 and F75 parking assist ECU connectors.

d. Measure the voltage according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F74-10 (TX-) | L | AVC-LAN communication signal | - | - |
| F74-11 (TX+) | W | AVC-LAN communication signal | - | - |
| F75-38 (CV-) - F75-37 (CGND) | W - Shielded | Rear television camera ground | Always | Below 1 V |
| F75-15 (CV+) - F75-37 (CGND) | R - Shielded | Rear television camera display signal (NTSC) input | Engine switch on (IG), shift lever in R | Pulse generation (See waveform) |
| F75-37 (CGND) - F74-4 (GND1) | Shielded - W-B | Rear television camera ground (shield) | Always | Below 1 V |
| F75-14 (CB+) - F75-37 (CGND) | B - Shielded | Power source to rear television camera | Engine switch on (IG), shift lever in R | 5.5 to 7.05 V |

e. Using an oscilloscope, check waveform.

**Text in Illustration**

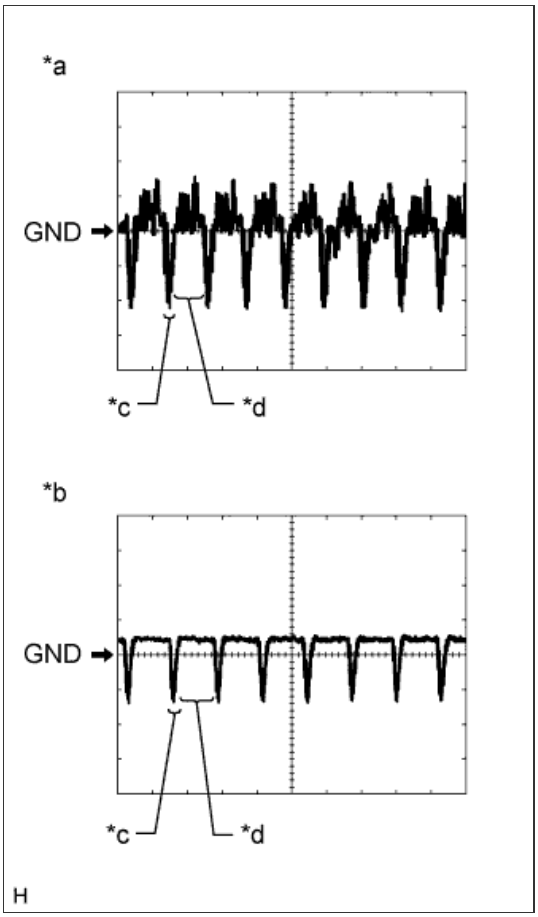
| | |
|---|---|
| *a | Waveform A (camera lens not covered, displaying an image) |
| *b | Waveform B (camera lens covered, blacking out the screen) |
| *c | Synchronized Signal |
| *d | Video Waveform |

**HINT:**

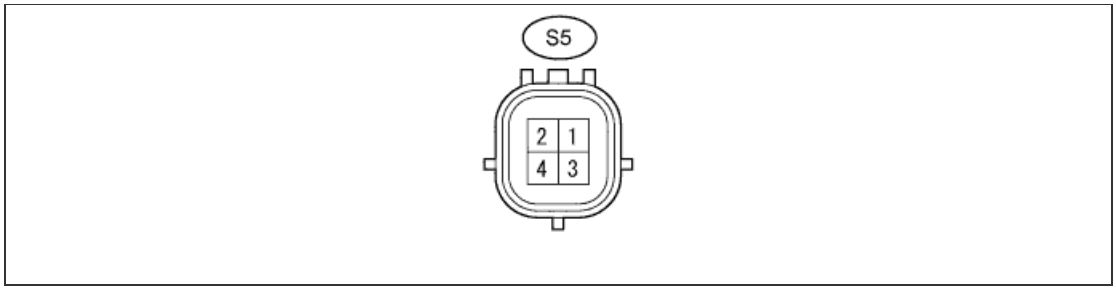
The video waveform changes according to the image sent by the rear television camera assembly.

i. Waveform

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F75-15 (CV+) - F75-37 (CGND) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | • Waveform A: Engine switch on (IG), shift lever in R and camera lens is not covered, displaying an image.<br>• Waveform B: Engine switch on (IG), shift lever in R and camera lens is covered, blacking out the screen. |




## REAR TELEVISION CAMERA ASSEMBLY




a. Disconnect the S5 rear television camera assembly connector.

b. Measure the voltage and resistance according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| S5-3 (CGND) - Body ground | BR - Body ground | Ground | Always | Below 1 Ω |
| S5-4 (CB+) - S5-3 (CGND) | B - BR | Power source | Engine switch on (IG), shift lever in R | 5.5 to 7.05 V |

c. Reconnect the S5 rear television camera assembly connector.

**HINT:**

A waterproof connector is used for the rear television camera assembly. Therefore, inspect the waveform at the parking assist ECU with the connector connected. If the result is not as specified, the rear television camera assembly may have a malfunction.

d. Measure the voltage according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| S5-2 (CV+) - S5-3 (CGND) | R - BR | Display signal | Engine switch on (IG), shift lever in R | Pulse generation (See waveform) |
| S5-1 (CV-) - S5-3 (CGND) | W - BR | Rear television camera ground | Always | Below 1 V |

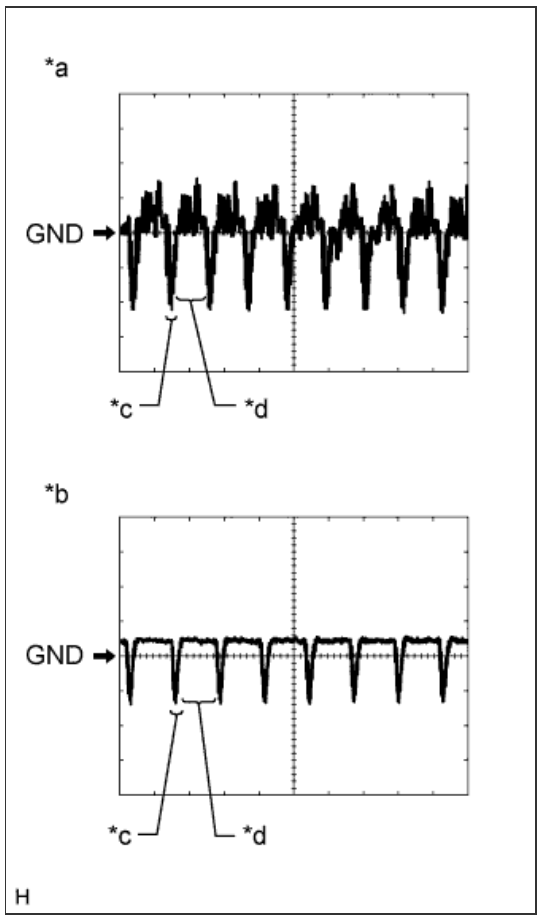
e. Using an oscilloscope, check waveform.

**Text in Illustration**

| | |
|---|---|
| *a | Waveform A (camera lens not covered, displaying an image) |
| *b | Waveform B (camera lens covered, blacking out the screen) |
| *c | Synchronized Signal |
| *d | Video Waveform |

**HINT:**

The video waveform changes according to the image sent by the rear television camera assembly.




i. Waveform

| Item | Content |
|---|---|
| Terminal No. (Symbol) | S5-2 (CV+) - S5-3 (CGND) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | • Waveform A: Engine switch on (IG), shift lever in R and camera lens is not covered, displaying an image.<br>• Waveform B: Engine switch on (IG), shift lever in R and camera lens is covered, blacking out the screen. |

**MULTI-MEDIA MODULE RECEIVER ASSEMBLY (See page )**

**MAIN BODY ECU (COWL SIDE JUNCTION BLOCK LH) (Click here)**

**for Preparation** Click here

## PARKING ASSIST MONITOR DIAGNOSIS SYSTEM

a. For diagnosis, signals received by the parking assist ECU can be checked and the parking assist monitor system (w/ Side Monitor System) can be calibrated, adjusted and checked using the multi-display.

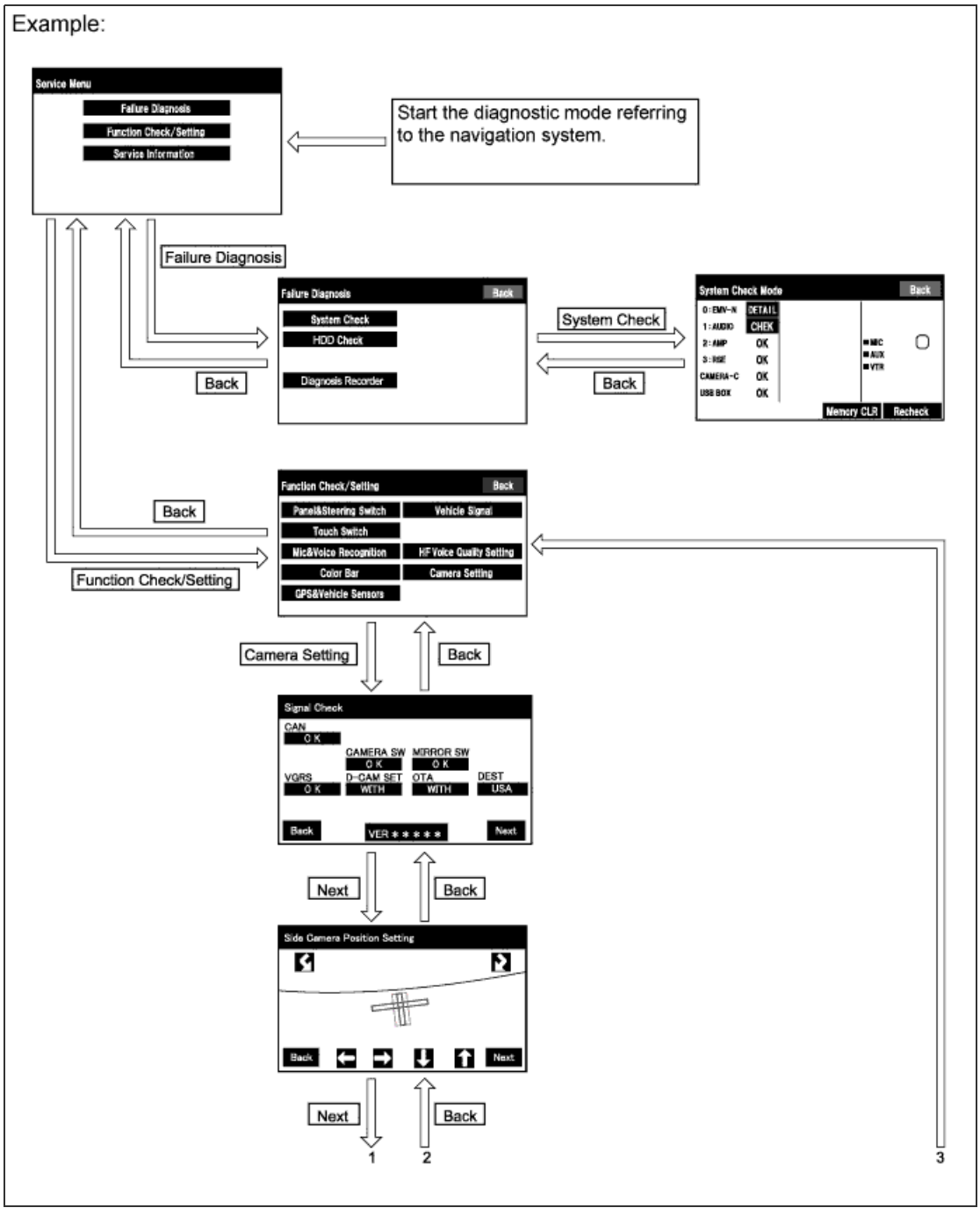
**NOTICE:**

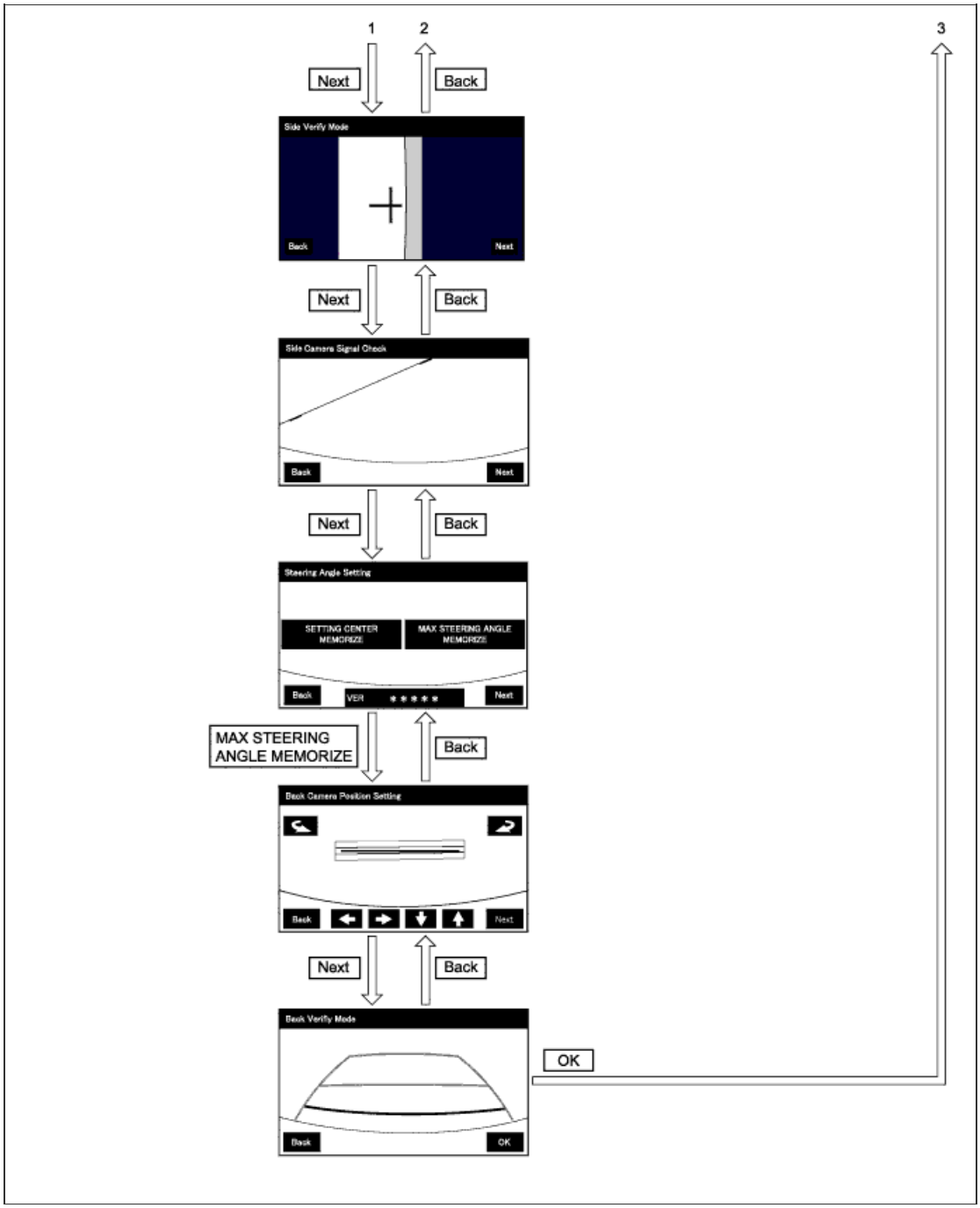
Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system (w/ Side Monitor System) may be needed (Click here).

**HINT:**

The displayed screens and items may differ depending on vehicle specifications.

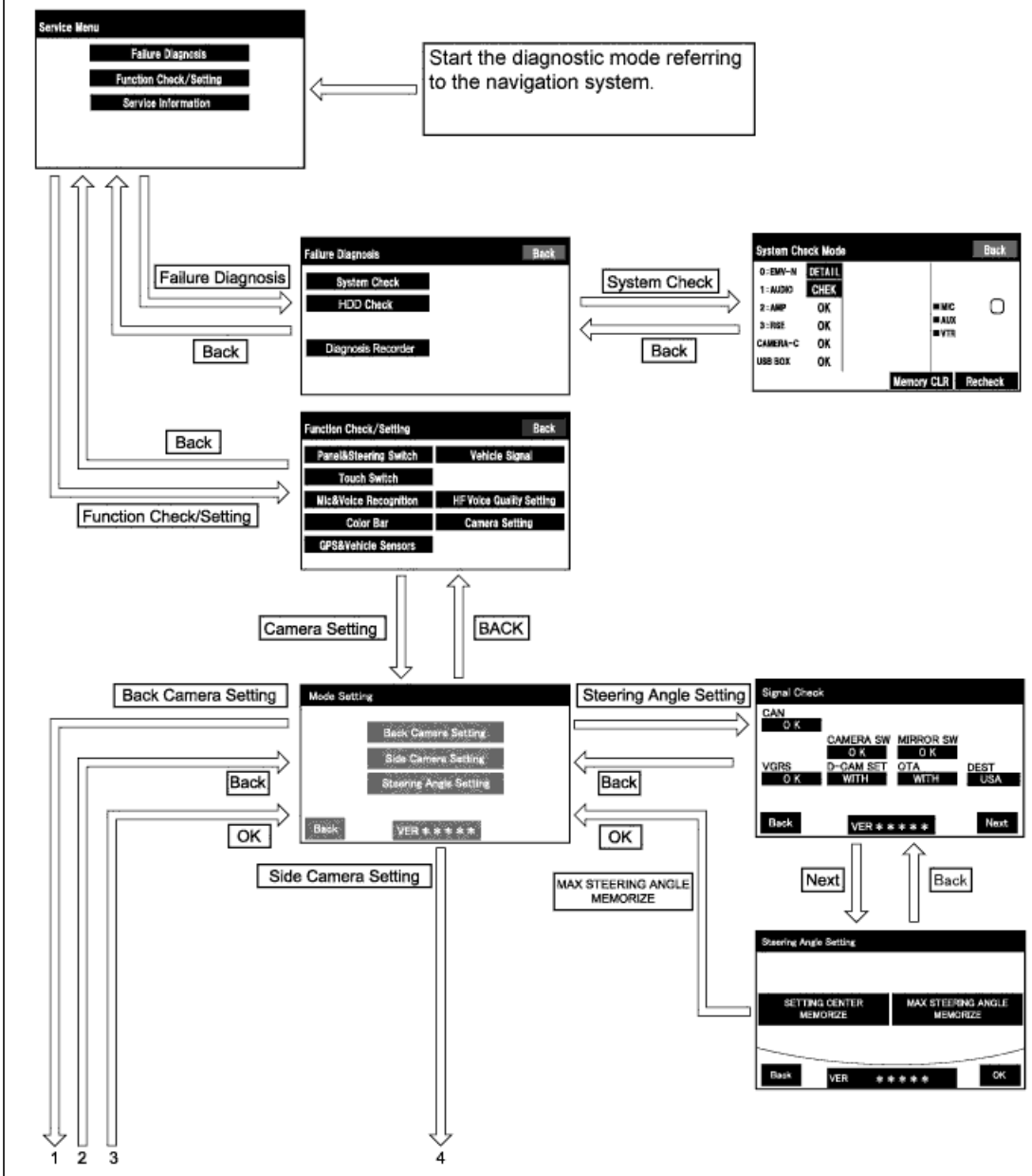
## DIAGNOSIS SCREEN TRANSITION (during parking assist ECU initialization)

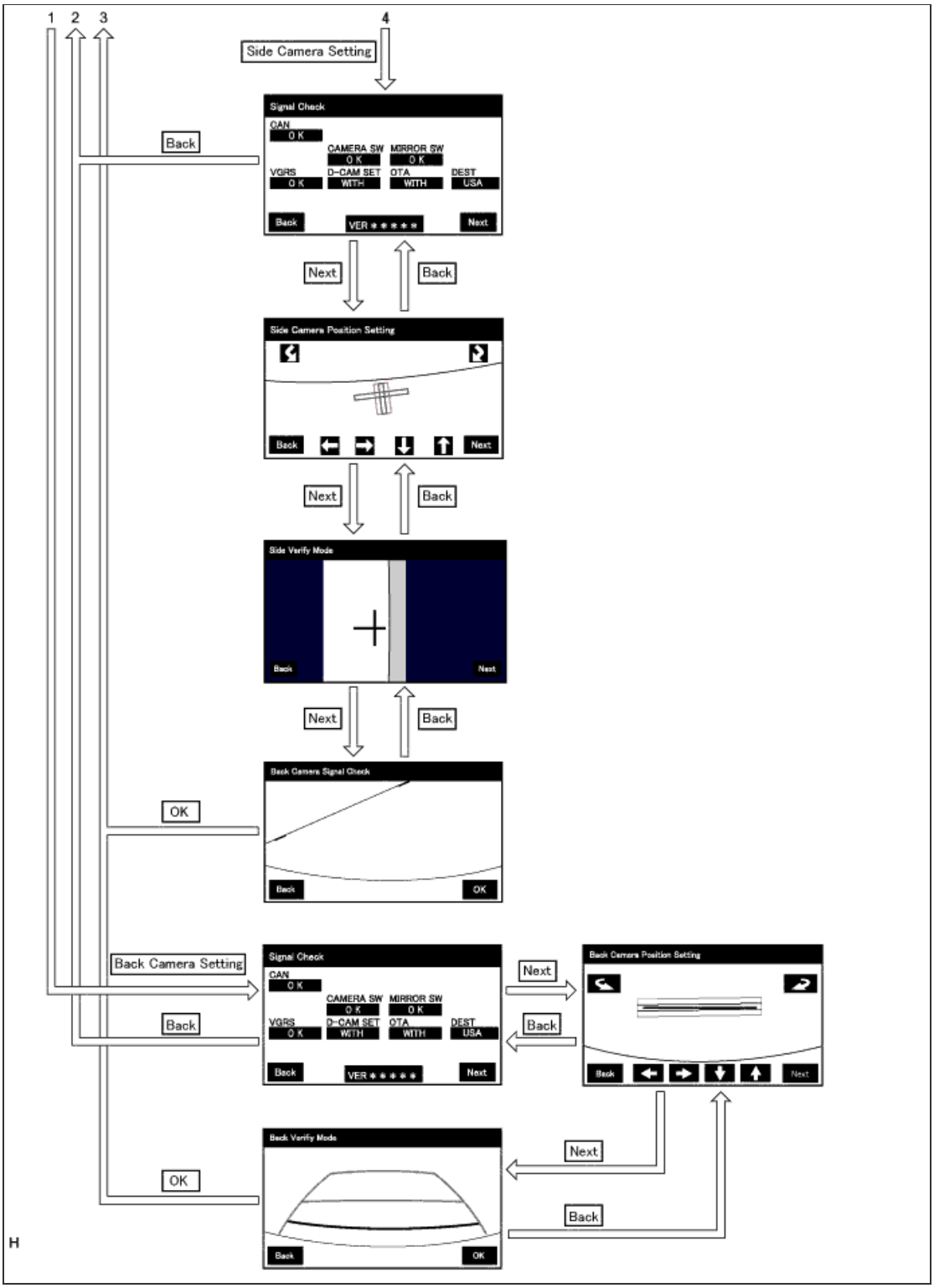





**DIAGNOSIS SCREEN TRANSITION (after parking assist ECU initialization)**

Example:


Service Menu
Failure Diagnosis
Function Check/Setting
Service Information
Start the diagnostic mode referring to the navigation system.
Failure Diagnosis
Back
Failure Diagnosis
Back
System Check
HDD Check
Diagnosis Recorder
System Check
Back
System Check Mode
Back
0 : EMV-N
1 : AUDIO
2 : AMP
3 : RSE
CAMERA-C
USB BOX
DETAIL
CHEK
OK
OK
OK
OK
MIC
AUX
VTR
Memory CLR
Recheck
Back
Function Check/Setting
Function Check/Setting
Back
Panel&Steering Switch
Vehicle Signal
Touch Switch
Mic&Voice Recognition
HF Voice Quality Setting
Color Bar
Camera Setting
GPS&Vehicle Sensors
Camera Setting
BACK
Back Camera Setting
Back
OK
Side Camera Setting
Mode Setting
Back Camera Setting
Side Camera Setting
Steering Angle Setting
Back
VER * * * * *
Steering Angle Setting
Back
OK
MAX STEERING ANGLE MEMORIZE
Signal Check
CAN
O K
CAMERA SW
O K
MIRROR SW
O K
VGRS
O K
D-CAM SET
WITH
OTA
WITH
DEST
USA
Back
VER * * * * *
Next
Next
Back
Steering Angle Setting
SETTING CENTER MEMORIZE
MAX STEERING ANGLE MEMORIZE
Back
VER * * * * *
OK
1
2
3
4



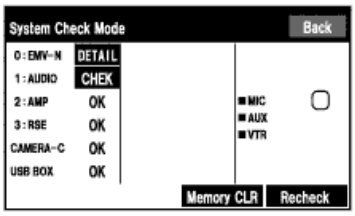

## DIAGNOSTIC MODE

a. Start diagnostic mode (Click here).

b. Failure diagnosis (Click here).

c. System check (check using system check mode screen) (Click here).

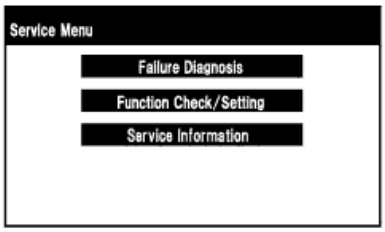
d. Finish diagnostic mode (Click here).




## SIGNAL CHECK (parking assist ECU input signal)

a. Start diagnostic mode (Click here).

i. Select "Function Check/Setting" on the [Service Menu screen] to display the Function Check/Setting screen.

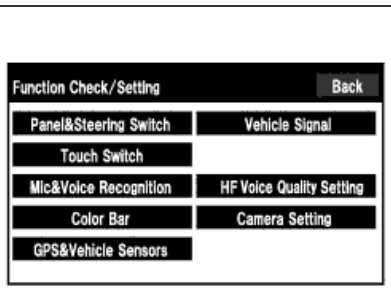



ii. Select "Camera Setting" on the [Function Check/Setting] screen.

**HINT:**

After "Camera Setting" is selected, the screen transitions differ depending on whether initialization of the parking assist ECU was performed after parking assist ECU replacement.

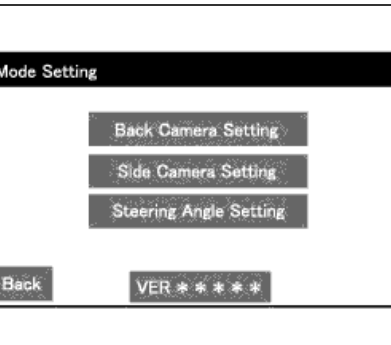
| Parking Assist ECU Initialization | Screen Transition |
|---|---|
| Not performed | [Signal Check] screen |
| Performed | [Mode Setting] screen |




iii. When the screen changes to the [Mode Setting] screen, select "Back Camera Setting" to display the [Signal Check] screen.

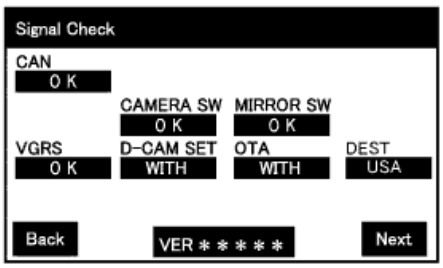
**HINT:**

To select a grayed out item, select and hold the item for 2 seconds or more.




b. Signal Check:

i. On the [Signal Check] screen, it is possible to inspect the state of signals sent to the parking assist ECU and check the settings.




| Item | Inspection Detail | Note |
|---|---|---|
| CAN | Speed signal input | When "CHK" (red) is displayed, selecting "Next" will not change to the next screen. |
| CAMERA SW | Front and side monitor main switch signal input | |
| MIRROR SW | Outer rear view mirror retract signal input | |
| VGRS | VGRS signal input | |
| D-CAM SET | Driver side camera information signal input | - |
| OTA | Off road turn assist function information input | - |
| DEST | Destination code signal input | - |

**HINT:**

- **When "CHK" (red) is displayed, perform inspections based on the result of the following inspections.**
- **If performing the adjustment after proceeding to the next screen, confirm that all items display "OK" (blue) before selecting "Next".**

c. CAN inspection:

**HINT:**

If "CHK" (red) is displayed for "CAN", check for DTCs and perform troubleshooting based on the output DTCs ( Click here).

d. CAMERA SW inspection:

i. Check that "OK" (blue) is displayed for "CAMERA SW" and select "OK".

ii. Check that "OK" (blue) changes to "CHK" (red). Press the front and side monitor main switch assembly and check that "CHK" (red) returns to "OK" (blue).

**HINT:**

If "CHK" (red) remains displayed or the "CAMERA SW" inspection result is not normal, perform troubleshooting according to Problem Symptoms Table ("CHK" message(s) are displayed on the [Signal Check] screen) (Click here).

e. MIRROR SW inspection:

i. Check that "OK" (blue) is displayed for "MIRROR SW" and select "OK".

ii. Check that "OK" (blue) changes to "CHK" (red). Press the outer mirror switch and check that "CHK" (red) returns to "OK" (blue).

**HINT:**

After operating the outer mirror retract switch, if the outer mirror remains in the retracted state, return the outer mirror to the driving position. If "CHK" (red) remains displayed or the "MIRROR SW" inspection result is not normal, perform troubleshooting according to Problem Symptoms Table ("CHK" message(s) are displayed on the [Signal Check] screen) (See page )

f. VGRS inspection:

**HINT:**

If "CHK" (red) is displayed for "VGRS", check for DTCs and perform troubleshooting based on the output DTCs ( Click here).

g. D-CAM SET inspection:

i. Check that "WITH" (blue) is displayed for "D-CAM SET".

h. OTA inspection:

i. Check that displayed for "OTA" is matched off-road turn assist function for vehicles.

i. DEST inspection:

i. Check that displayed for "DEST" is matched destination code for vehicles.

j. Finish diagnostic mode (Click here).

## CALIBRATION WHEN SERVICING VEHICLE

**NOTICE:**

Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system (w/ Side Monitor System) may be needed (Click here).

**for Preparation** Click here

## CHECK DTC

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Chassis / Parking Assist Monitor System / DTC.

e. Check the details of the DTCs ( Click here).

**HINT:**

The parking assist ECU may store the DTCs of the following system. If DTCs other than those specified in Diagnostic Trouble Code Chart of the parking assist monitor system are output, refer to Diagnostic Trouble Code Chart for the applicable system.

| System | Proceed to |
|---|---|
| Side Monitor System | Click here |
| Wide View Front Monitor System | Click here |

## CLEAR DTC

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Chassis / Parking Assist Monitor System / DTC.

e. According to the display on the intelligent tester, select the trouble code data display with the clear button.

**for Preparation** Click here

## DATA LIST

**HINT:**

Using the intelligent tester to read the Data List allows the values or states of switches, sensors, actuators and other items to be read without removing any parts. This non-intrusive inspection can be very useful because intermittent conditions or signals may be discovered before parts or wiring is disturbed. Reading the Data List information early in troubleshooting is one way to save diagnostic time.

**NOTICE:**

In the table below, the values listed under "Normal Condition" are reference values. Do not depend solely on these reference values when deciding whether a part is faulty or not.

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Chassis / Parking Assist Monitor System / Data List.

e. Enter the following menus: Body / Main body / Data List.

f. According to the display on the tester, read the Data List.

**Parking Assist Monitor System**

| Tester Display | Measurement Item/Range | Normal Condition | Diagnostic Note |
|---|---|---|---|
| AVC-LAN Master Reset Status | AVC-LAN communication condition / OK or NG | OK: AVC-LAN communication condition is normal<br>NG: AVC-LAN communication condition is abnormal | - |
| AVC-LAN Master Status | AVC-LAN communication condition / OK or NG | OK: AVC-LAN communication condition is normal<br>NG: AVC-LAN communication condition is abnormal | - |
| AVC-LAN Connect Status | AVC-LAN communication condition / OK or NG | OK: AVC-LAN communication condition is normal<br>NG: AVC-LAN communication condition is abnormal | - |
| AVC-LAN Sending Status | AVC-LAN communication condition / OK or NG | OK: AVC-LAN communication condition is normal<br>NG: AVC-LAN communication condition is abnormal | - |
| AVC-LAN Regist Complete Status | AVC-LAN communication condition / OK or NG | OK: AVC-LAN communication condition is normal<br>NG: AVC-LAN communication condition is abnormal | - |
| AVC-LAN Regist Request Status | AVC-LAN communication condition / OK or NG | OK: AVC-LAN communication condition is normal<br>NG: AVC-LAN communication condition is abnormal | - |
| VGRS With or Without Status | Displays "Parking Assist ECU's internal data may or may not match the "with/without VGRS" data that has been input" / OK or NG. | OK: Data Verification Normal<br>NG: Data Verification Abnormal | - |

| | | | |
|---|---|---|---|
| Destination Data Check | Verification of Destination Data / OK or NG | OK: Data Verification Normal<br>NG: Data Verification Abnormal | - |
| EEPROM Status (Initial read) | Parking assist ECU information / OK or NG | OK: Parking assist ECU is normal<br>NG: Parking assist ECU is abnormal | - |
| IG Voltage Low Status | IG voltage input to parking assist ECU / OK or NG | OK: IG voltage is normal<br>NG: IG voltage is abnormal (too low) | - |
| IG Voltage High Status | IG voltage input to parking assist ECU / OK or NG | OK: IG voltage is normal<br>NG: IG voltage is abnormal (too high) | - |
| ACC Voltage Low Status | ACC voltage input to parking assist ECU / OK or NG | OK: ACC voltage is normal<br>NG: ACC voltage is abnormal (too low) | - |
| ACC Voltage High Status | ACC voltage input to parking assist ECU / OK or NG | OK: ACC voltage is normal<br>NG: ACC voltage is abnormal (too high) | - |
| AISIC Output Status | Output condition of camera display signal / OK or NG | OK: Output condition of camera display signal is normal<br>NG: Output condition of camera display signal is abnormal | If displayed "NG", There is a malfunctions in parking assist ECU. |
| VGRS Relative Angle Status | Displays "VGRS may be active or inactive" / OK or NG | OK: VGRS normal<br>NG: VGRS abnormal | - |
| Wheel Speed Sensor (4wheel) | Effectivity of speed signal from speed signal sensor / OK or NG | OK: Speed signal is effective<br>NG: Speed signal is not effective | - |
| Number of DTC | Number of stored trouble codes / min.: 0, max.: 255 | Number of DTCs will be displayed | - |

**Main Body**

| Tester Display | Measurement Item/Range | Normal Condition | Diagnostic Note |
|---|---|---|---|
| Back Door Courtesy SW | Back door courtesy light switch signal / ON or OFF | ON: Back door open<br>OFF: Back door closed | - |

**for Preparation** Click here

**HINT:**

If a trouble code is output during the DTC check, inspect the trouble areas listed for that code. For details of the code, refer to the "See page" in the DTC chart. Inspect fuses and relays before investigating the trouble areas shown in the table below.

**Parking Assist Monitor System (w/ Side Monitor System)**

| DTC Code | Detection Item | See page |
|---|---|---|
| C1611 | ECU Malfunction | Click here |
| C1612 | IG Voltage is Low or High | Click here |
| C1613 | ACC Voltage is Low or High | Click here |
| C1621 | Back Camera Power Supply Failure | Click here |
| C1622 | Open or Short Circuit in Back Camera Signal | Click here |
| C1625 | Open or Short in Steering Angle Sensor +B | Click here |
| C1626 | Steering Angle Sensor Failure | Click here |
| C1649 | Lost Communication with VGRS ECU | Click here |
| C168D | Vehicle Information Unmatched | Click here |
| C1691 | Back Camera Initialization Incomplete | Click here |
| C1694 | Steering Angle Initialization Incomplete | Click here |
| U0073 | Control Module Communication Bus OFF | Click here |
| U0100 | Lost Communication with ECM | Click here |
| U0114 | Lost Communication with 4WD Control ECU | Click here |
| U0126 | Lost Communication with Steering Angle Sensor Module | Click here |
| U0129 | Lost Communication with Brake System Control Module | Click here |
| U0130 | Lost Communication with VGRS | Click here |
| U0140 | Lost Communication with Main Body ECU | Click here |

# DTC C1611 ECU Malfunction

**for Preparation** Click here

## DESCRIPTION

This DTC is stored if the parking assist ECU judges that there is an internal malfunction as a result of its self check.

**HINT:**

The parking assist ECU stores different types of information during initialization. If the parking assist ECU cannot read the stored information when it is activated, the parking assist ECU judges that there is an internal malfunction and stores this DTC.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1611 | • EEPROM Status (Initial read)<br>• AISIC Output Status | • Parking assist ECU initialization (not initialized parking assist ECU)<br>• Back camera position setting (initialized parking assist ECU)<br>• Side camera position setting (initialized parking assist ECU)<br>• Steering Angle setting (initialized parking assist ECU)<br>• Parking assist ECU |

## INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the parking assist ECU after the battery terminal disconnected, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system (w/ Side Monitor System) may be needed (Click here).**

### 1.READ VALUE USING INTELLIGENT TESTER

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Chassis / Parking Assist Monitor System / Data List.

e. Check the Data List for proper functioning of the following items.

**Parking Assist Monitor System**

| Tester Display | Measurement Item/Range | Normal Condition | Diagnostic Note |
|---|---|---|---|
| EEPROM Status (Initial read) | Parking assist ECU information / OK or NG | OK: Parking assist ECU is normal<br>NG: Parking assist ECU is abnormal | - |
| AISIC Output Status | Output condition of camera display signal / OK or NG | OK: Output condition of camera display signal is normal<br>NG: Output condition of camera display signal is abnormal | If displayed "NG", There is a malfunctions in parking assist ECU. |

**Result**

| Result | Proceed to |
|---|---|
| OK is displayed for both items. | A |
| NG is displayed for EEPROM Status (Initial read). | A |
| NG is displayed for AISIC Output Status | B |

B → REPLACE PARKING ASSIST ECU (Click here)

A

### 2.SETTINGS (PARKING ASSIST ECU INITIALIZATION)

**HINT:**

- **The parking assist ECU stores different types of information during initialization. If the parking assist ECU cannot read the stored information when it is activated, the parking assist ECU judges that there is an internal malfunction and stores this DTC.**
- **If the parking assist ECU cannot read the stored information when it is activated, allowing the ECU to store the information again may return the system to normal.**

a. Use the transition of diagnosis screens (note which transition pattern occurs) to confirm if the parking assist ECU was able to properly store the information from initialization (Click here).

**HINT:**

The procedure to make the parking assist ECU store the vehicle information differs when the parking assist ECU has stored the information (initialized) and when the information has not been stored (not initialized).

b. Perform the following procedure depending on the memory conditions to register the vehicle information into the parking assist ECU.

| Condition | Procedure |
|---|---|
| Not initialized | Parking assist ECU initialization (Click here) |
| Initialized | • Back camera position setting (Click here)<br>• Steering angle setting (Click here)<br>• Side camera position setting (Click here ) |

**NEXT**

**3.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C1611 is not output.**

**HINT:**

- **If DTC C1611 is output, perform the procedure to allow the parking assist ECU to store the vehicle information again.**
- **If DTC C1611 is still output after performing the procedure to make the parking assist ECU store the vehicle information 3 times, replace the parking assist ECU.**
- **If DTC C1611 is output frequently, replace the parking assist ECU even though the DTC is not output when rechecking for DTCs.**

**NG** → **REPLACE PARKING ASSIST ECU (Click here)**

**OK**

**END (SETTINGS ARE DEFECTIVE)**

# DTC C1691 Back Camera Initialization Incomplete

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when the parking assist ECU judges that the back camera initial setting has not been memorized (rear television camera optical axis adjustment is incomplete).

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1691 | Back camera initial setting has not been memorized | • Rear television camera optical axis adjustment<br>• Parking assist ECU |

## INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the parking assist ECU after disconnecting the cable from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system (w/ Side Monitor System) may be needed (Click here).**

### 1.ADJUST SETTINGS (CAMERA POSITION SETTING)

a. Perform the following procedure depending on the memory conditions to register the vehicle information into the parking assist ECU.

i. Refer to rear television camera optical axis adjustment ( Click here).

**NEXT**

### 2.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C1691 is not output.**

**HINT:**

- **If DTC C1691 is output, perform the rear television camera assembly optical axis adjustment again.**
- **If DTC C1691 is still output after performing the rear television camera assembly optical axis adjustment 3 times, replace the parking assist ECU.**

**NG** → REPLACE PARKING ASSIST ECU (Click here)

**OK**

### END (ADJUST SETTINGS ARE DEFECTIVE)

## DTC C1612 IG Voltage is Low or High

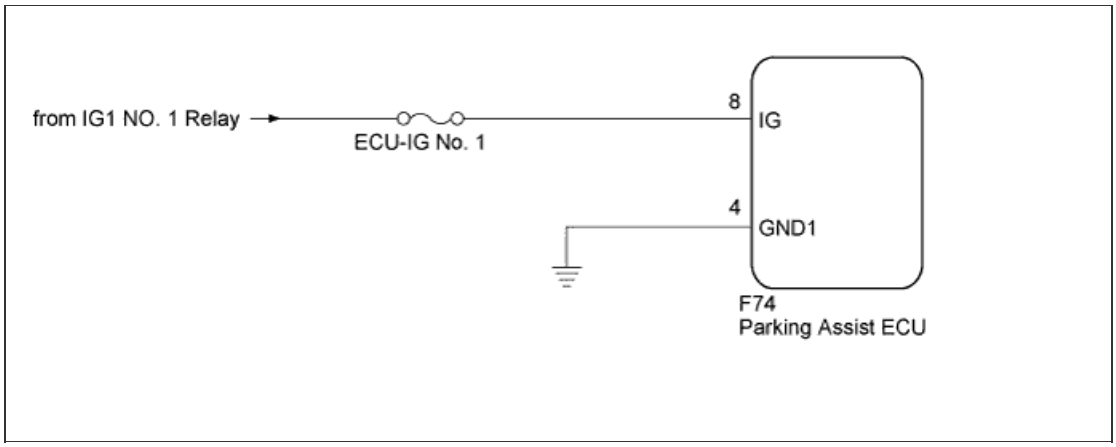
**for Preparation** Click here

### DESCRIPTION

This DTC is stored if the parking assist ECU judges as a result of its self check that the voltage received by terminal IG is low or high.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1612 | • IG voltage is low<br>• IG voltage is high | • Harness or connector<br>• Parking assist ECU |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the parking assist ECU after the battery terminal disconnected, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system (w/ Side Monitor System) may be needed (Click here).**
- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**

**1.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C1612 is not output.**

**HINT:**

If the parking assist ECU cannot read the stored information when it is activated, allowing the ECU to store the information again may return the system to normal.

**NG** → **Go to step 2**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

**2.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - BATTERY AND BODY GROUND)**

a. Disconnect the parking assist ECU connector.

b. Measure the resistance according to the value(s) in the table below.

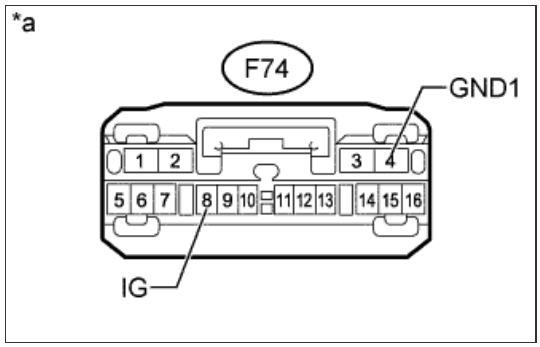
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F74-4 (GND1) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F74-8 (IG) - F74-4 (GND1) | Engine switch on (IG) | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Parking Assist ECU) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE PARKING ASSIST ECU (Click here)

# DTC C1694 Steering Angle Initialization Incomplete

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when the parking assist ECU judges that the maximum steering angle has not been memorized (steering angle setting is incomplete).

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1694 | Maximum steering angle has not been memorized | • Steering angle setting<br>• Parking assist ECU |

## INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the parking assist ECU after disconnecting the cable from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system (w/ Side Monitor System) may be needed (Click here).**

**1.PERFORM SETTINGS (STEERING ANGLE SETTING)**

a. Perform the following procedure depending on the memory conditions to register the vehicle information into the parking assist ECU.

i. Refer to steering angle setting (Click here).

**NEXT**

**2.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C1694 is not output.**

**HINT:**

- **If DTC C1694 is output, perform the steering angle setting again.**
- **If DTC C1694 is still output after performing the steering angle setting 3 times, replace the parking assist ECU.**

**NG** → **REPLACE PARKING ASSIST ECU (Click here)**

**OK**

**END (SETTINGS ARE DEFECTIVE)**

## DTC C1613 ACC Voltage is Low or High

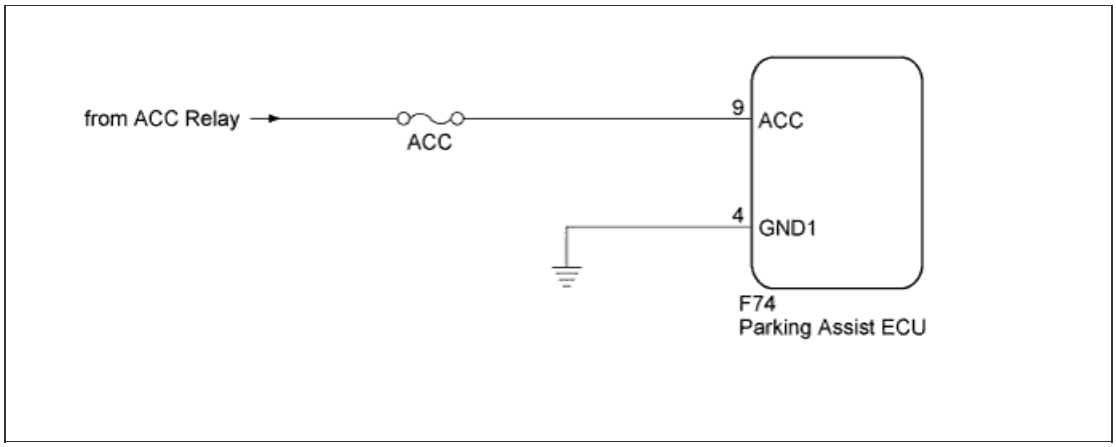
**for Preparation** Click here

### DESCRIPTION

This DTC is stored if the parking assist ECU judges as a result of its self check that the voltage received by terminal ACC is not normal.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1613 | • ACC voltage is low<br>• ACC voltage is high | • Harness or connector<br>• Parking assist ECU |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the parking assist ECU after the battery terminal disconnected, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system (w/ Side Monitor System) may be needed (Click here).**
- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**

**1.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C1613 is not output.**

**HINT:**

If the parking assist ECU cannot read the stored information when it is activated, allowing the ECU to store the information again may return the system to normal.

**NG** → **Go to step 2**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

**2.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - BATTERY AND BODY GROUND)**

a. Disconnect the parking assist ECU connector.

b. Measure the resistance according to the value(s) in the table below.

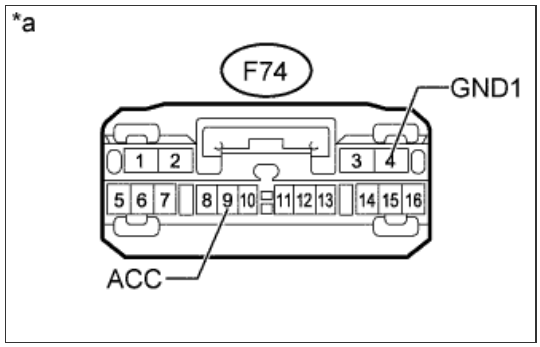
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F74-4 (GND1) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F74-9 (ACC) - F74-4 (GND1) | Engine switch on (ACC) | 11 to 14 V |




**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Parking Assist ECU) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE PARKING ASSIST ECU (Click here)

## DTC U0073 Control Module Communication Bus OFF

## DTC U0100 Lost Communication with ECM

## DTC U0114 Lost Communication with 4WD Control ECU

## DTC U0126 Lost Communication with Steering Angle Sensor Module

## DTC U0129 Lost Communication with Brake System Control Module

## DTC U0130 Lost Communication with VGRS

## DTC U0140 Lost Communication with Main Body ECU

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored if there is a malfunction in the CAN communication system connected to the parking assist ECU.

**HINT:**

If CAN communication system DTCs are stored, they may also be stored in other systems.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | Control module communication bus off | CAN communication system |
| U0100 | Lost communication with ECM | |
| U0114 | Lost Communication with 4WD Control ECU | |
| U0126 | Lost communication with steering angle sensor | |
| U0129 | Lost communication with brake system control module | |
| U0130 | Lost communication with VGRS | |
| U0140 | Lost communication with main body ECU | |

### INSPECTION PROCEDURE

**1.CHECK FOR DTC**

a. Clear the DTCs.

- for LHD: Click here
- for RHD: Click here

b. Check for DTCs.

- for LHD: Click here
- for RHD: Click here

**Result**

| Result | Proceed to |
|---|---|
| CAN DTC is output | A |
| DTC is output (for LHD) | B |
| DTC is output (for RHD) | C |

**HINT:**

- **If CAN communication system DTCs are stored, they may also be stored in other systems.**
- **If the CAN communication system has been inspected and repaired in other systems, the DTCs will not be output when rechecking for DTCs.**
- **If these DTCs are output frequently, duplicate the conditions that cause the problem symptoms and perform the inspection again, even though the DTC was not output when rechecking for DTCs (Click here).**

**B** → Go to CAN COMMUNICATION SYSTEM (Click here)

**C** → Go to CAN COMMUNICATION SYSTEM (Click here)

**A**

USE SIMULATION METHOD TO CHECK ( **Click here** )

## DTC C1621 Back Camera Power Supply Failure

## DTC C1622 Open or Short Circuit in Back Camera Signal

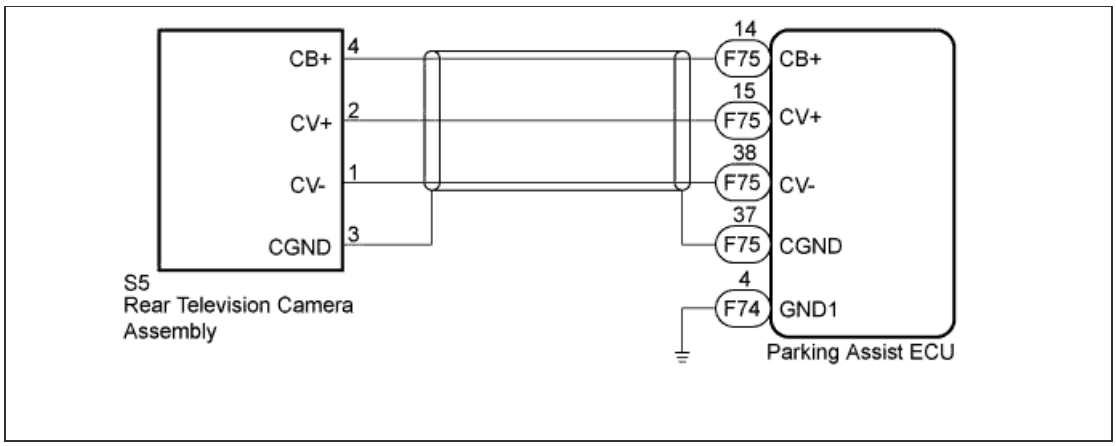
**for Preparation** Click here

### DESCRIPTION

These DTC are stored if the parking assist ECU judges as a result of its self check that the signals or signal lines between the parking assist ECU and the rear television camera assembly are not normal.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1621 | An open or short in the rear television camera signal circuit | • Harness or connector<br>• Rear television camera assembly<br>• Parking assist ECU |
| C1622 | An open or short in the rear television camera signal circuit | |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the parking assist ECU after the battery terminal disconnected, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system (w/ Side Monitor System) may be needed (Click here).**

#### 1.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - REAR TELEVISION CAMERA AND BODY GROUND)

a. Disconnect the F74 and F75 parking assist ECU connectors.

b. Disconnect the S5 rear television camera assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-38 (CV-) - S5-1 (CV-) | Always | Below 1 Ω |
| F75-15 (CV+) - S5-2 (CV+) | Always | Below 1 Ω |
| F75-14 (CB+) - S5-4 (CB+) | Always | Below 1 Ω |
| F75-37 (CGND) - S5-3 (CGND) | Always | Below 1 Ω |
| F74-4 (GND1) - Body ground | Always | Below 1 Ω |
| F75-38 (CV-) - Body ground | Always | 10 kΩ or higher |
| F75-15 (CV+) - | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| Body ground | | |
| F75-14 (CB+) - Body ground | Always | 10 kΩ or higher |
| F75-37 (CGND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 2.CHECK PARKING ASSIST ECU (CB+, CGND)

a. Reconnect the F74 and F75 parking assist ECU connectors.

b. Measure the resistance according to the value(s) in the table below.

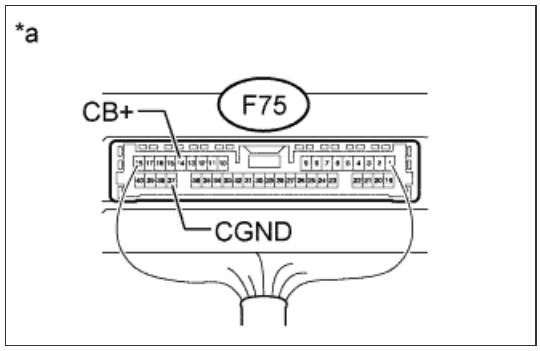
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-37 (CGND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-14 (CB+) - F75-37 (CGND) | Engine switch on (IG), shift lever in R | 5.5 to 7.05 V |




**Text in Illustration**

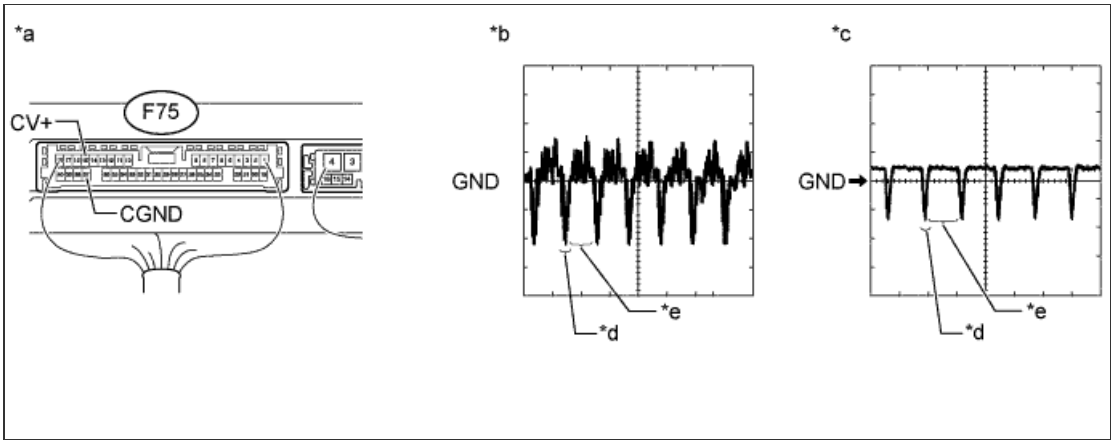
| | |
|---|---|
| *a | Component with harness connected (Parking Assist ECU) |

NG → REPLACE PARKING ASSIST ECU (Click here)

OK

## 3.CHECK REAR TELEVISION CAMERA ASSEMBLY (CV+, CGND)

a. Reconnect the S5 rear television camera assembly connector.




**Text in Illustration**

| | | | |
|---|---|---|---|
| *a | Component with harness connected<br>(Parking Assist ECU) | *b | Waveform A |
| *c | Waveform B | *d | Synchronization Signal |
| *e | Video Waveform | - | - |

b. Check the waveform of the rear television camera assembly using an oscilloscope.

**HINT:**

- **A waterproof connector is used for the rear television camera assembly. Therefore, inspect the waveform at the multi-media module receiver assembly with the connector connected.**
- **The video waveform changes according to the image sent by the rear television camera assembly.**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F75-15 (CV+) - F75-37 (CGND) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | • Waveform A: Engine switch on (IG), shift lever in R and camera lens is not covered, displaying an image<br>• Waveform B: Engine switch on (IG), shift lever in R and camera lens is covered, blacking out the screen |

**OK:**

**Waveform is as shown in the illustration.**

NG → REPLACE REAR TELEVISION CAMERA ASSEMBLY (Click here)

OK

REPLACE PARKING ASSIST ECU (Click here)

## DTC U0073 Control Module Communication Bus OFF

## DTC U0100 Lost Communication with ECM

## DTC U0114 Lost Communication with 4WD Control ECU

## DTC U0126 Lost Communication with Steering Angle Sensor Module

## DTC U0129 Lost Communication with Brake System Control Module

## DTC U0130 Lost Communication with VGRS

## DTC U0140 Lost Communication with Main Body ECU

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored if there is a malfunction in the CAN communication system connected to the parking assist ECU.

**HINT:**

If CAN communication system DTCs are stored, they may also be stored in other systems.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | Control module communication bus off | CAN communication system |
| U0100 | Lost communication with ECM | |
| U0114 | Lost Communication with 4WD Control ECU | |
| U0126 | Lost communication with steering angle sensor | |
| U0129 | Lost communication with brake system control module | |
| U0130 | Lost communication with VGRS | |
| U0140 | Lost communication with main body ECU | |

### INSPECTION PROCEDURE

**1.CHECK FOR DTC**

a. Clear the DTCs.

- for LHD: Click here
- for RHD: Click here

b. Check for DTCs.

- for LHD: Click here
- for RHD: Click here

**Result**

| Result | Proceed to |
|---|---|
| CAN DTC is output | A |
| DTC is output (for LHD) | B |
| DTC is output (for RHD) | C |

**HINT:**

- **If CAN communication system DTCs are stored, they may also be stored in other systems.**
- **If the CAN communication system has been inspected and repaired in other systems, the DTCs will not be output when rechecking for DTCs.**
- **If these DTCs are output frequently, duplicate the conditions that cause the problem symptoms and perform the inspection again, even though the DTC was not output when rechecking for DTCs (Click here).**

**B** → Go to CAN COMMUNICATION SYSTEM (Click here)

**C** → Go to CAN COMMUNICATION SYSTEM (Click here)

**A**

USE SIMULATION METHOD TO CHECK ( **Click here** )

## DTC C1621 Back Camera Power Supply Failure

## DTC C1622 Open or Short Circuit in Back Camera Signal

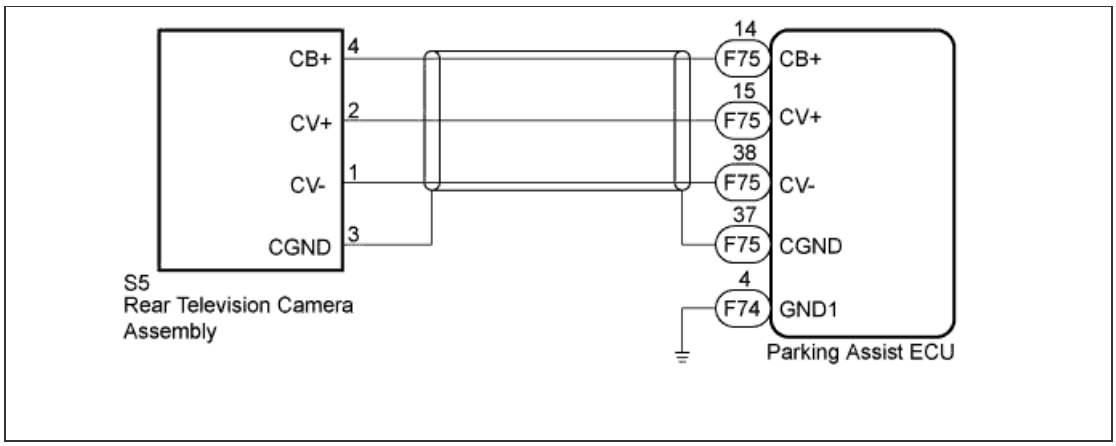
**for Preparation** Click here

### DESCRIPTION

These DTC are stored if the parking assist ECU judges as a result of its self check that the signals or signal lines between the parking assist ECU and the rear television camera assembly are not normal.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1621 | An open or short in the rear television camera signal circuit | • Harness or connector<br>• Rear television camera assembly<br>• Parking assist ECU |
| C1622 | An open or short in the rear television camera signal circuit | |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the parking assist ECU after the battery terminal disconnected, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system (w/ Side Monitor System) may be needed (Click here).**

#### 1.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - REAR TELEVISION CAMERA AND BODY GROUND)

a. Disconnect the F74 and F75 parking assist ECU connectors.

b. Disconnect the S5 rear television camera assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-38 (CV-) - S5-1 (CV-) | Always | Below 1 Ω |
| F75-15 (CV+) - S5-2 (CV+) | Always | Below 1 Ω |
| F75-14 (CB+) - S5-4 (CB+) | Always | Below 1 Ω |
| F75-37 (CGND) - S5-3 (CGND) | Always | Below 1 Ω |
| F74-4 (GND1) - Body ground | Always | Below 1 Ω |
| F75-38 (CV-) - Body ground | Always | 10 kΩ or higher |
| F75-15 (CV+) - | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| Body ground | | |
| F75-14 (CB+) - Body ground | Always | 10 kΩ or higher |
| F75-37 (CGND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 2.CHECK PARKING ASSIST ECU (CB+, CGND)

a. Reconnect the F74 and F75 parking assist ECU connectors.

b. Measure the resistance according to the value(s) in the table below.

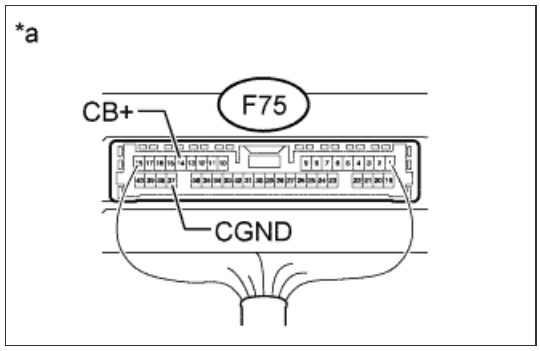
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-37 (CGND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-14 (CB+) - F75-37 (CGND) | Engine switch on (IG), shift lever in R | 5.5 to 7.05 V |




**Text in Illustration**

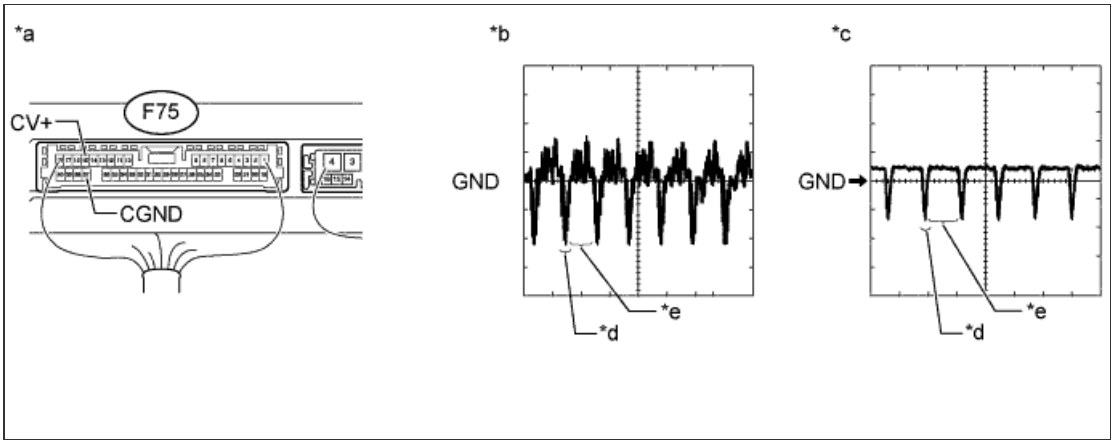
| | |
|---|---|
| *a | Component with harness connected (Parking Assist ECU) |

NG → REPLACE PARKING ASSIST ECU (Click here)

OK

## 3.CHECK REAR TELEVISION CAMERA ASSEMBLY (CV+, CGND)

a. Reconnect the S5 rear television camera assembly connector.




**Text in Illustration**

| | | | |
|---|---|---|---|
| *a | Component with harness connected<br>(Parking Assist ECU) | *b | Waveform A |
| *c | Waveform B | *d | Synchronization Signal |
| *e | Video Waveform | - | - |

b. Check the waveform of the rear television camera assembly using an oscilloscope.

**HINT:**

- **A waterproof connector is used for the rear television camera assembly. Therefore, inspect the waveform at the multi-media module receiver assembly with the connector connected.**
- **The video waveform changes according to the image sent by the rear television camera assembly.**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F75-15 (CV+) - F75-37 (CGND) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | • Waveform A: Engine switch on (IG), shift lever in R and camera lens is not covered, displaying an image<br>• Waveform B: Engine switch on (IG), shift lever in R and camera lens is covered, blacking out the screen |

**OK:**

**Waveform is as shown in the illustration.**

NG → REPLACE REAR TELEVISION CAMERA ASSEMBLY (Click here)

OK

REPLACE PARKING ASSIST ECU (Click here)

## DTC U0073 Control Module Communication Bus OFF

## DTC U0100 Lost Communication with ECM

## DTC U0114 Lost Communication with 4WD Control ECU

## DTC U0126 Lost Communication with Steering Angle Sensor Module

## DTC U0129 Lost Communication with Brake System Control Module

## DTC U0130 Lost Communication with VGRS

## DTC U0140 Lost Communication with Main Body ECU

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored if there is a malfunction in the CAN communication system connected to the parking assist ECU.

**HINT:**

If CAN communication system DTCs are stored, they may also be stored in other systems.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | Control module communication bus off | CAN communication system |
| U0100 | Lost communication with ECM | |
| U0114 | Lost Communication with 4WD Control ECU | |
| U0126 | Lost communication with steering angle sensor | |
| U0129 | Lost communication with brake system control module | |
| U0130 | Lost communication with VGRS | |
| U0140 | Lost communication with main body ECU | |

### INSPECTION PROCEDURE

**1.CHECK FOR DTC**

a. Clear the DTCs.

- for LHD: Click here
- for RHD: Click here

b. Check for DTCs.

- for LHD: Click here
- for RHD: Click here

**Result**

| Result | Proceed to |
|---|---|
| CAN DTC is output | A |
| DTC is output (for LHD) | B |
| DTC is output (for RHD) | C |

**HINT:**

- **If CAN communication system DTCs are stored, they may also be stored in other systems.**
- **If the CAN communication system has been inspected and repaired in other systems, the DTCs will not be output when rechecking for DTCs.**
- **If these DTCs are output frequently, duplicate the conditions that cause the problem symptoms and perform the inspection again, even though the DTC was not output when rechecking for DTCs (Click here).**

**B** → Go to CAN COMMUNICATION SYSTEM (Click here)

**C** → Go to CAN COMMUNICATION SYSTEM (Click here)

**A**

USE SIMULATION METHOD TO CHECK ( **Click here** )

## DTC C1625 Open or Short in Steering Angle Sensor +B

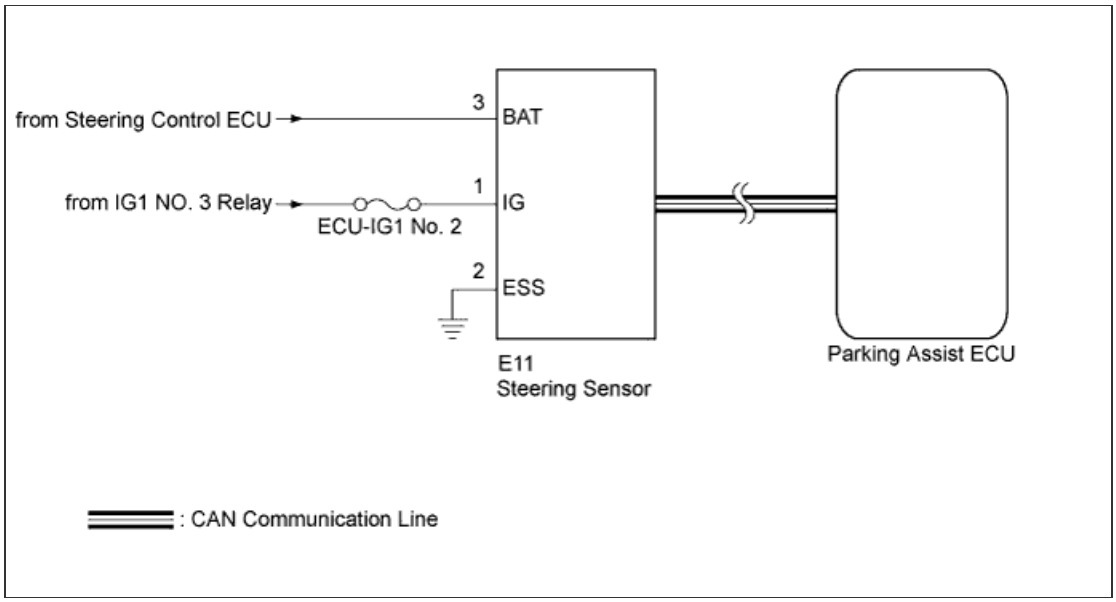
**for Preparation** Click here

### DESCRIPTION

This DTC is stored if the parking assist ECU receives a signal via CAN communication from the steering sensor that indicates a power supply system problem.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1625 | Open or short in steering angle sensor +B | • Harness or connector<br>• Steering sensor |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

- **Since the parking assist monitor system (w/ Side Monitor System) has functions that use CAN communication system, first confirm that there is no malfunction in the communication system by inspecting the CAN communication functions in accordance with the "How to Proceed with Troubleshooting" procedures. Then, conduct the following inspection procedure.**
- **When "System initializing" is displayed on the parking assist ECU after the battery terminal disconnected, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system (w/ Side Monitor System) may be needed (Click here).**
- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**

#### 1.CHECK HARNESS AND CONNECTOR (STEERING SENSOR - BATTERY AND BODY GROUND)

a. Disconnect the steering sensor connector.

b. Measure the resistance according to the value(s) in the table below.

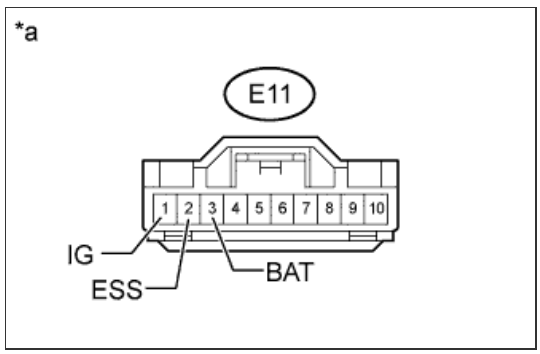
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E11-2 (ESS) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|



| | | |
|---|---|---|
| E11-1 (IG) - E11-2 (ESS) | Engine switch on (IG) | 11 to 14 V |
| E11-3 (BAT) - E11-2 (ESS) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Steering Sensor) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEERING SENSOR (Click here)

## DTC U0073 Control Module Communication Bus OFF

## DTC U0100 Lost Communication with ECM

## DTC U0114 Lost Communication with 4WD Control ECU

## DTC U0126 Lost Communication with Steering Angle Sensor Module

## DTC U0129 Lost Communication with Brake System Control Module

## DTC U0130 Lost Communication with VGRS

## DTC U0140 Lost Communication with Main Body ECU

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored if there is a malfunction in the CAN communication system connected to the parking assist ECU.

**HINT:**

If CAN communication system DTCs are stored, they may also be stored in other systems.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | Control module communication bus off | CAN communication system |
| U0100 | Lost communication with ECM | |
| U0114 | Lost Communication with 4WD Control ECU | |
| U0126 | Lost communication with steering angle sensor | |
| U0129 | Lost communication with brake system control module | |
| U0130 | Lost communication with VGRS | |
| U0140 | Lost communication with main body ECU | |

### INSPECTION PROCEDURE

**1.CHECK FOR DTC**

a. Clear the DTCs.

- for LHD: Click here
- for RHD: Click here

b. Check for DTCs.

- for LHD: Click here
- for RHD: Click here

**Result**

| Result | Proceed to |
|---|---|
| CAN DTC is output | A |
| DTC is output (for LHD) | B |
| DTC is output (for RHD) | C |

**HINT:**

- **If CAN communication system DTCs are stored, they may also be stored in other systems.**
- **If the CAN communication system has been inspected and repaired in other systems, the DTCs will not be output when rechecking for DTCs.**
- **If these DTCs are output frequently, duplicate the conditions that cause the problem symptoms and perform the inspection again, even though the DTC was not output when rechecking for DTCs (Click here).**

**B** → Go to CAN COMMUNICATION SYSTEM (Click here)

**C** → Go to CAN COMMUNICATION SYSTEM (Click here)

**A**

USE SIMULATION METHOD TO CHECK ( **Click here** )

## DTC C1626 Steering Angle Sensor Failure

**for Preparation** Click here

### DESCRIPTION

This DTC is stored if the parking assist ECU receives a signal via CAN communication from the steering sensor that indicates an internal malfunction.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1626 | A fail flag is transmitted from the steering angle sensor. | • Steering sensor<br>• Parking assist ECU |

### INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the parking assist ECU after the battery terminal disconnected, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system (w/ Side Monitor System) may be needed (Click here).**

**1.REPLACE STEERING SENSOR**

a. Replace the steering sensor with a normally functioning one ( Click here).

**NEXT**

**2.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C1626 is not output.**

**NG** → **REPLACE PARKING ASSIST ECU (Click here)**

**OK**

**END (STEERING SENSOR IS DEFECTIVE)**

## DTC U0073 Control Module Communication Bus OFF

## DTC U0100 Lost Communication with ECM

## DTC U0114 Lost Communication with 4WD Control ECU

## DTC U0126 Lost Communication with Steering Angle Sensor Module

## DTC U0129 Lost Communication with Brake System Control Module

## DTC U0130 Lost Communication with VGRS

## DTC U0140 Lost Communication with Main Body ECU

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored if there is a malfunction in the CAN communication system connected to the parking assist ECU.

**HINT:**

If CAN communication system DTCs are stored, they may also be stored in other systems.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | Control module communication bus off | CAN communication system |
| U0100 | Lost communication with ECM | |
| U0114 | Lost Communication with 4WD Control ECU | |
| U0126 | Lost communication with steering angle sensor | |
| U0129 | Lost communication with brake system control module | |
| U0130 | Lost communication with VGRS | |
| U0140 | Lost communication with main body ECU | |

### INSPECTION PROCEDURE

**1.CHECK FOR DTC**

a. Clear the DTCs.

- for LHD: Click here
- for RHD: Click here

b. Check for DTCs.

- for LHD: Click here
- for RHD: Click here

**Result**

| Result | Proceed to |
|---|---|
| CAN DTC is output | A |
| DTC is output (for LHD) | B |
| DTC is output (for RHD) | C |

**HINT:**

- **If CAN communication system DTCs are stored, they may also be stored in other systems.**
- **If the CAN communication system has been inspected and repaired in other systems, the DTCs will not be output when rechecking for DTCs.**
- **If these DTCs are output frequently, duplicate the conditions that cause the problem symptoms and perform the inspection again, even though the DTC was not output when rechecking for DTCs (Click here).**

**B** → Go to CAN COMMUNICATION SYSTEM (Click here)

**C** → Go to CAN COMMUNICATION SYSTEM (Click here)

**A**

USE SIMULATION METHOD TO CHECK ( **Click here** )

# DTC C1649 Lost Communication with VGRS ECU

**for Preparation** Click here

## DESCRIPTION

This DTC is set when the parking assist ECUs self-diagnosis determines that the connection with the steering control ECU of the variable gear ratio steering system (via CAN communication) is inoperative.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1649 | Steering Control ECU malfunction | Variable gear ratio steering system |

## INSPECTION PROCEDURE

**1.CHECK FOR DTC (VARIABLE GEAR RATIO STEERING SYSTEM)**

a. Clear the DTCs (Click here).

b. Check the DTCs (Click here).

**OK:**
**DTC C1649 is not output.**

**NG** → **Go to VARIABLE GEAR RATIO STEERING SYSTEM (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC U0073 Control Module Communication Bus OFF

## DTC U0100 Lost Communication with ECM

## DTC U0114 Lost Communication with 4WD Control ECU

## DTC U0126 Lost Communication with Steering Angle Sensor Module

## DTC U0129 Lost Communication with Brake System Control Module

## DTC U0130 Lost Communication with VGRS

## DTC U0140 Lost Communication with Main Body ECU

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored if there is a malfunction in the CAN communication system connected to the parking assist ECU.

**HINT:**

If CAN communication system DTCs are stored, they may also be stored in other systems.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | Control module communication bus off | CAN communication system |
| U0100 | Lost communication with ECM | |
| U0114 | Lost Communication with 4WD Control ECU | |
| U0126 | Lost communication with steering angle sensor | |
| U0129 | Lost communication with brake system control module | |
| U0130 | Lost communication with VGRS | |
| U0140 | Lost communication with main body ECU | |

### INSPECTION PROCEDURE

**1.CHECK FOR DTC**

a. Clear the DTCs.

- for LHD: Click here
- for RHD: Click here

b. Check for DTCs.

- for LHD: Click here
- for RHD: Click here

**Result**

| Result | Proceed to |
|---|---|
| CAN DTC is output | A |
| DTC is output (for LHD) | B |
| DTC is output (for RHD) | C |

**HINT:**

- **If CAN communication system DTCs are stored, they may also be stored in other systems.**
- **If the CAN communication system has been inspected and repaired in other systems, the DTCs will not be output when rechecking for DTCs.**
- **If these DTCs are output frequently, duplicate the conditions that cause the problem symptoms and perform the inspection again, even though the DTC was not output when rechecking for DTCs (Click here).**

**B** → Go to CAN COMMUNICATION SYSTEM (Click here)

**C** → Go to CAN COMMUNICATION SYSTEM (Click here)

**A**

USE SIMULATION METHOD TO CHECK ( **Click here** )

# DTC C168D Vehicle Information Unmatched

**for Preparation** Click here

## DESCRIPTION

This DTC is stored if the parking assist ECU judges as a result of its self check that the vehicle information received via CAN communication and the vehicle information stored in the parking assist ECU do not match.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C168D | Vehicle Information Unmatched | • Back camera position setting<br>• Steering angle setting<br>• Side camera position setting<br>• Parking assist ECU |

## INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the parking assist ECU after the battery terminal disconnected, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system (w/ Side Monitor System) may be needed (Click here).**

### 1.PERFORM SETTINGS (BACK CAMERA POSITION SETTING, STEERING ANGLE SETTING, SIDE CAMERA POSITION SETTING)

a. Perform the following procedure depending on the memory conditions to register the vehicle information into the parking assist ECU.

i. Refer to back camera position setting (Click here).

ii. Refer to steering angle setting (Click here).

iii. Refer to side camera position setting (Click here).

**NEXT**

### 2.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C168D is not output.**

**HINT:**

- **If DTC C168D is output, perform the procedure to allow the parking assist ECU to store the vehicle information again.**
- **If DTC C168D is still output after performing the procedure to make the parking assist ECU store the vehicle information 3 times, replace the parking assist ECU.**

**NG** → REPLACE PARKING ASSIST ECU (Click here)

**OK**

END (SETTINGS ARE DEFECTIVE)

## DTC U0073 Control Module Communication Bus OFF

## DTC U0100 Lost Communication with ECM

## DTC U0114 Lost Communication with 4WD Control ECU

## DTC U0126 Lost Communication with Steering Angle Sensor Module

## DTC U0129 Lost Communication with Brake System Control Module

## DTC U0130 Lost Communication with VGRS

## DTC U0140 Lost Communication with Main Body ECU

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored if there is a malfunction in the CAN communication system connected to the parking assist ECU.

**HINT:**

If CAN communication system DTCs are stored, they may also be stored in other systems.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0073 | Control module communication bus off | CAN communication system |
| U0100 | Lost communication with ECM | |
| U0114 | Lost Communication with 4WD Control ECU | |
| U0126 | Lost communication with steering angle sensor | |
| U0129 | Lost communication with brake system control module | |
| U0130 | Lost communication with VGRS | |
| U0140 | Lost communication with main body ECU | |

### INSPECTION PROCEDURE

**1.CHECK FOR DTC**

a. Clear the DTCs.

- for LHD: Click here
- for RHD: Click here

b. Check for DTCs.

- for LHD: Click here
- for RHD: Click here

**Result**

| Result | Proceed to |
|---|---|
| CAN DTC is output | A |
| DTC is output (for LHD) | B |
| DTC is output (for RHD) | C |

**HINT:**

- **If CAN communication system DTCs are stored, they may also be stored in other systems.**
- **If the CAN communication system has been inspected and repaired in other systems, the DTCs will not be output when rechecking for DTCs.**
- **If these DTCs are output frequently, duplicate the conditions that cause the problem symptoms and perform the inspection again, even though the DTC was not output when rechecking for DTCs (Click here).**

**B** → Go to CAN COMMUNICATION SYSTEM (Click here)

**C** → Go to CAN COMMUNICATION SYSTEM (Click here)

**A**

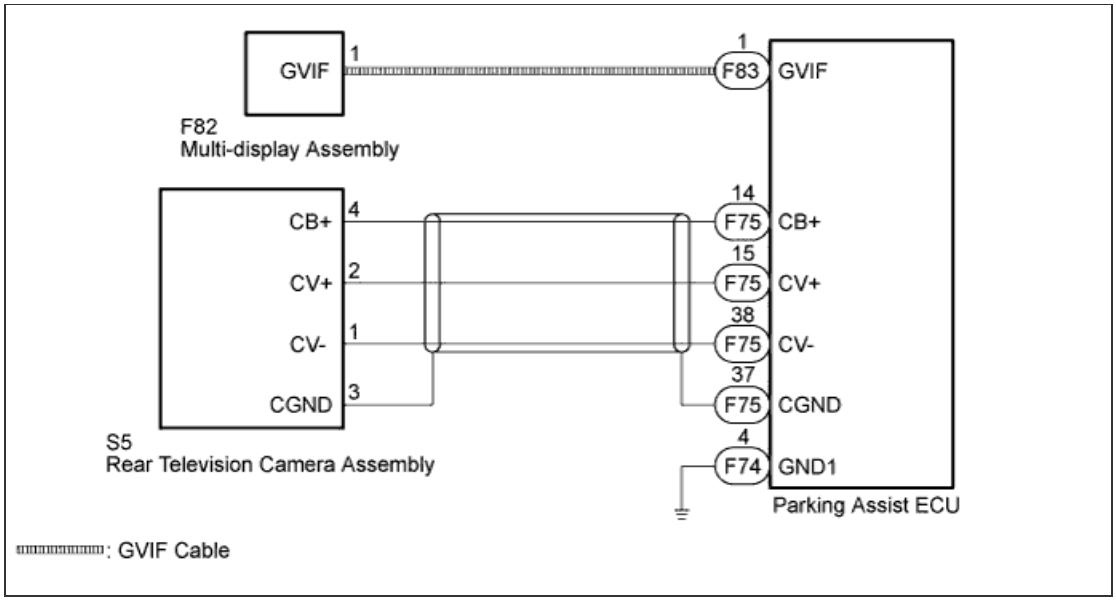
USE SIMULATION METHOD TO CHECK ( **Click here** )

**for Preparation** Click here

## DESCRIPTION

The display signal from the rear television camera assembly is transmitted to the multi-display assembly via the parking assist ECU.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the parking assist ECU after the battery terminal has been disconnected, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system (w/ Side Monitor System) may be needed (Click here).**

**HINT:**

Images can be difficult to discern even in normal conditions. For example:

- **Noise may occur in the image during power back door operation. (w/ Power Back Door System)**
- **Noise may occur in the image during power back door operation.**
- **Electrical devices are used in the cabin (noise may occur in the image).**
- **Accessories that generate radio waves have been installed (noise may occur in the image).**
- **The outer mirror switch assembly is operated (noise may occur in the image).**
- **The camera lens is frosted over (the image immediately after turning the engine switch on (IG) may be blurred or darker than normal).**
- **The camera lens is dirty with snow, mud, etc.**
- **A strong beam of light, such as a sunbeam or headlight, hits the camera.**
- **It is too dark around the camera (at night etc.).**
- **The ambient temperature around the camera is either too high or too low.**
- **The ambient temperature around the camera is either too high or too low.**
- **The rear television camera assembly lens is scratched.**
- **The rear television camera assembly lens has drops of water on it or the humidity is high.**
- **When the camera is used under fluorescent lights, sodium lights, or mercury lights etc., the lights and the illuminated area may appear to flicker.**
- **The ambience of the camera is too bright. (When a strong light, such as a sunbeam reflected off the vehicle body, hits the camera, the image may be blurred. This is called the "SMEAR" phenomenon, particular to the CCD camera.)**

### 1.CHECK SIDE MONITOR SYSTEM

a. Check if the same malfunction occurs when the side monitor screen is displayed.

**Result**

| Result | Proceed to |
|---|---|
| | |

| | |
|---|---|
| Malfunction occurs when parking assist monitor screen is displayed (side monitor screen is normal). | A |
| Malfunction occurs when parking assist monitor screen and side monitor screen are displayed. | B |

B → Go to step 5

A

## 2.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - REAR TELEVISION CAMERA ASSEMBLY AND BODY GROUND)

a. Disconnect the F74 and F75 parking assist ECU connectors.

b. Disconnect the S5 rear television camera assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-38 (CV-) - S5-1 (CV-) | Always | Below 1 Ω |
| F75-15 (CV+) - S5-2 (CV+) | Always | Below 1 Ω |
| F75-14 (CB+) - S5-4 (CB+) | Always | Below 1 Ω |
| F75-37 (CGND) - S5-3 (CGND) | Always | Below 1 Ω |
| F74-4 (GND1) - Body ground | Always | Below 1 Ω |
| F75-38 (CV-) - Body ground | Always | 10 kΩ or higher |
| F75-15 (CV+) - Body ground | Always | 10 kΩ or higher |
| F75-14 (CB+) - Body ground | Always | 10 kΩ or higher |
| F75-37 (CGND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 3.CHECK PARKING ASSIST ECU (CB+, CGND)

a. Reconnect the F74 and F75 parking assist ECU connectors.

b. Measure the resistance according to the value(s) in the table below.

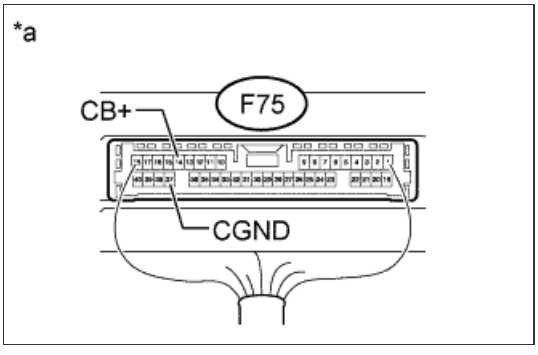
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-37 (CGND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-14 (CB+) - F75-37 (CGND) | Engine switch on (IG), shift lever in R | 5.5 to 7.05 V |



**Text in Illustration**

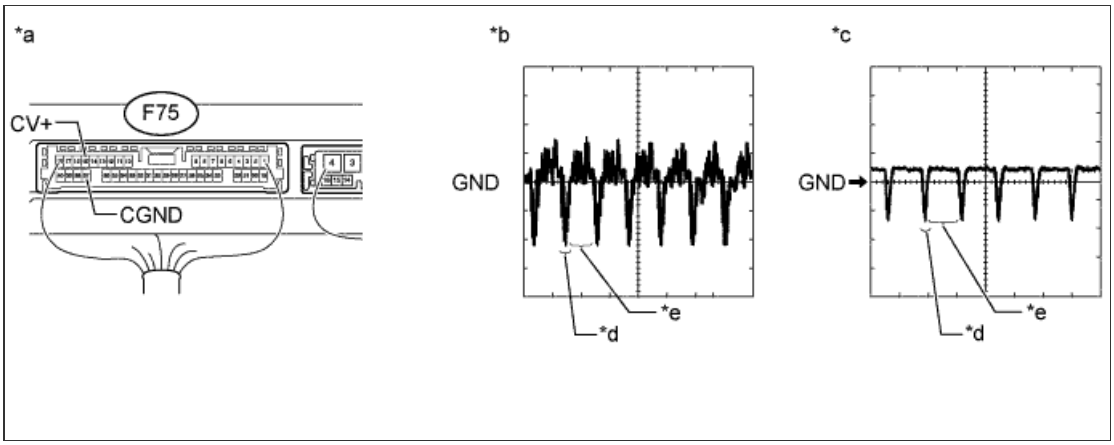
| | |
|---|---|
| *a | Component with harness connected (Parking Assist ECU) |

NG → REPLACE PARKING ASSIST ECU (Click here)

OK

**4.CHECK REAR TELEVISION CAMERA ASSEMBLY (CV+, CGND)**

a. Reconnect the S5 rear television camera assembly connector.




**Text in Illustration**

| | | | |
|---|---|---|---|
| *a | Component with harness connected (Parking Assist ECU) | *b | Waveform A |
| *c | Waveform B | *d | Synchronization Signal |
| *e | Video Waveform | - | - |

b. Check the waveform of the rear television camera assembly using an oscilloscope.

**HINT:**

- **A waterproof connector is used for the rear television camera assembly. Therefore, inspect the waveform at the multi-media module receiver assembly with the connector connected.**
- **The video waveform changes according to the image sent by the rear television camera assembly.**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F75-15 (CV+) - F75-37 (CGND) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | • Waveform A: Engine switch on (IG), shift lever in R and camera lens is not covered, displaying an image<br>• Waveform B: Engine switch on (IG), shift lever in R and camera lens is covered, blacking out the screen |

**OK:**

**Waveform is as shown in the illustration.**

NG → REPLACE REAR TELEVISION CAMERA ASSEMBLY (Click here)

OK

5.CHECK HARNESS AND CONNECTOR (GVIF CABLE)

a. Replace the GVIF cable with a normally functioning one.

b. Check if the same malfunction recurs when the parking assist monitor screen is displayed.

**OK:**
**Malfunction does not reoccur (returns to normal).**

NG → Go to step 6

OK →

END (GVIF CABLE IS DEFECTIVE)

6.CHECK MULTI-DISPLAY ASSEMBLY

a. Replace the multi-display assembly with normally functioning one ( Click here).

b. Check if the same malfunction recurs when the parking assist monitor screen is displayed.

**OK:**
**Malfunction does not reoccur (returns to normal).**

NG → REPLACE PARKING ASSIST ECU (Click here)

OK →

END (MULTI-DISPLAY ASSEMBLY IS DEFECTIVE)

**for Preparation** Click here

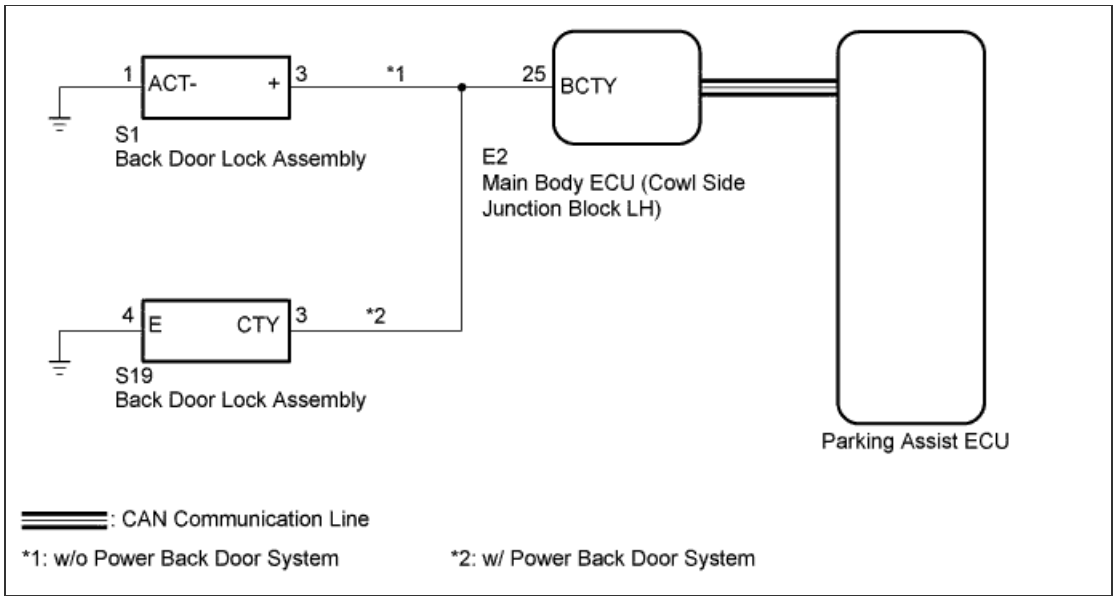
## DESCRIPTION

The parking assist ECU receives back door lock assembly open/close signals from the main body ECU (cowl side junction block LH) via CAN communication. When the back door is open, the camera aiming cannot be adjusted correctly because the rear television camera assembly is installed on the back door. Therefore, when adjusting the camera aiming calibration while the back door is open, a back door open warning message will be displayed on the screen and camera aiming adjustment will be canceled.

**HINT:**

The back door lock assembly is connected to the main body ECU (cowl side junction block LH) by the vehicle wire harness.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

- **Since the parking assist monitor system (w/ Side Monitor System) has functions that use CAN communication system, first confirm that there is no malfunction in the communication system by inspecting the CAN communication functions in accordance with the "How to Proceed with Troubleshooting" procedures. Then, conduct the following inspection procedure.**
- **When "System initializing" is displayed on the parking assist ECU after the battery terminal disconnected, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system (w/ Side Monitor System) may be needed (Click here).**

### 1.READ VALUE USING INTELLIGENT TESTER (BACK DOOR COURTESY SWITCH)

a. Use the Data List to check if the back door courtesy switch is functioning properly (See page ).

**Main Body**

| Tester Display | Measurement Item/Range | Normal Condition | Diagnostic Note |
|---|---|---|---|
| Back Door Courtesy SW | Back door courtesy light switch signal/ON or OFF | ON: Back door open<br>OFF: Back door closed | - |

**OK:**

**The back door courtesy switch functions as specified in the normal condition column.**

**NG** → **Go to step 2**

**OK**

REPLACE PARKING ASSIST ECU (Click here)

2.CHECK HARNESS AND CONNECTOR (BACK DOOR LOCK ASSEMBLY - MAIN BODY ECU [COWL SIDE JUNCTION BLOCK LH] AND BODY GROUND)

a. Disconnect the S1*1 or S19*2 back door lock assembly connector.

*1: w/o Power Back Door System
*2: w/ Power Back Door System

b. Disconnect the E2 main body ECU (cowl side junction block LH) connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**w/o Power Back Door System:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| S1-3 (+) - E2-25 (BCTY) | Always | Below 1 Ω |
| S1-3 (+) - Body ground | Always | 10 kΩ or higher |
| S1-1 (ACT-) - Body ground | Always | Below 1 Ω |

**w/ Power Back Door System:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| S19-3 (CTY) - E2-25 (BCTY) | Always | Below 1 Ω |
| S19-3 (CTY) - Body ground | Always | 10 kΩ or higher |
| S19-4 (E) - Body ground | Always | Below 1 Ω |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3.INSPECT BACK DOOR LOCK ASSEMBLY

a. Remove the back door lock assembly (Click here).

b. Inspect the back door lock assembly (Click here).

NG → REPLACE BACK DOOR LOCK ASSEMBLY (Click here)

OK

REPLACE MAIN BODY ECU (COWL SIDE JUNCTION BLOCK LH)

**for Preparation** Click here

## 1.POINTS TO NOTE WHEN SERVICING

a. Pay attention to the following points when servicing.

i. When disconnecting the cable from the negative (-) battery terminal, "System initializing" may appear on the multi-media module receiver assembly. In this case, restore the steering angle neutral point (Click here).

ii. Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system (w/o Side Monitor System) may be needed (Click here).

**HINT:**

Each adjusted value for the calibration of the parking assist monitor system (w/o Side Monitor System) will be stored in the multi-media module receiver assembly.

iii. When the lens of the rear television camera assembly is dirty, wash the lens with water and wipe it off with a soft cloth to obtain clear images. For heavy dirt, use neutral detergent to clean the lens.

## 2.NOTES FOR REAR TELEVISION CAMERA ASSEMBLY

a. Notes for the rear television camera assembly

i. The parking assist monitor system (w/o Side Monitor System) may not function properly if subjected to a severe blow by any hard object.

ii. Do not scrub the cover part of the camera (resin made). Scrubbing may scratch the cover and affect the image. Prevent organic solvents, waxes, bond removing solvents or glass coating from adhering to the cover. If such material adheres to the cover, clean it off immediately and wash it with water.

iii. Exposing the camera to a sudden temperature change may affect proper functioning of the camera.

iv. A clear image may not appear if the camera is dirty with snow, mud, etc. In that case, wash it with water and wipe off the lens. Use a detergent to remove dirt if necessary.

b. Images may be unclear even in normal conditions if:

i. Noise may occur in the image during power back door operation. (w/ Power Back Door System)

ii. Electrical devices are used in the cabin (noise may occur in the image).

iii. Accessories that generate radio waves have been installed (noise may occur in the image).

iv. The outer mirror switch assembly is operated (noise may occur in the image).

v. The camera lens is frosted over (the image immediately after turning the engine switch on (IG) may be blurred or darker than normal).

vi. The camera lens is dirty with snow, mud, etc.

vii. A strong beam of light, such as a sunbeam or headlight, hits the camera.

viii. It is too dark around the camera (at night etc.).

ix. The ambient temperature around the camera is either too high or too low.

x. The vehicle is tilted at a steep angle.

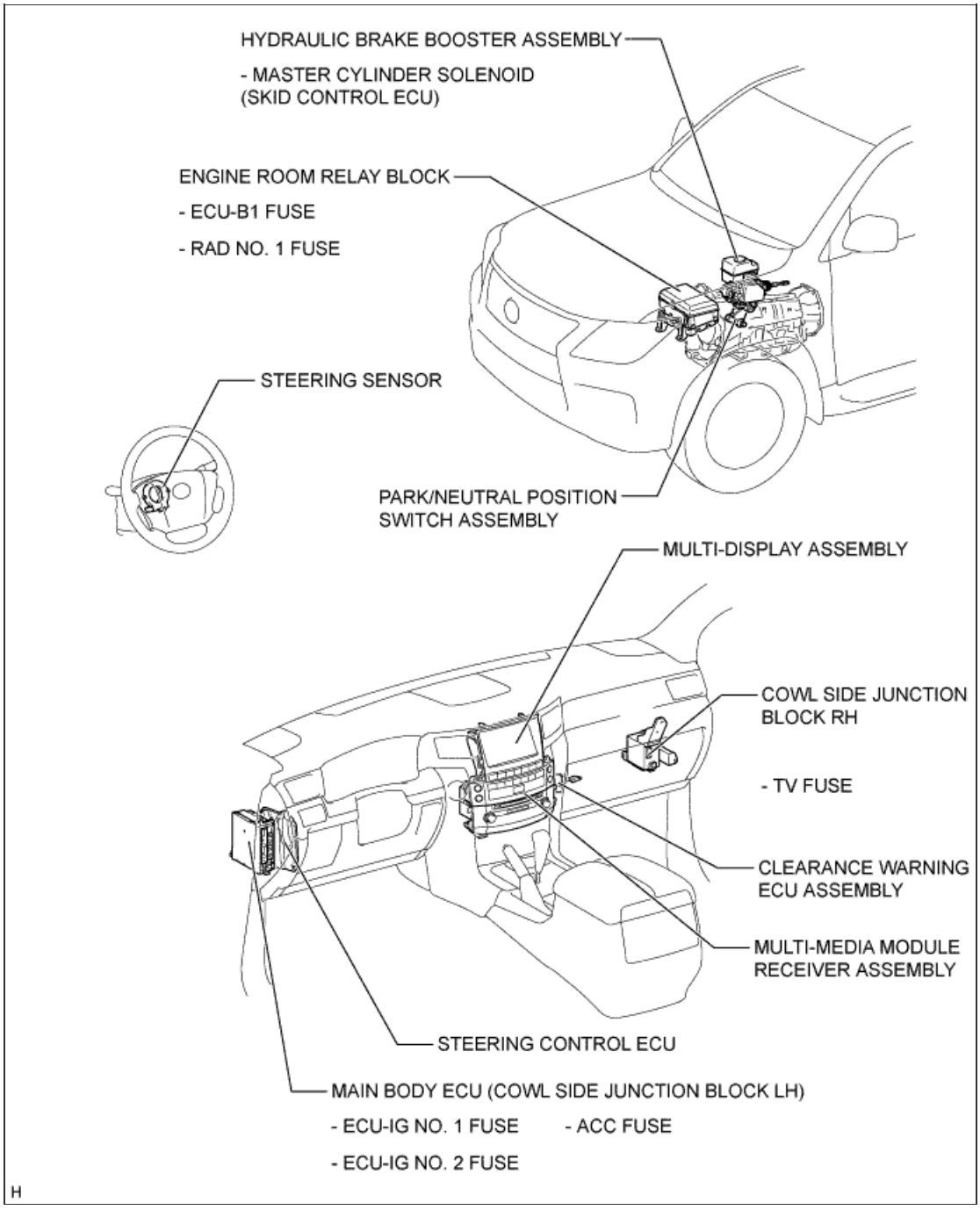
xi. The rear television camera assembly lens is scratched.

xii. The rear television camera assembly lens has drops of water on it or the humidity is high.

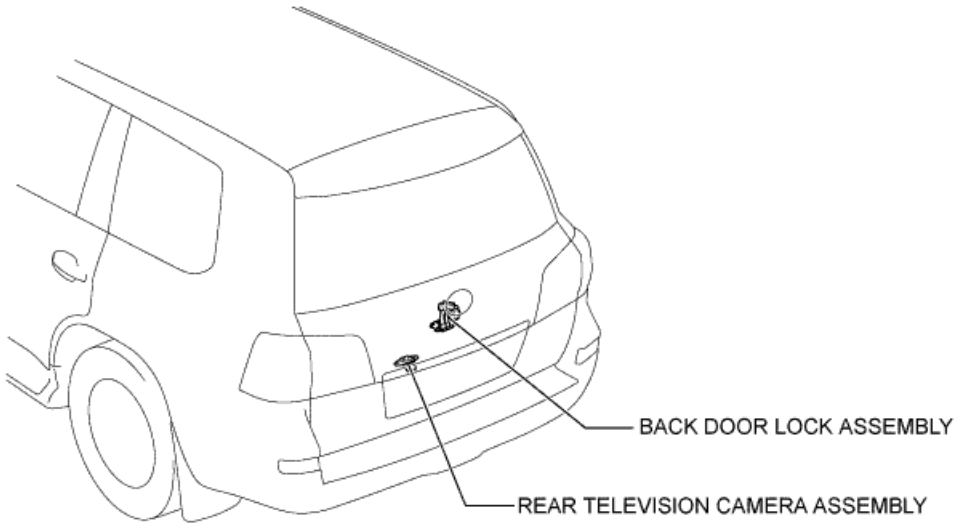
xiii. When the camera is used under fluorescent lights, sodium lights, or mercury lights etc., the lights and the illuminated area may appear to flicker.

xiv. The ambience of the camera is too bright. (When a strong light, such as a sunbeam reflected off the vehicle body, hits the camera, the image may be blurred. This is called the "SMEAR" phenomenon, particular to the CCD camera.)

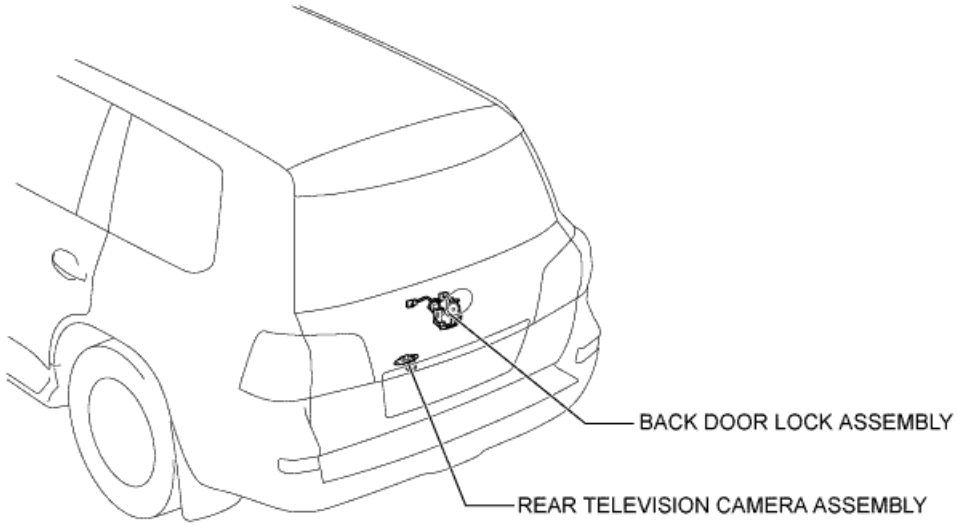
**for Preparation** Click here



w/o Power Back Door System:

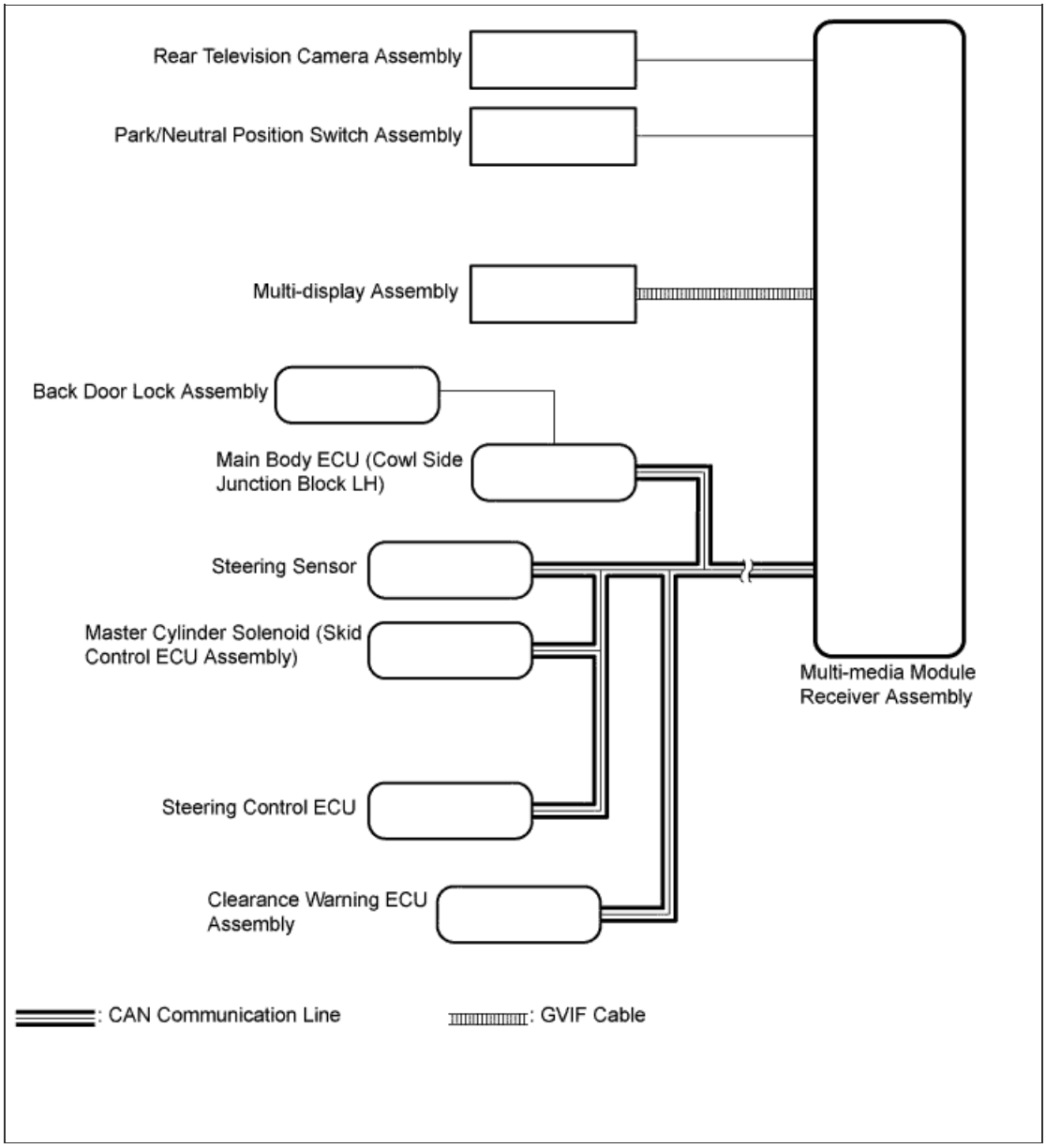



w/ Power Back Door System:




H

**for Preparation** Click here




### Communication Table

| Sender | Receiver | Signal | Line |
|---|---|---|---|
| Multi-media Module Receiver Assembly | Multi-display Assembly | Display | GVIF cable |
| Clearance Warning ECU Assembly | Multi-media Module Receiver Assembly | Clearance sonar detection information | CAN |
| Steering Sensor | Multi-media Module Receiver Assembly | • Steering angle<br>• VGRS setting information | CAN |
| Brake Master Cylinder Solenoid (Skid Control ECU Assembly) | Multi-media Module Receiver Assembly | Vehicle speed (skid control ECU identification information) | CAN |
| Steering Control ECU | Multi-media Module Receiver Assembly | VGRS relative angle | CAN |
| Main Body ECU (Cowl Side Junction Block LH) | Multi-media Module Receiver Assembly | • Vehicle information<br>• Back door courtesy light switch | CAN |

**for Preparation** Click here

## GENERAL

a. This system has a rear television camera assembly mounted on the back door to display an image of the area behind the vehicle on the display. The display panel also shows a composite view consisting of the area behind the vehicle and parking guide lines to assist the driver in parking the vehicle by monitoring the area behind the vehicle.

b. This system consists of the following components:

i. Multi-media module receiver assembly

ii. Rear television camera assembly

iii. Clearance warning ECU assembly

iv. Steering sensor

v. Master cylinder solenoid (skid control ECU assembly)

vi. Steering control ECU

vii. Main body ECU (cowl side junction block LH)

viii. Park/neutral position switch assembly

ix. Multi-display assembly

c. This system is equipped with a self-diagnosis system, which is operated on a designated window that appears on the display panel, just as in the navigation system.

## FUNCTION OF COMPONENTS

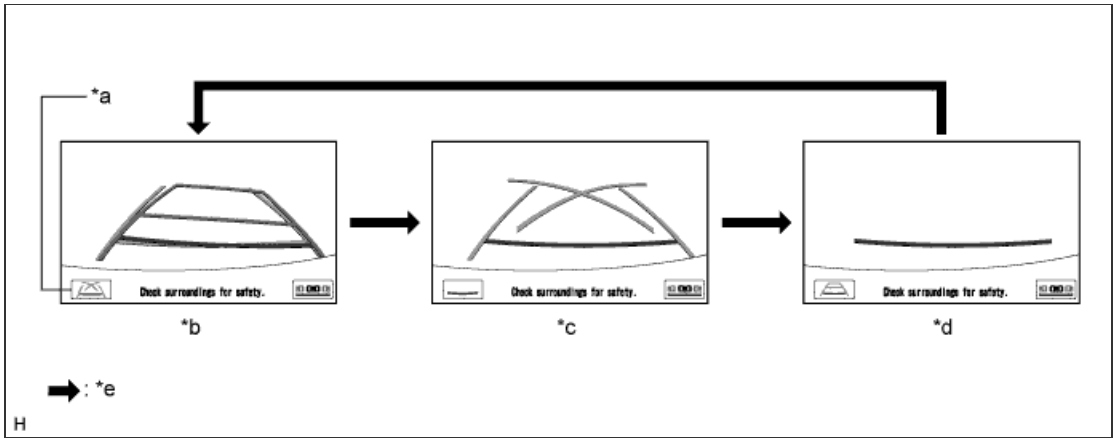
a. The multi-media module receiver assembly controls the system by using information from the following components.

| Item | Function |
|---|---|
| Rear Television Camera Assembly | • Mounted on the back door to transmit an image of the area behind the vehicle to the multi-media module receiver assembly.<br>• Has a color video camera that uses a Complementary Metal Oxide Semiconductor (CMOS) and a wide-angle lens. |
| Multi-media Module Receiver Assembly | • Receives video signals, which contain an image of the area behind the vehicle taken with the rear television camera assembly.<br>• Performs overall control of the system by receiving signals from the sensors.<br>• Allows operation via the touch panel of the display when the park assist monitor screen or diagnosis screen is displayed.<br>• Creates images and displays adjustment screens performed on the diagnosis screen.<br>• Stops displaying the guide line and buttons displays "Check surrounding for safety" when an open signal is received for the back door.<br>• Displays "Back door is open" on the back camera position setting screen when an open signal is received for the back door. |
| Park/Neutral Position Switch Assembly | Sends the reverse signal to the multi-media module receiver assembly. |
| Clearance Warning ECU Assembly | Sends the clearance detection information to the multi-media module receiver assembly through CAN communication. |
| Steering Sensor | Detects the angle of the steering wheel and sends the resulting signals to the multimedia module receiver assembly through CAN communication. |
| Master Cylinder Solenoid (Skid Control ECU Assembly) | Transmits a vehicle speed signal to the multi-media module receiver assembly through CAN communication. |
| Steering Control ECU | Sends the VGRS relative angle to the multi-media module receiver assembly through CAN communication. |
| Main Body ECU (Cowl Side Junction Block LH) | Transmits a back door courtesy light switch signal to the multi-media module receiver assembly through CAN communication. |

## OPERATION EXPLANATION

a. The multi-media module receiver assembly receives the reverse signal via CAN communication line when the engine switch on (IG) and the shift lever is moved to R. After receiving the reverse signal, the multi-media module receiver assembly switches from the navigation system to parking assist monitor system (w/o Side Monitor System).

## DISPLAY MODE SETTING




### Text in Illustration

| | | | |
|---|---|---|---|
| *a | Line Mode Button | *b | Estimated Guide Line Mode |
| *c | Parking Guide Line Mode | *d | Guide Line Deletion Mode |
| *e | Line Mode Button Pressed | - | - |

a. While the parking assist monitor is displayed, pressing the line mode button switches the parking assist monitor display mode.

### Parking Assist Monitor Display Mode

| Parking Assist Monitor Display Mode | Distance Guide Line (Red) | Vehicle Width Extension Line (Blue) | Predicted Path Line (Yellow) | Parking Guide Line (Blue) |
|---|---|---|---|---|
| Estimated Guide Line Mode | Displayed | Displayed | Displayed | Not displayed |
| Parking Guide Line Mode | Displayed | Displayed | Not displayed | Displayed |
| Guide Line Deletion Mode | Displayed | Not displayed | Not displayed | Not displayed |

## DIAGNOSTIC FUNCTION OUTLINE

a. This parking assist monitor system (w/o Side Monitor System) has a diagnostic function displayed on the multi-media module receiver assembly. This function enables calibration (adjustment and verification) of the parking assist monitor system (w/o Side Monitor System) (Click here).

b. The following items for the parking assist monitor system (w/o Side Monitor System) can be checked using the intelligent tester.

| Item | Proceed to |
|---|---|
| DTC | Click here |
| Data List/Active Test | Click here |

**for Preparation** Click here

**HINT:**

- **Use the following procedure to troubleshoot the parking assist monitor system (w/o Side Monitor System).**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

NEXT

## 2.INSPECT BATTERY VOLTAGE

a. Measure the battery voltage.

**Standard voltage:**
**11 to 14 V**

If the voltage is below 11 V, replace or recharge the battery before proceeding.

NEXT

## 3.CHECK AUDIO AND VISUAL SYSTEM

a. Refer to the audio and visual system ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| Audio and visual system is normal | A |
| Audio and visual system is abnormal | B |

B. Go to AUDIO AND VISUAL SYSTEM (**Click here**)

A

## 4.CHECK COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM*

a. Use the intelligent tester to check if the CAN communication system is functioning normally ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| CAN communication system DTCs are not output. | A |
| CAN communication system DTCs are output. | B |

B. Go to CAN COMMUNICATION SYSTEM (**Click here**)

A

## 5.CHECK FOR DTC*

a. Check for DTCs and note any codes that are output ( Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs. Try to prompt the DTC by simulating the original activity that the DTC suggests.

**Result**

| Result | Proceed to |
|---|---|
| No DTCs are output. | A |
| DTCs are output. | B |

B. → Go to step 8

A

## 6.PROBLEM SYMPTOMS TABLE

a. Refer to the Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in Problem Symptoms Table | A |
| Fault is listed in Problem Symptoms Table | B |

B. → ADJUST, REPAIR OR REPLACE IN ACCORDANCE WITH PROBLEM SYMPTOMS TABLE

A

## 7.OVERALL ANALYSIS AND TROUBLESHOOTING

a. Diagnosis System (Click here).

b. Terminals of ECU (Click here).

NEXT

## 8.ADJUST, REPAIR OR REPLACE

NEXT

## 9.CONFIRMATION TEST

NEXT

END

**for Preparation** Click here

## INITIALIZE PARKING ASSIST MONITOR SYSTEM

a. When "System initializing" is displayed on the multimedia module receiver assembly, correct the steering angle neutral point using the following method.

i. Fully turn the steering wheel to the right and left on flat ground.

**NOTICE:**

Memorizing the steering angle neutral point must be carried out with the engine started. Apply the parking brake, depress the brake pedal, check that the shift lever is in P, and ensure that the vehicle is not moving.

**HINT:**

The "?" button is displayed at the same time as "System initializing". If the "?" button is selected, this method is displayed.

**for Preparation** Click here

## ADJUST PARKING ASSIST MONITOR SYSTEM (w/o Side Monitor System)

a. This parking assist monitor system (w/o Side Monitor System) can be adjusted using the diagnostic screen of the display.

b. If the following operations are performed, it is necessary to perform adjustments and checks using the diagnostic screen.

| Part Name | Operation | Adjustment Item | Proceed to |
|---|---|---|---|
| Steering sensor | Replacement | Steering angle neutral point (Initialize parking assist monitor system [w/o Side Monitor System]) | Click here |
| | | Steering angle setting | Procedure 3 |
| | • Removal and installation of the steering sensor<br>• Removal and installation of the connector of the steering sensor | Steering angle neutral point (Initialize parking assist monitor system [w/o Side Monitor System]) | Click here |
| | | Steering angle setting | Procedure 3 |
| Suspension, tires, etc. | The vehicle height changes because of suspension or tire replacement | Rear television camera assembly optical axis (Back camera position setting) | Procedure 2 |
| Rear television camera assembly | • Replacement<br>• Installation angle of the rear television camera assembly changes because of the removal and installation of the rear television camera assembly, etc. | Rear television camera assembly optical axis (Back camera position setting) | Procedure 2 |
| Multi-media module receiver assembly | Replacement | Multi-media module receiver assembly | Procedure 1 |

**NOTICE:**

- **The adjustment values stored while performing parking assist monitor system (w/o Side Monitor System) calibration are stored in the multi-media module receiver assembly.**
- **After the engine switch is turned off, the multi-media module receiver assembly records various types of memory and settings. As a result, after turning the engine switch off, make sure to wait for the time specified in the following table before disconnecting the cable from the negative (-) battery terminal.**

**Waiting Time before Disconnecting Cable from Negative (-) Battery Terminal**

| Condition | Waiting Time |
|---|---|
| Vehicle enrolled in G-BOOK system | 6 minutes |
| Vehicle not enrolled in G-BOOK system | 1 minute |

## MULTI-MEDIA MODULE RECEIVER ASSEMBLY (PROCEDURE 1)

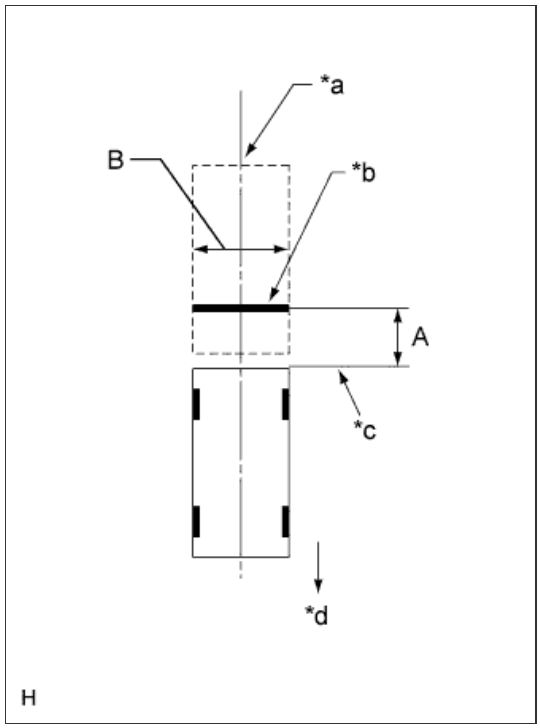
**HINT:**

Be sure to check for DTCs before performing this procedure ( Click here).

a. Preparation for adjustment

i. Park the vehicle with the steering wheel centered.

ii. Set a target bar for optical axis adjustment of the rear television camera assembly.




**HINT:**

Only when adjusting the optical axis of the camera, create a target bar for adjustment.

**Dimension:**

| Area | Specification |
|---|---|
| A | 824 to 834 mm (2.70 to 2.74 ft.) |
| B | 1995 to 2005 mm (6.55 to 6.58 ft.) |

**Text in Illustration**

| | |
|---|---|
| *a | Vehicle Center |
| *b | Target Bar for Back Camera Adjustment |
| *c | Vehicle End |
| *d | Front |

**HINT:**

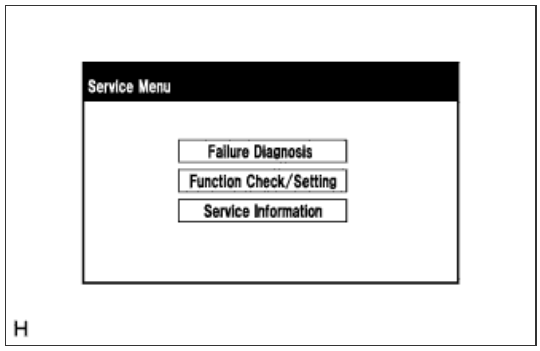
- **Set a piece of tape on the ground as the target bar for adjustment. Its width and length should be 20 to 30 mm (0.787 to 1.18 in.) and 1995 to 2005 mm (6.55 to 6.58 ft.), respectively. Check the color on the display and choose a tape color which can be easily seen.**
- **Before parking the vehicle, be sure to move the vehicle forward and in reverse to check that the tires are facing straight ahead with the steering wheel centered.**
- **Check that the back door is fully closed.**

b. Start diagnostic mode (Click here).

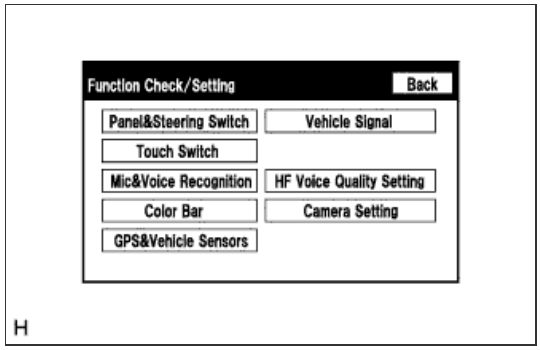
**NOTICE:**

The following must be carried out with the engine started. Apply the parking brake, depress the brake pedal, check that the shift lever is in P, and ensure that the vehicle is not moving.

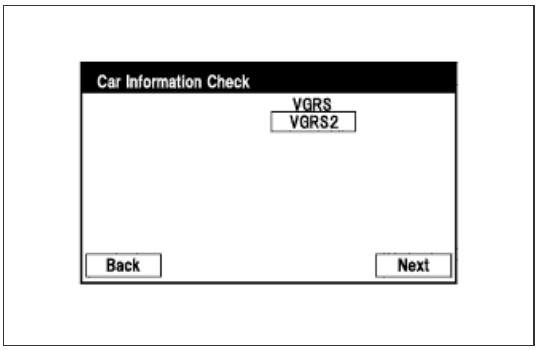
i. Select "Function Check/Setting" on the [Service Menu] screen.




ii. Select "Camera Setting" on the [Function Check/Setting] screen.



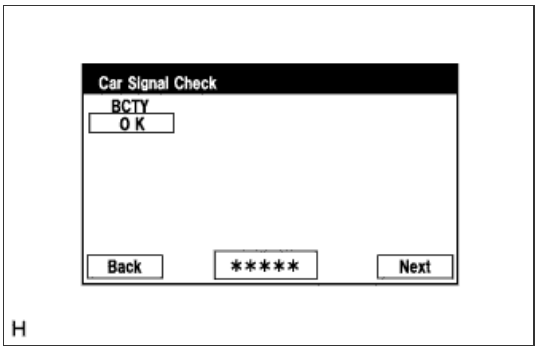

iii. Select "Next" on the [Car Information Check] screen.




iv. Select "Next" on the [Car Signal Check] screen.

**HINT:**

- **When "CHK" (red) is displayed for any items on the [Car Signal Check] screen, selecting "Next" will not change the screen to the [Steering Angle Setting] screen.**
- **When "CHK" (red) is displayed for any items on the [Car Signal Check] screen, perform inspections using the [Car Signal Check] screen (Click here).**



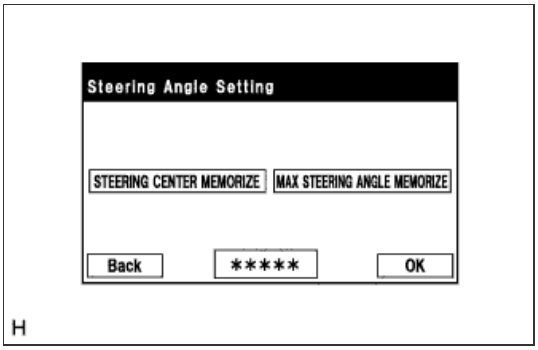

c. Steering Angle Setting:

i. Perform the "STEERING CENTER MEMORIZE" operation.

- Check that the steering wheel is centered, and then select "STEERING CENTER MEMORIZE".

**HINT:**

When performing removal and installation, or replacement of the rear television camera assembly, steering angle setting is not required.




ii. Perform the "MAX STEERING ANGLE MEMORIZE" operation.

- After performing the steering center memorize operation, turn the steering wheel to the left and right lock positions and select "MAX STEERING ANGLE MEMORIZE". The maximum steering angle is then stored and the screen changes to the [Back Camera Position Setting] screen.

**HINT:**

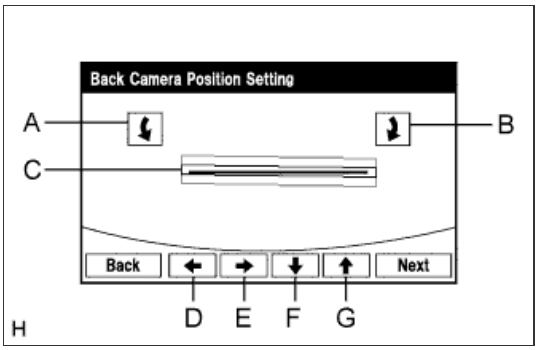
The "Next" button does not respond until the system memorizes the steering center and maximum steering wheel angle.

**HINT:**

- **It is also possible to start by initially turning the steering to the right side.**
- **When "MAX STEERING ANGLE MEMORIZE" is selected, a beep will sound to confirm that the adjustment values have been stored.**
- **The adjustment values will not be stored unless "MAX STEERING ANGLE MEMORIZE" is selected after turning the steering wheel from lock to lock.**
- **When "BACK" is selected, the screen changes to the [Car Signal Check] screen without storing any values.**
- **Even if no DTCs are detected, selecting "MAX STEERING ANGLE MEMORIZE" may not cause the adjustment values to be stored if the steering sensor is malfunctioning.**
- **If selecting "MAX STEERING ANGLE MEMORIZE" does not cause the adjustment value to be stored after performing the steering angle setting procedure, replace the steering sensor (Click here).**

d. Back Camera Position Setting:

**HINT:**




- **When adjusting the camera optical axis, "Back door is open. Do not use the rear view monitor when the back door is not completely closed." is displayed even after the back door has been closed.**
- **When the back door is open, the "Back door is open. Do not use the rear view monitor when the back door is not completely closed." message will be displayed and camera position setting will not be possible.**
- **If the "Back door is open. Do not use the rear view monitor when the back door is not completely closed." message is displayed even when the back door is closed, perform inspections according to Problem Symptoms Table (When adjusting the camera optical axis, "Back door is open. Do not use the rear view monitor when the back door is not completely closed." is displayed even after the back door has been closed.) (Click here).**

i. Perform roll angle adjustment.

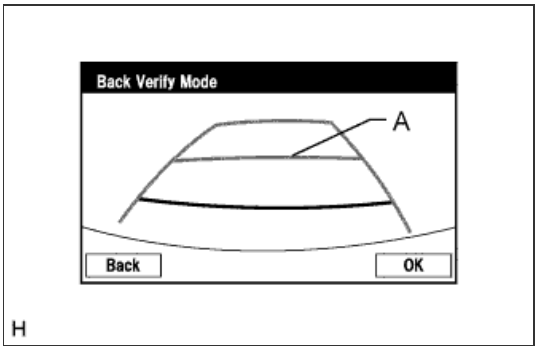
- Use switches A and B to rotate C so that it is parallel to the target adjustment bar.

ii. Perform vertical and horizontal position adjustment.

- Use the directional switches D, E, F and G to move C so that the target adjustment bar is centered in C.

iii. Select the "Next" button on the [Back Camera Position Setting] screen.

e. Back Verify Mode:




i. Check that A and the target adjustment bar are overlapping.

- If the lines are not aligned, perform the "STEERING CENTER MEMORIZE" and "MAX STEERING ANGLE MEMORIZE" operations.
- If A and the target adjustment bar are not aligned even if the tires are aligned straight ahead, perform the back camera position setting operation.

ii. Selecting "OK" will return to the [Service Menu] screen, and complete the adjustment.

**HINT:**

- **The update is not completed until "OK" is selected.**
- **When "OK" is selected, a beep will sound to confirm that the adjustment values have been stored.**
- **The adjustment values are not stored until the beep has sounded.**

f. Finish diagnostic mode (Click here).

g. Confirm steering angle adjustment.

**HINT:**

If the steering angle has been adjusted, confirm the steering angle adjustment on the parking assist monitor screen after finishing diagnosis mode.

i. Check on the parking assist screen that the predicted path line moves until the steering wheel is fully turned to either the left or right.

**HINT:**

If the predicted path line stops moving before the steering wheel is fully turned to either the left or right, the steering angle adjustment values have not been stored correctly. In this case, perform "STEERING CENTER MEMORIZE" and "MAX STEERING ANGLE MEMORIZE" again.

## BACK CAMERA POSITION SETTING (PROCEDURE 2)

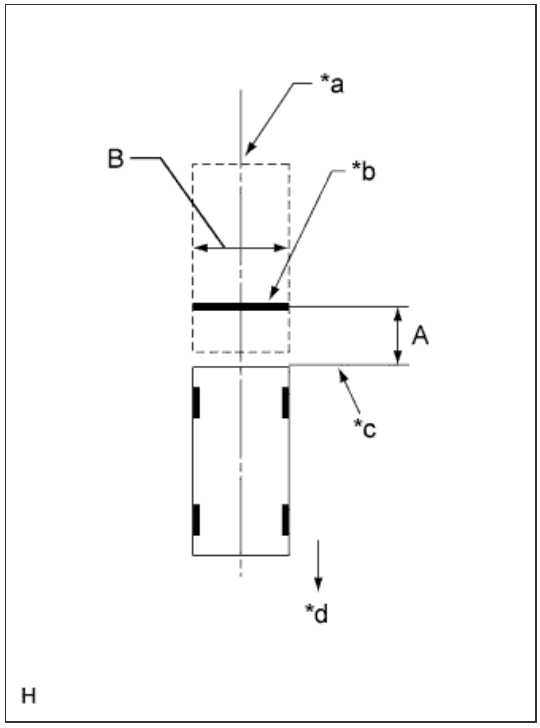
**HINT:**

Be sure to check for DTCs before performing this procedure ( Click here).

a. Preparation for adjustment

i. Park the vehicle with the steering wheel centered.

ii. Set a target bar behind the vehicle for optical axis adjustment of the rear television camera assembly (back camera position setting).




**HINT:**

Create a target bar for adjustment only when adjusting the optical axis of the camera.

**Dimension:**

| Area | Specification |
|---|---|
| A | 824 to 834 mm (2.70 to 2.74 ft.) |
| B | 1995 to 2005 mm (6.55 to 6.58 ft.) |

**Text in Illustration**

| | |
|---|---|
| *a | Vehicle Center |
| *b | Target Bar for Back Camera Position Setting |
| *c | Vehicle End |
| *d | Front |

**HINT:**

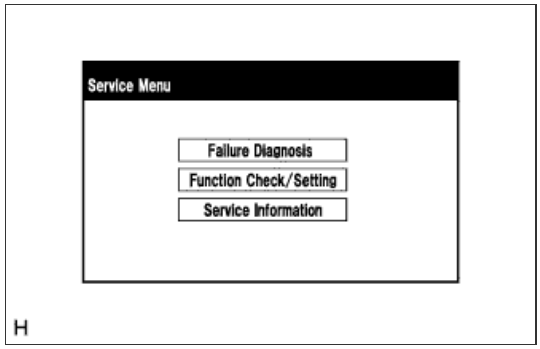
- **Set a piece of tape on the ground as the target bar for adjustment. Its width and length should be 20 to 30 mm (0.787 to 1.18 in.) and 1995 to 2005 mm (6.55 to 6.58 ft.), respectively. Check the color on the multi-display assembly and choose a tape color which can be easily seen.**
- **Before parking the vehicle, be sure to move the vehicle forward and in reverse to check that the tires are facing straight ahead with the steering wheel centered.**
- **Check that the back door is fully closed.**

b. Start diagnostic mode (Click here).

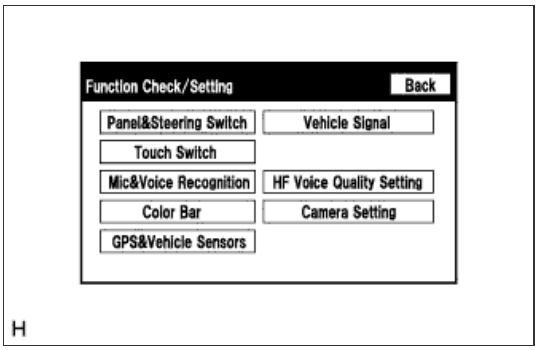
**NOTICE:**

The following must be carried out with the engine started. Apply the parking brake, depress the brake pedal, check that the shift lever is in P, and ensure that the vehicle is not moving.

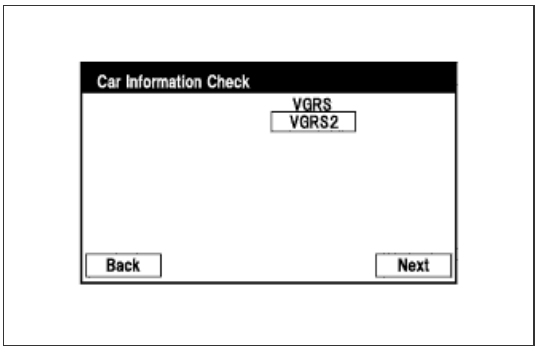
i. Select "Function Check/Setting" on the [Service Menu] screen.




ii. Select "Camera Setting" on the [Function Check/Setting] screen.



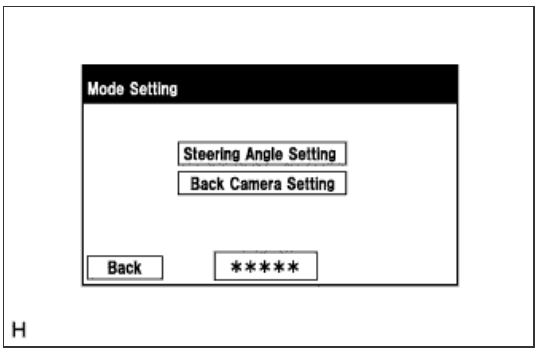

iii. Select "Next" on the [Car Information Check] screen.




iv. Select "Back Camera Setting" on the [Mode Setting] screen.

**HINT:**

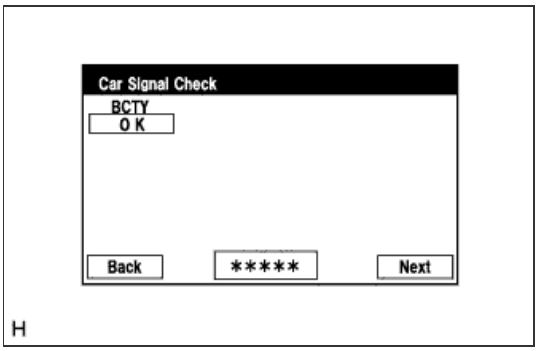
To select a grayed out item, select and hold the item for 2 seconds or more.




v. Select "Next" on the [Car Signal Check] screen.

**HINT:**

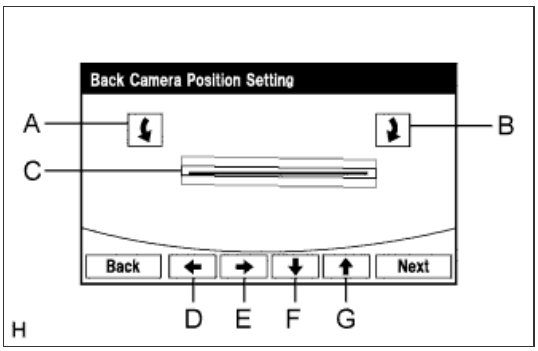
- **When "CHK" (red) is displayed for any items on the [Car Signal Check] screen, selecting "Next" will not change the screen to the [Back Camera Position Setting] screen.**
- **When "CHK" (red) is displayed for any items on the [Car Signal Check] screen, perform inspections using the [Car Signal Check] screen (Click here).**




c. Back Camera Position Setting:

**HINT:**

- **When the back door is open, the "Back door is open. Do not use the rear view monitor when the back door is not completely closed." message will be displayed and camera position setting will not be possible.**
- **If the "Back door is open. Do not use the rear view monitor when the back door is not completely closed." message is displayed even when the back door is closed, perform inspections according to Problem Symptoms Table (When adjusting the camera optical axis, "Back door is open. Do not use the rear view monitor when the back door is not completely closed." is displayed even after the back door has been closed.) (Click here).**



i. Perform roll angle adjustment.

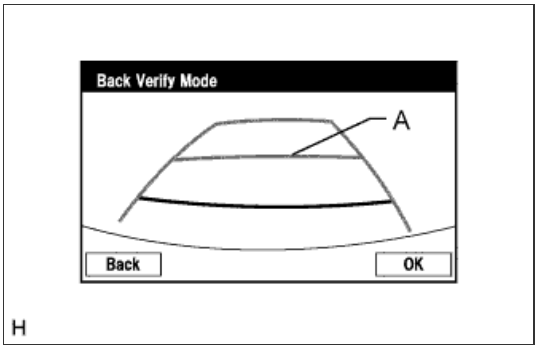
- Use switches A and B to rotate C so that it is parallel to the target adjustment bar.

ii. Perform vertical and horizontal position adjustment.

- Use the directional switches D, E, F and G to move C so that the target adjustment bar is centered in C.

iii. Select the "Next" button on the [Back Camera Position Setting] screen.

d. Back Verify Mode:



H

i. Check that A and the target adjustment bar are overlapping.

- If the lines are not aligned, perform the "STEERING CENTER MEMORIZE" and "MAX STEERING ANGLE MEMORIZE" operations.
- If A and the target adjustment bar are not aligned even if the tires are aligned straight ahead, perform the back camera position setting operation.

ii. Selecting "OK" will return to the [Service Menu], and complete the adjustment.

**HINT:**

- **The update is not completed until "OK" is selected.**
- **When "OK" is selected, a beep will sound to confirm that the adjustment values have been stored.**
- **The adjustment values are not stored until the beep has sounded.**

e. Finish diagnostic mode (Click here).

## Steering Angle Setting (PROCEDURE 3)

**HINT:**

If the vehicle width extension lines and predicted path lines are not aligned when the steering wheel is centered, or if the predicted path line does not move before the steering wheel is fully turned to either the left or right, perform Steering Angle Setting.

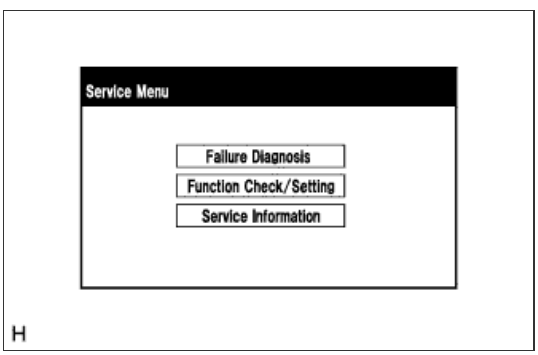
a. Center the steering wheel and stop the vehicle.

b. Start diagnostic mode (Click here).

**NOTICE:**

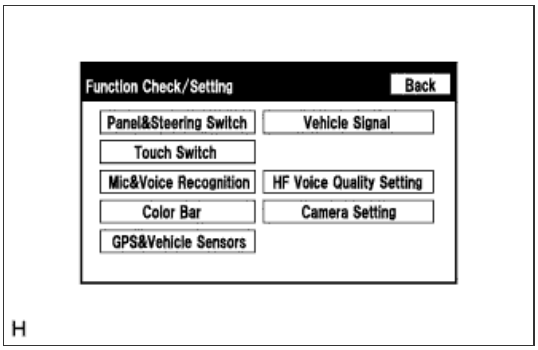
The following must be carried out with the engine started. Apply the parking brake, depress the brake pedal, check that the shift lever is in P, and ensure that the vehicle is not moving.

i. Select "Function Check/Setting" on the [Service Menu] screen.

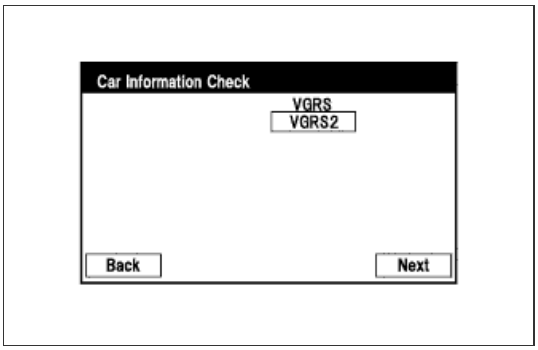


H

ii. Select "Camera Setting" on the [Function Check/Setting] screen.



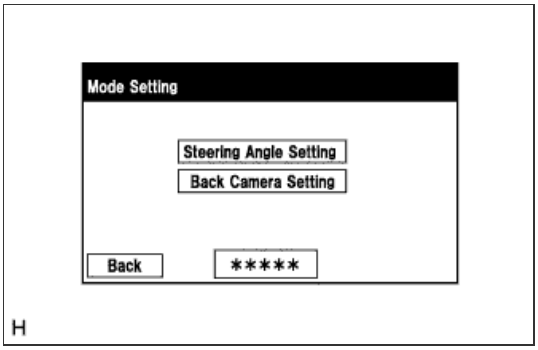

iii. Select "Next" on the [Car Information Check] screen.




iv. Select "Steering Angle Setting" on the [Mode Setting] screen.

**HINT:**

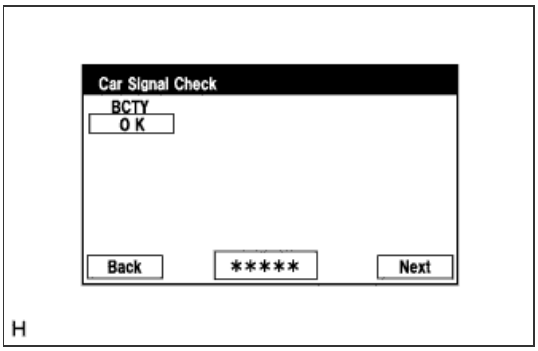
To select a grayed out item, select and hold the item for 2 seconds or more.




v. Select "Next" on the [Car Signal Check] screen to display the [Steering Angle Setting] screen.

**HINT:**

- **When "CHK" (red) is displayed for any items on the [Car Signal Check] screen, selecting "Next" will not change the screen to the [Steering Angle Setting] screen.**
- **When "CHK" is displayed for any items on the [Car Signal Check] screen, perform inspections using the [Car Signal Check] screen (Click here).**



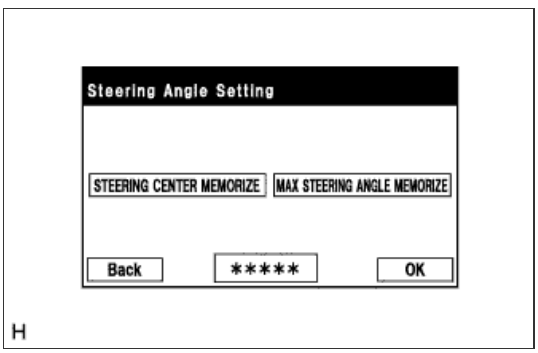

c. Steering Angle Setting:

i. Check that the steering wheel is centered (approximately +/- 5 degrees or less) and select "STEERING CENTER MEMORIZE".

ii. After the centered steering position is memorized, turn the steering wheel to the left and then to the right full lock positions and select "MAX STEERING ANGLE MEMORIZE".

**HINT:**

It is also possible to start by initially turning the steering wheel to the right side.




iii. Select "MAX STEERING ANGLE MEMORIZE" to store the steering angle adjustment value and change the screen to the [Mode

Setting] screen.

**HINT:**

- **When "MAX STEERING ANGLE MEMORIZE" is selected, a beep will sound to confirm that the steering angle adjustment values have been stored.**
- **The adjustment values will not be stored unless "MAX STEERING ANGLE MEMORIZE" is selected.**
- **When "BACK" is selected, the screen changes to Car Signal Check without storing the set values.**
- **If the "Steering Angle Settings" have not been adjusted, selecting "MAX STEERING ANGLE MEMORIZE" will not cause the adjustment values to be stored.**
- **Even if no DTCs are detected, selecting "MAX STEERING ANGLE MEMORIZE" may not cause the adjustment value to be stored if the steering sensor is malfunctioning.**
- **If selecting "MAX STEERING ANGLE MEMORIZE" does not cause the adjustment value to be stored after adjusting the steering angle, replace the steering sensor (Click here).**

d. Finish diagnostic mode (Click here).

e. Confirm steering angle adjustment.

**HINT:**

If the steering angle has been adjusted, confirm the steering angle adjustment on the parking assist monitor screen after finishing diagnosis mode.

i. Check on the parking assist screen that the predicted path line moves until the steering wheel is fully turned to either the left or right.

**HINT:**

If the predicted path line stops moving before the steering wheel is fully turned to either the left or right, the steering angle adjustment values have not been stored correctly. In this case, perform "STEERING CENTER MEMORIZE" and "MAX STEERING ANGLE MEMORIZE" again.

**for Preparation** Click here

**NOTICE:**

The following inspection procedures for the parking assist monitor system are based on the assumption that the audio and visual system is normal. If the audio and visual system has any malfunctions, first proceed with troubleshooting the audio and visual system.

**HINT:**

- **Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**
- **Inspect the fuses and relays related to this system before inspecting the suspected areas below.**

### General

| Symptom | Suspected Area | See page |
|---|---|---|
| When the shift lever is in R, the parking assist monitor image is not displayed (screen is not black). | Park/neutral position switch assembly | Click here |
| | Multi-display assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| When the shift lever is in R, the parking assist monitor image is not displayed (screen is black). | Proceed to [Image from Camera for Parking Assist Monitor is Abnormal] | Click here |
| | Multi-display assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| When the shift lever is not in R, the parking assist monitor image is displayed. | Park/neutral position switch assembly | Click here |
| | Multi-display assembly | Click here |
| | Multi-media module receiver assembly | Click here |

### Display Malfunction

| Symptom | Suspected Area | See page |
|---|---|---|
| Image from the camera for the parking assist monitor is abnormal. | Proceed to [Image from Camera for Parking Assist Monitor is Abnormal] | Click here |

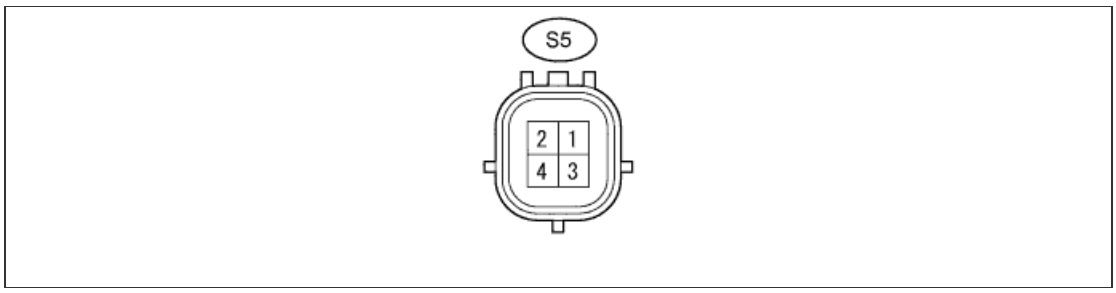
### Parking Assist Monitor System Malfunction

| Symptom | Suspected Area | See page |
|---|---|---|
| Projected course guide lines are not displayed. | Parking assist monitor screen display mode settings. (Check if the parking guide lines are set to off.) | Click here |
| | Multi-display assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| "System initializing" is displayed. | Correct the steering angle neutral point | Click here |
| "System initializing" is displayed even after correcting the steering angle neutral point. | Steering sensor | Click here |
| | Steering angle setting (Calibration) | Click here |
| | Multi-display assembly | Click here |
| | Multi-media module receiver assembly | Click here |

| | | |
|---|---|---|
| "System not ready" is displayed. | Multi-media module receiver assembly initialization (Calibration) | Click here |
| "System not ready" is displayed even after Multi-media module receiver assembly initialization. | Multi-display assembly | Click here |
| | Multi-media module receiver assembly | Click here |
| During parallel parking assist mode, the screen does not change even though the vehicle has moved. | If the vehicle is being driven in reverse at very low speed, the screen may not change | - |
| During parallel parking assist mode, the screen changes even though the vehicle has not moved. | If the vehicle is stopped for extended period of time, the screen may change | - |
| Guide lines and buttons are not displayed for all parking assist monitor screen display modes. | Proceed to ["Back Door is Open" is Displayed even after Back Door is Closed"] | Click here |
| The guide lines and buttons remain displayed even though the back door is open. | CAN communication system | Click here |
| | Proceed to ["Back Door is Open" is Displayed even after Back Door is Closed"] | Click here |
| When adjusting the camera optical axis, "Back door is open. Do not use the rear view monitor when the back door is not completely closed." is displayed even after the back door has been closed. | Proceed to ["Back Door is Open" is Displayed even after Back Door is Closed"] | Click here |
| "CHK" message(s) are displayed on the Car Signal Check screen. | Car signal check (Diagnosis) | Click here |
| When the parking assist monitor screen is displayed, the lines are misaligned. (The image from the camera is tilted.) | Back camera position setting (Calibration) | Click here |

**for Preparation** Click here

## REAR TELEVISION CAMERA ASSEMBLY




a. Disconnect the S5 rear television camera assembly connector.

b. Measure the voltage and resistance according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| S5-3 (CGND) - Body ground | BR - Body ground | Ground | Always | Below 1 Ω |
| S5-4 (CB+) - S5-3 (CGND) | B - BR | Power source | Engine switch on (IG), shift lever in R | 5.5 to 7.05 V |

c. Reconnect the S5 rear television camera assembly connector.

**HINT:**

A waterproof connector is used for the rear television camera assembly. Therefore, inspect the waveform at the multi-media module receiver assembly with the connector connected. If the result is not as specified, the rear television camera assembly may have a malfunction.

d. Measure the voltage according to the value(s) in the table.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| S5-2 (CV+) - S5-3 (CGND) | R - BR | Display signal | Engine switch on (IG), shift lever in R | Pulse generation (See waveform) |
| S5-1 (CV-) - S5-3 (CGND) | W - BR | Rear television camera ground | Always | Below 1 V |

e. Using an oscilloscope, check waveform.

**HINT:**

- **A waterproof connector is used for the rear television camera assembly. Therefore, inspect the waveform at the navigation receiver assembly with the connector connected.**
- **The video waveform changes according to the image sent by the rear television camera assembly.**

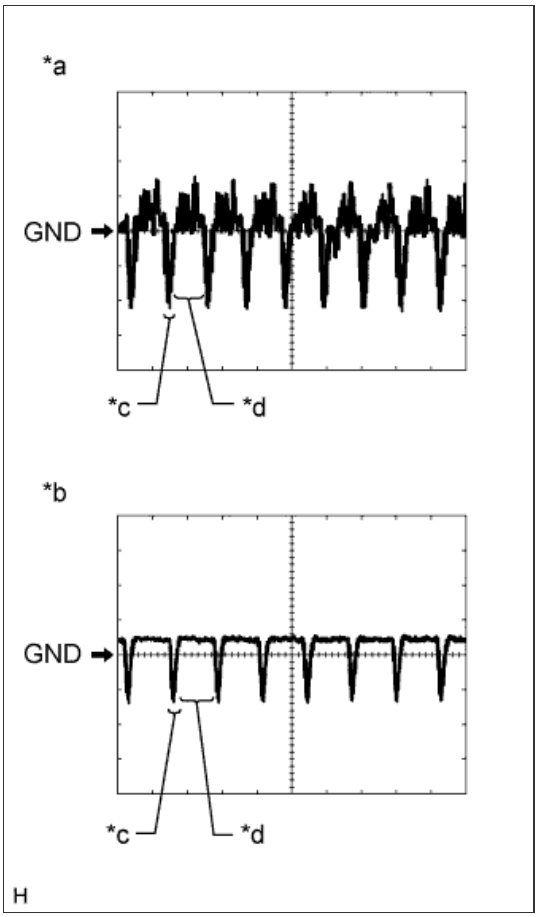
**Text in Illustration**

| | |
|---|---|
| *a | Waveform A (camera lens not covered, displaying an image) |
| *b | Waveform B (camera lens covered, blacking out the screen) |
| *c | Synchronization Signal |
| *d | Video Waveform |

i. Waveform

| Item | Content |
|---|---|
| Terminal No. (Symbol) | S5-2 (CV+) - S5-3 (CGND) |

| | |
|---|---|
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | • Waveform A: Engine switch on (IG), shift lever in R and camera lens is not covered, displaying an image.<br>• Waveform B: Engine switch on (IG), shift lever in R and camera lens is covered, blacking out the screen. |




**MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)**

**MULTI-DISPLAY ASSEMBLY (Click here)**

**MAIN BODY ECU (COWL SIDE JUNCTION BLOCK LH) (Click here)**

**for Preparation** Click here

## PARKING ASSIST MONITOR DIAGNOSIS SYSTEM

a. For parking assist monitor system (w/o Side Monitor System) diagnosis, signals received by the multi-media module receiver assembly can be checked and the parking assist monitor system (w/o Side Monitor System) can be calibrated, adjusted and checked using the multi-media module receiver assembly.

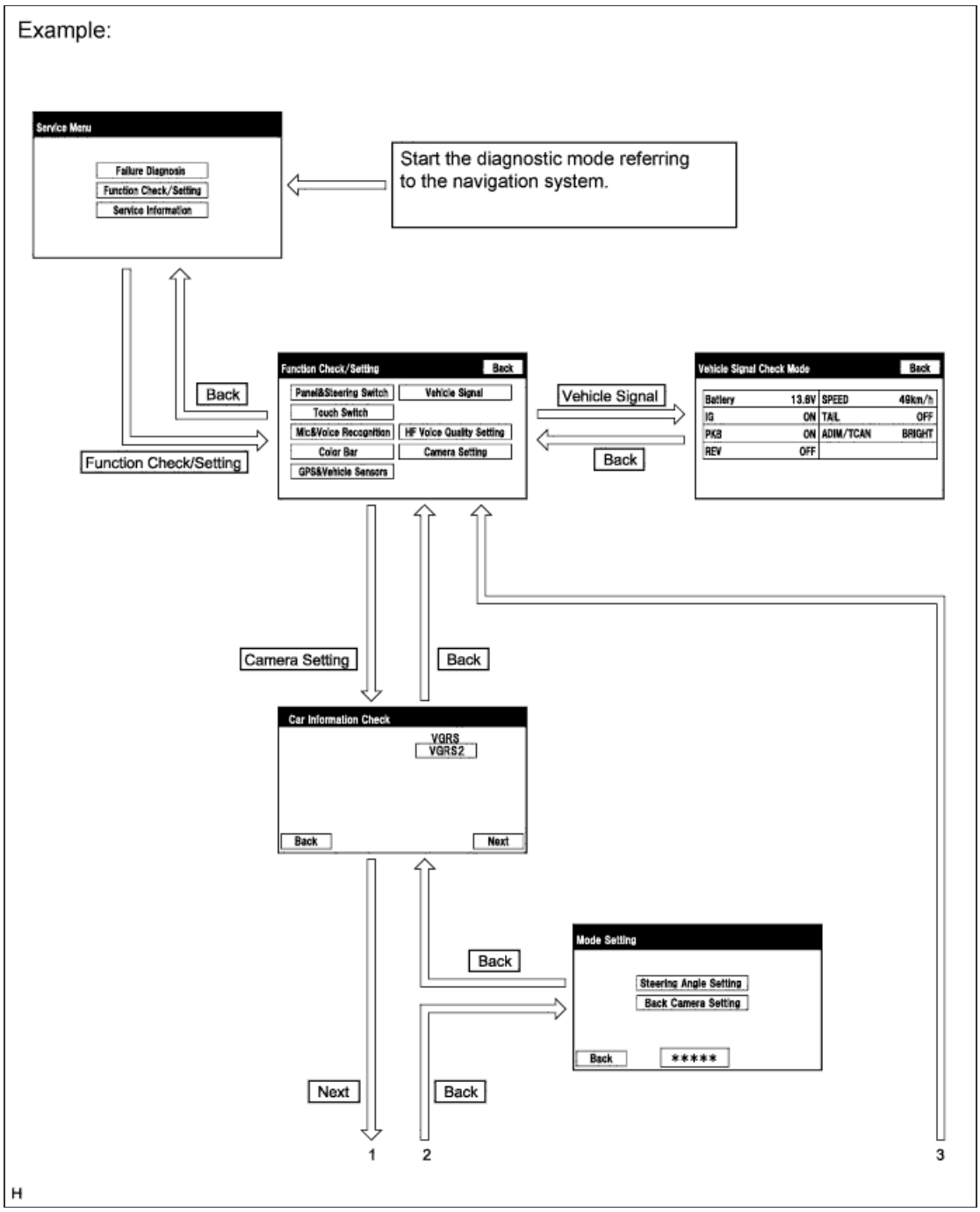
**NOTICE:**

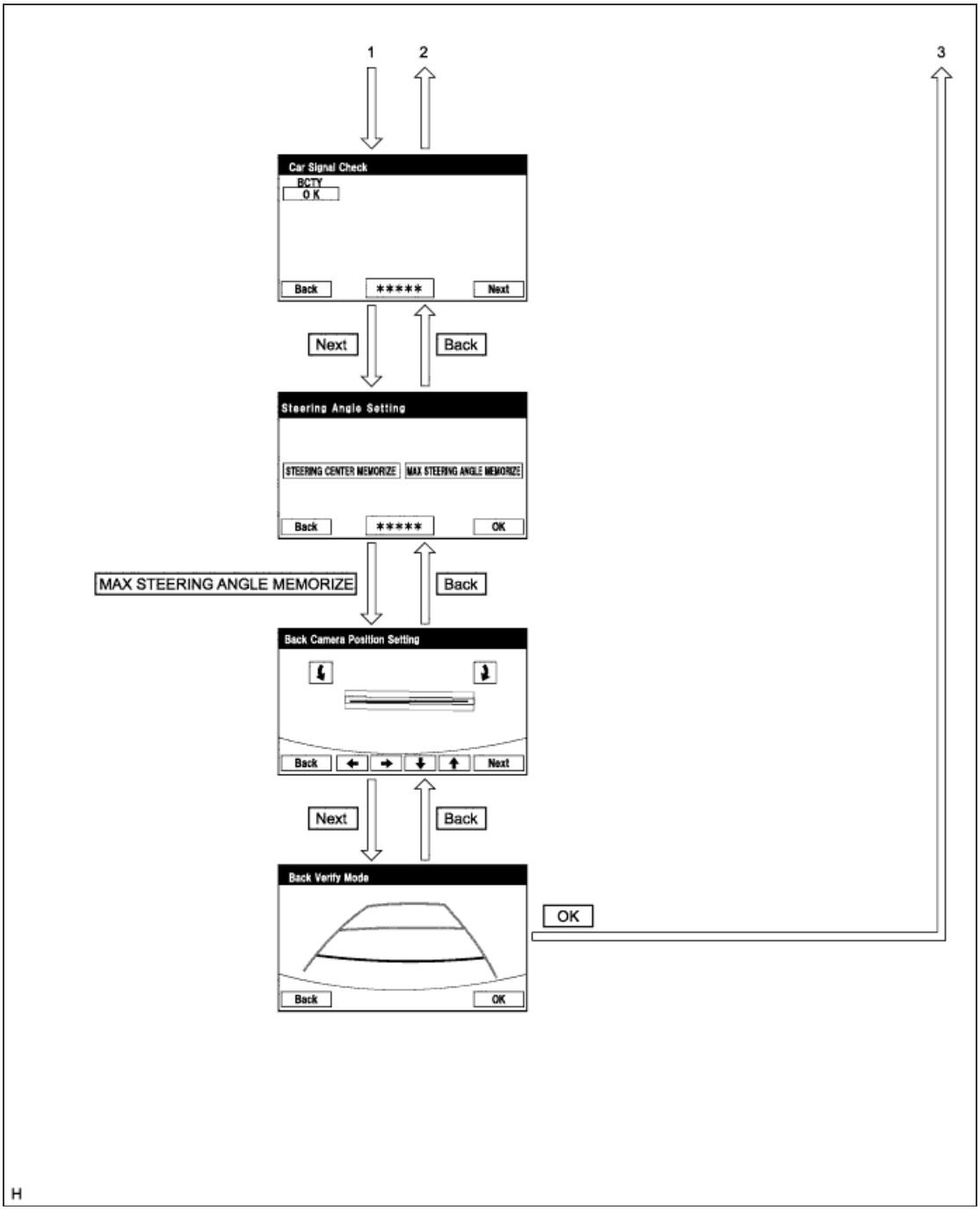
Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system (w/o Side Monitor System) may be needed (Click here).

**HINT:**

The displayed items may differ depending on vehicle specifications.

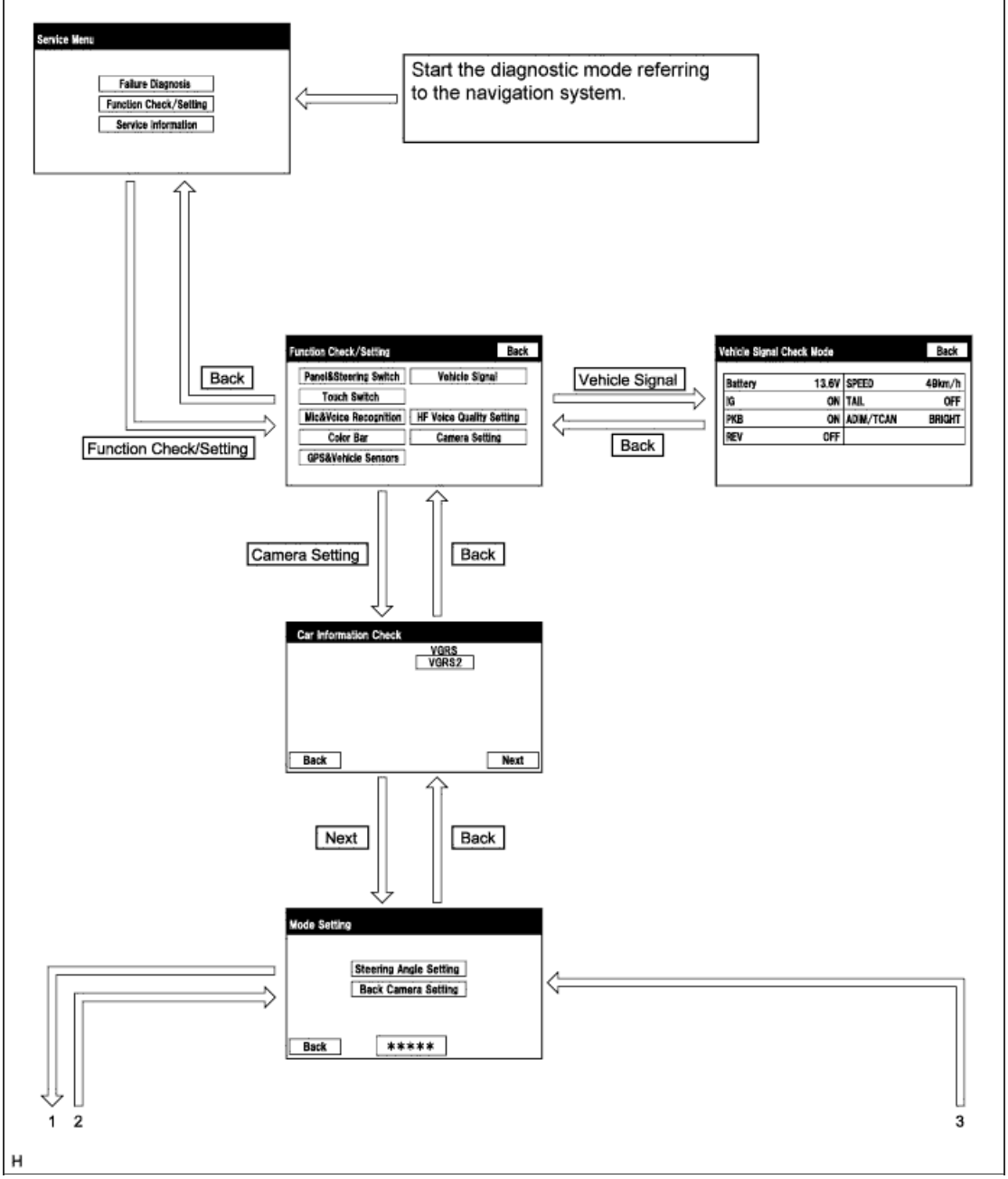
## DIAGNOSIS SCREEN TRANSITION (during parking assist monitor system [w/o Side Monitor System] initialization)



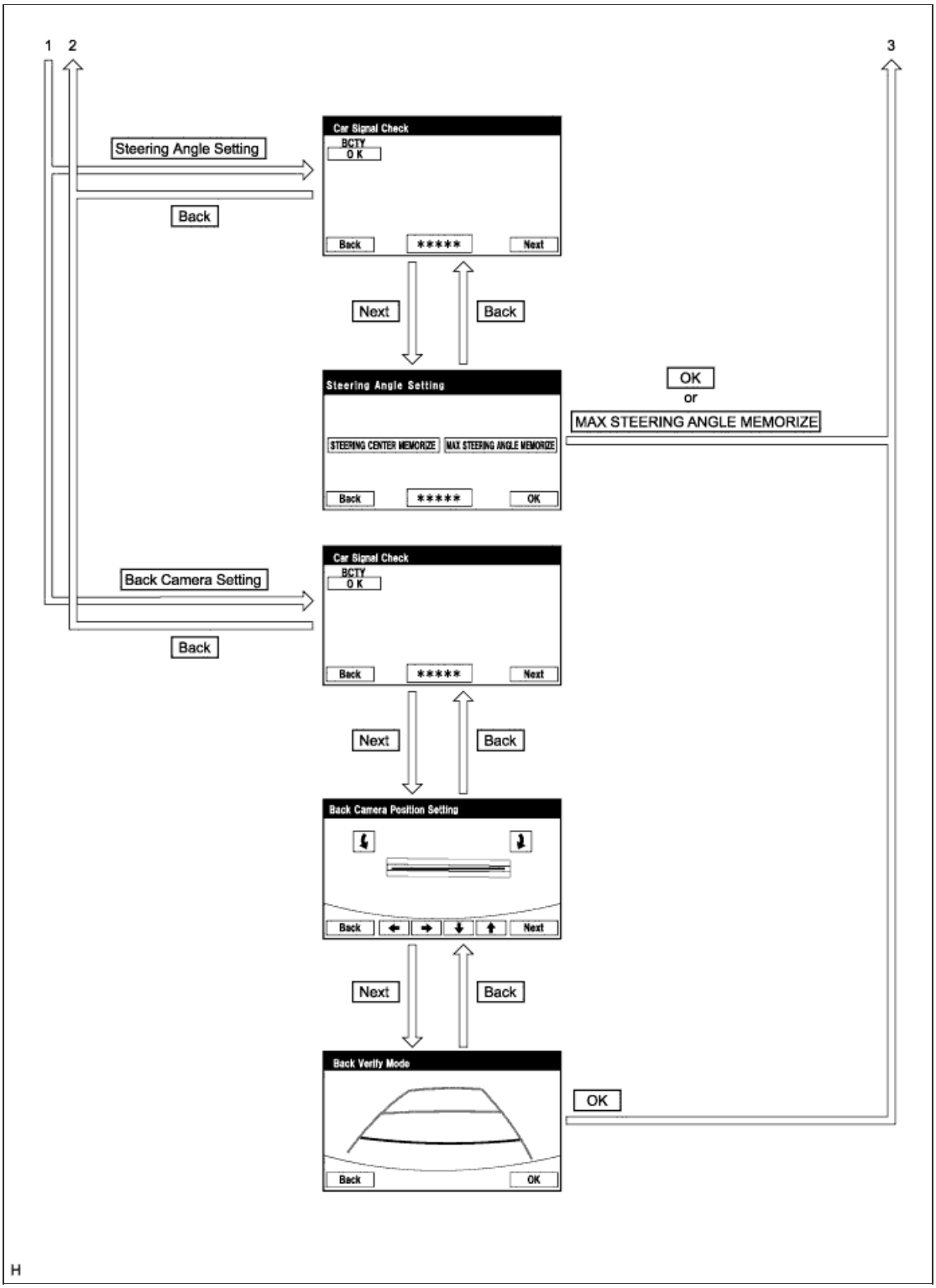



**DIAGNOSIS SCREEN TRANSITION (after parking assist monitor system initialization [w/o Side Monitor System])**

Example:


Service Menu
Failure Diagnosis
Function Check/Setting
Service Information
Start the diagnostic mode referring to the navigation system.
Back
Function Check/Setting
Function Check/Setting
Back
Panel&Steering Switch
Vehicle Signal
Touch Switch
Mic&Voice Recognition
HF Voice Quality Setting
Color Bar
Camera Setting
GPS&Vehicle Sensors
Vehicle Signal
Back
Vehicle Signal Check Mode
Back
Battery 13.6V
SPEED 49km/h
IG ON
TAIL OFF
PKB ON
ADM/TCAN BRIGHT
REV OFF
Camera Setting
Back
Car Information Check
VQRS
VQRS2
Back
Next
Next
Back
Mode Setting
Steering Angle Setting
Back Camera Setting
Back
*****
1
2
3

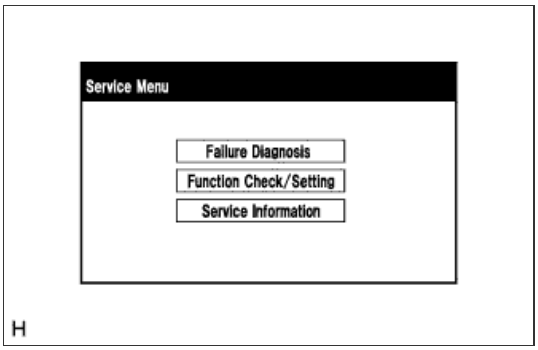
H



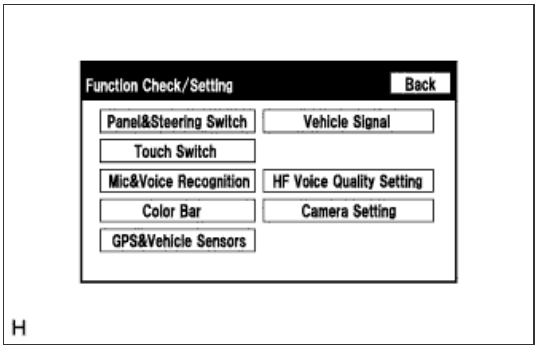

## VEHICLE SIGNAL CHECK

a. Start diagnostic mode (Click here).

b. Select "Function Check/Setting" on the [Service Menu] screen to display the "Function Check/Setting" screen.




c. Select "Vehicle Signal" on the [Function Check/Setting] screen.

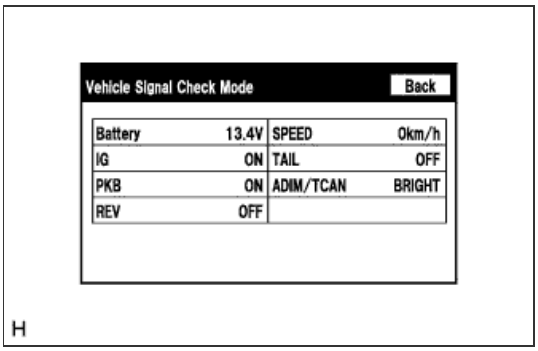



d. Vehicle Signal Check Mode:

i. When the [Vehicle Signal Check Mode] screen is displayed, check "REV" the vehicle signal conditions.

**HINT:**

- **Only conditions having inputs are displayed.**
- **This screen displays vehicle signals input to the multi-media module receiver assembly.**
- **For details of this function, refer to Diagnosis Display Detailed Description in System Description (Click here)**

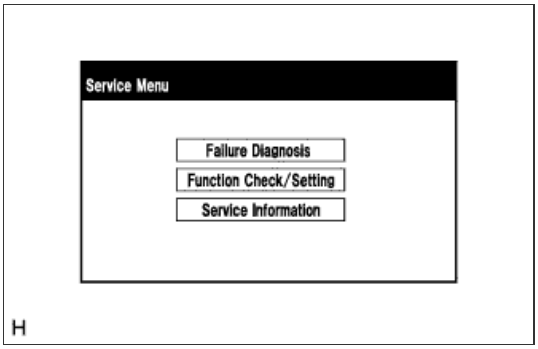



e. Finish diagnostic mode (Click here).

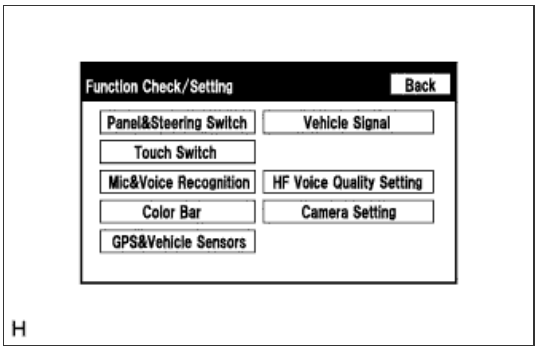
## CAR SIGNAL CHECK (parking assist monitor system [w/o Side Monitor System] input signals)

a. Start diagnostic mode (Click here).

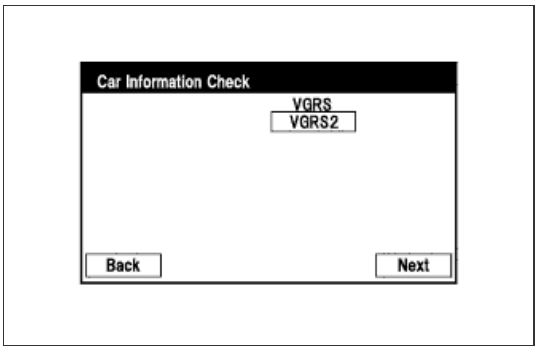
i. Select "Function Check/Setting" on the [Service Menu] screen to display the [Function Check/Setting] screen.




ii. Select "Camera Setting" on the [Function Check/Setting] screen.




iii. Select "Next" on the [Car Information Check] screen.

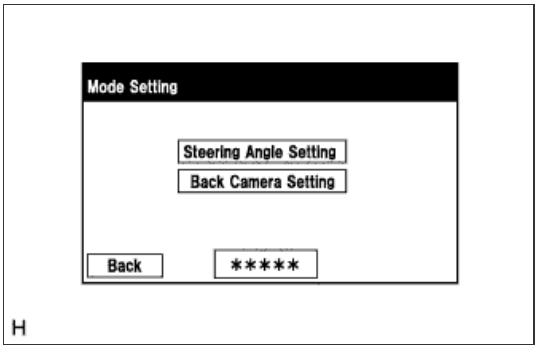



**HINT:**

After "Next" is selected, the screen transitions differ depending on whether initialization of the parking assist monitor system (w/o Side Monitor System) was performed after the multi-media module receiver assembly was replaced.

| Parking Assist Monitor System (w/o Side Monitor System) Initialization | Screen Transition |
|---|---|
| Not performed | [Car Signal Check] screen |
| Performed | [Mode Setting] screen |

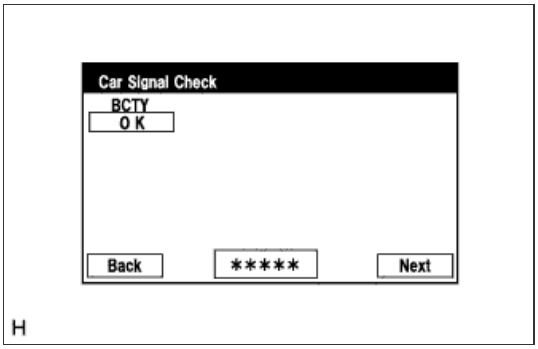
iv. When the screen changes to the [Mode Setting] screen, select "Back Camera Setting" to display the [Car Signal Check] screen.




**HINT:**

To select a grayed out item, select and hold the item for 2 seconds or more.

b. Car Signal Check:




i. On the [Car Signal Check] screen, it is possible to inspect the state of signals and check the settings.

| Item | Inspection Detail | Note |
|---|---|---|
| BCTY | Back door courtesy light switch signal input | When "CHK" (red) is displayed, selecting "Next" will not change to the next screen. |

**HINT:**

- **When "CHK" (red) is displayed, perform inspections based on the result of the following inspections.**
- **If performing the adjustment after proceeding to the next screen, confirm that all items display "OK" (blue) before selecting "Next".**

c. BCTY inspection:

**HINT:**

If "CHK" (red) is displayed for "BCTY", check for DTCs and perform troubleshooting based on the output DTCs ( Click here).

d. Finish diagnostic mode (Click here).

## CALIBRATION WHEN SERVICING VEHICLE

**NOTICE:**

Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system (w/o Side Monitor System) may be needed (Click here).

**for Preparation** Click here

## CHECK DTC

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Body / Navigation System / DTC.

e. Check for DTCs, and then write them down.

f. Check for DTCs (Click here).

**NOTICE:**

The audio and visual system outputs DTCs for the following system. When DTCs other than those in Diagnostic Trouble Code Chart for the audio and visual system are output, refer to Diagnostic Trouble Code Chart for the relevant system.

| System | Proceed to |
|---|---|
| Audio and visual system | Click here |

## CLEAR DTC

a. Connect the intelligent tester m to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Body / Navigation System / DTC.

e. Clear the DTCs.

**for Preparation** Click here

## DATA LIST

**NOTICE:**

In the table below, the values listed under "Normal Condition" are reference values. Do not depend solely on these reference values when deciding whether a part is faulty or not.

**HINT:**

Using the intelligent tester to read the Data List allows the values or states of switches, sensors, actuators and other items to be read without removing any parts. This non-intrusive inspection can be very useful because intermittent conditions or signals may be discovered before parts or wiring is disturbed. Reading the Data List information early in troubleshooting is one way to save diagnostic time.

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Body / Main Body / Data List.

e. Read the Data List according to the display on the intelligent tester.

**Main Body**

| Tester Display | Measurement Item/Range | Normal Condition | Diagnostic Note |
|---|---|---|---|
| Back Door Courtesy SW | Back door courtesy light switch signal / ON or OFF | ON: Back door open<br>OFF: Back door closed | - |

**for Preparation** Click here

**HINT:**

If a trouble code is output during the DTC check, inspect the trouble areas listed for that code. For details of the code, refer to the "See page" in the DTC chart. Inspect fuses and relays before investigating the trouble areas shown in the table below.

**Parking Assist Monitor System (w/o Side Monitor System)**

| DTC Code | Detection Item | See page |
|---|---|---|
| C1622 | Open or Short Circuit in Back Camera Signal | Click here |
| C1625 | Open or Short in Steering Angle Sensor +B | Click here |
| C1626 | Steering Angle Sensor Failure | Click here |
| C1649 | Lost Communication with VGRS ECU | Click here |
| C1691 | Back Camera Initialization Incomplete | Click here |
| C168D | Vehicle Information Unmatched | Click here |
| C1694 | Steering Angle Initialization Incomplete | Click here |
| U0126 | Lost Communication with Steering Angle Sensor Module | Click here |
| U0130 | Lost Communication with Steering Effort Control Module | Click here |
| U0140 | Lost Communication with Body Control Module | Click here |

# DTC C1622 Open or Short Circuit in Back Camera Signal

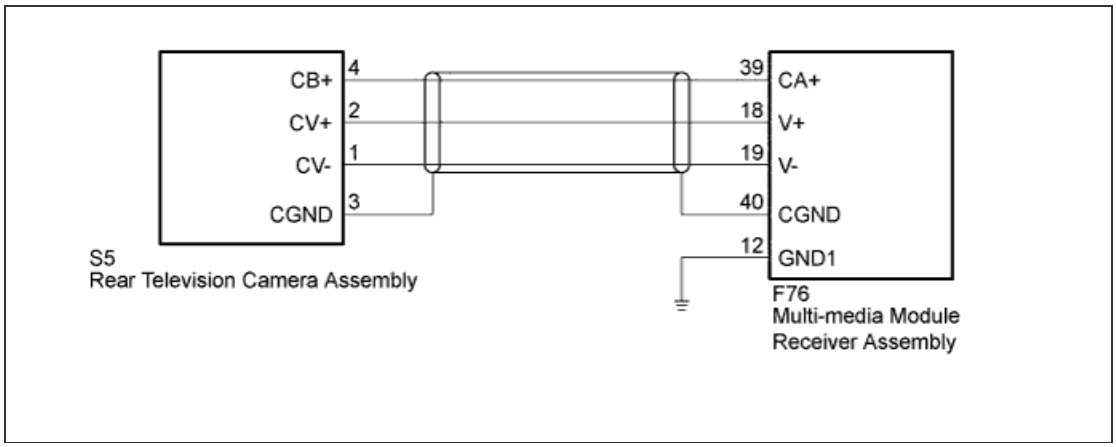
**for Preparation** Click here

## DESCRIPTION

This DTC is stored if the multi-media module receiver assembly judges that the signals or signal lines between the multi-media module receiver assembly and the rear television camera assembly are not normal as a result of its self check.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1622 | Open or short in the rear television camera assembly signal circuit | • Harness or connector<br>• Rear television camera assembly<br>• Multi-media module receiver assembly |

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the multi-media module receiver assembly after disconnecting the cable from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system (w/o Side Monitor System) may be needed (Click here).**

### 1.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - REAR TELEVISION CAMERA ASSEMBLY AND BODY GROUND)

a. Disconnect the F76 multi-media module receiver assembly connector.

b. Disconnect the S5 rear television camera assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-18 (V+) - S5-2 (CV+) | Always | Below 1 Ω |
| F76-19 (V-) - S5-1 (CV-) | Always | Below 1 Ω |
| F76-39 (CA+) - S5-4 (CB+) | Always | Below 1 Ω |
| F76-40 (CGND) - S5-3 (CGND) | Always | Below 1 Ω |
| F76-12 (GND1) - Body ground | Always | Below 1 Ω |
| F76-18 (V+) - Body ground | Always | 10 kΩ or higher |
| F76-19 (V-) - Body ground | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| F76-39 (CA+) - Body ground | Always | 10 kΩ or higher |
| F76-40 (CGND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

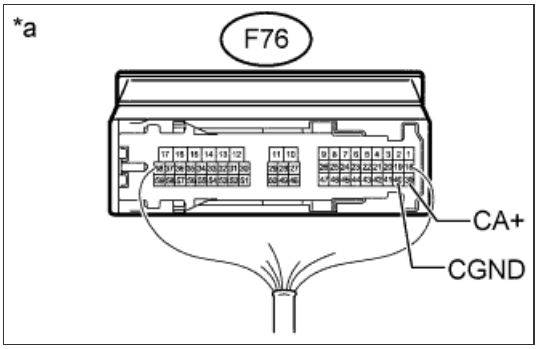
## 2.CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY (CA+, CGND)

a. Reconnect the multi-media module receiver assembly connector.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-40 (CGND) - Body ground | Always | Below 1 Ω |




c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-39 (CA+) - F76-40 (CGND) | Engine switch on (IG), shift lever in R | 5.5 to 7.05 V |

**Text in Illustration**

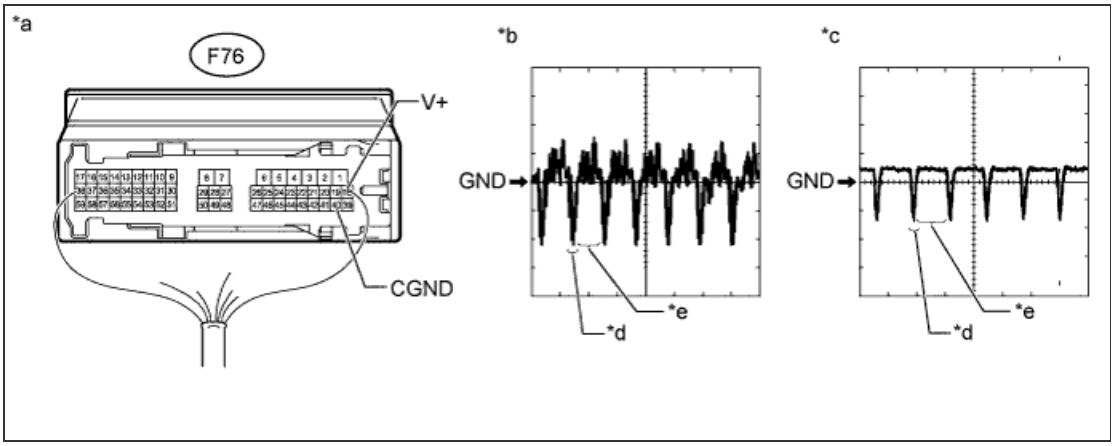
| | |
|---|---|
| *a | Component with harness connected (Multi-media Module Receiver Assembly) |

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

## 3.CHECK REAR TELEVISION CAMERA ASSEMBLY (CV+, CGND)

a. Reconnect the S5 rear television camera assembly connector.



**Text in Illustration**

| | | | |
|---|---|---|---|
| *a | Component with harness connected<br>(Multi-media Module Receiver Assembly) | *b | Waveform A |
| *c | Waveform B | *d | Synchronization Signal |
| *e | Video Waveform | - | - |

b. Check the waveform of the rear television camera assembly using an oscilloscope.

**HINT:**

- **A waterproof connector is used for the rear television camera assembly. Therefore, inspect the waveform at the multi-media module receiver assembly with the connector connected.**
- **The video waveform changes according to the image sent by the rear television camera assembly.**

| Item | Content |
|---|---|
| Terminal No.<br>(Symbol) | F76-18 (V+) - F76-40 (CGND) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | • Waveform A: Engine switch on (IG), shift lever in R and camera lens is not covered, displaying an image<br>• Waveform B: Engine switch on (IG), shift lever in R and camera lens is covered, blacking out the screen |

**OK:**

**Waveform is as shown in the illustration.**

**NG** → REPLACE REAR TELEVISION CAMERA ASSEMBLY (Click here)

**OK** → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

# DTC C1691 Back Camera Initialization Incomplete

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when the multi-media module receiver assembly judges that the back camera initial setting has not been memorized (rear television camera optical axis adjustment is incomplete).

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1691 | Back camera initial setting has not been memorized | • Rear television camera optical axis adjustment<br>• Multi-media module receiver assembly |

## INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the multi-media module receiver assembly after disconnecting the cable from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system (w/o Side Monitor System) may be needed (Click here).**

### 1.ADJUST SETTINGS (CAMERA POSITION SETTING)

a. Perform the following procedure depending on the memory conditions to register the vehicle information into the multi-media module receiver assembly.

i. Refer to rear television camera optical axis adjustment ( Click here).

**NEXT**

### 2.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C1691 is not output.**

**HINT:**

- **If DTC C1691 is output, perform the rear television camera assembly optical axis adjustment again.**
- **If DTC C1691 is still output after performing the rear television camera assembly optical axis adjustment 3 times, replace the multi-media module receiver assembly.**

**NG** → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

**OK**

### END (SETTINGS ARE DEFECTIVE)

## DTC C1625 Open or Short in Steering Angle Sensor +B

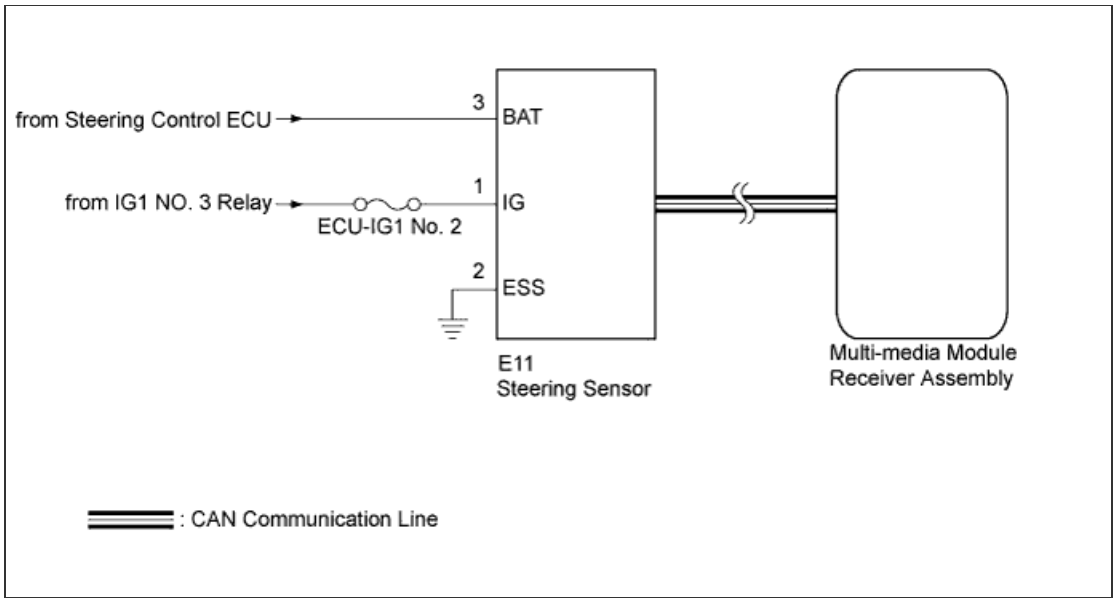
**for Preparation** Click here

### DESCRIPTION

This DTC is stored if the multi-media module receiver assembly receives a signal via CAN communication from the steering sensor that indicates a power supply problem.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1625 | Open or short in steering angle sensor +B | • Harness or connector<br>• Steering sensor |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

- **Since the parking assist monitor system (w/o Side Monitor System) has functions that use CAN communication system, first confirm that there is no malfunction in the communication system by inspecting the CAN communication functions in accordance with the "How to Proceed with Troubleshooting" procedures. Then, conduct the following inspection procedure.**
- **When "System initializing" is displayed on the multi-media module receiver assembly after disconnecting the cable from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system (w/o Side Monitor System) may be needed (Click here).**
- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**

#### 1.CHECK HARNESS AND CONNECTOR (STEERING SENSOR - BATTERY AND BODY GROUND)

a. Disconnect the steering sensor connector.

b. Measure the resistance according to the value(s) in the table below.

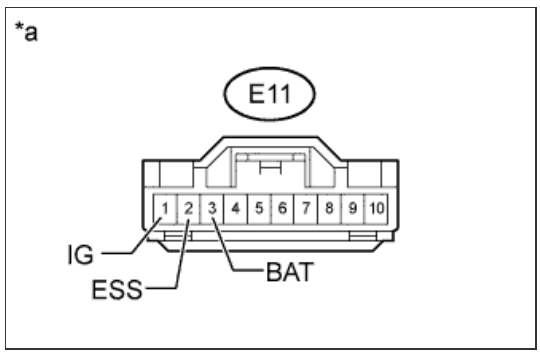
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E11-2 (ESS) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|



| | | |
|---|---|---|
| E11-1 (IG) - E11-2 (ESS) | Engine switch on (IG) | 11 to 14 V |
| E11-3 (BAT) - E11-2 (ESS) | Always | 11 to 14 V |

**Text in Illustration**

| | |
|---|---|
| *a | Front view of wire harness connector (to Steering Sensor) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEERING SENSOR (Click here)

# DTC C1694 Steering Angle Initialization Incomplete

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when the multi-media module receiver assembly judges that the maximum steering angle has not been memorized (steering angle setting is incomplete).

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1694 | Maximum steering angle has not been memorized | • Steering angle setting<br>• Multi-media module receiver assembly |

## INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the multi-media module receiver assembly after disconnecting the cable from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system (w/o Side Monitor System) may be needed (Click here).**

### 1.PERFORM SETTINGS (STEERING ANGLE SETTING)

a. Perform the following procedure depending on the memory conditions to register the vehicle information into the multi-media module receiver assembly.

   i. Refer to steering angle setting (Click here).

**NEXT**

### 2.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**C1694 is not output.**

**HINT:**

- **If DTC C1694 is output, perform the steering angle setting again.**
- **If DTC C1694 is still output after performing the steering angle setting 3 times, replace the multi-media module receiver assembly.**

**NG** → **REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)**

**OK**

**END (SETTINGS ARE DEFECTIVE)**

# DTC C1626 Steering Angle Sensor Failure

**for Preparation** Click here

## DESCRIPTION

This DTC is stored if the multi-media module receiver assembly receives a signal via CAN communication from the steering sensor that indicates an internal malfunction.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1626 | A fail flag is transmitted from the steering angle sensor. | • Steering sensor<br>• Multi-media module receiver assembly |

## INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the multi-media module receiver assembly after disconnecting the cable from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system (w/o Side Monitor System) may be needed (Click here).**

**1.REPLACE STEERING SENSOR**

a. Replace the steering sensor with a normally functioning one ( Click here).

**NEXT**

**2.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C1626 is not output.**

**NG** → **REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)**

**OK**

**END (STEERING SENSOR IS DEFECTIVE)**

## DTC U0126 Lost Communication with Steering Angle Sensor Module

## DTC U0130 Lost Communication with Steering Effort Control Module

## DTC U0140 Lost Communication with Body Control Module

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored if there is a malfunction in the CAN communication system connected to the multi-media module receiver assembly.

**HINT:**

If CAN communication system DTCs are stored, they may also be stored in other systems.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0126 | Lost communication with steering angle sensor | CAN communication system |
| U0130 | Lost Communication with Steering Effort Control Module | |
| U0140 | Lost communication with body control module (multiplex network body ECU) | |

### INSPECTION PROCEDURE

**1.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**

**CAN DTCs are not output.**

**HINT:**

- **If CAN communication system DTCs are stored, they may also be stored in other systems.**
- **If the CAN communication system has been inspected and repaired in other systems, the DTCs will not be output when rechecking for DTCs.**
- **If these DTCs are output frequently, duplicate the conditions that cause the problem symptoms and perform the inspection again, even though the DTC was not output when rechecking for DTCs (Click here).**

**NG** → Go to CAN COMMUNICATION SYSTEM (Click here)

**OK**

USE SIMULATION METHOD TO CHECK (Click here)

## DTC C1649 Lost Communication with VGRS ECU

**for Preparation** Click here

### DESCRIPTION

This DTC is stored if the multi-media module receiver assembly receives a signal via CAN communication from the steering control ECU that indicates an internal malfunction.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1649 | Variable gear ratio steering system malfunction. | Variable gear ratio steering system |

### INSPECTION PROCEDURE

**1.CHECK FOR DTC (VARIABLE GEAR RATIO STEERING SYSTEM)**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C1649 is not output.**

**NG** → **Go to VARIABLE GEAR RATIO STEERING SYSTEM (Click here)**

**OK**

**USE SIMULATION METHOD TO CHECK (Click here)**

## DTC U0126 Lost Communication with Steering Angle Sensor Module

## DTC U0130 Lost Communication with Steering Effort Control Module

## DTC U0140 Lost Communication with Body Control Module

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored if there is a malfunction in the CAN communication system connected to the multi-media module receiver assembly.

**HINT:**

If CAN communication system DTCs are stored, they may also be stored in other systems.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0126 | Lost communication with steering angle sensor | CAN communication system |
| U0130 | Lost Communication with Steering Effort Control Module | |
| U0140 | Lost communication with body control module (multiplex network body ECU) | |

### INSPECTION PROCEDURE

**1.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**

**CAN DTCs are not output.**

**HINT:**

- **If CAN communication system DTCs are stored, they may also be stored in other systems.**
- **If the CAN communication system has been inspected and repaired in other systems, the DTCs will not be output when rechecking for DTCs.**
- **If these DTCs are output frequently, duplicate the conditions that cause the problem symptoms and perform the inspection again, even though the DTC was not output when rechecking for DTCs (Click here).**

**NG** → Go to CAN COMMUNICATION SYSTEM (Click here)

**OK**

USE SIMULATION METHOD TO CHECK (Click here)

# DTC C168D Vehicle Information Unmatched

**for Preparation** Click here

## DESCRIPTION

This DTC is stored if the multi-media module receiver assembly judges as a result of its self check that the vehicle information received via CAN communication and the vehicle information stored in the multi-media module receiver assembly do not match.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C168D | Vehicle Information Unmatched | • Back camera position setting<br>• Steering angle setting<br>• Multi-media module receiver assembly |

## INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the display and navigation module display after the battery terminal disconnected, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system (w/o Side Monitor System) may be needed (Click here).**

### 1.PERFORM SETTINGS (BACK CAMERA POSITION SETTING, STEERING ANGLE SETTING)

a. Perform the following to register the vehicle information into the multi-media module receiver assembly.

i. Refer to Back Camera Position Setting (Click here).

ii. Refer to Steering Angle Setting (Click here).

**NEXT**

### 2.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C168D is not output.**

**HINT:**

- **If DTC C168D is output, perform the procedure to allow the multi-media module receiver assembly to store the vehicle information again.**
- **If DTC C168D is still output after performing the procedure to make the multi-media module receiver assembly store the vehicle information 3 times, replace the multi-media module receiver assembly.**

**NG** → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

**OK**

### END (SETTINGS ARE DEFECTIVE)

## DTC U0126 Lost Communication with Steering Angle Sensor Module

## DTC U0130 Lost Communication with Steering Effort Control Module

## DTC U0140 Lost Communication with Body Control Module

**for Preparation** Click here

### DESCRIPTION

These DTCs are stored if there is a malfunction in the CAN communication system connected to the multi-media module receiver assembly.

**HINT:**

If CAN communication system DTCs are stored, they may also be stored in other systems.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| U0126 | Lost communication with steering angle sensor | CAN communication system |
| U0130 | Lost Communication with Steering Effort Control Module | |
| U0140 | Lost communication with body control module (multiplex network body ECU) | |

### INSPECTION PROCEDURE

**1.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**

**CAN DTCs are not output.**

**HINT:**

- **If CAN communication system DTCs are stored, they may also be stored in other systems.**
- **If the CAN communication system has been inspected and repaired in other systems, the DTCs will not be output when rechecking for DTCs.**
- **If these DTCs are output frequently, duplicate the conditions that cause the problem symptoms and perform the inspection again, even though the DTC was not output when rechecking for DTCs (Click here).**

**NG** → Go to CAN COMMUNICATION SYSTEM (Click here)

**OK**

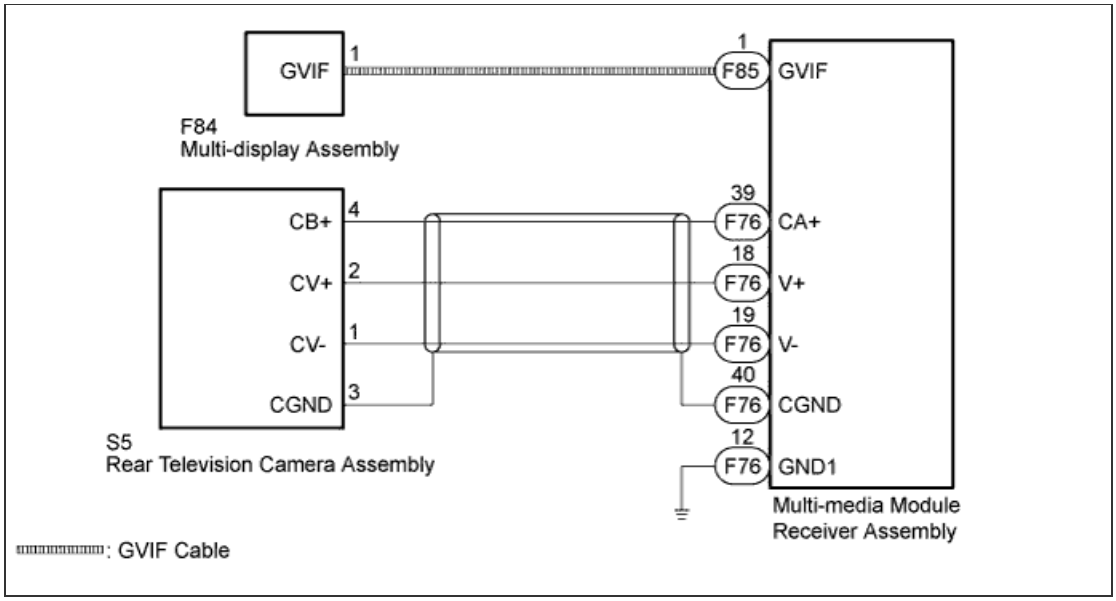
USE SIMULATION METHOD TO CHECK (Click here)

**for Preparation** Click here

## DESCRIPTION

The video signal from the rear television camera assembly is transmitted to the multi-media module receiver assembly.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the multi-media module receiver assembly after disconnecting the cable from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system (w/o Side Monitor System) may be needed (Click here).**

**HINT:**

Images may be unclear even in normal conditions if:

- **Noise may occur in the image during power back door operation. (w/ Power Back Door System)**
- **Electrical devices are used in the cabin (noise may occur in the image).**
- **Accessories that generate radio waves have been installed (noise may occur in the image).**
- **The outer mirror switch assembly is operated (noise may occur in the image).**
- **The camera lens is frosted over (the image immediately after turning the engine switch on (IG) may be blurred or darker than normal).**
- **The camera lens is dirty with snow, mud, etc.**
- **A strong beam of light, such as a sunbeam or headlight, hits the camera.**
- **It is too dark around the camera (at night etc.).**
- **The ambient temperature around the camera is either too high or too low.**
- **The vehicle is tilted at a steep angle.**
- **The rear television camera assembly lens is scratched.**
- **The rear television camera assembly lens has drops of water on it or the humidity is high.**
- **When the camera is used under fluorescent lights, sodium lights, or mercury lights etc., the lights and the illuminated area may appear to flicker.**
- **The ambience of the camera is too bright. (When a strong light, such as a sunbeam reflected off the vehicle body, hits the camera, the image may be blurred. This is called the "SMEAR" phenomenon, particular to the CCD camera.)**

### 1.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - REAR TELEVISION CAMERA ASSEMBLY AND BODY GROUND)

a. Disconnect the F76 multi-media module receiver assembly connector.

b. Disconnect the S5 rear television camera assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-18 (V+) - S5-2 (CV+) | Always | Below 1 Ω |
| F76-19 (V-) - S5-1 (CV-) | Always | Below 1 Ω |
| F76-39 (CA+) - S5-4 (CB+) | Always | Below 1 Ω |
| F76-40 (CGND) - S5-3 (CGND) | Always | Below 1 Ω |
| F76-12 (GND1) - Body ground | Always | Below 1 Ω |
| F76-18 (V+) - Body ground | Always | 10 kΩ or higher |
| F76-19 (V-) - Body ground | Always | 10 kΩ or higher |
| F76-39 (CA+) - Body ground | Always | 10 kΩ or higher |
| F76-40 (CGND) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 2.CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY (CA+, CGND)

a. Reconnect the multi-media module receiver assembly connector.

b. Measure the resistance according to the value(s) in the table below.

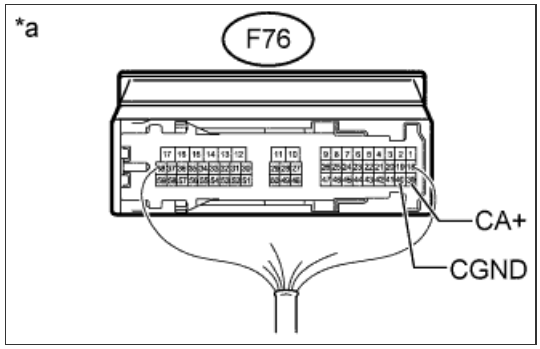
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-40 (CGND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F76-39 (CA+) - F76-40 (CGND) | Engine switch on (IG), shift lever in R | 5.5 to 7.05 V |




**Text in Illustration**

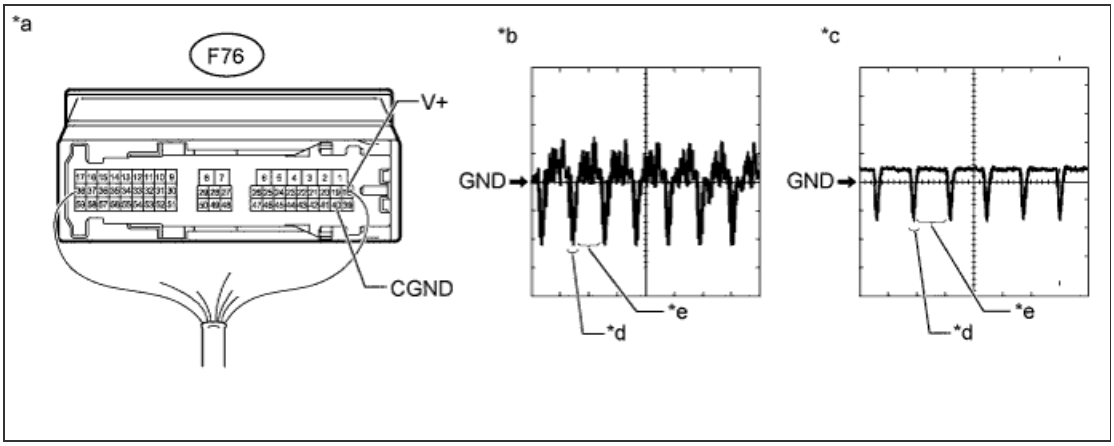
| | |
|---|---|
| *a | Component with harness connected (Multi-media Module Receiver Assembly) |

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

## 3.CHECK REAR TELEVISION CAMERA ASSEMBLY (CV+, CGND)

a. Reconnect the S5 rear television camera assembly connector.




**Text in Illustration**

| | | | |
|---|---|---|---|
| *a | Component with harness connected (Multi-media Module Receiver Assembly) | *b | Waveform A |
| *c | Waveform B | *d | Synchronization Signal |
| *e | Video Waveform | - | - |

b. Check the waveform of the rear television camera assembly using an oscilloscope.

**HINT:**

- **A waterproof connector is used for the rear television camera assembly. Therefore, inspect the waveform at the multi-media module receiver assembly with the connector connected.**
- **The video waveform changes according to the image sent by the rear television camera assembly.**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F76-18 (V+) - F76-40 (CGND) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | • Waveform A: Engine switch on (IG), shift lever in R and camera lens is not covered, displaying an image<br>• Waveform B: Engine switch on (IG), shift lever in R and camera lens is covered, blacking out the screen |

**OK:**

**Waveform is as shown in the illustration.**

NG → REPLACE REAR TELEVISION CAMERA ASSEMBLY (Click here)

OK ↓

**4.REPLACE HARNESS AND CONNECTOR (GVIF CABLE)**

a. Replace the GVIF cable with a normally functioning one.

NEXT ↓

**5.CHECK PARKING ASSIST MONITOR SYSTEM (w/o Side Monitor System)**

a. Check the parking assist monitor system (w/o Side Monitor System).

**OK:**

**Parking assist monitor system (w/o Side Monitor System) is operated normally.**

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM

NG

SYMPTOMS TABLE (Click here)

OK

END (GVIF CABLE IS DEFECTIVE)

**for Preparation** Click here

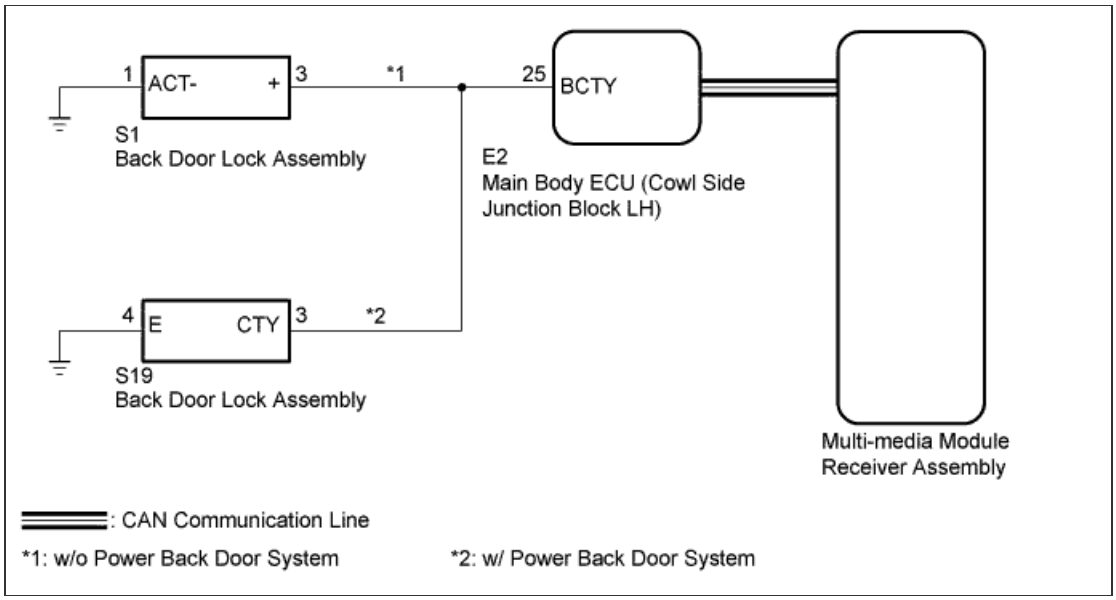
## DESCRIPTION

The multi-media module receiver assembly receives back door lock assembly open/close signals from the main body ECU (cowl side junction block LH) via CAN communication. When the back door is open, the camera aiming cannot be adjusted correctly because the rear television camera assembly is installed on the back door. Therefore, when adjusting the camera aiming calibration while the back door is open, a back door open warning message will be displayed on the screen and camera aiming adjustment will be canceled.

**HINT:**

The back door lock assembly is connected to the main body ECU (cowl side junction block LH) by the vehicle wire harness.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

- **Since the parking assist monitor system (w/o Side Monitor System) has functions that use CAN communication system, first confirm that there is no malfunction in the communication system by inspecting the CAN communication functions in accordance with the "How to Proceed with Troubleshooting" procedures. Then, conduct the following inspection procedure.**
- **When "System initializing" is displayed on the multi-media module receiver assembly after disconnecting the cable from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system (w/o Side Monitor System) may be needed (Click here).**

### 1.READ VALUE USING INTELLIGENT TESTER (BACK DOOR COURTESY SWITCH)

a. Use the Data List to check if the back door courtesy switch is functioning properly ( Click here).

**Main Body**

| Tester Display | Measurement Item/Range | Normal Condition | Diagnostic Note |
|---|---|---|---|
| Back Door Courtesy SW | Back door courtesy light switch signal/ON or OFF | ON: Back door open<br>OFF: Back door closed | - |

**OK:**

**The back door courtesy switch functions as specified in the normal condition column.**

**NG** → **Go to step 2**

**OK**

REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

2.CHECK HARNESS AND CONNECTOR (BACK DOOR LOCK ASSEMBLY - MAIN BODY ECU [COWL SIDE JUNCTION BLOCK LH] AND BODY GROUND)

a. Disconnect the S1*1 or S19*2 back door lock assembly connector.

*1: w/o Power Back Door System
*2: w/ Power Back Door System

b. Disconnect the E2 main body ECU (cowl side junction block LH) connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**w/o Power Back Door System:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| S1-3 (+) - E2-25 (BCTY) | Always | Below 1 Ω |
| S1-3 (+) - Body ground | Always | 10 kΩ or higher |
| S1-1 (ACT-) - Body ground | Always | Below 1 Ω |

**w/ Power Back Door System:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| S19-3 (CTY) - E2-25 (BCTY) | Always | Below 1 Ω |
| S19-3 (CTY) - Body ground | Always | 10 kΩ or higher |
| S19-4 (E) - Body ground | Always | Below 1 Ω |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3.INSPECT BACK DOOR LOCK ASSEMBLY

a. Remove the back door lock assembly (Click here).

b. Inspect the back door lock assembly (Click here).

NG → REPLACE BACK DOOR LOCK ASSEMBLY (Click here)

OK

REPLACE MAIN BODY ECU (COWL SIDE JUNCTION BLOCK LH)

**for Preparation** Click here

## 1.PRECAUTIONS FOR WIDE VIEW FRONT MONITOR SYSTEM

a. Handling precautions:

i. The wide view front monitor system may not function properly if the camera is subjected to strong shocks, such as striking it, etc.

ii. Scrubbing the lens of the camera may scratch the cover and affect the image.

iii. If waxes or similar compounds adhere to the camera, it is necessary to clean the camera off immediately and wash it with water.

iv. The wide view front monitor system may not function properly if the camera is subjected to sudden temperature changes, such as applying hot water on it when it is cold.

v. If there is condensation, snow, mud, etc. on the camera, wash it with water and wipe it with a soft cloth. If the camera is excessively dirty, wash it with a mild detergent.

b. The system may not operate properly under the following conditions:

i. When driving on frozen, slippery, or snowy roads.

ii. When using tire chains or the spare tire.

iii. When the hood or front passenger door are not completely closed.

iv. When driving on an uneven road that has slopes, bumps, or gravel, etc.

c. Even if the camera is functioning properly, the image may not be clear under the following conditions:

i. When the camera is cold (the image is darker than normal).

ii. When the camera is in a dark area (such as at night).

iii. When the camera is exposed to very high or very low temperatures.

iv. When the vehicle or road is slanted (there is left-right image displacement).

v. As a result of the brightness of the ambient lighting (the image brightness differs between the right and left).

**HINT:**

- **When a strong light (such as when sunlight is reflected off a vehicle body) hits the camera, vertical streaks, a phenomenon peculiar to the camera, may appear in the image.**
- **In order to position the camera, a portion of the vehicle appears in the wide view front monitor image. This is not a malfunction.**
- **Light from buildings or the taillights of vehicles may be reflected in the image when driving at night. This is not a malfunction.**

**for Preparation** Click here

## 1.PRECAUTION FOR DISCONNECTING CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

- **After the engine switch is turned off, the display and navigation module display records various types of memory and settings. As a result, after turning the engine switch off, make sure to wait for the time specified in the following table before disconnecting the cable from the negative (-) battery terminal.**

**Waiting Time before Disconnecting Cable from Negative (-) Battery Terminal**

| Specification | Waiting Time |
|---|---|
| w/o Telematics transceiver | 60 sec. |
| w/ Telematics transceiver | 120 sec. |

## 2.POINTS TO NOTE WHEN SERVICING

a. Pay attention to the following points when servicing.

i. When disconnecting the cable from the negative (-) battery terminal, "System initializing" may appear on the display and navigation module display. In this case, restore the steering angle neutral point (Click here).

ii. Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems may be needed.

| Location Operation is Performed | Adjustment Item | Proceed to |
|---|---|---|
| Replacement parking assist ECU | Parking assist ECU initialization | Click here |

iii. When the lens of the front television camera assembly is dirty, wash the lens with water and wipe it off with a soft cloth to obtain clear images. For heavy dirt, use neutral detergent to clean the lens.

## 3.NOTES FOR FRONT TELEVISION CAMERA

a. Notes for the front television camera assembly

i. The front monitor system may not function properly if subjected to a severe blow by any hard object.

ii. Do not scrub the outer casing of the camera (made of transparent resin). Scrubbing may scratch the lens and affect the image. Prevent organic solvents, waxes, bond removing solvents or glass coating from adhering to the lens. If such material adheres to the lens, clean it off immediately and wash with water.

iii. Exposing the camera to a sudden temperature change may affect proper functioning of the camera.

iv. A clear image may not appear if the camera is dirty with snow, mud, etc. In that case, wash it with water and wipe off the lens. Use a detergent to remove dirt if necessary.

b. Images can be difficult to discern even in normal conditions. For example:

i. Noise may occur in the image depending on electrical devices used in the cabin.

ii. Noise may occur in the image if accessories that generate radio waves have been installed.

iii. The camera screen is extremely cold (the image immediately after turning the engine switch on (IG) may be blurred or darker than normal).

iv. The camera lens is dirty with snow, mud, etc.

v. A strong beam of light, such as a sunbeam or headlight, hits the camera.

vi. It is too dark around the camera (at night etc.).

vii. The ambient temperature around the camera is either too high or too low.

viii. The vehicle is tilted at a steep angle.

ix. The ambience of the camera is too bright. (When a strong light, such as a sunbeam reflected off the vehicle body, hits the camera,

the image may be blurred. This is called the "SMEAR" phenomenon, peculiar to the CCD camera.)

x. The camera lens is damaged by plying stones.

**for Preparation** Click here

## 1.POINTS TO NOTE WHEN SERVICING

a. Pay attention to the following points when servicing.

i. When disconnecting the cable from the negative (-) battery terminal, "System initializing" may appear on the multi-display assembly. In this case, restore the steering angle neutral point (Click here).

ii. Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems may be needed.

| Location Operation is Performed | Adjustment Item | Proceed to |
|---|---|---|
| Replacement parking assist ECU | Parking assist ECU initialization | Click here |

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iv. The camera lens is dirty with snow, mud, etc.

v. A strong beam of light, such as a sunbeam or headlight, hits the camera.

vi. It is too dark around the camera (at night etc.).

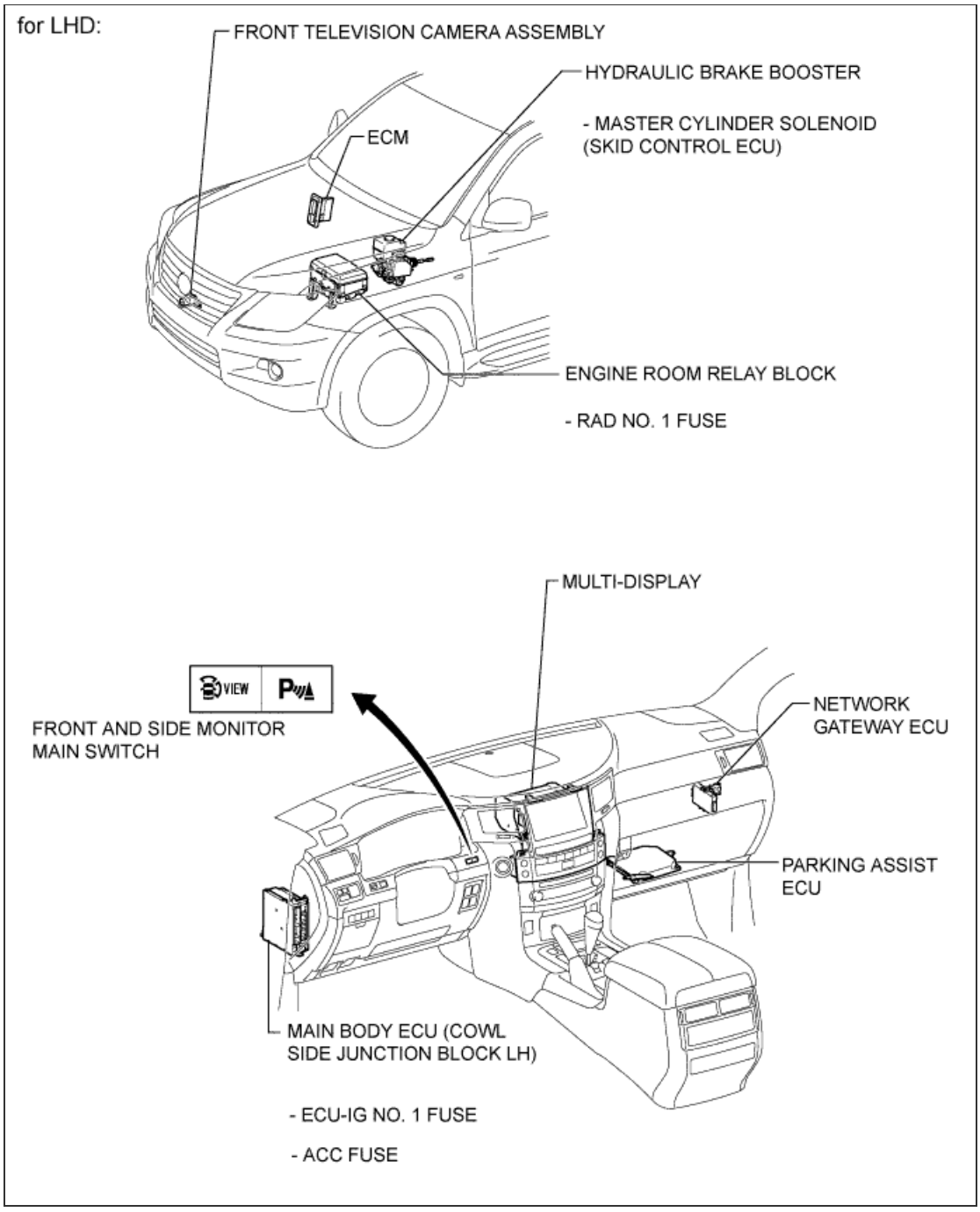
vii. The ambient temperature around the camera is either too high or too low.

viii. The vehicle is tilted at a steep angle.

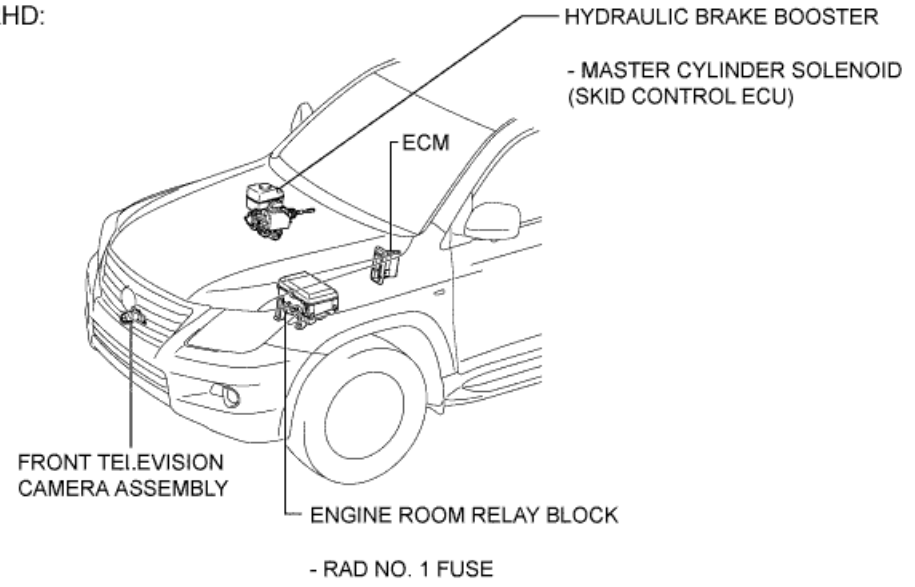
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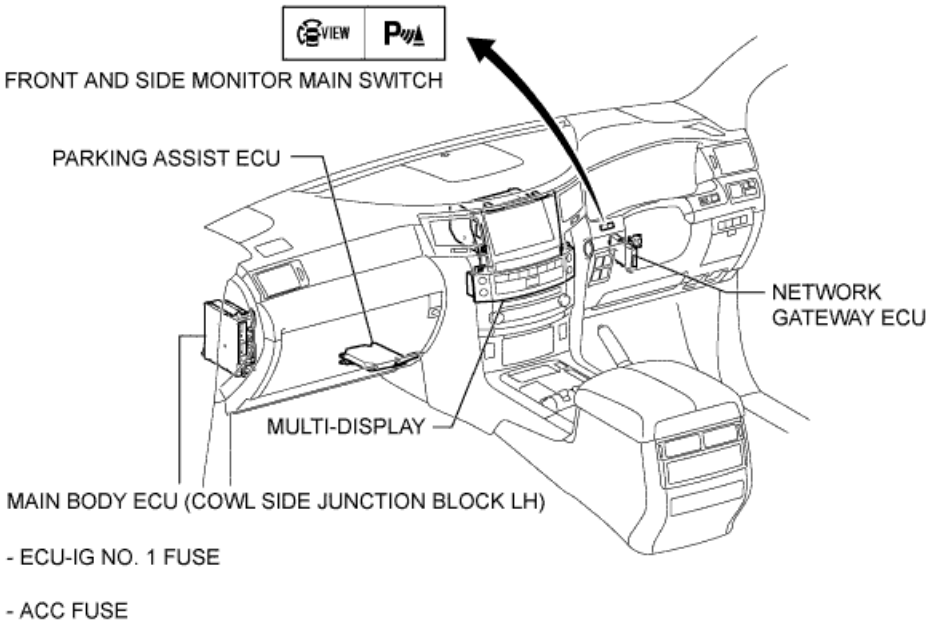
x. The camera lens is damaged by plying stones.

**for Preparation** Click here

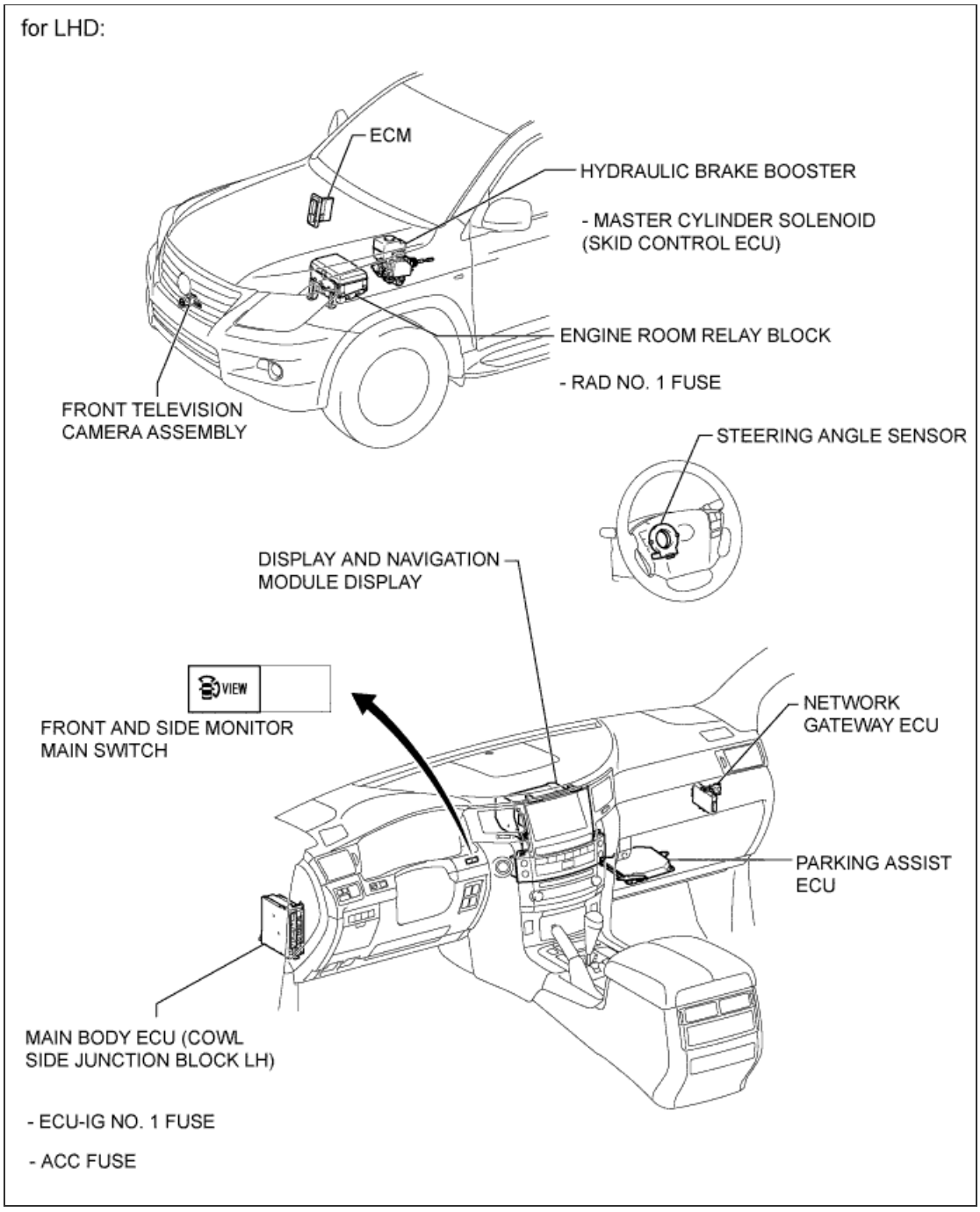


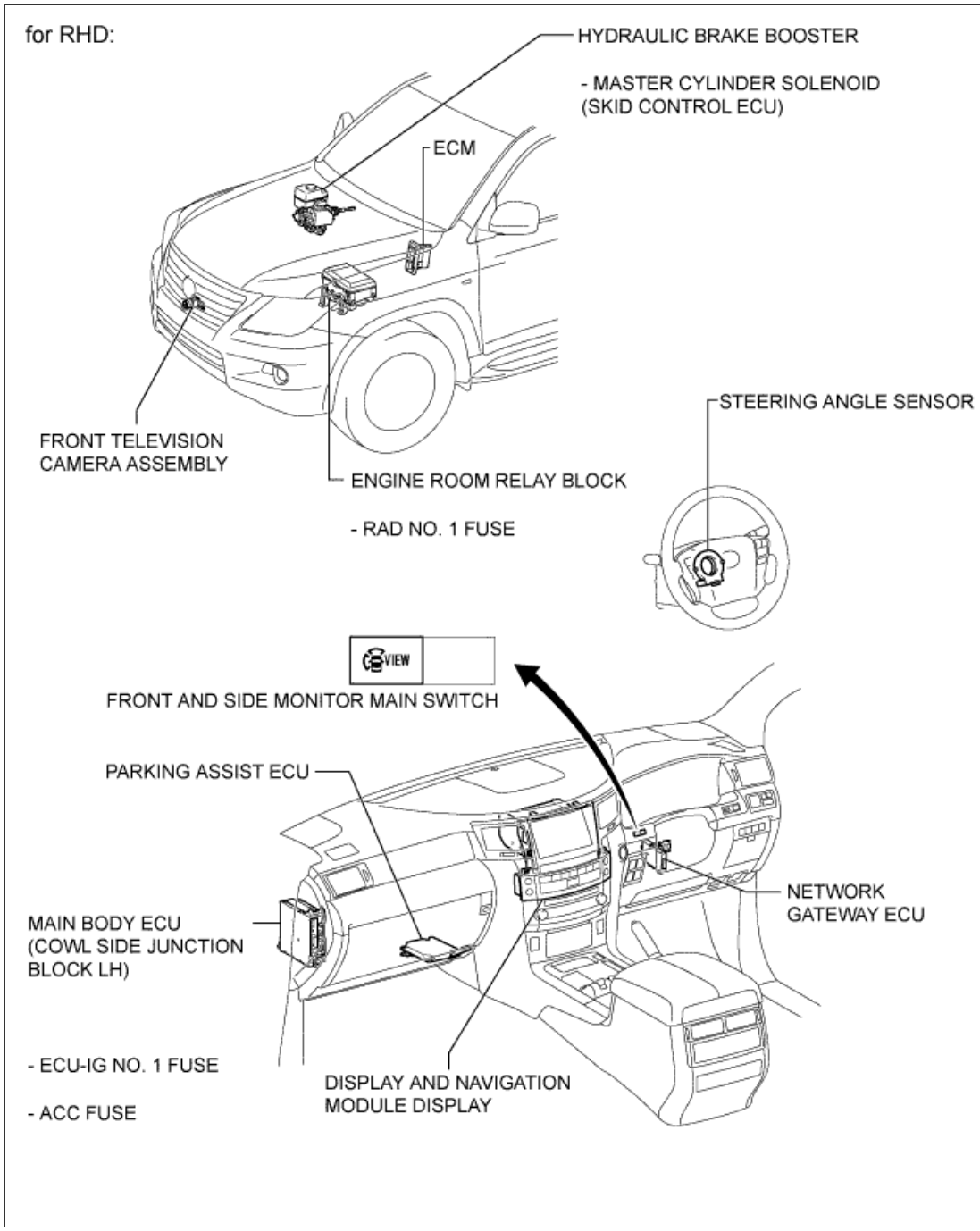
for RHD:


HYDRAULIC BRAKE BOOSTER
- MASTER CYLINDER SOLENOID
(SKID CONTROL ECU)
ECM
FRONT TEI.EVISION
CAMERA ASSEMBLY
ENGINE ROOM RELAY BLOCK
- RAD NO. 1 FUSE

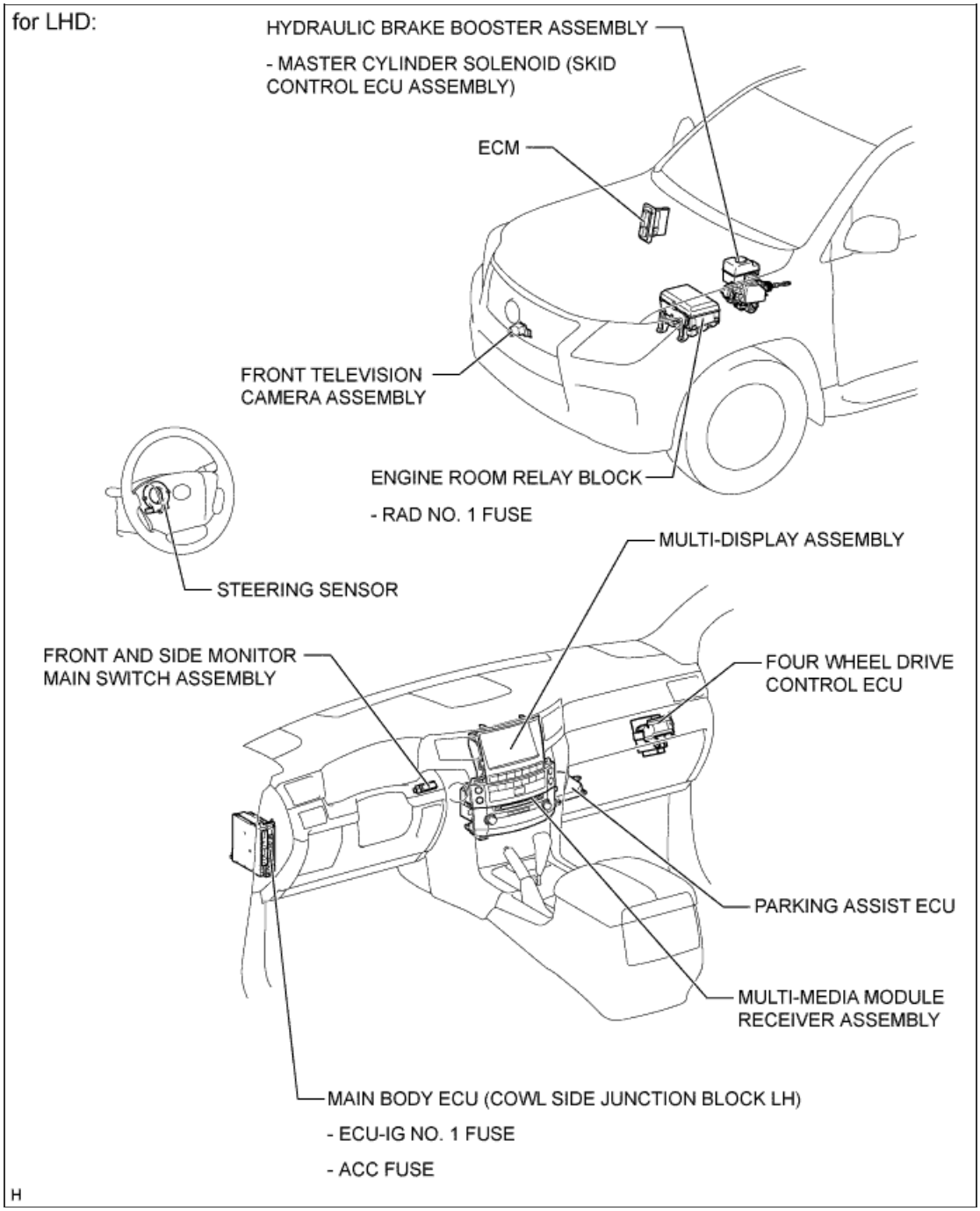

VIEW
FRONT AND SIDE MONITOR MAIN SWITCH
PARKING ASSIST ECU
NETWORK
GATEWAY ECU
MULTI-DISPLAY
MAIN BODY ECU (COWL SIDE JUNCTION BLOCK LH)
- ECU-IG NO. 1 FUSE
- ACC FUSE

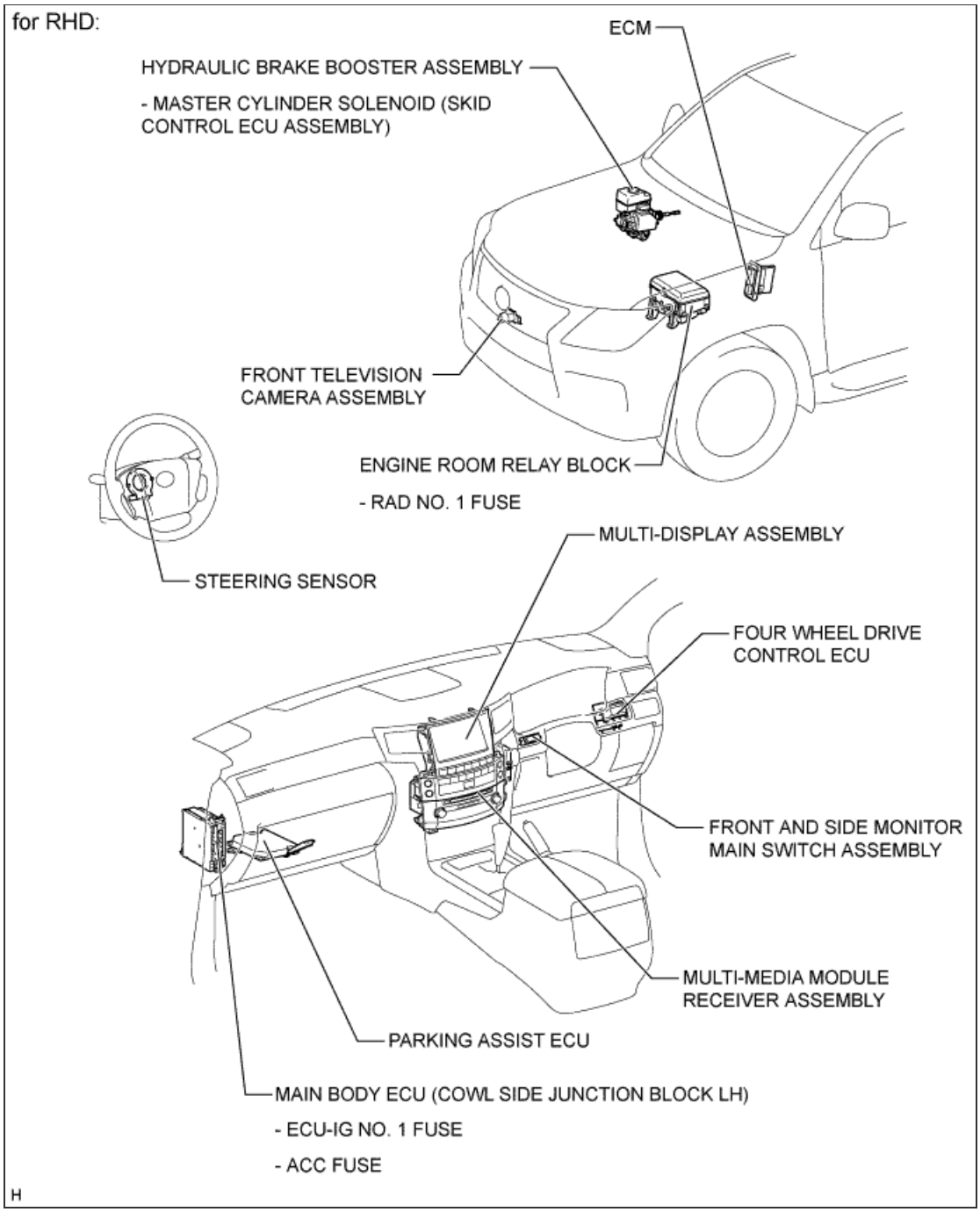
**for Preparation** Click here



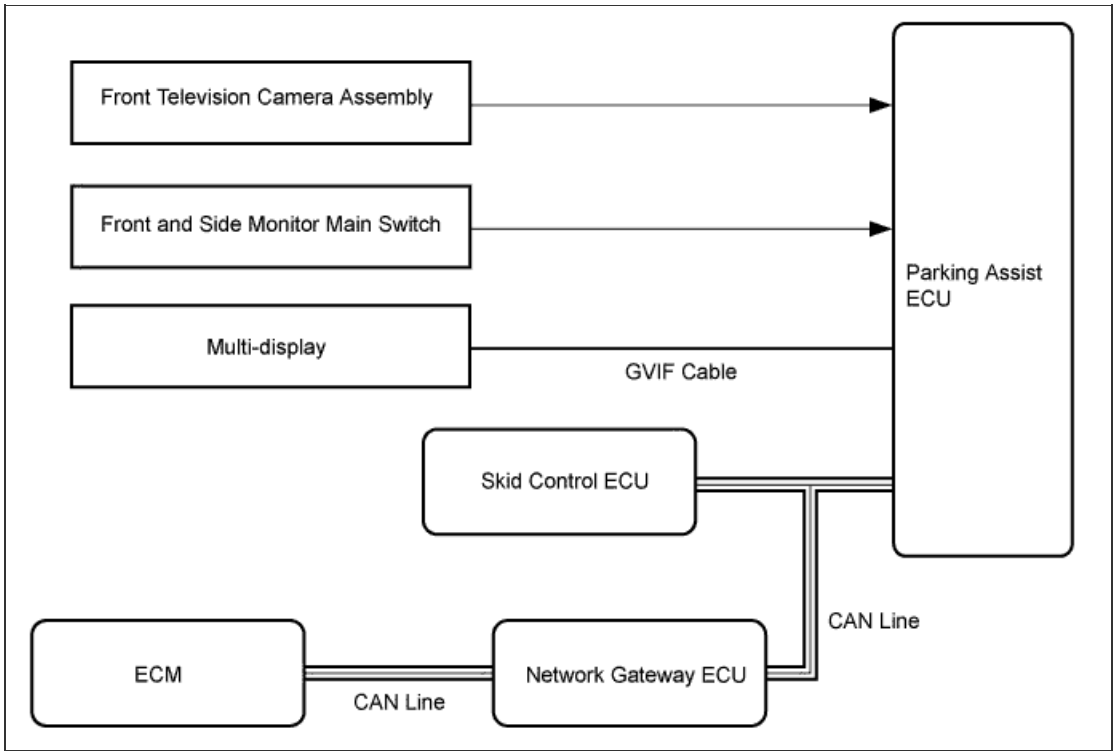

for RHD:
HYDRAULIC BRAKE BOOSTER
- MASTER CYLINDER SOLENOID
(SKID CONTROL ECU)
ECM
FRONT TELEVISION
CAMERA ASSEMBLY
ENGINE ROOM RELAY BLOCK
- RAD NO. 1 FUSE
STEERING ANGLE SENSOR
VIEW
FRONT AND SIDE MONITOR MAIN SWITCH
PARKING ASSIST ECU
NETWORK
GATEWAY ECU
MAIN BODY ECU
(COWL SIDE JUNCTION
BLOCK LH)
- ECU-IG NO. 1 FUSE
- ACC FUSE
DISPLAY AND NAVIGATION
MODULE DISPLAY

**for Preparation** Click here




for RHD:
ECM
HYDRAULIC BRAKE BOOSTER ASSEMBLY
- MASTER CYLINDER SOLENOID (SKID CONTROL ECU ASSEMBLY)
FRONT TELEVISION CAMERA ASSEMBLY
ENGINE ROOM RELAY BLOCK
- RAD NO. 1 FUSE
MULTI-DISPLAY ASSEMBLY
STEERING SENSOR
FOUR WHEEL DRIVE CONTROL ECU
FRONT AND SIDE MONITOR MAIN SWITCH ASSEMBLY
MULTI-MEDIA MODULE RECEIVER ASSEMBLY
PARKING ASSIST ECU
MAIN BODY ECU (COWL SIDE JUNCTION BLOCK LH)
- ECU-IG NO. 1 FUSE
- ACC FUSE
H

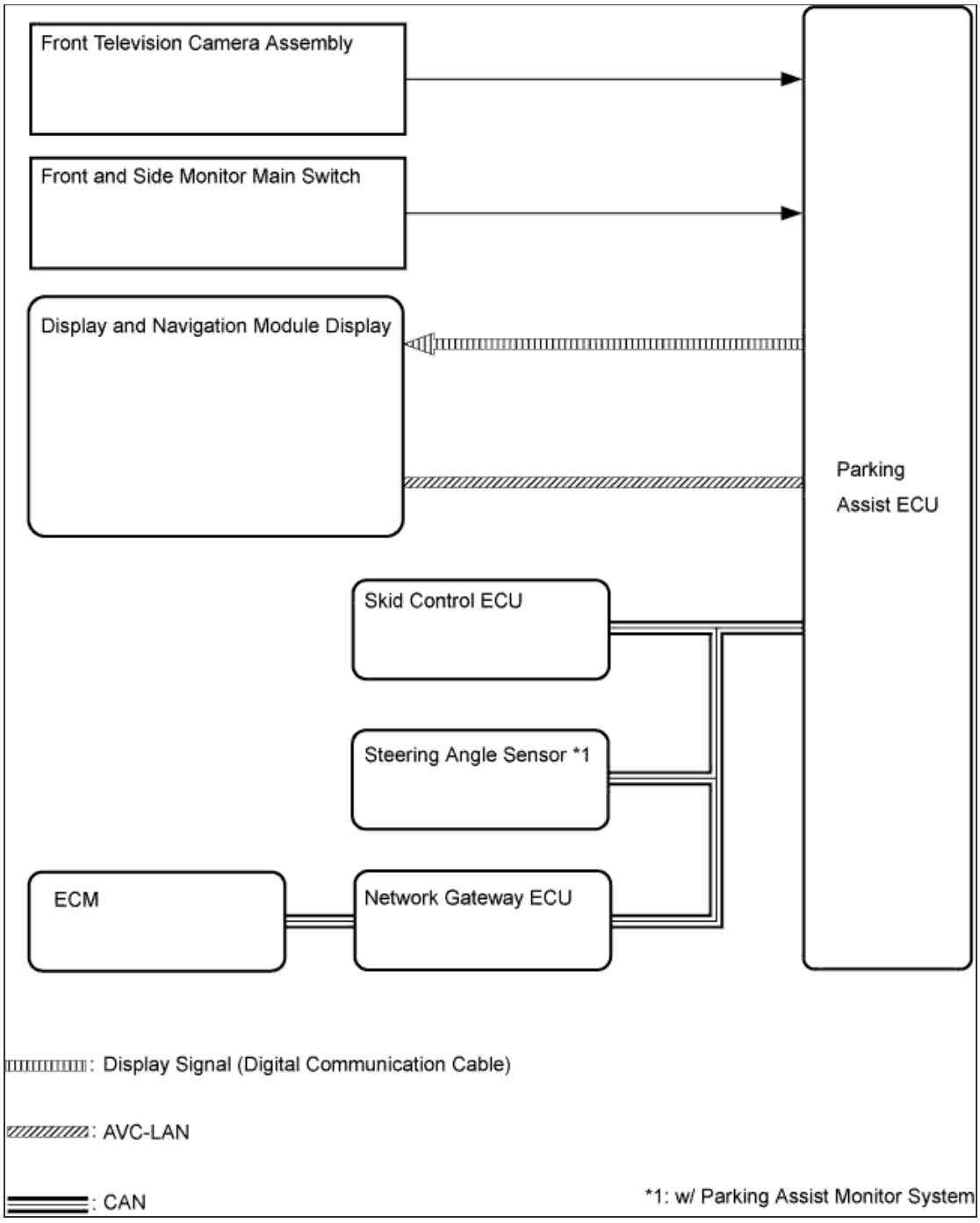
**for Preparation** Click here




**Communication Table**

| Sender ECU | Receiver ECU | Signal | Line |
|---|---|---|---|
| Skid Control ECU | Parking Assist ECU | Vehicle speed signal | CAN |
| ECM | Parking Assist ECU | Shift position signal | CAN |

**for Preparation** Click here

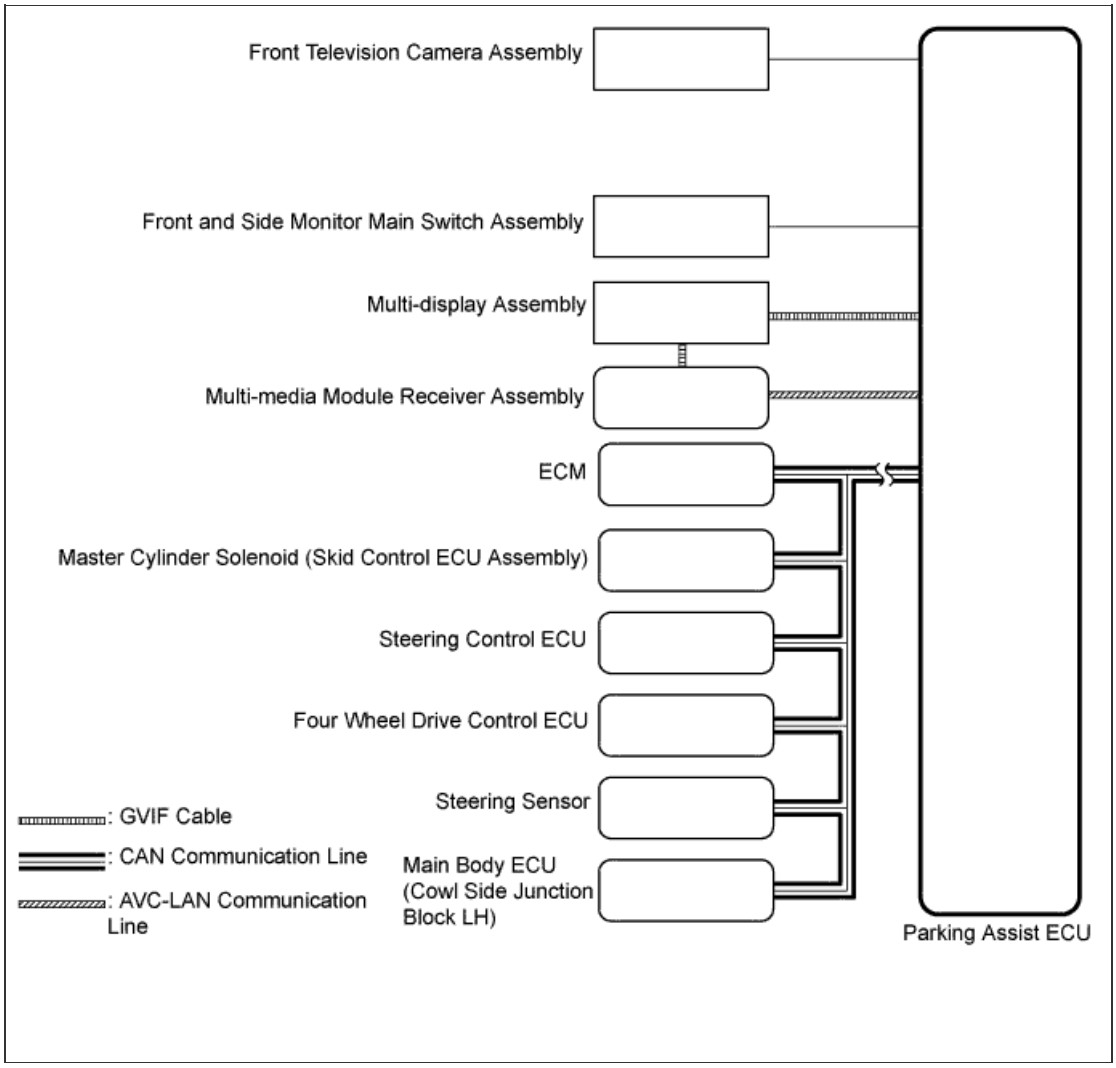



**Communication Table**

| Sender ECU | Receiver ECU | Signal | Line |
|---|---|---|---|
| Display and Navigation Module Display | Parking Assist ECU | Vehicle angle data | AVC-LAN |
| Parking Assist ECU | Display and Navigation Module Display | Display | Digital communication cable |
| Skid Control ECU | Parking Assist ECU | Vehicle speed signal | CAN |
| ECM | Parking Assist ECU | Shift position signal | CAN |
| Steering Angle Sensor *1 | Parking Assist ECU | Vehicle angle data signal | CAN |

*1: w/ Parking Assist Monitor System

**for Preparation** Click here




**Communication Table**

| Sender ECU | Receiver ECU | Signal | Line |
|---|---|---|---|
| Multi-media Module Receiver Assembly | Parking Assist ECU | Vehicle angle data | AVC-LAN |
| Parking Assist ECU | Multi-display Assembly | Display | Digital communication cable |
| Steering Sensor | Parking Assist ECU | Steering angle | CAN |
| Steering Control ECU | Parking Assist ECU | • VGRS relative angle<br>• Vehicle information | CAN |
| Master Cylinder Solenoid (Skid Control ECU Assembly) | Parking Assist ECU | • Inner brake information<br>• ABS ACT information | CAN |
| Four Wheel Drive Control ECU | Parking Assist ECU | L4 Condition signal | CAN |
| ECM | Parking Assist ECU | • Shift position information<br>• 2WD/4WD information<br>• Vehicle information | CAN |

**for Preparation** Click here

## WIDE VIEW FRONT MONITOR SYSTEM DESCRIPTION

a. The wide view front monitor system is controlled by the parking assist ECU. This system is equipped with a front television camera in the front radiator grille. Images from the camera are displayed on the display screen to inform the driver of conditions ahead, shorten the amount the vehicle has to enter an intersection, etc.

## FUNCTION OF COMPONENTS

a. The wide view front monitor system operates by controlling the components listed below.

| Components | Function |
|---|---|
| Front television camera | Equipped in the front radiator grille and sends images to the parking assist ECU. |
| Parking assist ECU | Receives image signals and sends these signals to the multi-display to display the view in front of the vehicle on the screen. |
| Front and side monitor main switch | When auto-display mode is not set and the vehicle speed is approximately 12 km/h (7 mph) or less, by pressing the main switch, the display changes from the displayed screen to the wide view front and side monitor simultaneous display screen.<br><br>**HINT:**<br>• **When the vehicle speed is approximately 12 km/h (7 mph) or less, auto-display mode is not set, the front and side monitor main switch is on, and the shift lever is in R, only the wide view front and side monitor simultaneous display screen will be displayed. The display will not change to the wide view front monitor display screen or side monitor display screen.**<br>• **While the wide view front monitor display screen is displayed, if the DISP switch is pressed, the vehicle speed exceeds the display permission vehicle speed (approximately 12 km/h (7 mph) or less), or the shift lever is moved to R and the screen changes to the rear view monitor, the display changes in the following order the next time the wide view front and side monitor simultaneous display screen is displayed: wide view front and side monitor simultaneous display screen → wide view front monitor display screen → side monitor display screen.**<br>• **While the side monitor display screen is displayed, if the DISP switch is pressed, the vehicle speed exceeds the display permission vehicle speed (approximately 12 km/h (7 mph) or less), or the shift lever is moved to R and the screen changes to the rear view monitor, the display changes in the following order the next time the wide view front and side monitor simultaneous screen is displayed: wide view front and side monitor simultaneous display screen → side monitor display screen → wide view front monitor display screen.** |
| Skid control ECU | Receives vehicle speed signals from the vehicle speed sensor and transmits these signals to the parking assist ECU using the CAN communication line. |
| Multi-display | Receives front television camera display signals from the parking assist ECU, and displays the camera image on the display screen. |
| ECM | Sends shift position signals to the parking assist ECU. |
| Network gateway ECU | Performs CAN communication line switching between the ECM and parking assist ECU. |

## WIDE VIEW FRONT MONITOR SYSTEM CONTROL DESCRIPTION

a. Wide view front monitor operation conditions (when auto-display mode is set).

i. When either of the following conditions is met, the wide view front monitor display screen automatically changes to the wide view front and side monitor simultaneous display screen.

| Condition | Engine Switch | AUTO Switch | Vehicle Speed | Shift Lever |
|---|---|---|---|---|
| 1 | On (IG) | On | Decreases to 10 km/h (6 mph) or less from a speed of 12 km/h (7 mph) or more | Moved from P to D or N |
| 2 | On (IG) | On | 12 km/h (7 mph) or less | Moved from R to D or N |

**HINT:**

The AUTO switch is displayed in the bottom left when the wide view front monitor is displayed. Auto-display mode can be set/unset by turning the AUTO switch on/off.

b. Wide view front monitor operation conditions (when auto-display mode is not set).

i. When the following conditions are met and the wide view front and side monitor main switch is pushed, the wide view front monitor display screen changes to the wide view front and side monitor simultaneous display screen.

| Engine Switch | AUTO Switch | Vehicle Speed |
|---|---|---|
| On (IG) | Off | 12 km/h (7 mph) or less |

**for Preparation** Click here

## GENERAL

a. This system has a front television camera assembly to display the front view of the vehicle on the display and navigation module display.

b. This system consists of the following components:

i. Front television camera assembly

ii. Parking assist ECU

iii. Display and navigation module display

iv. Skid Control ECU

v. Front and Side Monitor Main Switch

- Steering angle sensor
- ECM
- Steering control ECU *1

*1: w/ Parking Assist Monitor System

c. This system is equipped with a self-diagnosis system, which is operated on a designated window that appears on the display panel, just as in the navigation system.

## FUNCTION OF COMPONENTS

a. The parking assist ECU controls the system by using information from the following components.

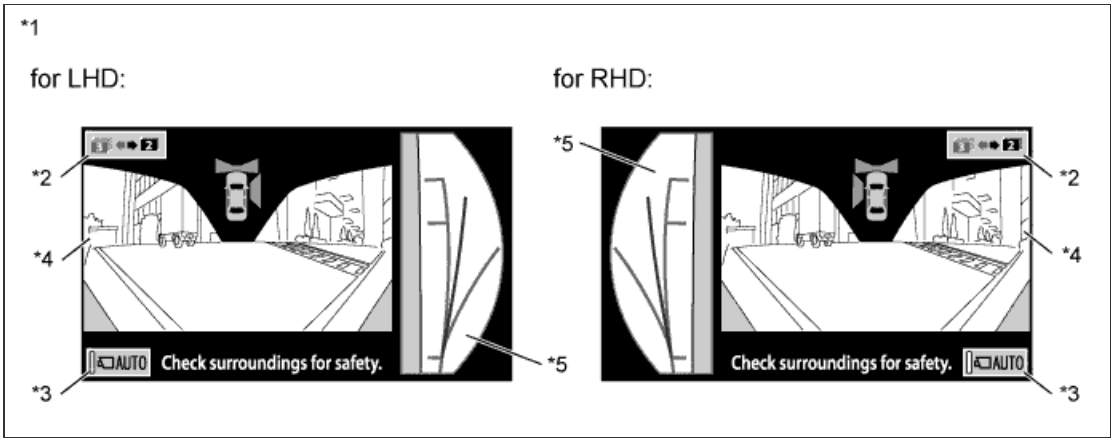
| Item | Function |
|---|---|
| Parking assist ECU | • Turns the side television camera assembly on or off based on parameters such as the display settings, the front and side monitor main switch signal, the shift signal and the vehicle speed signal.<br>• Transmits the wide view front and side monitor, side monitor, or wide view front monitor signals to the multi-display based on parameters such as the display settings, the front and side monitor main switch signal, the shift signal and the vehicle speed signal.<br>• Depending on the display settings, renders the output display for the wide view front and side monitor, the side monitor, or the wide view front monitor, and outputs them to the screen of the display and navigation module display.<br>• Renders each configuration page in the diagnosis window and outputs the screen to the display and navigation module display. |
| Front television camera | Generates a video feed showing the front side of the vehicle and transmits the video to the parking assist ECU. |
| Front and side monitor main switch | Operating the switch sends a signal to the parking assist ECU. |
| ECM | Transmits shift position signal, drivetrain signal, engine type signal, and system status signals to the parking assist CPU via CAN communication. |
| Skid control ECU | Transmits vehicle speed signal and system status signals to the parking assist ECU via CAN communication. |
| Display and navigation module display | This touchpanel display is used to view and interact with the wide view front and side monitor, side view monitor, wide view front monitor, and diagnosis screens. |

## OPERATION EXPLANATION

a. The front and side monitor main switch ON signal is sent from the main switch to the parking assist ECU.
After receiving the front and side monitor main switch ON signal, the parking assist ECU switches the display signal for the display and navigation module display from the navigation system to the wide view front monitor system.

## DISPLAY CONDITIONS FOR FRONT MONITOR DISPLAY

a. Screen display operation




**Text in Illustration**

| | | | |
|---|---|---|---|
| *1 | Wide View Front and Side Monitor Screen | *2 | Change display mode switch<br>(Illustration shows mode 3) |
| *3 | Automatic display mode set/cancel switch<br>(Illustration shows automatic display mode off) | *4 | Wide View Front Monitor Screen |
| *5 | Side Monitor Screen | - | - |

i. After the display conditions have been met while the wide view front monitor system and the side monitor system are operating normally (when no DTCs are output), the wide view front and side monitor screen will be the initial display in both manual and automatic modes.

**HINT:**

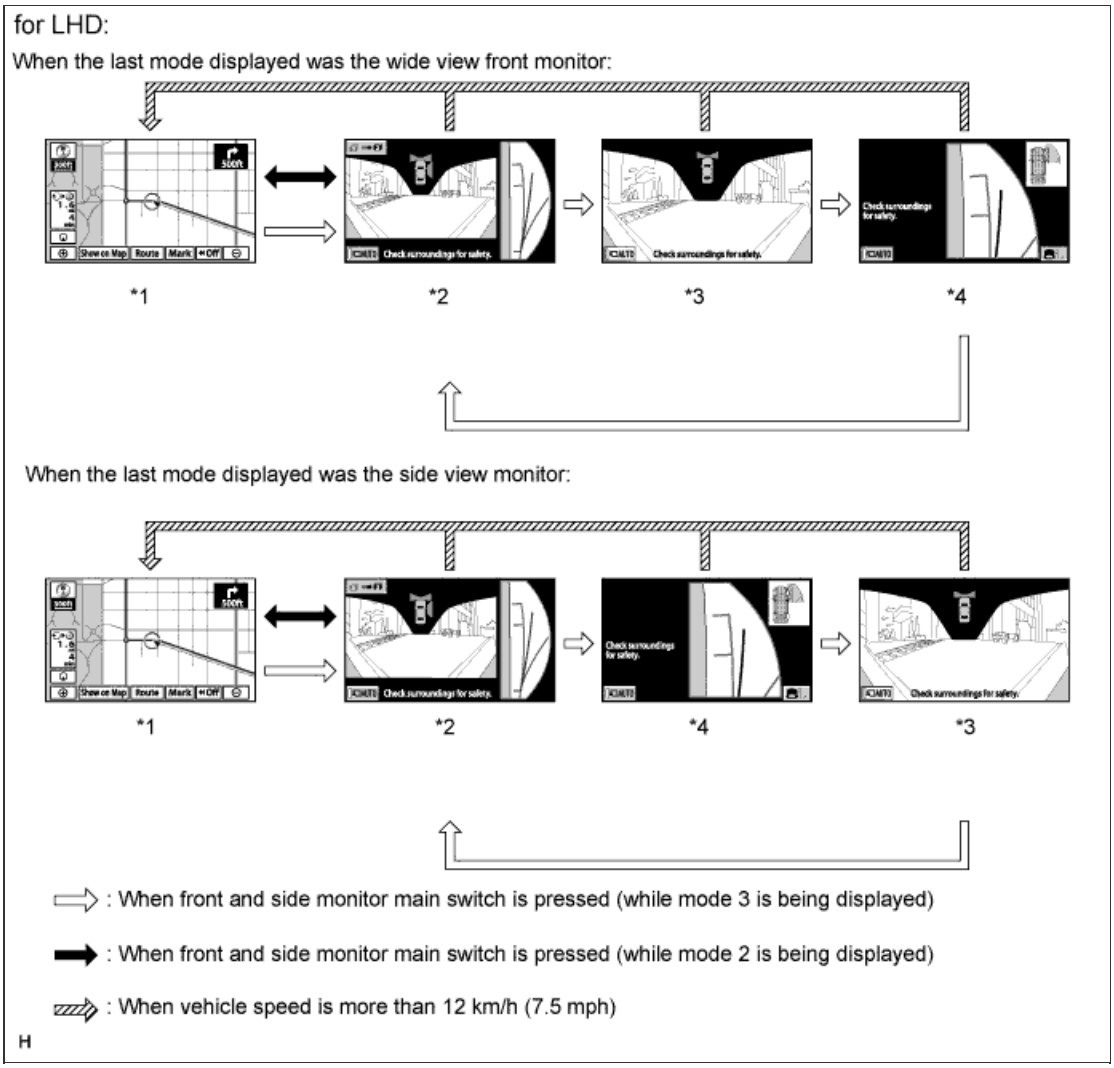
- **When the shift lever is in a position other than R, and the wide view front and side monitor screen displays the change display mode switch or the automatic mode set / cancel switch, the following operations are possible:**
- **Change display mode button**

| Display Mode | Change Display Mode Switch | Function |
|---|---|---|
| 3 | 3 is grayed out | While the wide view front and side monitor screen is displayed, pressing the front and side monitor main switch will change to either the wide view front monitor or the side view monitor displays (the specific transition will depend on the last mode displayed). |
| 2 | 2 is grayed out | While the wide view front and side monitor screen is displayed, pressing the front and side monitor main switch will change to the navigation screen, the information configuration screen, or similar. |

- **Automatic display mode set/cancel button**

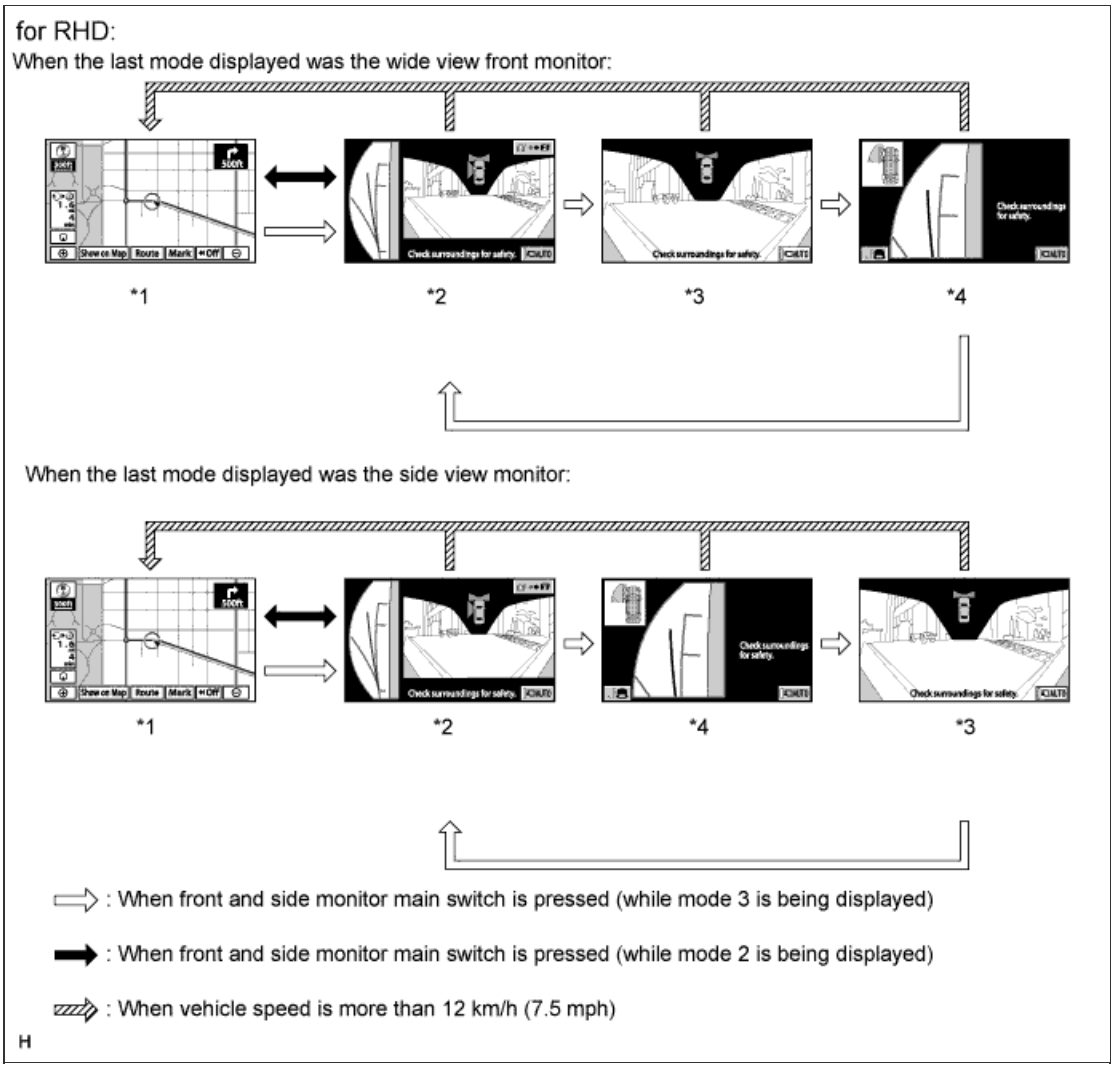
| Automatic mode display button (Indicator in the button) | Display mode |
|---|---|
| ON<br>(Illuminated) | Automatic display mode |
| OFF<br>(Not illuminated) | Manual display mode |

b. Display conditions for manual display mode (Shift lever in a position other than R)




### Text in Illustration

| | | | |
|---|---|---|---|
| *1 | Navigation display etc. | *2 | Wide view front and side monitor screen |
| *3 | Wide view front monitor screen | *4 | Side monitor screen |




**Text in Illustration**

| | | | |
|---|---|---|---|
| *1 | Navigation display etc. | *2 | Wide view front and side monitor screen |
| *3 | Wide view front monitor screen | *4 | Side monitor screen |

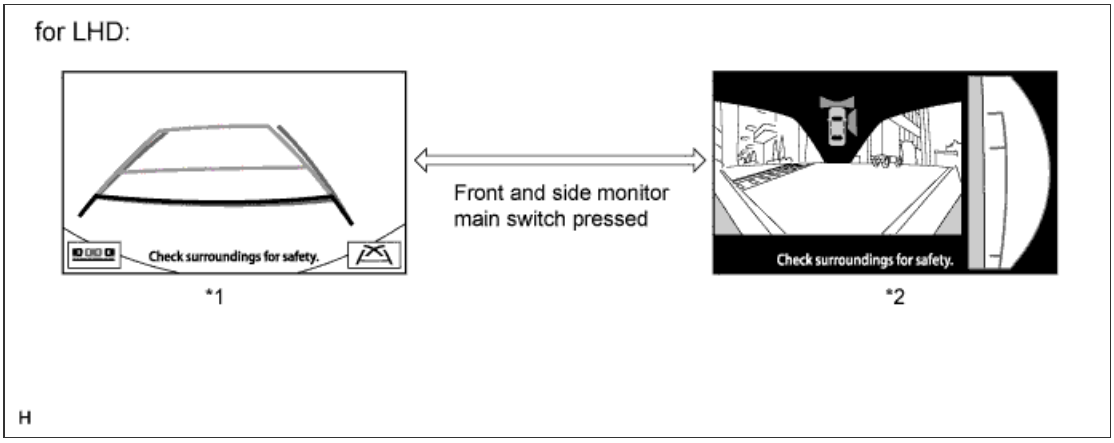
i. During manual display mode (shift lever in a position other than R), during IG ON or engine startup (no DTCs are output), if the following conditions have been met, pressing the front and side monitor main switch will change the display mode as follows

| Automatic mode display button | Display and Navigation Module Display Screen | Shift Lever Position | Vehicle Speed | Last Mode Screen | Screen (changes due to front and side monitor main switch operation) |
|---|---|---|---|---|---|
| OFF | Navigation display etc. | Other than R | 12 km/h (7.5 mph) or less | Wide view front monitor display | Navigation display etc. → Wide view front and side monitor display → Wide view front monitor display → Side monitor display → Wide view front and side monitor display |
| OFF | Navigation display etc. | Other than R | 12 km/h (7.5 mph) or less | Side monitor display | Navigation display etc. → Wide view front and side monitor display → Side monitor display → Wide view front monitor display → Wide view front and side monitor display |

**HINT:**

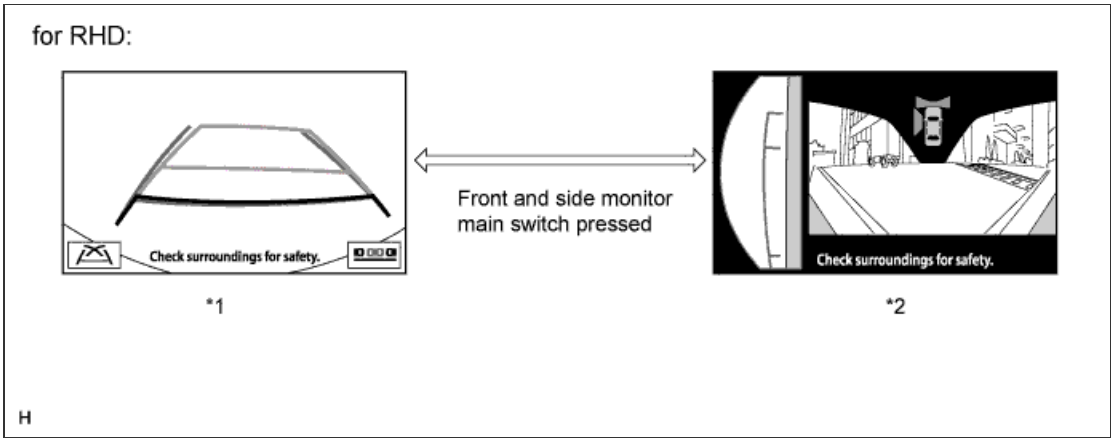
*1: In this case, the side monitor display is in path line deletion mode.

c. Display conditions for manual display mode (Shift lever in R)




**Text in Illustration**

| | | | |
|---|---|---|---|
| *1 | Parking assist monitor display | *2 | Wide view front and side monitor display |




**Text in Illustration**

| | | | |
|---|---|---|---|
| *1 | Parking assist monitor display | *2 | Wide view front and side monitor display |

i. During manual display mode (shift lever in R position), during IG ON or engine startup (no DTCs are output), if the following conditions have been met, pressing the front and side monitor main switch will change the display mode as follows:

| Display and Navigation Module Display Screen | Vehicle Speed | Screen (changes due to front and side monitor main switch operation) |
|---|---|---|
| Parking assist monitor display | 12 km/h (7.5 mph) or less | Parking assist monitor display → Wide view front monitor and side monitor display → Parking assist monitor display |

d. Display conditions for automatic display mode

i. In automatic display mode, the wide view front monitor system automatically changes the displayed image depending on the vehicle conditions while the following conditions are met and the system is operating normally (no DTCs output).

| Vehicle Condition | Display and Navigation Module Display Screen | Shift Position | Vehicle Speed | Screen |
|---|---|---|---|---|
| Stopped → Driving | Navigation display etc. | Except in P or R | 12 km/h (7.5 mph) or less | Navigation display etc. → Wide view front monitor and side monitor display *1 |
| Driving → Stopped | Navigation display etc. | Except in P or R | 10 km/h (6.2 mph) or less | Navigation display etc. → Wide view front monitor and side monitor display *1 |

*1: Screen changes and screen transition conditions after the screen is automatically changed are the same as those for manual display mode (shift lever in a position other than R).

## COMMUNICATION SYSTEM OUTLINE

a. The components of the wide view front monitor system communicate with each other through the AVC-LAN. If a short circuit or open circuit occurs in the AVC-LAN, communication is interrupted and the front monitor system will stop functioning.

## DIAGNOSTIC FUNCTION OUTLINE

a. This wide view front monitor system has a diagnostic function displayed in the display and navigation module display. This function enables the calibration (adjustment and confirmation) of the system (Click here).

b. The system can check the following items by using the intelligent tester.

| Item | Proceed to |
|---|---|
| DTC | Click here |
| Data List / Active Test | Click here |

**for Preparation** Click here

## GENERAL

a. This system has a front television camera assembly to display the front view of the vehicle on the multi-display assembly.

b. This system consists of the following components:

i. Parking assist ECU

ii. Front television camera assembly

iii. Multi-media module receiver assembly

iv. Steering sensor

v. Steering control ECU

vi. Master cylinder solenoid (skid control ECU assembly)

vii. Four wheel drive control ECU

viii. ECM

ix. Front and side monitor main switch assembly

c. This system is equipped with a self-diagnosis system, which is operated on a designated window that appears on the display panel, just as in the navigation system.

## FUNCTION OF COMPONENTS

a. The parking assist ECU controls the system by using information from the following components.

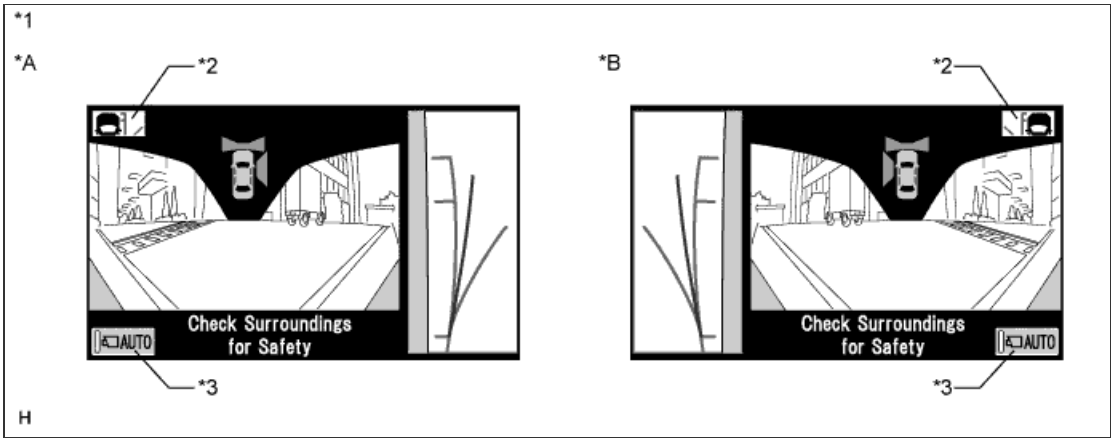
| Item | Function |
|---|---|
| Front Television Camera Assembly | Generates a video feed showing the front side of the vehicle and transmits the video to the parking assist ECU. |
| Front and Side Monitor Main Switch Assembly | Operating the switch sends a signal to the parking assist ECU. |
| Parking Assist ECU | • Turns the side television camera assembly on or off based on parameters such as the display settings, the front and side monitor main switch signal, the shift signal and the vehicle speed signal.<br>• Transmits the wide view front and side monitor, side monitor, or wide view front monitor signals to the multi-media module receiver assembly based on parameters such as the display settings, the front and side monitor main switch signal, the shift signal and the vehicle speed signal.<br>• Depending on the display settings, renders the output display for the wide view front and side monitor, the side monitor, or the wide view front monitor, and outputs them to the screen of the multi-display assembly.<br>• Renders each configuration page in the diagnosis window and outputs the screen to the multi-display assembly. |
| Multi-media Module Receiver Assembly | Communicates with the parking assist ECU through AVC-LAN communication. |
| Multi-display Assembly | This touch panel display is used to view and interact with the wide view front and side monitor, side view monitor, wide view front monitor, and diagnosis screens. |
| Steering Sensor | Detects the angle of the steering wheel and sends the resulting signals to the parking assist ECU through CAN communication. |
| Steering Control ECU | Sends the VGRS relative angle and vehicle condition to the parking assist ECU through CAN communication. |
| Master Cylinder Solenoid (Skid Control ECU Assembly) | Sends the inner brake information and ABS ACT information to the parking assist ECU through CAN communication. |
| Four Wheel Drive Control ECU | Sends the L4 condition signal to the parking assist ECU through CAN communication. |
| ECM | Sends the vehicle condition, 2WD/4WD information and shift position information to the parking assist ECU through CAN communication. |

## OPERATION EXPLANATION

a. The front and side monitor main switch ON signal is sent from the main switch to the parking assist ECU.
After receiving the front and side monitor main switch ON signal, the parking assist ECU switches the display signal for the display and navigation module display from the navigation system to the wide view front monitor system.

## DISPLAY CONDITIONS FOR FRONT MONITOR DISPLAY

a. Screen display operation




**Text in Illustration**

| | | | |
|---|---|---|---|
| *A | for LHD | *B | for RHD |
| *1 | Wide View Front and Side Monitor Screen | *2 | Course guideline display change switch |
| *3 | Automatic display mode set/cancel switch<br>(Illustration shows automatic display mode off) | - | - |

i. After the display conditions are met when the wide view front and side monitor systems are normally functioning, if the screen is changed from the manual display mode or automatic display mode screen, the wide view front and side monitor screen (H4 mode) or wide view front monitor screen (L4 mode) is displayed as the initial screen.

**HINT:**

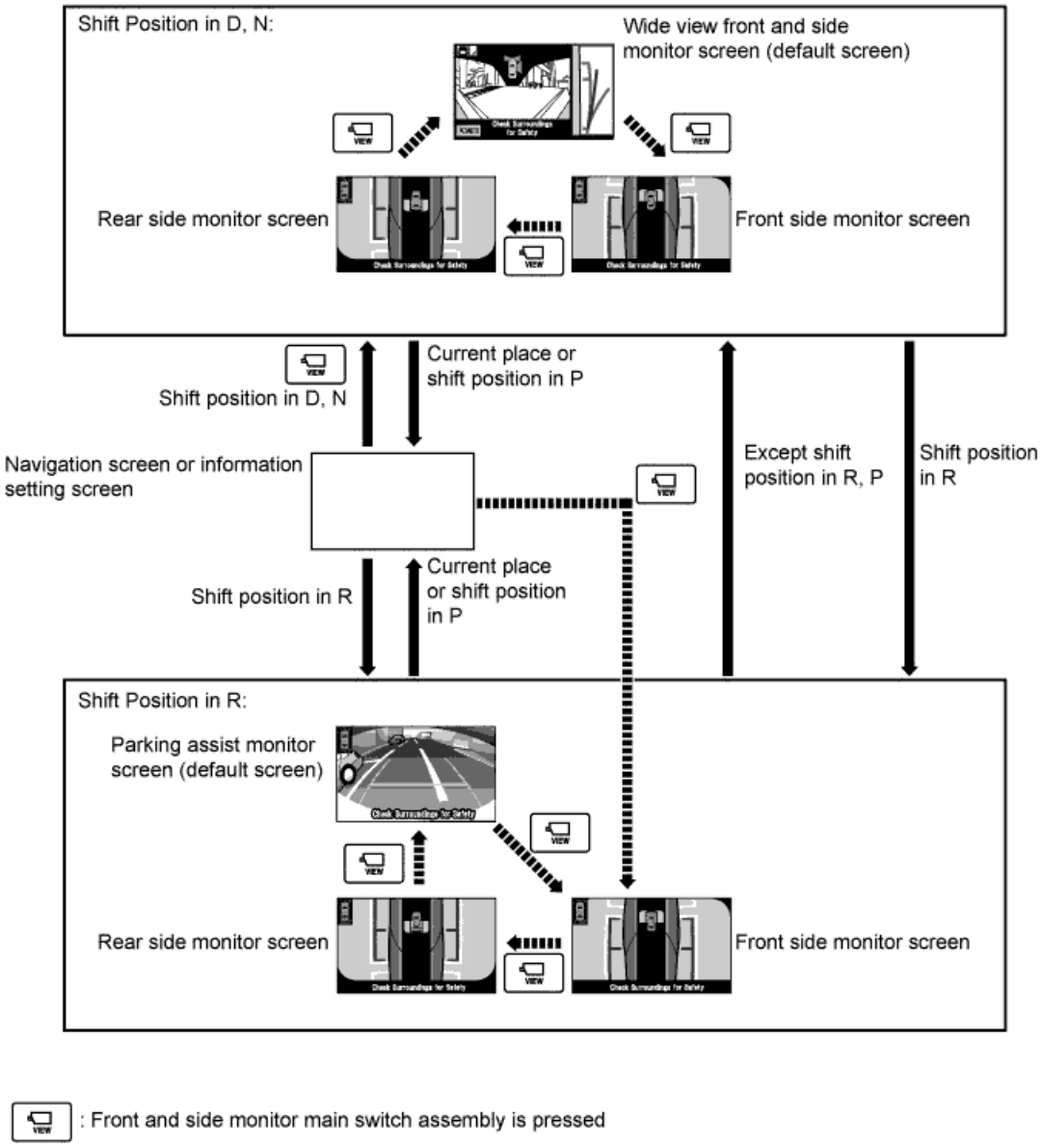
- **If the shift lever is not in R and the wide view front and side monitor screen is displayed, the course guideline display change switch and automatic display mode set/cancel switch are displayed and the following operations can be performed.**
- **For the course guideline display change switch, refer to the following procedures ( Click here).**
- **Automatic display mode set/cancel switch**

| Automatic mode display switch<br>(Indicator in the button) | Display mode |
|---|---|
| ON<br>(Illuminated) | Automatic display mode |
| OFF<br>(Not illuminated) | Manual display mode |

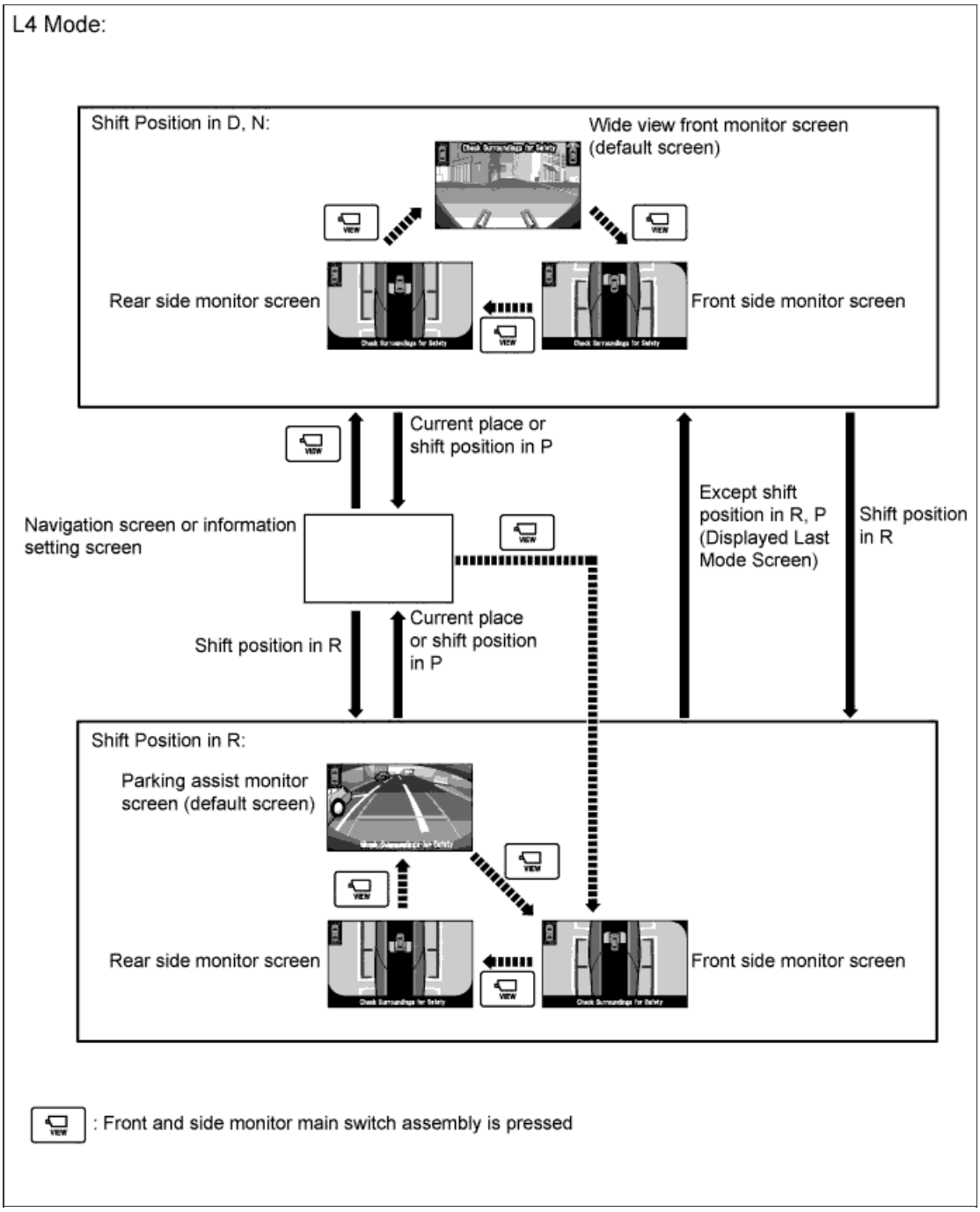
- **The last mode screen is the screen that was displayed last when the screen was changed to the navigation screen, information setting screen, etc.**

b. Display conditions for manual display mode

H4 Mode:




: Front and side monitor main switch assembly is pressed




i. H4 mode:
During manual display mode (shift lever in a position other than R), during engine switch on (IG) or engine startup (no DTCs are output), if the following conditions have been met, pressing the front and side monitor main switch will change the display mode as follows

| Automatic Mode Display Switch | Multi-display Screen | Shift Lever Position | Vehicle Speed | Screen (changes due to front and side monitor main switch assembly operation) |
|---|---|---|---|---|
| OFF | Navigation screen or information setting screen | Other than R | 12 km/h (7.5 mph) or less | Navigation screen or information setting screen → Wide view front and side monitor screen → Front side monitor screen → Rear side monitor screen → Wide view front and side monitor screen |
| | | R position | 0 km/h (0 mph) | Navigation screen or information setting screen → Parking assist monitor screen → Wide view front and side monitor screen → Front side monitor screen → Rear side monitor screen → Parking assist monitor screen |

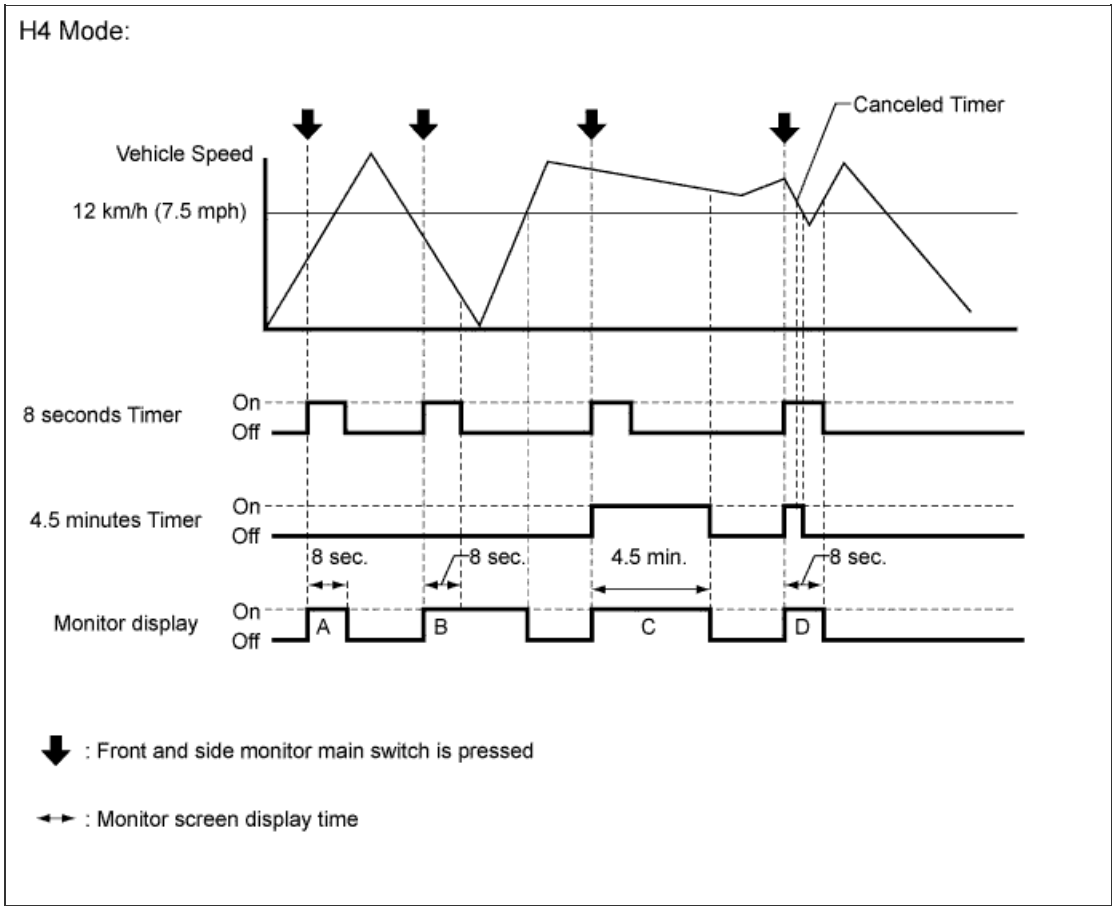
ii. L4 mode:
During manual display mode (shift lever in a position other than R), during engine switch on (IG) or engine startup (no DTCs are output), if the following conditions have been met, pressing the front and side monitor main switch will change the display mode as

follows

| Automatic Mode Display Switch | Multi-display Screen | Shift Lever Position | Vehicle Speed | Screen (changes due to front and side monitor main switch assembly operation) |
|---|---|---|---|---|
| OFF | Navigation screen or information setting screen | Other than R | 12 km/h (7.5 mph) or less | Navigation screen or information setting screen → Wide view front monitor screen → Front side monitor screen → Rear side monitor screen → Wide view front monitor screen |
| | | R position | 0 km/h (0 mph) | Navigation screen or information setting screen → Parking assist monitor screen → Wide view front and side monitor screen → Front side monitor screen → Rear side monitor screen → Parking assist monitor screen |

c. Screen display timer function

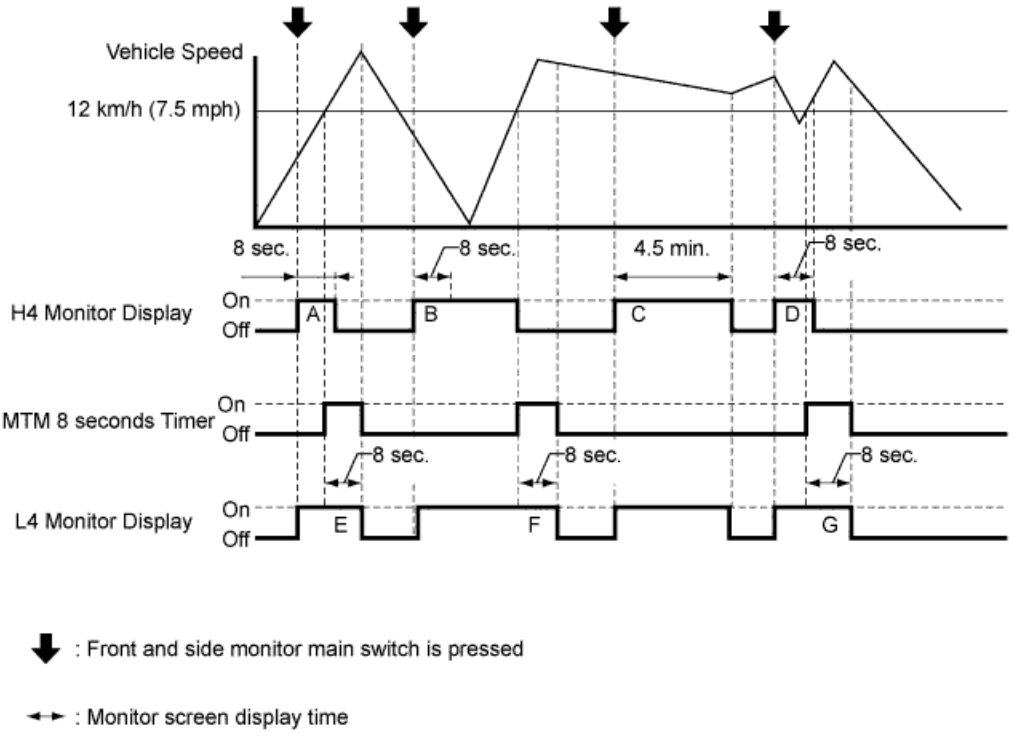
i. During manual display mode (when the shift lever is not in R), when the front and side monitor main switch is pressed and the following conditions are met, the wide view front and side monitor screen is displayed for a certain period of time even when the vehicle speed is more than 12 km/h (7.5 mph).




| Screen Display Time | Time when Front and Side Monitor Main Switch Assembly is Pressed | Change in Vehicle Speed | Timer Operation Time | Note |
|---|---|---|---|---|
| | | | | When the front and side monitor main switch assembly is pressed with the vehicle speed at 12 km/h (7.5 mph) or |

| | | | | |
|---|---|---|---|---|
| A<br>B | 12 km/h (7.5 mph) or less | 12 km/h (7.5 mph) or less | 8 seconds | less, the camera screen is displayed for 8 seconds from the moment the switch is pressed. After this, if the vehicle speed increases to above 12 km/h (7.5 mph), the camera screen is not displayed. |
| C | More than 12 km/h (7.5 mph) | More than 12 km/h (7.5 mph) | 8 seconds or 4 minutes and 30 seconds | When the front and side monitor main switch assembly is pressed while the vehicle speed is more than 12 km/h (7.5 mph), the camera screen is displayed for 4 minutes and 30 seconds the moment the switch is pressed (when the vehicle speed is more than 12 km/h (7.5 mph) after 4 minutes and 30 seconds elapse from the time the switch is pressed). |
| D | More than 12 km/h (7.5 mph) | More than 12 km/h (7.5 mph) → 12 km/h (7.5 mph) or less → More than 12 km/h (7.5 mph) | 8 seconds or 4 minutes and 30 seconds | When the front and side monitor main switch assembly is pressed while the vehicle speed is more than 12 km/h (7.5 mph), the screen display timer operates and the camera screen is displayed. However, after the vehicle speed decreases to 12 km/h (7.5 mph) or less within 4 minutes and 30 seconds (after 8 seconds have elapsed), if the vehicle speed increases to more than 12 km/h (7.5 mph) again, the screen switches to the navigation or information setting screen.<br>After the vehicle speed decreases to 12 km/h (7.5 mph) or less within 8 seconds, if the vehicle speed increases to more than 12 km/h (7.5 mph) again, the 4 minutes 30 seconds timer is canceled and the camera screen is displayed for 8 seconds the moment the front and side monitor main switch assembly is pressed. |

L4 Mode:

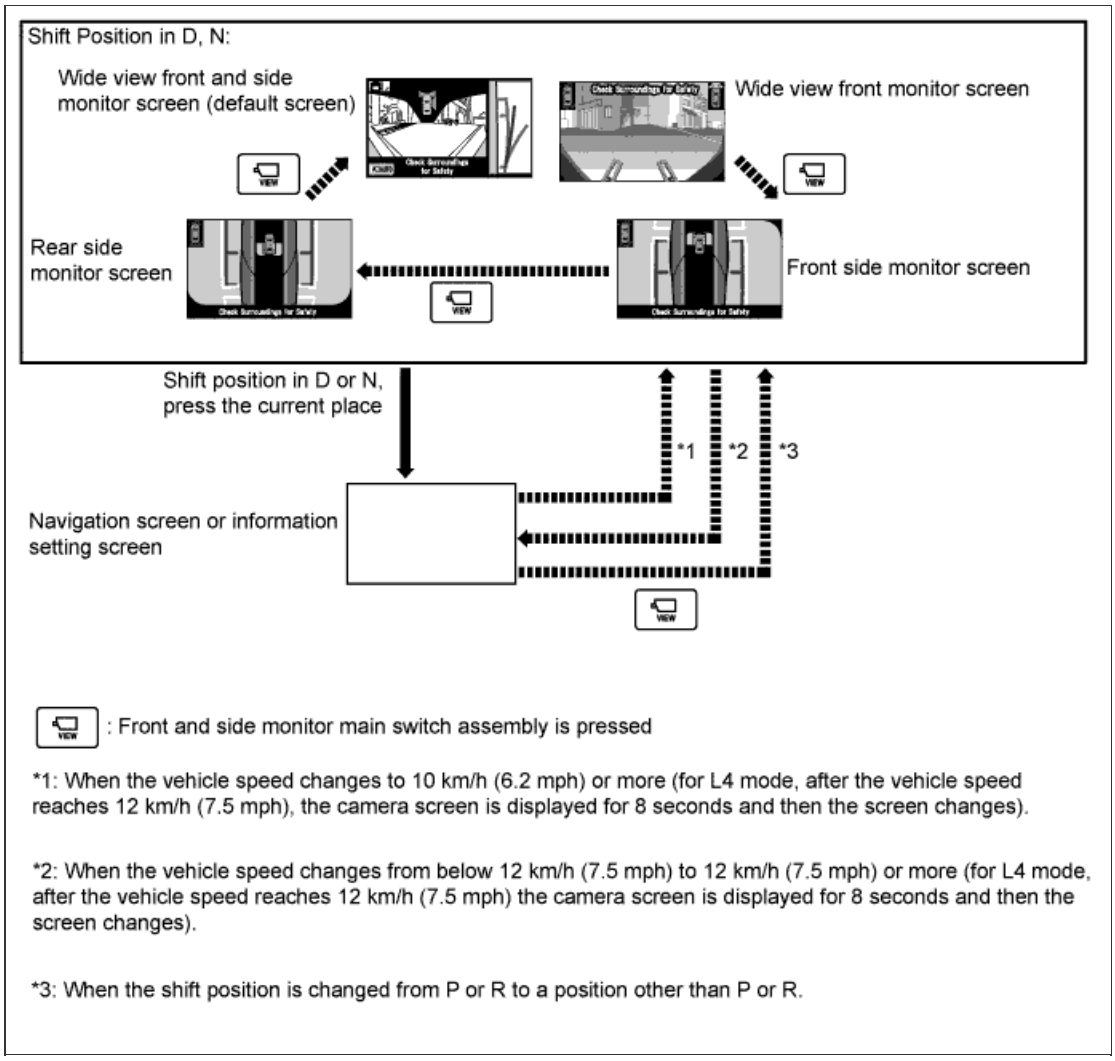



| | | | | |
|---|---|---|---|---|
| | Time when Front and Side | | | |

| Screen Display Time | Monitor Main Switch Assembly is Pressed | Change in Vehicle Speed | Timer Operation Time | Note |
|---|---|---|---|---|
| A<br>B | 12 km/h (7.5 mph) or less | 12 km/h (7.5 mph) or less | 8 seconds | When the front and side monitor main switch assembly is pressed with the vehicle speed at 12 km/h (7.5 mph) or less, the camera screen is displayed for 8 seconds from the moment the switch is pressed. After this, if the vehicle speed increases to above 12 km/h (7.5 mph), the camera screen is not displayed. |
| C | More than 12 km/h (7.5 mph) | More than 12 km/h (7.5 mph) | 8 seconds or 4 minutes and 30 seconds | When the front and side monitor main switch assembly is pressed while the vehicle speed is more than 12 km/h (7.5 mph), the camera screen is displayed for 4 minutes and 30 seconds the moment the switch is pressed (when the vehicle speed is more than 12 km/h (7.5 mph) after 4 minutes and 30 seconds elapse from the time the switch is pressed). |
| D | More than 12 km/h (7.5 mph) | More than 12 km/h (7.5 mph) → 12 km/h (7.5 mph) or less → More than 12 km/h (7.5 mph) | 8 seconds or 4 minutes and 30 seconds | When the front and side monitor main switch assembly is pressed while the vehicle speed is more than 12 km/h (7.5 mph), the screen display timer operates and the camera screen is displayed. However, after the vehicle speed decreases to 12 km/h (7.5 mph) or less within 4 minutes and 30 seconds (after 8 seconds have elapsed), if the vehicle speed increases to more than 12 km/h (7.5 mph) again, the screen switches to the navigation or information setting screen.<br>After the vehicle speed decreases to 12 km/h (7.5 mph) or less within 8 seconds, if the vehicle speed increases to more than 12 km/h (7.5 mph) again, the 4 minutes 30 seconds timer is canceled and the camera screen is displayed for 8 seconds the moment the front and side monitor main switch assembly is pressed. |
| E<br>F<br>G | More than 12 km/h (7.5 mph) | More than 12 km/h (7.5 mph) | 8 seconds | If the vehicle speed is more than 12 km/h (7.5 mph), the camera screen is displayed for 8 seconds. After that, the camera screen is not displayed. The timer is canceled the moment the vehicle speed decreases to below 12 km/h (7.5 mph) during the 8 second timer. |

d. Display conditions for automatic display mode

i. In automatic display mode, the screen display is automatically displayed according to driving conditions when the following conditions are met and the wide view front and side monitor systems are normally operating.




| Vehicle Condition | Multi-display Assembly Display Screen | Shift Lever | Vehicle Speed | Display Screen |
|---|---|---|---|---|
| Stopped → Driving | Navigation screen or information setting screen | Not in P or R | 12 km/h (7.5 mph) or less | Navigation screen or information setting screen → Wide view front monitor and side monitor screen* |
| Driving → Stopped | | Not in P or R | 10 km/h (6.2 mph) or less | Navigation screen or information setting screen → Wide view front monitor and side monitor screen* |

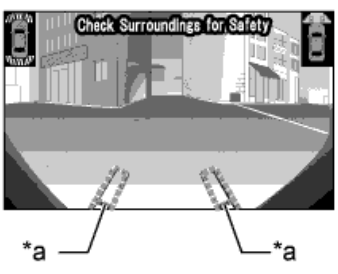
*:The conditions to change the screen after the display screen changes automatically are the same as in manual display mode.

e. Off-road turn assist function

i. With the off-road turn assist function on, the path traveled is displayed as dotted lines on the front screen. In this state, the vehicle may not move exactly as the front lines indicate. (The lines indicate the direction the front wheels are turned. However, with the off-road assist function on, the vehicle turns using a difference in drive force between the left and right wheels.)

**Text in Illustration**

| | |
|---|---|
| *a | Line Indicating Travel Path |




## COMMUNICATION SYSTEM OUTLINE

a. The components of the wide view front monitor system communicate with each other through the AVC-LAN. If a short circuit or open circuit occurs in the AVC-LAN, communication is interrupted and the front monitor system will stop functioning.

## DIAGNOSTIC FUNCTION OUTLINE

a. This wide view front monitor system has a diagnostic function displayed in the display and navigation module display. This function enables the calibration (adjustment and confirmation) of the system (Click here).

b. The system can check the following items by using the intelligent tester.

| Item | Proceed to |
|---|---|
| DTC | Click here |

**for Preparation** Click here

**HINT:**

- **Use the following procedures to troubleshoot the wide view front monitor system.**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

NEXT

## 2.INSPECT BATTERY VOLTAGE

**Standard voltage:**
**11 to 14 V**

If the voltage is below 11 V, replace or recharge the battery before proceeding.

NEXT

## 3.CHECK COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM*

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

**Result**

| Result | Proceed to |
|---|---|
| CAN DTC is not output | A |
| CAN DTC is output (for LHD) | B |
| CAN DTC is output (for RHD) | C |

B. → Go to CAN COMMUNICATION SYSTEM (Click here)

C. → Go to CAN COMMUNICATION SYSTEM (Click here)

A

## 4.CHECK DTC OUTPUT*

a. Check for DTCs (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| No DTC is output | A |
| DTC is output | B |

B. → Go to DIAGNOSTIC TROUBLE CODE CHART ( Click here)

A

## 5.PROBLEM SYMPTOMS TABLE

a. Refer to the Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in problem symptoms table | A |
| Fault is listed in problem symptoms table | B |

B. → Go to step 7

A

## 6.OVERALL ANALYSIS AND TROUBLESHOOTING*

a. Terminals of ECU (Click here).

NEXT

## 7.ADJUST, REPAIR OR REPLACE

NEXT

## 8.CONFIRMATION TEST

NEXT

## END

**for Preparation** Click here

**HINT:**

- **Use the following procedure to troubleshoot the wide view front monitor system.**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

NEXT

## 2.INSPECT BATTERY VOLTAGE

a. Measure the battery voltage with the engine switch off.

**Standard Voltage:**
**11 to 14 V**

If the voltage is below 11 V, replace or recharge the battery before proceeding to the next step.

NEXT

## 3.CHECK NAVIGATION SYSTEM

a. Refer to the navigation system (for HDD) (Click here).

b. Refer to the navigation system (for DVD) (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Navigation system is normal | A |
| Navigation system (for HDD) is abnormal | B |
| Navigation system (for DVD) is abnormal | C |

B. → GO TO NAVIGATION SYSTEM (for HDD) (**Click here**)

C. → GO TO NAVIGATION SYSTEM (for DVD) (**Click here**)

A

## 4.CHECK COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM*

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

**Result**

| Result | Proceed to |
|---|---|
| CAN DTC is not output | A |
| CAN DTC is output (for LHD) | B |
| CAN DTC is output (for RHD) | C |

B. → GO TO CAN COMMUNICATION SYSTEM (for LHD) (**Click here**)

C. → GO TO CAN COMMUNICATION SYSTEM (for RHD) (**Click here**)

A

## 5.CHECK FOR DTC*

a. Check for DTCs and note any codes that are output ( Click here).

b. Clear the DTC (Click here).

c. Recheck for DTCs. Try to prompt the DTC by simulating the original activity that the DTC suggests.

**NOTICE:**

The parking assist ECU may store the DTCs of the following system. If DTCs other than those specified in Diagnostic Trouble Code Chart of the side monitor system are output, refer to Diagnostic Trouble Code Chart for the applicable system.

| System | Proceed to |
|---|---|
| Parking Assist Monitor System | Click here |
| Side Monitor System | Click here |

**Result**

| Result | Proceed to |
|---|---|
| DTC is not output | A |
| DTC is output | B |

B. → Go to step 8

A

## 6.PROBLEM SYMPTOMS TABLE

a. Refer to the Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in Problem Symptoms Table | A |
| Fault is listed in Problem Symptoms Table | B |

B. → Go to step 8

A

## 7.OVERALL ANALYSIS AND TROUBLESHOOTING

a. Refer to Terminals of ECU (Click here).

NEXT

## 8.ADJUST, REPAIR OR REPLACE

NEXT

## 9.CONFIRMATION TEST

NEXT

END

**for Preparation** Click here

**HINT:**

- **Use the following procedure to troubleshoot the wide view front monitor system.**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

NEXT

## 2.INSPECT BATTERY VOLTAGE

**Standard voltage:**
**11 to 14 V**

If the voltage is below 11 V, replace or recharge the battery before proceeding.

NEXT

## 3.CHECK NAVIGATION SYSTEM

a. Refer to the navigation system (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Navigation system is normal | A |
| Navigation system is abnormal | B |

B. → Go to NAVIGATION SYSTEM (**Click here**)

A

## 4.CHECK COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM*

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

- for LHD: Click here
- for RHD: Click here

**Result**

| Result | Proceed to |
|---|---|
| CAN DTC is not output | A |
| CAN DTC is output (for LHD) | B |
| CAN DTC is output (for RHD) | C |

B. → Go to CAN COMMUNICATION SYSTEM (**Click here**)

C. → Go to CAN COMMUNICATION SYSTEM (**Click here**)

A

## 5.CHECK FOR DTC*

a. Check for DTCs and note any codes that are output ( Click here).

b. Clear the DTC (Click here).

c. Recheck for DTCs. Try to prompt the DTC by simulating the original activity that the DTC suggests.

**NOTICE:**

The parking assist ECU may store the DTCs of the following system. If DTCs other than those specified in Diagnostic Trouble Code Chart of the side monitor system are output, refer to Diagnostic Trouble Code Chart for the applicable system.

| System | Proceed to |
|---|---|
| Parking Assist Monitor System (w/ Side Monitor System) | Click here |
| Side Monitor System | Click here |

**Result**

| Result | Proceed to |
|---|---|
| DTC is not output | A |
| DTC is output | B |

B. → Go to step 8

A

## 6.PROBLEM SYMPTOMS TABLE

a. Refer to the Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in Problem Symptoms Table | A |
| Fault is listed in Problem Symptoms Table | B |

B. → ADJUST, REPAIR OR REPLACE IN ACCORDANCE WITH PROBLEM SYMPTOMS TABLE

A

## 7.OVERALL ANALYSIS AND TROUBLESHOOTING

a. Terminals of ECU (Click here).

NEXT

## 8.ADJUST, REPAIR OR REPLACE

NEXT

## 9.CONFIRMATION TEST

NEXT

END

**for Preparation** Click here

**HINT:**

Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

**Wide View Front Monitor System**

| Symptom | Suspected Area | See page |
|---|---|---|
| When auto-display mode is set, display does not change to appropriate screen even though vehicle speed exceeds display permission vehicle speed (approximately 12 km/h (7 mph) or less) | Master Cylinder Solenoid (Skid Control ECU)*1 | Click here |
| | Master Cylinder Solenoid (Skid Control ECU)*2 | Click here |
| | CAN Communication System*1 | Click here |
| | CAN Communication System*2 | Click here |
| | Parking Assist ECU | Click here |
| When auto-display mode is set, display does not change from displayed screen even though vehicle speed is reduced to display permission vehicle speed (approximately 10 km/h (6 mph) or less) | Master Cylinder Solenoid (Skid Control ECU)*1 | Click here |
| | Master Cylinder Solenoid (Skid Control ECU)*2 | Click here |
| | CAN Communication System*1 | Click here |
| | CAN Communication System*2 | Click here |
| | Parking Assist ECU | Click here |
| When auto-display mode is set, display does not change from displayed screen even though shift lever is moved to position other than P or R | Check if DTC 5C-45 is Output | Click here |
| | Park/Neutral Position Switch | Click here |
| | Parking Assist ECU | Click here |
| When auto-display mode is not set, display does not change from displayed screen even though operating main switch while within display permission vehicle speed (approximately 12 km/h (7 mph) or less) | Front and Side Monitor Main Switch | Click here |
| | Harness or Connector | - |
| | CAN Communication System*1 | Click here |
| | CAN Communication System*2 | Click here |
| | Master Cylinder Solenoid (Skid Control ECU)*1 | Click here |
| | Master Cylinder Solenoid (Skid Control ECU)*2 | Click here |
| | Parking Assist ECU | Click here |
| Front monitor image has irregular color, is distorted, or is not displayed (screen is black) | Check if DTC 5C-40 is Output | Click here |
| | Parking Assist ECU | Click here |
| Wide view front monitor system does not operate | ECU Power Source Circuit | Click here |
| | Parking Assist ECU | Click here |

*1: for LHD
*2: for RHD

**for Preparation** Click here

**HINT:**

- **Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms the listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**
- **Inspect the fuses and relays related to this system before inspecting the suspected area below.**

**NOTICE:**

The following inspection procedure of the wide view front monitor system is described on the assumption that the navigation system is normal. If navigation system has any malfunction, first proceed with troubleshooting of the navigation system.

### General

| Symptom | Suspected Area | See page |
|---|---|---|
| When the front and side monitor main switch on, the front monitor image is not displayed (screen is not black). | ECU power source circuit | Click here |
| | "CHK" message(s) are displayed on the SIGNAL CHECK screen | Click here |
| | Images from all cameras are abnormal | Click here |
| | Parking assist ECU | Click here |
| When the front and side monitor main switch on, the front monitor image is not displayed (screen is black). | Image from camera for front monitor is abnormal | Click here |
| | Parking assist ECU | Click here |
| When the front and side monitor main switch off, the front monitor image is displayed. | "CHK" message(s) are displayed on the SIGNAL CHECK screen | Click here |
| | Parking assist ECU | Click here |

### Display Malfunction

| Symptom | Suspected Area | See page |
|---|---|---|
| Images from all cameras are abnormal. | Images from all cameras are abnormal | Click here |
| | Parking assist ECU | Click here |
| Message indicating "System not ready" is displayed even after setting is finished. | Parking assist ECU | Click here |

### Wide View Front Monitor System Malfunction

| Symptom | Suspected Area | See page |
|---|---|---|
| "CHK" message(s) are displayed on the SIGNAL CHECK screen. | "CHK" message(s) are displayed on the SIGNAL CHECK screen | Click here |

**for Preparation** Click here

**HINT:**

- **Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms the listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**
- **Inspect the fuses and relays related to this system before inspecting the suspected area below.**

**NOTICE:**

The following inspection procedure of the wide view front monitor system is described on the assumption that the navigation system is normal. If navigation system has any malfunction, first proceed with troubleshooting of the navigation system.

### General

| Symptom | Suspected Area | See page |
|---|---|---|
| When the front and side monitor main switch on, the front monitor image is not displayed (screen is not black). | Proceed to ["CHK" Message(s) are Displayed on the SIGNAL CHECK Screen] | Click here |
| | Data List/Active Test - AISIC Output Status | Click here |
| | GVIF cable | - |
| | Parking assist ECU | Click here |
| | Multi-display assembly | Click here |
| When the front and side monitor main switch on, the front monitor image is not displayed (screen is black). | Proceed to [Image from Camera for Wide View Front Monitor is Abnormal] | Click here |
| | Multi-display assembly | Click here |
| When the front and side monitor main switch off, the front monitor image is displayed. | Proceed to ["CHK" Message(s) are Displayed on the SIGNAL CHECK Screen] | Click here |
| | Multi-display assembly | Click here |

### Display Malfunction

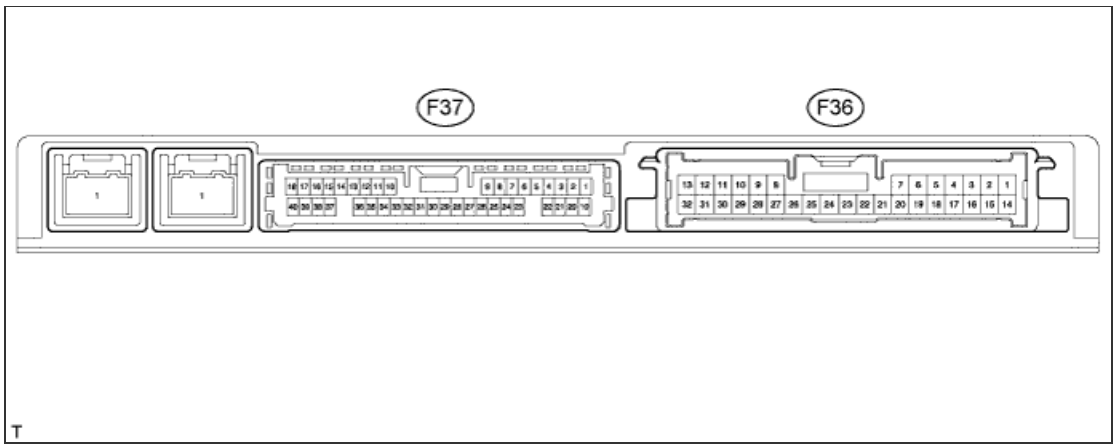
| Symptom | Suspected Area | See page |
|---|---|---|
| Image from camera for the parking assist monitor is abnormal (side monitor system is also abnormal). | Data List/Active Test - AISIC Output Status | Click here |
| | GVIF cable | - |
| | Parking assist ECU | |
| | Multi-media module receiver assembly | Click here |
| Image from camera for the parking assist monitor is abnormal (side monitor system is normal). | Proceed to [Image from Camera for Wide View Front Monitor is Abnormal] | Click here |
| | Multi-media module receiver assembly | Click here |

### Wide View Front Monitor System Malfunction

| Symptom | Suspected Area | See page |
|---|---|---|
| "CHK" message(s) are displayed on the [Signal Check] screen. | Proceed to ["CHK" Message(s) are Displayed on the SIGNAL CHECK Screen] | Click here |

**for Preparation** Click here

## CHECK PARKING ASSIST ECU




a. Disconnect the F36 and F37 ECU connectors.

b. Measure the voltage and resistance according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F36-6 (+B) - F36-4 (GND1) | L - W-B | Power source signal | Always | 11 to 14 V |
| F36-1 (IG) - F36-4 (GND1) | G - W-B | IG power source signal | Engine switch on (IG) | 11 to 14 V |
| F36-1 (IG) - F36-4 (GND1) | G - W-B | IG power source signal | Engine switch off | Below 1 V |
| F36-14 (ACC) - F36-4 (GND1) | GR - W-B | ACC power source signal | Engine switch on (ACC) | 11 to 14 V |
| F36-14 (ACC) - F36-4 (GND1) | GR - W-B | ACC power source signal | Engine switch off | Below 1 V |
| F37-22 (BLSW) - F36-4 (GND1) | G - W-B | Front and side monitor main switch power source signal | Engine switch on (IG), front and side monitor main switch on | 11 to 14 V |
| F37-22 (BLSW) - F36-4 (GND1) | G - W-B | Front and side monitor main switch power source signal | Engine switch on (IG), front and side monitor main switch off | Below 1 V |
| F36-4 (GND1) - Body ground | W-B - Body ground | ECU ground | Always | Below 1 Ω |

c. Reconnect the F36 and F37 ECU connectors.

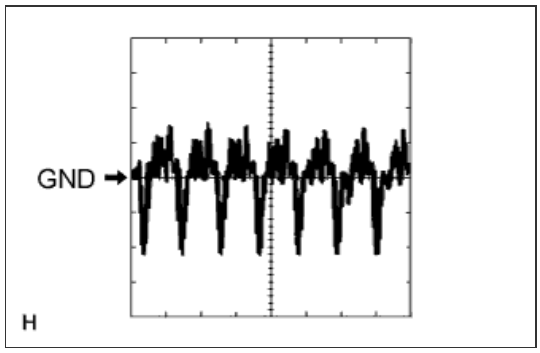
d. Measure the voltage and waveform according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F37-15 (BCV-) - F36-4 (GND1) | Shielded - W-B | Front television camera ground (shielded) | Always | Below 1 V |
| F37-38 (BGND) - F36-4 (GND1) | W - W-B | Front television camera ground | Always | Below 1 V |
| F37-37 (BCV+) - F36-4 (GND1) | R - W-B | Display signal | Wide view front monitor display screen displayed | Waveform 1 |
| F37-37 (BCV+) - F36-4 (GND1) | R - W-B | Display signal | Camera lens covered to make image black while wide view front monitor display screen displayed | Waveform 2 |
| F37-16 (BCB+) - F36-4 (GND1) | B - W-B | Front television camera power source signal | Wide view front monitor display screen displayed | 5.8 to 6.5 V |

e. Using an oscilloscope, check the waveform 1.

**Waveform 1 (Reference)**

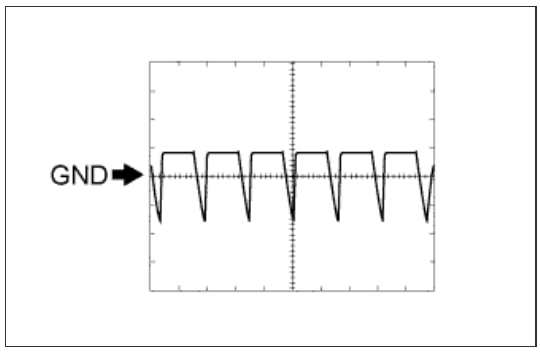
| Item | Content |
|---|---|
| Terminal No. (Symbol) | F37-37 (BCV+) - F36-4 (GND1) |
| Tool Setting | 0.2 V/DIV., 50 µs/DIV. |
| Condition | Wide view front monitor display screen displayed |




f. Using an oscilloscope, check the waveform 2.

**Waveform 2 (Reference)**

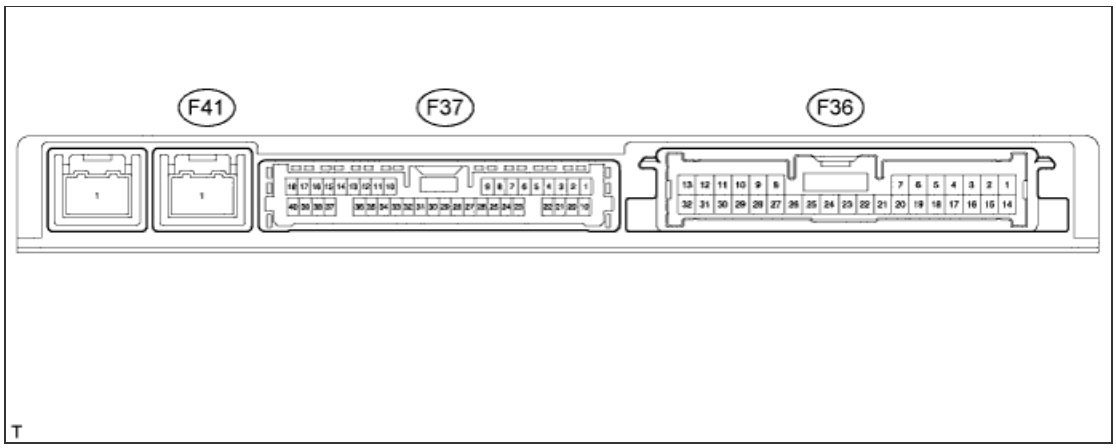
| Item | Content |
|---|---|
| Terminal No. (Symbol) | F37-37 (BCV+) - F36-4 (GND1) |
| Tool Setting | 0.2 V/DIV., 50 µs/DIV. |
| Condition | Camera lens covered to make image black while wide view front monitor display screen displayed |




**CHECK DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

**for Preparation** Click here

## PARKING ASSIST ECU




a. Disconnect the F36 connector from the ECU.

b. Measure the resistance and voltage of each terminal of the wire harness side connector.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F36-6 (+B) - F36-4 (GND1) | L - W-B | Power source signal | Always | 11 to 14 V |
| F36-4 (GND1) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F36-1 (IG) - F36-4 (GND1) | G - W-B | IG Power source signal | Engine switch on (IG) | 11 to 14 V |
| F36-14 (ACC) - F36-4 (GND1) | GR - W-B | ACC Power source signal | Engine switch off (ACC) | 11 to 14 V |

If the result is not as specified, there may be a malfunction on the wire harness side.

c. Reconnect the F36 connector to the ECU.

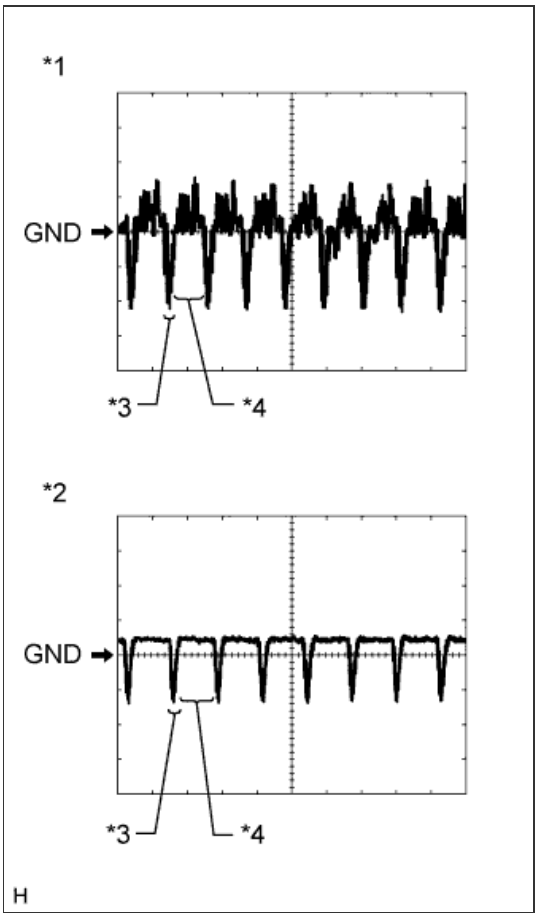
d. Measure the voltage and check for pulses according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F36-10 (CANL) - F36-4 (GND1) | L - W-B | CAN communication signal | CAN communication circuit | Pulse generation |
| F36-9 (CANH) - F36-4 (GND1) | V - W-B | CAN communication signal | CAN communication circuit | Pulse generation |
| F37-22 (BLSW) - F36-4 (GND1) | G - W-B | Front and side monitor main switch signal | Engine switch on (IG) Front and side monitor main switch pushed in | 11 to 14 V |
| | | | Engine switch on (IG) Front and side monitor main switch not pushed in | Below 1 V |
| F36-32 (TX-) - F36-31 (TX+) | L - W | AVC-LAN communication signal | - | - |
| F37-15 (BCV-) - F36-4 (GND1) | W - W-B | Front television camera ground | Always | Below 1 V |
| F37-37 (BCV+) - F36-4 (GND1) | R - W-B | Front television camera display signal (NTSC) input | Engine switch on (IG) Front and side monitor main switch on Under normal conditions | Pulse generation (See waveform 1) |
| | | | Engine switch on (IG) Front and side monitor main switch on Camera lens is covered, blacking out the screen | Pulse generation (See waveform 2) |

| | | | | |
|---|---|---|---|---|
| F37-38 (BGND) - F36-4 (GND1) | Shielded - W-B | Front television camera ground (shield) | Always | Below 1 V |
| F37-16 (BCB+) - F36-4 (GND1) | B - W-B | Power source to front television camera | Engine switch on (IG) Shift lever in R | 5.8 to 7.0 V |

If the result is not as specified, the ECU may have a malfunction.

e. Reference (Oscilloscope waveform):




**HINT:**

A waterproof connector is used for the front television camera assembly. Therefore, inspect the waveform at the parking assist ECU with the connector connected.

i. Waveform 1 (under normal conditions) Reference

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F37-37 (BCV+) - F36-4 (GND1) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), shift lever in R |

**HINT:**

The video waveform changes according to the image sent by the front television camera assembly.

ii. Waveform 2 (camera lens is covered, blacking out the screen) Reference

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F37-37 (BCV+) - F36-4 (GND1) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), shift lever in R |

**HINT:**

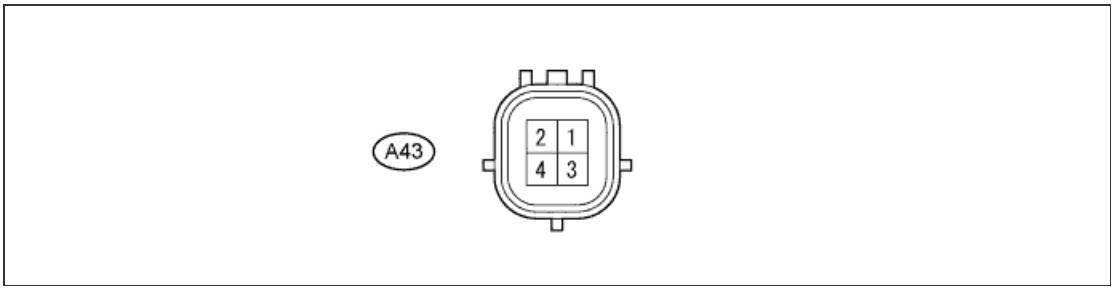
The video waveform changes according to the image sent by the front television camera assembly.

**Text in Illustration**

| | |
|---|---|
| *1 | Waveform 1 (under normal conditions) |
| *2 | Waveform 2 (camera lens is covered, blacking out the screen) |
| *3 | Synchronized Signal |
| *4 | Video Waveform |

## FRONT TELEVISION CAMERA ASSEMBLY

a. Disconnect the connector from the front television camera assembly.




b. Measure the voltage of each terminal of the wire harness side connector.

| Terminal No. (Symbol) | Terminal Description | Condition | Specified Condition |
|---|---|---|---|
| A43-3 (BGND) - Body ground | Ground | Always | Below 1 V |
| A43-1 (BCB+) - A43-3 (BGND) | Power source | Engine switch on (IG)<br>Front and side monitor main switch on | 5.8 to 7.0 V |

If the result is not as specified, there may be a malfunction on the wire harness side.

c. Reconnect the connector to the front television camera assembly.

d. Check for pulses between each terminal of the connector.

| Terminal No. (Symbol) | Terminal Description | Condition | Specified Condition |
|---|---|---|---|
| A43-2 (BCV+) - A43-4 (BCV-) | Display signal | Engine switch on (IG)<br>Front and side monitor main switch on<br>Under normal conditions | Pulse generation<br>(See waveform 1) |
| | | Engine switch on (IG)<br>Front and side monitor main switch on<br>Camera lens covered, blacking out screen | Pulse generation<br>(See waveform 2) |

**HINT:**

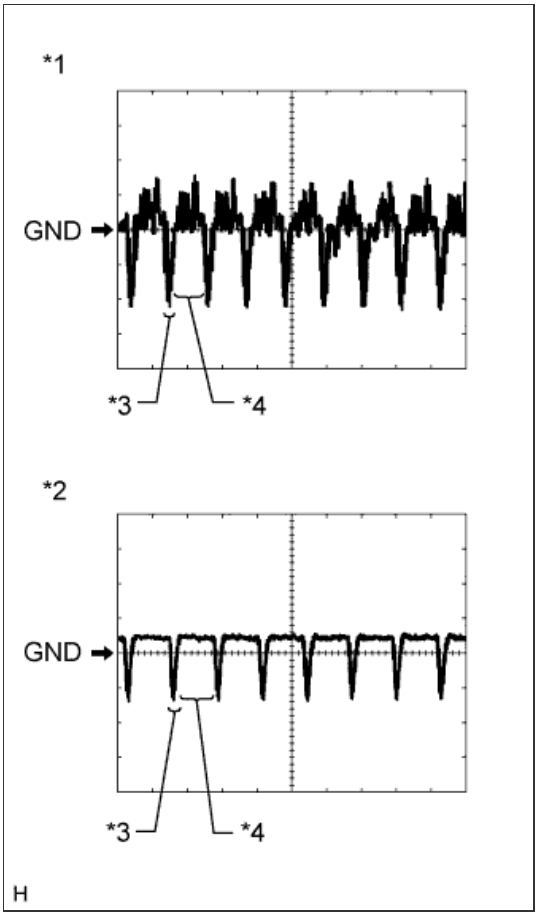
A waterproof connector is used for the front television camera assembly. Therefore, inspect the waveform at the parking assist ECU with the connector connected.

If the result is not as specified, the camera may have a malfunction.

e. Reference (Oscilloscope waveform):

**HINT:**

A waterproof connector is used for the front television camera assembly. Therefore, inspect the waveform at the parking assist ECU with the connector connected.




i. Waveform 1 (under normal conditions) Reference

| Item | Content |
|---|---|
| Terminal No. (Symbol) | A43-2 (BCV+) - A43-4 (BCV-) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), front and side monitor main switch on |

**HINT:**

The video waveform changes according to the image sent by the front television camera assembly.

ii. Waveform 2 (camera lens is covered, blacking out the screen) Reference

| Item | Content |
|---|---|
| Terminal No. (Symbol) | A43-2 (BCV+) - A43-4 (BCV-) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), front and side monitor main switch on |

**HINT:**

The video waveform changes according to the image sent by the front television camera assembly.

**Text in Illustration**

| | |
|---|---|
| *1 | Waveform 1 (under normal conditions) |
| *2 | Waveform 2 (camera lens is covered, blacking out the screen) |
| | |

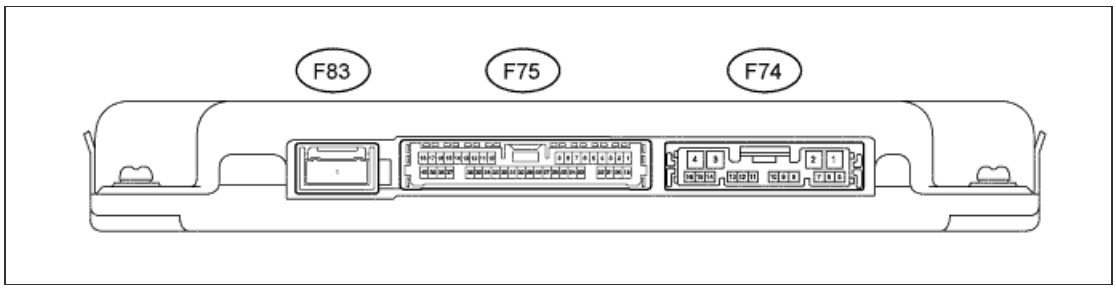
| | |
|---|---|
| *3 | Synchronized Signal |
| *4 | Video Waveform |

## DISPLAY AND NAVIGATION MODULE DISPLAY

- for HDD navigation system (Click here).
- for DVD navigation system (Click here).

**for Preparation** Click here

## PARKING ASSIST ECU




a. Disconnect the F74 and F75 parking assist ECU connectors.

b. Measure the voltage and resistance according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F74-1 (+B) - F74-4 (GND1) | L - W-B | Power source signal | Always | 11 to 14 V |
| F74-4 (GND1) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F74-8 (IG) - F74-4 (GND1) | G - W-B | IG Power source signal | Engine switch on (IG) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F74-9 (ACC) - F74-4 (GND1) | GR - W-B | ACC Power source signal | Engine switch on (ACC) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F75-7 (BLSW) - F74-4 (GND1) | G - W-B | Front and side monitor main switch power source signal | Engine switch on (IG), front and side monitor main switch assembly on | 11 to 14 V |

c. Reconnect the F74 and F75 parking assist ECU connectors.

d. Measure the voltage according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F74-10 (TX-) | L | AVC-LAN communication signal | - | - |
| F74-11 (TX+) | W | AVC-LAN communication signal | - | - |
| F75-36 (BCV-) - F75-35 (BGND) | W - Shielded | Front television camera ground | Always | Below 1 V |
| F75-12 (BCV+) - F75-35 (BGND) | R - Shielded | Front television camera display signal input | Engine switch on (IG), front and side monitor main switch assembly on | Pulse generation (See waveform) |
| F75-35 (BGND) - F74-4 (GND1) | Shielded - W-B | Front television camera ground (shield) | Always | Below 1 V |
| F75-11 (BCB+) - F75-35 (BGND)) | B - Shielded | Power source to front television camera | Engine switch on (IG), front and side monitor main switch assembly on | 5.5 to 7.05 V |

e. Using an oscilloscope, check waveform.

**Text in Illustration**

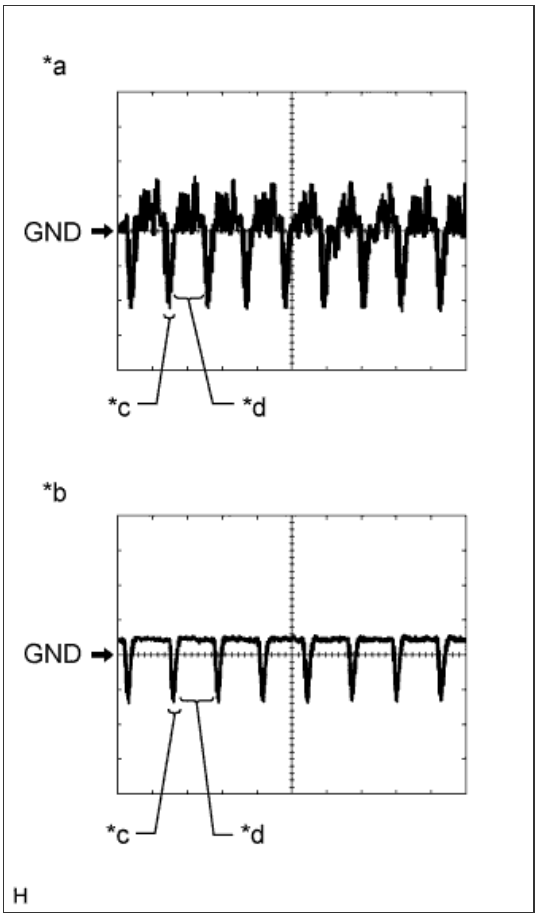
| | |
|---|---|
| *a | Waveform A (under normal conditions) |
| *b | Waveform B (camera lens is covered, blacking out the screen) |
| *c | Synchronized Signal |
| *d | Video Waveform |

**HINT:**

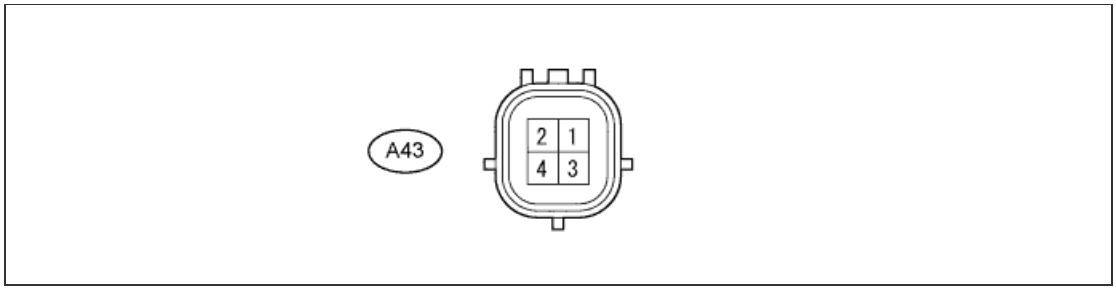
The video waveform changes according to the image sent by the rear television camera assembly.

i. Waveform

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F75-12 (BCV+) - F75-35 (BGND) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | • Waveform A: Engine switch on (IG), front and side monitor main switch assembly on and camera lens is not covered, displaying an image<br>• Waveform B: Engine switch on (IG), front and side monitor main switch assembly on and camera lens is covered, blacking out the screen. |




## FRONT TELEVISION CAMERA ASSEMBLY




a. Disconnect the A43 front television camera assembly connector.

b. Measure the voltage according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| A43-3 (BGND) - Body ground | BR - Body ground | Ground | Always | Below 1 V |
| A43-1 (BCB+) - A43-3 (BGND) | G - BR | Power source | Engine switch on (IG) Front and side monitor main switch on | 5.5 to 7.05 V |

c. Reconnect the A43 front television camera assembly connector.

**HINT:**

A waterproof connector is used for the front television camera assembly. Therefore, inspect the waveform at the parking assist ECU with the connector connected.

d. Measure the voltage according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| A43-2 (BCV+) - A43-3 (BGND) | L - BR | Display signal | Engine switch on (IG), front and side monitor main switch assembly on | Pulse generation (See waveform) |
| A43-4 (BCV-) - A43-3 (BGND) | Y - BR | Front television camera ground | Always | Below 1 V |

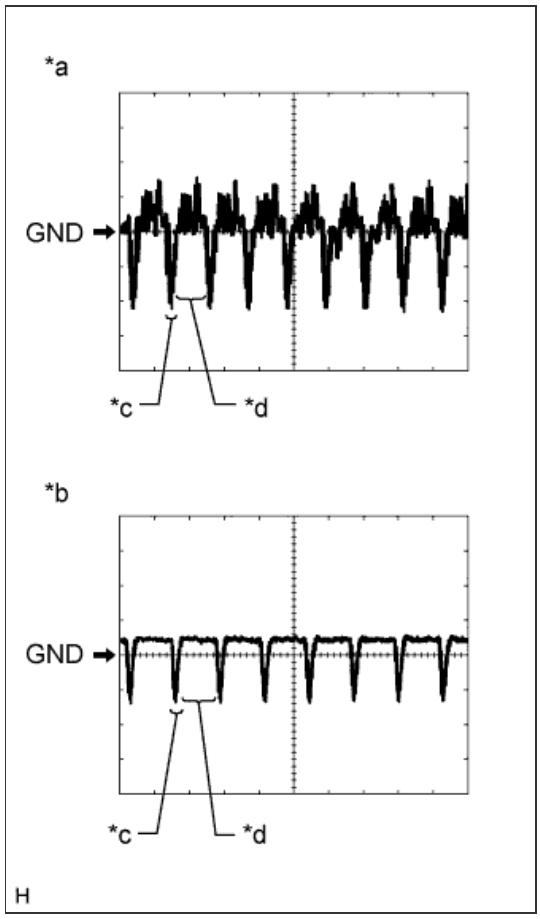
e. Using an oscilloscope, check waveform.

**Text in Illustration**

| | |
|---|---|
| *a | Waveform A (under normal conditions) |
| *b | Waveform B (camera lens is covered, blacking out the screen) |
| *c | Synchronized Signal |
| *d | Video Waveform |

**HINT:**

The video waveform changes according to the image sent by the front television camera assembly.




i. Waveform

| Item | Content |
|---|---|
| Terminal No. (Symbol) | A43-2 (BCV+) - A43-3 (BGND) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | • Waveform A: Engine switch on (IG), front and side monitor main switch assembly on and camera lens is not covered, displaying an image<br>• Waveform B: Engine switch on (IG), front and side monitor main switch assembly on and camera lens is covered, blacking out the screen. |

**MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)**

**MULTI-DISPLAY ASSEMBLY (Click here)**

**for Preparation** Click here

## FRONT MONITOR DIAGNOSIS SYSTEM

a. In the front monitor diagnosis system, signals received by the parking assist ECU can be checked and the wide view front monitor system can be calibrated, adjusted and checked on the display and navigation module display.

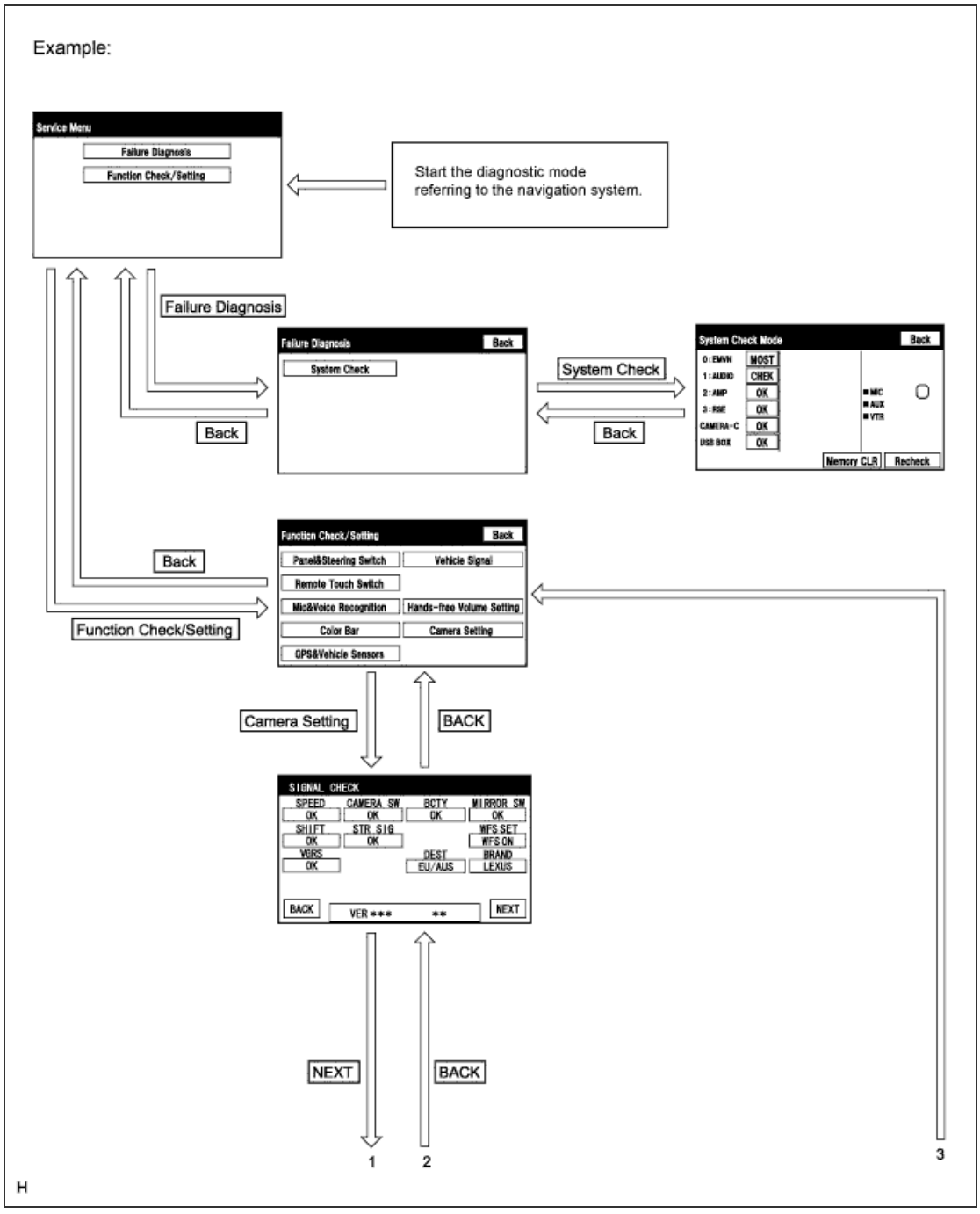
**NOTICE:**

Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems may be needed (Click here).

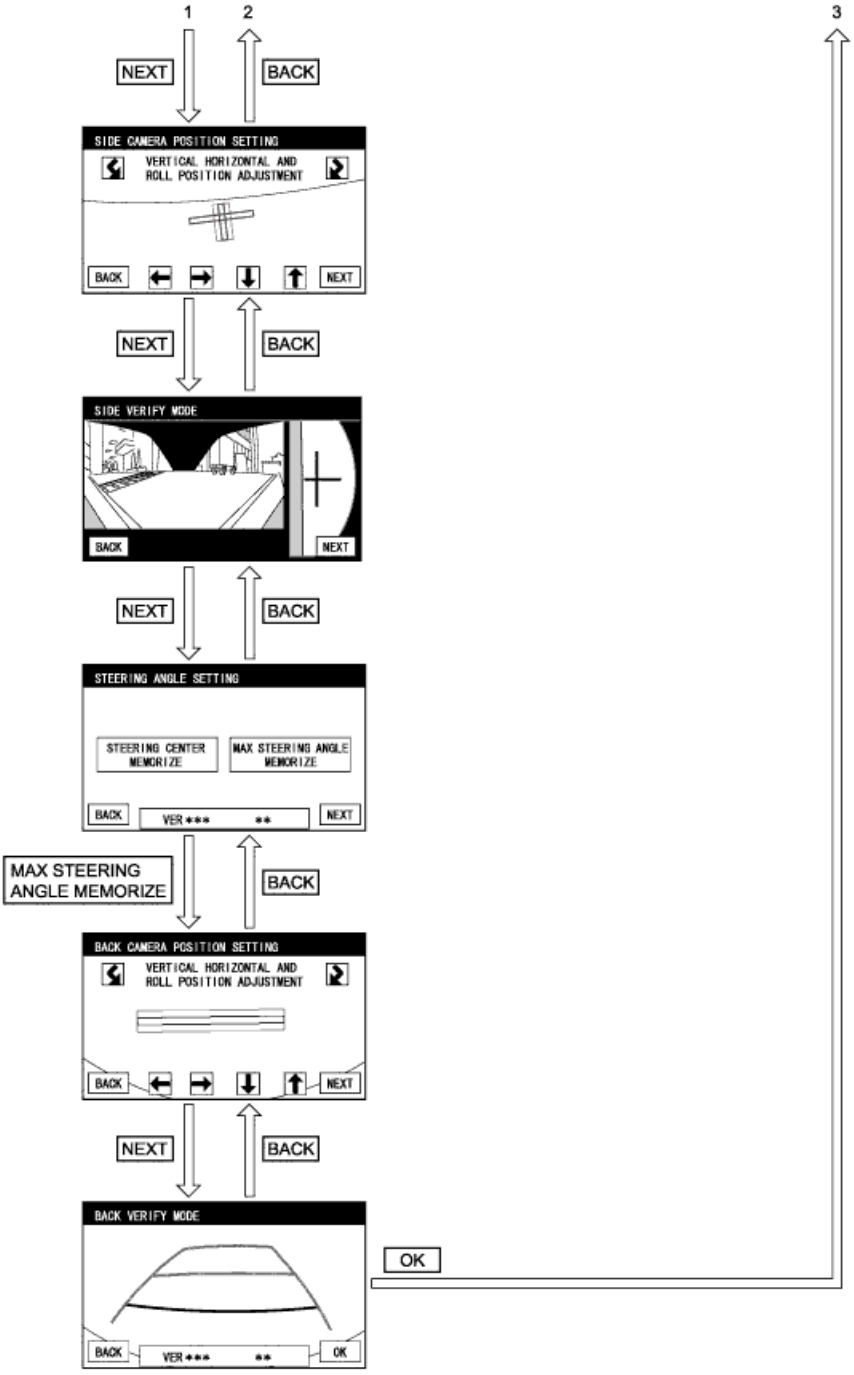
**HINT:**

The displayed screens and items may differ depending on vehicle specifications.

## DIAGNOSIS SCREEN TRANSITION (during first-time parking assist ECU initialization)

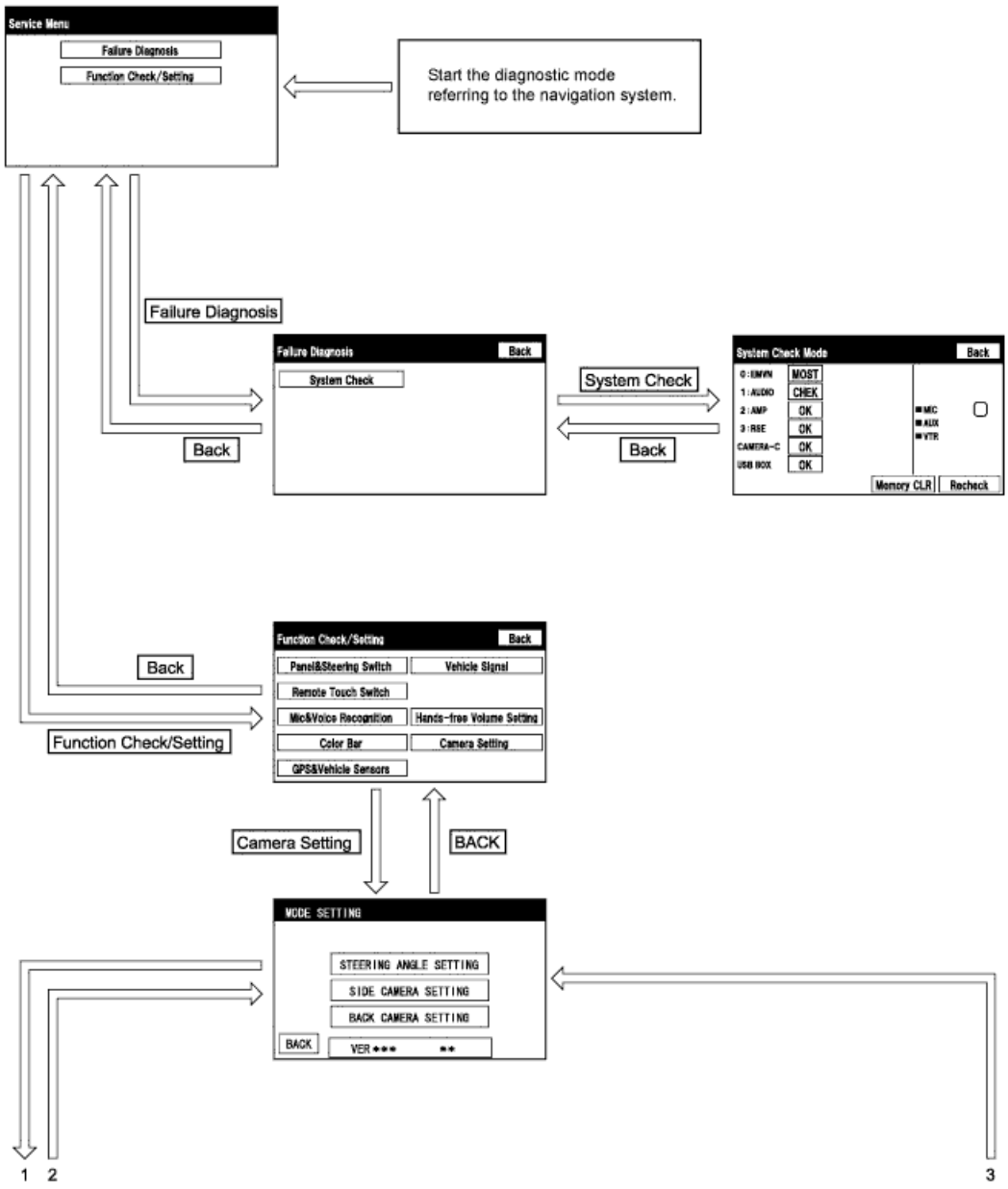


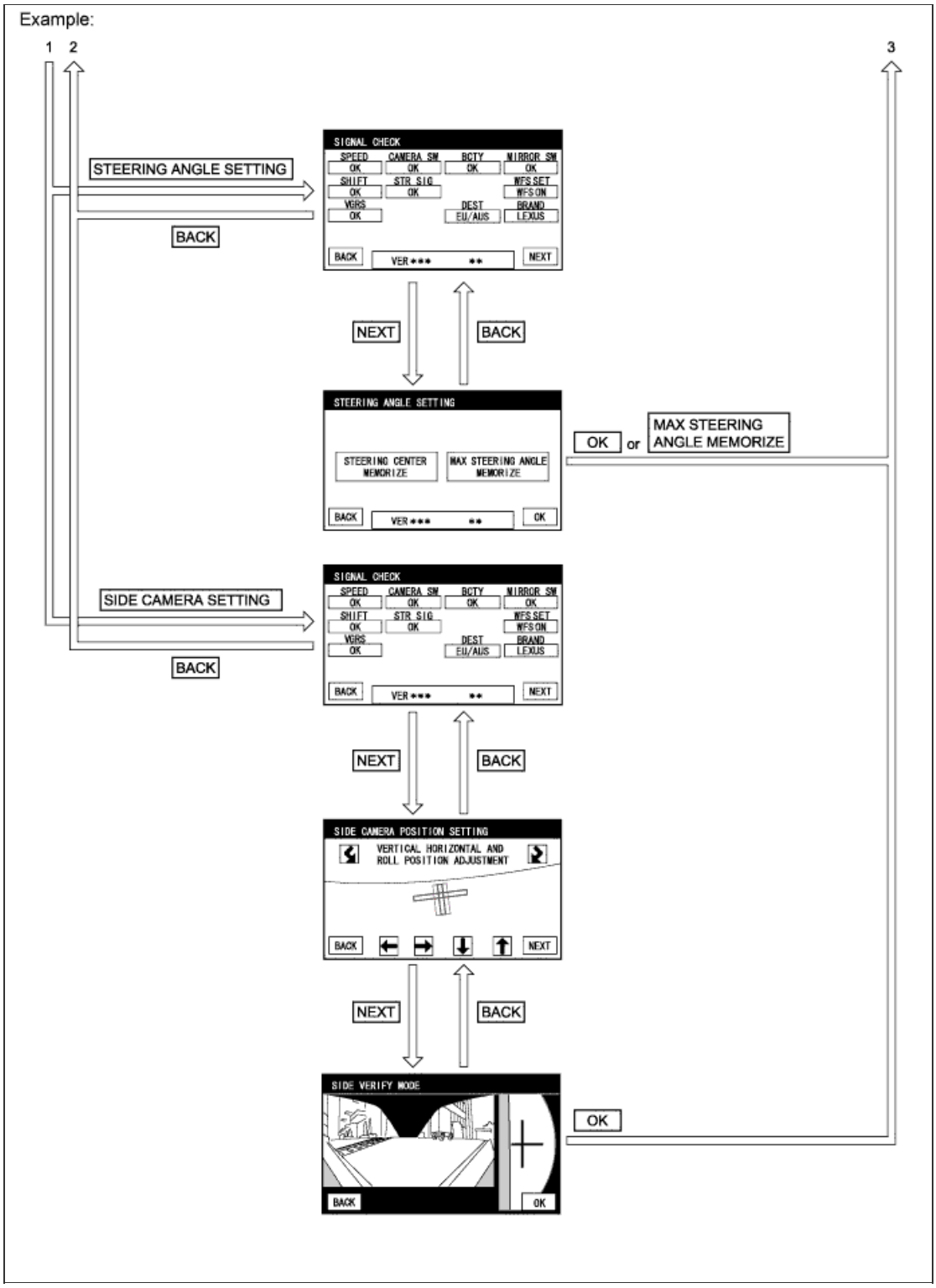
Example:




**DIAGNOSIS SCREEN TRANSITION (after parking assist ECU initialization)**

Example:


Service Menu
Failure Diagnosis
Function Check/Setting
Start the diagnostic mode referring to the navigation system.
Failure Diagnosis
Back
Failure Diagnosis
Back
System Check
System Check
Back
System Check Mode
Back
0 : BMVN
MOST
1 : AUDIO
CHEK
2 : AMP
OK
3 : RSE
OK
CAMERA-C
OK
USB BOX
OK
MIC
AUX
VTR
Memory CLR
Recheck
Back
Function Check/Setting
Function Check/Setting
Back
Panel&Steering Switch
Vehicle Signal
Remote Touch Switch
Mic&Voice Recognition
Hands-free Volume Setting
Color Bar
Camera Setting
GPS&Vehicle Sensors
Camera Setting
BACK
MODE SETTING
STEERING ANGLE SETTING
SIDE CAMERA SETTING
BACK CAMERA SETTING
BACK
VER***
**
1
2
3



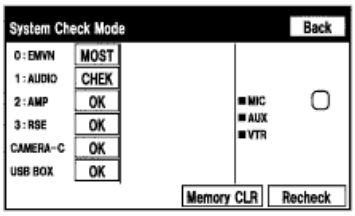

## DIAGNOSTIC MODE

a. Start diagnostic mode (Click here).

b. Failure diagnosis (Click here).

c. System check (check using system check mode screen) (Click here).

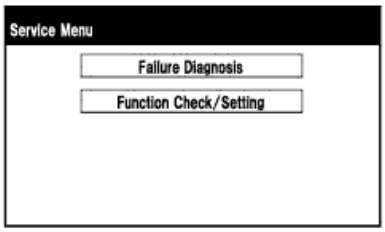
d. Finish diagnostic mode (Click here).




## SIGNAL CHECK (parking assist ECU input signal)

a. Start diagnostic mode (Click here).

i. Select "Function Check/Setting" on the Service Menu screen to display the Function Check/Setting screen.

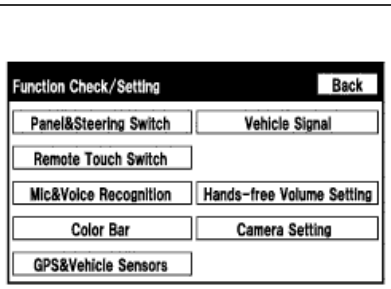



ii. Select "Camera Setting" on the Function Check/Setting screen.

**HINT:**

After "Camera Setting" is selected, the screen transitions differ depending on whether initialization of the parking assist ECU was performed after parking assist ECU replacement.

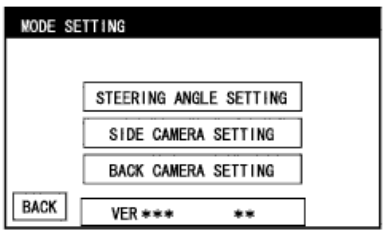
| Parking Assist ECU Initialization | Screen Transition |
|---|---|
| Not performed | SIGNAL CHECK screen |
| Performed | MODE SETTING screen |




iii. When the screen changes to the MODE SETTING screen, select "BACK CAMERA SETTING" to display the SIGNAL CHECK screen.

**HINT:**

To select a grayed out item, select and hold the item for 2 seconds or more.




H

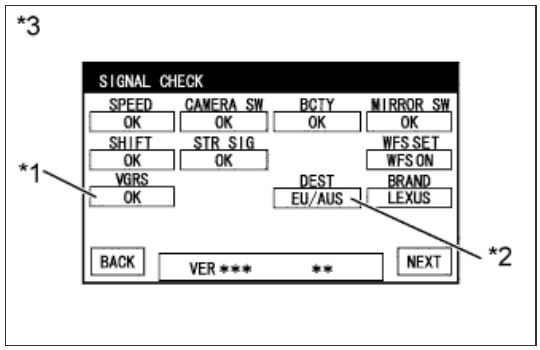
b. SIGNAL CHECK

**Text in Illustration**

| | |
|---|---|
| *1 | w/ VGRS |
| *2 | "EU/AUS" or "GCC/ZAF" |
| | |

*3 Example

i. On the SIGNAL CHECK screen, it is possible to inspect the state of signals sent to the parking assist ECU and check the settings.




| Item | Inspection Detail | Note |
|---|---|---|
| SPEED | Speed signal input | When "CHK" (red) is displayed, selecting "NEXT" will not change to the next screen. |
| CAMERA SW | Front and side monitor main switch signal input | |
| BCTY | CAN communication condition with main body ECU | |
| MIRROR SW | Outer rear view mirror retract signal input | |
| SHIFT | Shift signal input | |
| STR SIG | Steering angle sensor signal input | |
| WFS SET | Front monitor signal input<br>Side monitor signal input<br>Front and side monitor main switch signal input | |
| VGRS *1 | VGRS signal input | |
| DEST | Destination information signal input | |
| BRAND | Brand information input | |

*1: w/VGRS

**HINT:**

- **When "CHK" (red) is displayed, perform inspections based on the result of the following inspections.**
- **If performing the adjustment after proceeding to the next screen, confirm that all items display "OK" (blue) before selecting "NEXT".**

c. SPEED inspection

**HINT:**

If "CHK" (red) is displayed for "SPEED", check for DTCs and perform troubleshooting based on the output DTCs ( Click here).

d. CAMERA SW inspection

i. Check that "OK" (blue) is displayed for "CAMERA SW" and select "OK".

ii. Check that "OK" (blue) changes to "CHK" (red). Press the front and side monitor main switch and check that "CHK" (red) returns to "OK" (blue).

**HINT:**

If "CHK" (red) remains displayed or the "CAMERA SW" inspection result is not normal, perform troubleshooting according to Problem Symptoms Table ("CHK" message(s) are displayed on the SIGNAL CHECK screen) (Click here).

e. BCTY inspection

**HINT:**

If "CHK" (red) is displayed for "BCTY", check for DTCs and perform troubleshooting based on the output DTCs ( Click here).

f. MIRROR SW inspection

i. Check that "OK" (blue) is displayed for "MIRROR SW" and select "OK".

ii. Check that "OK" (blue) changes to "CHK" (red). Press the outer mirror switch and check that "CHK" (red) returns to "OK" (blue).

**HINT:**

After operating the outer mirror retract switch, if the outer mirror remains in the retracted state, return the outer mirror to the driving position. If "CHK" (red) remains displayed or the "MIRROR SW" inspection result is not normal, perform troubleshooting according to Problem Symptoms Table ("CHK" message(s) are displayed on the SIGNAL CHECK screen) (Click here).

g. SHIFT inspection

**HINT:**

If "CHK" (red) is displayed for "SHIFT", check for DTCs and perform troubleshooting based on the output DTCs ( Click here).

h. STR SIG inspection

**HINT:**

If "CHK" (red) is displayed for "STR SIG", check for DTCs and perform troubleshooting based on the output DTCs ( Click here).

i. WFS SET inspection

**HINT:**

If "CHK" is displayed, perform a CAMERA SW check and a camera connection check ( Click here).

j. VGRS inspection (w/ VGRS)

**HINT:**

If "CHK" (red) is displayed for "VGRS", check for DTCs and perform troubleshooting based on the output DTCs ( Click here).

k. DEST inspection

**HINT:**

If "CHK" (red) is displayed for "DEST", check for DTCs and perform troubleshooting based on the output DTCs ( Click here).

l. BRAND inspection

**HINT:**

If "CHK" (red) is displayed for "BRAND", check for DTCs and perform troubleshooting based on the output DTCs ( Click here).

m. Finish diagnostic mode (Click here).

## CALIBRATION WHEN SERVICING VEHICLE

**NOTICE:**

Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems may be needed (Click here).

**for Preparation** Click here

## WIDE VIEW FRONT MONITOR DIAGNOSIS SYSTEM

a. For wide view front monitor system diagnosis, signals received by the parking assist ECU can be checked and the wide view front monitor system can be calibrated, adjusted and checked using the multi-display assembly.

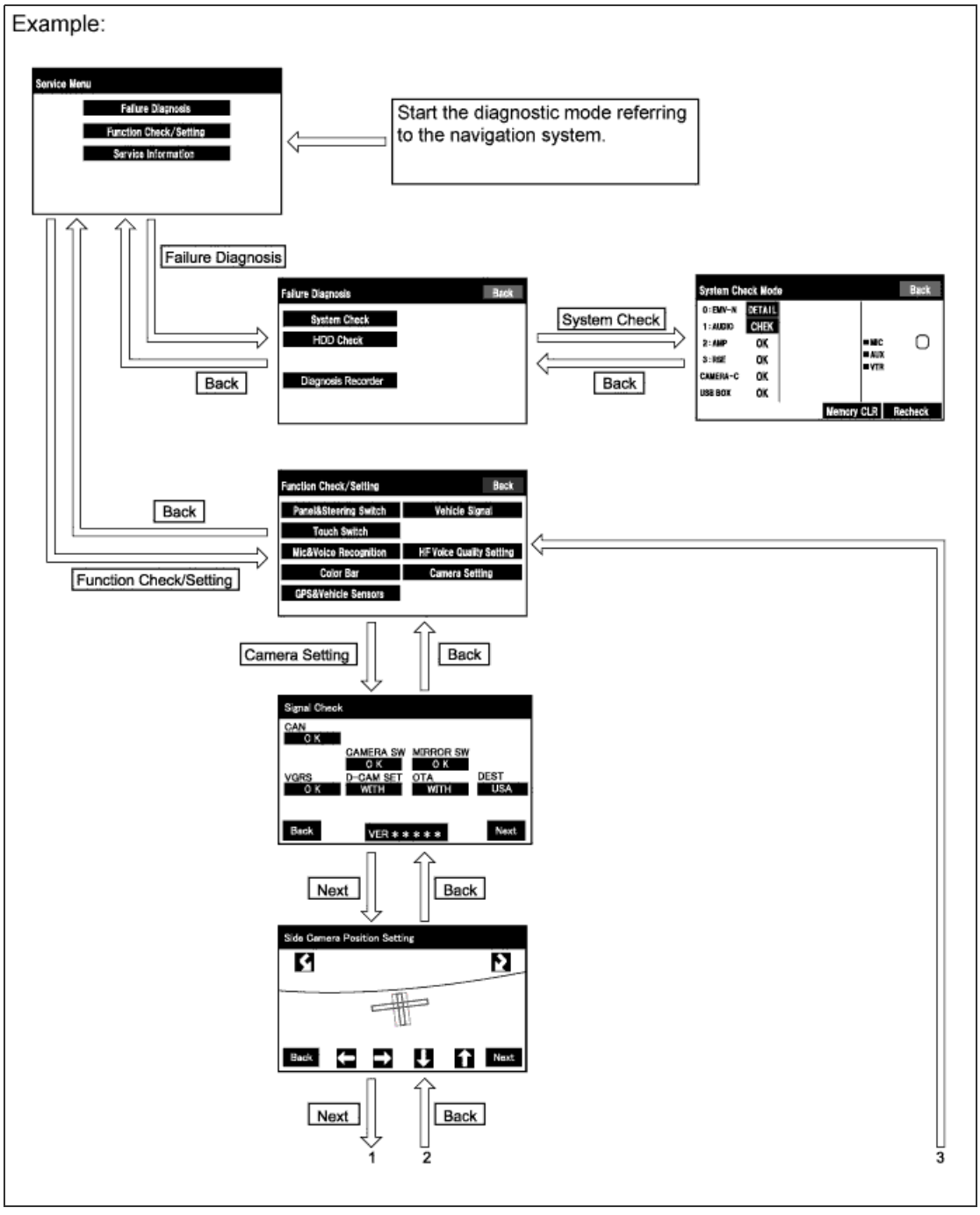
**NOTICE:**

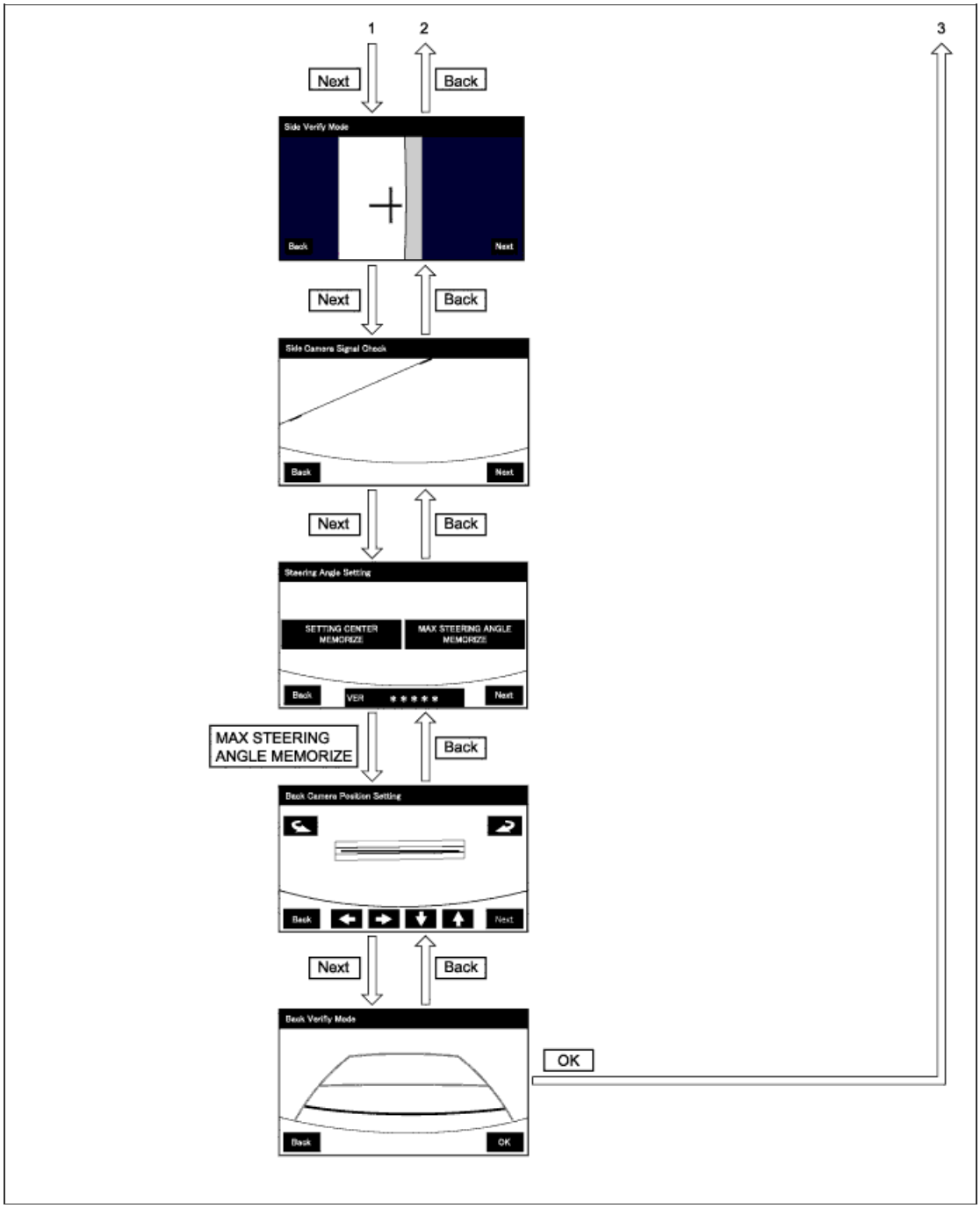
Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the wide view front monitor system may be needed (Click here).

**HINT:**

The displayed screens and items may differ depending on vehicle specifications.

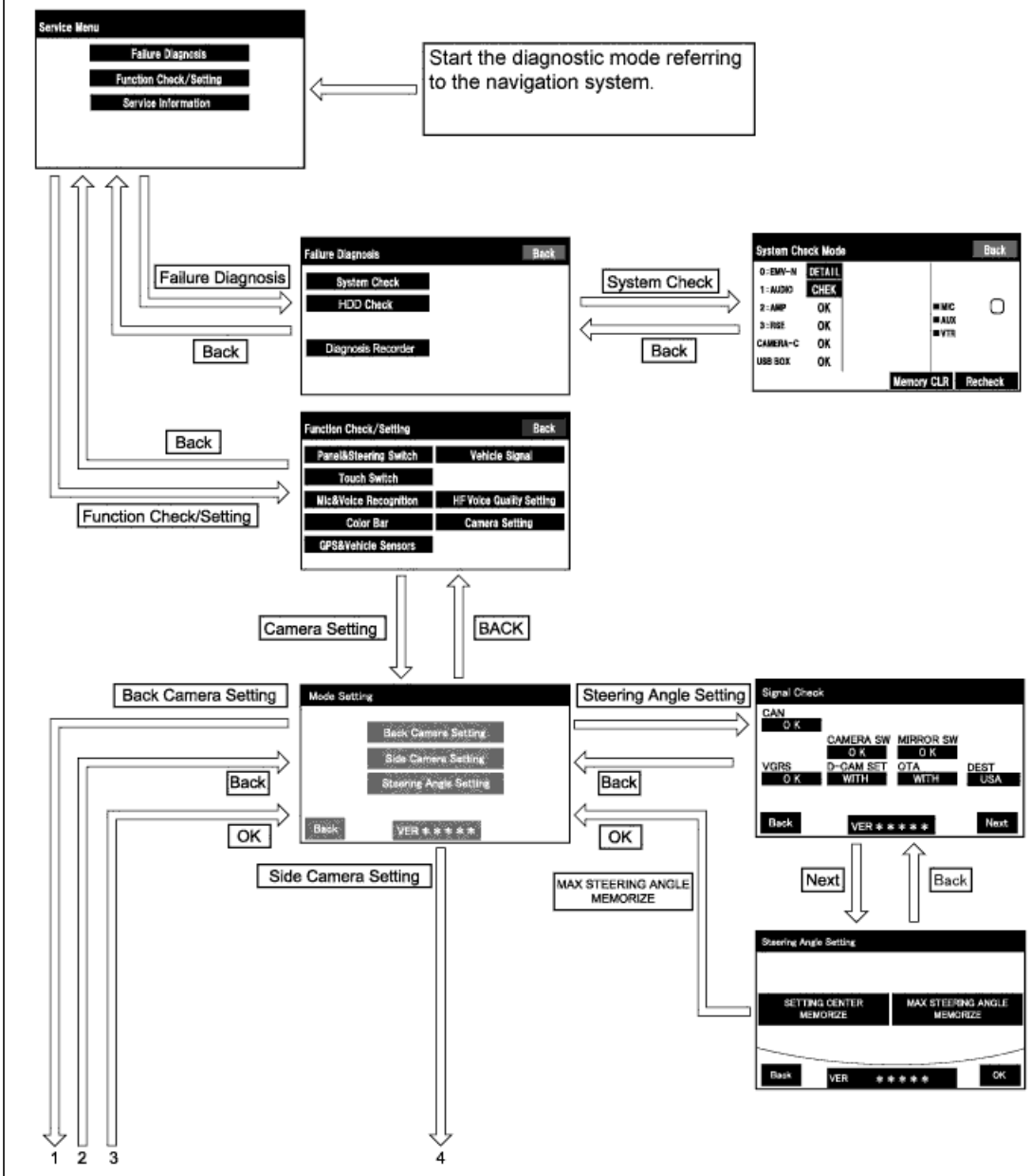
## DIAGNOSIS SCREEN TRANSITION (during parking assist ECU initialization)

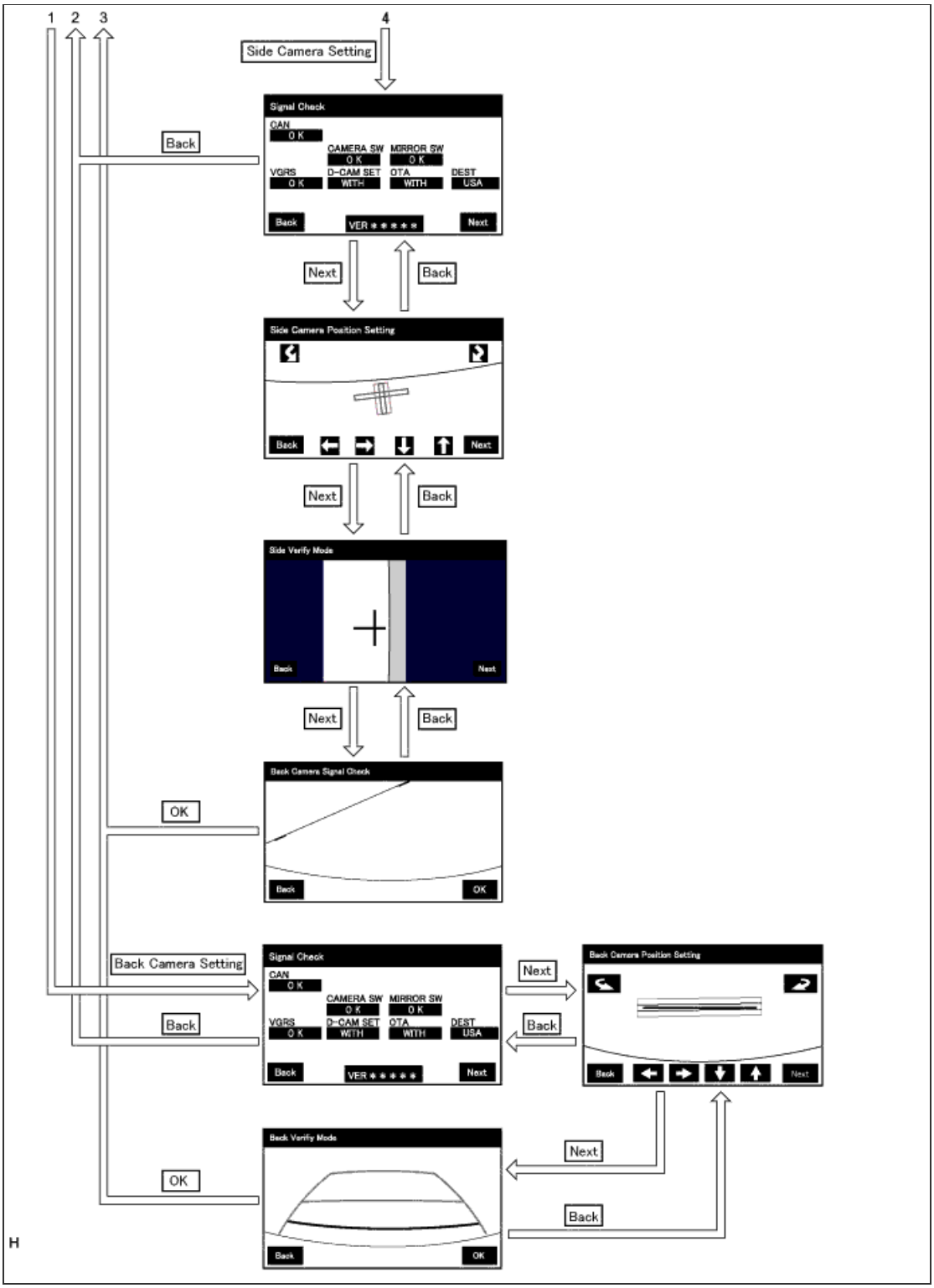





**DIAGNOSIS SCREEN TRANSITION (after parking assist ECU initialization)**

Example:


Service Menu
Failure Diagnosis
Function Check/Setting
Service Information
Start the diagnostic mode referring to the navigation system.
Failure Diagnosis
Back
Failure Diagnosis
Back
System Check
HDD Check
Diagnosis Recorder
System Check
Back
System Check Mode
Back
0 : EMV-N
1 : AUDIO
2 : AMP
3 : RSE
CAMERA-C
USB BOX
DETAIL
CHEK
OK
OK
OK
OK
MIC
AUX
VTR
Memory CLR
Recheck
Back
Function Check/Setting
Function Check/Setting
Back
Panel&Steering Switch
Vehicle Signal
Touch Switch
Mic&Voice Recognition
HF Voice Quality Setting
Color Bar
Camera Setting
GPS&Vehicle Sensors
Camera Setting
BACK
Back Camera Setting
Back
OK
Side Camera Setting
Mode Setting
Back Camera Setting
Side Camera Setting
Steering Angle Setting
Back
VER * * * * *
Steering Angle Setting
Back
OK
MAX STEERING ANGLE MEMORIZE
Signal Check
CAN
O K
CAMERA SW
O K
MIRROR SW
O K
VGRS
O K
D-CAM SET
WITH
OTA
WITH
DEST
USA
Back
VER * * * * *
Next
Next
Back
Steering Angle Setting
SETTING CENTER MEMORIZE
MAX STEERING ANGLE MEMORIZE
Back
VER * * * * *
OK
1
2
3
4



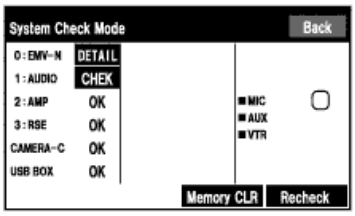

## DIAGNOSTIC MODE

a. Start diagnostic mode (Click here).

b. Failure diagnosis (Click here).

c. System check (check using system check mode screen) (Click here).

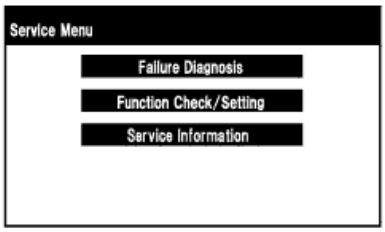
d. Finish diagnostic mode (Click here).




## SIGNAL CHECK (parking assist ECU input signal)

a. Start diagnostic mode (Click here).

i. Select "Function Check/Setting" on the [Service Menu screen] to display the Function Check/Setting screen.

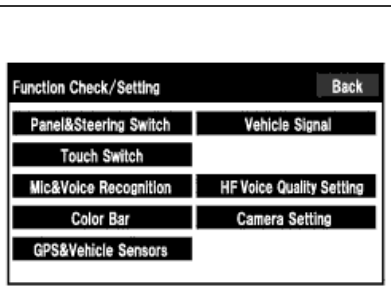



ii. Select "Camera Setting" on the [Function Check/Setting] screen.

**HINT:**

After "Camera Setting" is selected, the screen transitions differ depending on whether initialization of the parking assist ECU was performed after parking assist ECU replacement.

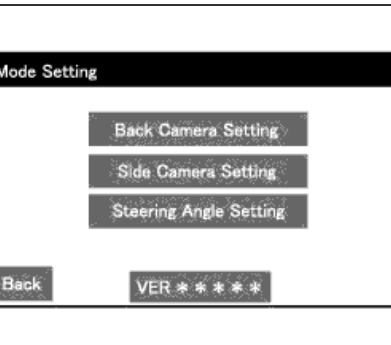
| Parking Assist ECU Initialization | Screen Transition |
|---|---|
| Not performed | [Signal Check] screen |
| Performed | [Mode Setting] screen |




iii. When the screen changes to the [Mode Setting] screen, select "Back Camera Setting" to display the [Signal Check] screen.

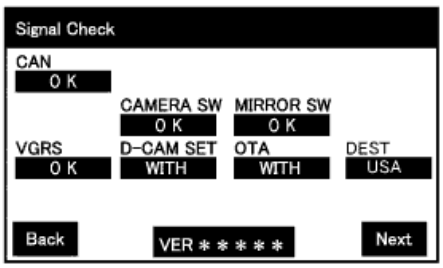
**HINT:**

To select a grayed out item, select and hold the item for 2 seconds or more.




b. Signal Check:

i. On the [Signal Check] screen, it is possible to inspect the state of signals sent to the parking assist ECU and check the settings.




| Item | Inspection Detail | Note |
|---|---|---|
| CAN | Speed signal input | When "CHK" (red) is displayed, selecting "Next" will not change to the next screen. |
| CAMERA SW | Front and side monitor main switch signal input | |
| MIRROR SW | Outer rear view mirror retract signal input | |
| VGRS | VGRS signal input | |
| D-CAM SET | Driver side camera information signal input | - |
| OTA | Off-road turn assist function information input | - |
| DEST | Destination code signal input | - |

**HINT:**

- **When "CHK" (red) is displayed, perform inspections based on the result of the following inspections.**
- **If performing the adjustment after proceeding to the next screen, confirm that all items display "OK" (blue) before selecting "Next".**

c. CAN inspection:

**HINT:**

If "CHK" (red) is displayed for "CAN", check for DTCs and perform troubleshooting based on the output DTCs ( Click here).

d. CAMERA SW inspection:

i. Check that "OK" (blue) is displayed for "CAMERA SW" and select "OK".

ii. Check that "OK" (blue) changes to "CHK" (red). Press the front and side monitor main switch (steering pad switch assembly) and check that "CHK" (red) returns to "OK" (blue).

**HINT:**

If "CHK" (red) remains displayed or the "CAMERA SW" inspection result is not normal, perform troubleshooting according to Problem Symptoms Table ("CHK" message(s) are displayed on the [Signal Check] screen) (Click here).

e. MIRROR SW inspection:

i. Check that "OK" (blue) is displayed for "MIRROR SW" and select "OK".

ii. Check that "OK" (blue) changes to "CHK" (red). Press the outer mirror switch and check that "CHK" (red) returns to "OK" (blue).

**HINT:**

After operating the outer mirror retract switch, if the outer mirror remains in the retracted state, return the outer mirror to the driving position. If "CHK" (red) remains displayed or the "MIRROR SW" inspection result is not normal, perform troubleshooting according to Problem Symptoms Table ("CHK" message(s) are displayed on the [Signal Check] screen) (Click here).

f. VGRS inspection:

**HINT:**

If "CHK" (red) is displayed for "VGRS", check for DTCs and perform troubleshooting based on the output DTCs ( Click here).

g. D-CAM SET inspection:

i. Check that "WITH" (blue) is displayed for "D-CAM SET".

h. OTA inspection:

i. Check that displayed for "OTA" is matched off-road turn assist function for vehicles.

i. DEST inspection:

i. Check that displayed for "OTA" is matched destination code for vehicles.

j. Finish diagnostic mode (Click here).

## CALIBRATION WHEN SERVICING VEHICLE

**NOTICE:**

Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the wide view front monitor system may be needed (Click here).

**for Preparation** Click here

**HINT:**

- **Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be exactly the same as the actual vehicle.**
- **If the system cannot enter the diagnostic mode, inspect all AVC-LAN communication components and repair or replace problem parts (Click here).**
- **After turning the engine switch on (IG) and before entering diagnostic mode, check that the air conditioning can be operated on the display screen. Otherwise, some items cannot be checked.**

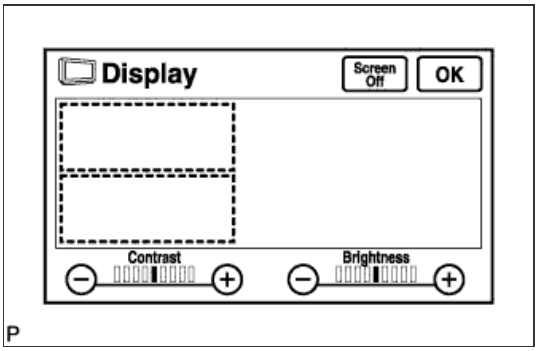
## START DIAGNOSTIC MODE

a. Start the engine.

b. Switch to the "Display Check" screen.

c. From the display quality adjustment screen, touch the corners of the screen in the following order: upper left → lower left → upper left → lower left → upper left → lower left.

d. The diagnostic mode starts and the "Diagnosis Inspection" screen will be displayed. Service inspection starts automatically and the result will be displayed.

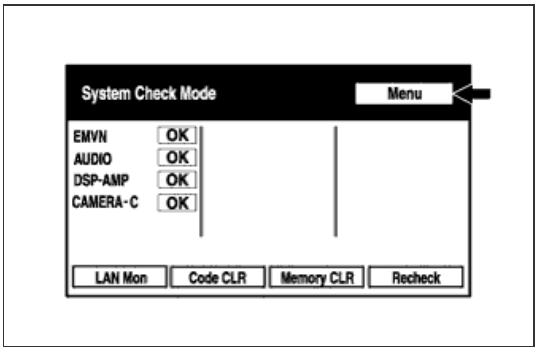



## FINISH DIAGNOSTIC MODE

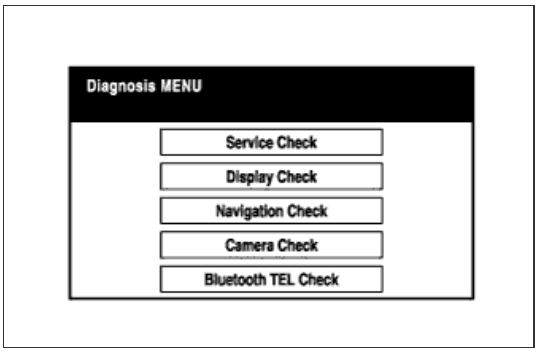
a. Turn the engine switch off.

## DIAGNOSIS MENU

a. Press the "Menu" switch on the "System Check Mode" screen.



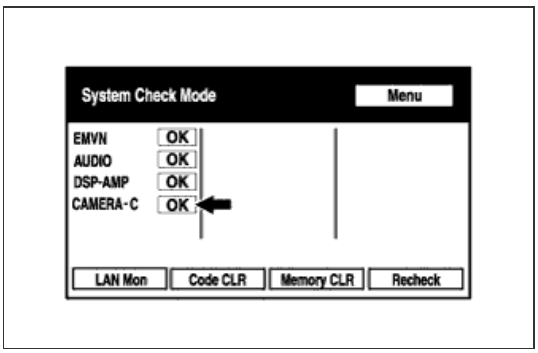

b. The "Diagnosis MENU" screen will be displayed.




## CHECK DTC

a. Read the system check result.

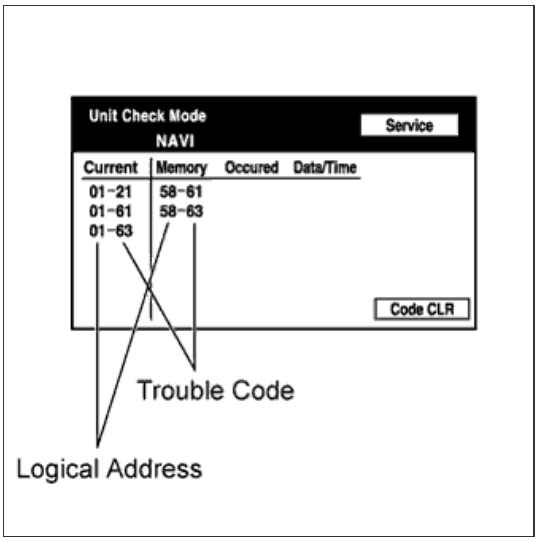
i. If the check result is "EXCH", "CHEK" or "Old", touch the displayed check result.



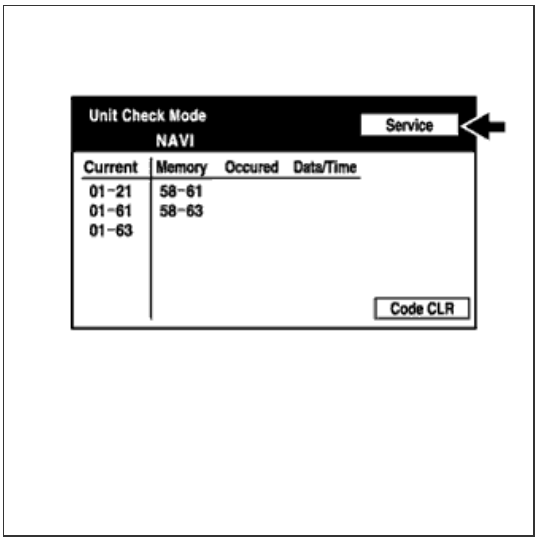

ii. View the results on the "Unit Check Mode" screen and record them.

**HINT:**

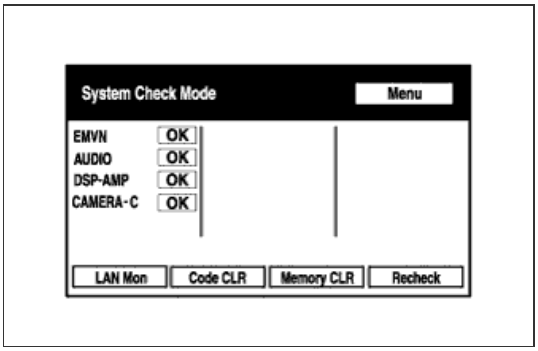
- **If all check results are "OK", go to the communication DTC check.**
- **If a device name is not known, its logical address is displayed.**




iii. When proceeding to view the results of another device, press the "Service" switch.




iv. Return to the "System Check Mode" screen. Repeat the steps above to read the other results of the system check.

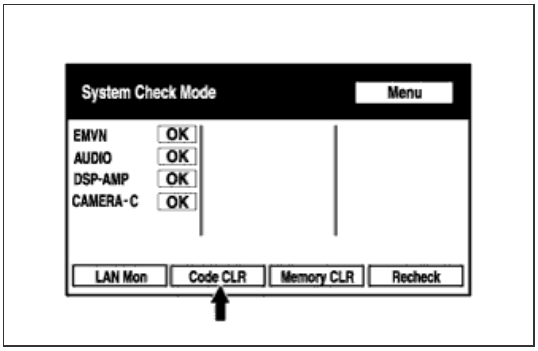



## DTC CLEAR / RECHECK

a. Clear DTCs

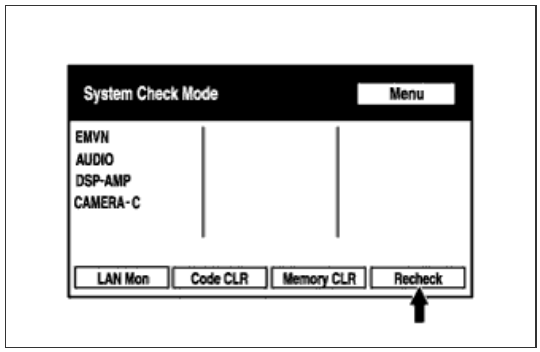
i. Press the "Code CLR" switch for 3 seconds.

ii. The check results are cleared.

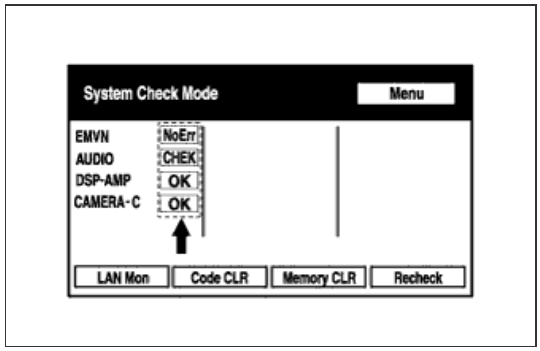



b. Recheck

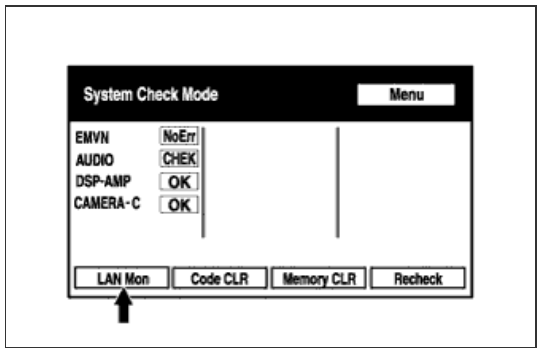
i. Press the "Recheck" switch.



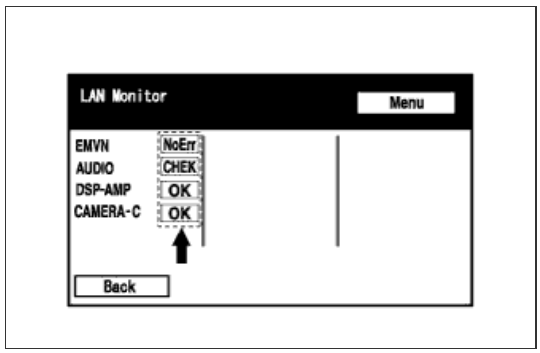

ii. Confirm that all diagnostic codes are "OK" when the check results are displayed. If a code other than "OK" is displayed, troubleshoot again.




iii. Press the "LAN Mon" switch to change to the "LAN Monitor" screen.




iv. Confirm that all diagnostic codes are "No Err". If a code other than "No Err" is displayed, troubleshoot again.



**for Preparation** Click here

## CHECK DTC

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Chassis / Parking Assist Monitor System / DTC.

e. Check the details of the DTCs ( Click here).

**HINT:**

Parking assist ECU may output the DTCs of the following system. If DTCs other than those specified in Diagnostic Trouble Code Chart of the front monitor system are output, refer to Diagnostic Trouble Code Chart for the applicable system.

| System | Proceed to |
|---|---|
| Parking assist monitor system | Click here |
| Side monitor system | Click here |

## CLEAR DTC

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Operate the intelligent tester to clear the codes. Enter the following menus: Chassis / Parking Assist Monitor System / DTC.

e. According to the display on the intelligent tester, select the trouble code data display with the clear button.

**for Preparation** Click here

## CHECK DTC

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Chassis / Parking Assist Monitor System / DTC.

e. Check the details of the DTCs ( Click here).

**HINT:**

Parking assist ECU may output the DTCs of the following system. If DTCs other than those specified in Diagnostic Trouble Code Chart of the front monitor system are output, refer to Diagnostic Trouble Code Chart for the applicable system.

| System | Proceed to |
|---|---|
| Parking assist monitor system (w/ Side Monitor System) | Click here |
| Side monitor system | Click here |

## CLEAR DTC

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Operate the intelligent tester to clear the codes. Enter the following menus: Chassis / Parking Assist Monitor System / DTC.

e. According to the display on the intelligent tester, select the trouble code data display with the clear button.

**for Preparation** Click here

**HINT:**

If a trouble code is output during the DTC check, inspect the trouble areas listed for that code. For details of the code, refer to the "See page" below.

**Wide View Front Monitor System**

| DTC Code | Detection Item | Trouble Area | See page |
|---|---|---|---|
| 5C-40 | Camera Picture Error | - Front television camera assembly<br>- Harness or connector<br>- Parking assist ECU | Click here |
| 5C-45 | Shift Signal Communication Error | - ECM<br>- CAN communication system<br>- Parking assist ECU | Click here |

**for Preparation** Click here

**HINT:**

If a trouble code is output during the DTC check, inspect the trouble areas listed for that code. For details of the code, refer to the "See page" in the DTC chart. Inspect fuses and relays before investigating the trouble areas shown in the table below.

**Wide View Front Monitor System**

| DTC Code | Detection Item | Trouble Area | See page |
|---|---|---|---|
| C1681 | Front Camera Feedback Malfunction | - Harness or connector<br>- Parking assist ECU<br>- Front television camera assembly | Click here |
| C1682 | Front Camera Current Malfunction | - Harness or connector<br>- Parking assist ECU<br>- Front television camera assembly | Click here |

**for Preparation** Click here

**HINT:**

If a trouble code is output during the DTC check, inspect the trouble areas listed for that code. For details of the code, refer to the "See page" in the DTC chart. Inspect fuses and relays before investigating the trouble areas shown in the table below.

**Wide View Front Monitor System**

| DTC Code | Detection Item | See page |
|---|---|---|
| C1681 | Front Camera Feedback Malfunction | Click here |
| C1682 | Front Camera Current Malfunction | Click here |

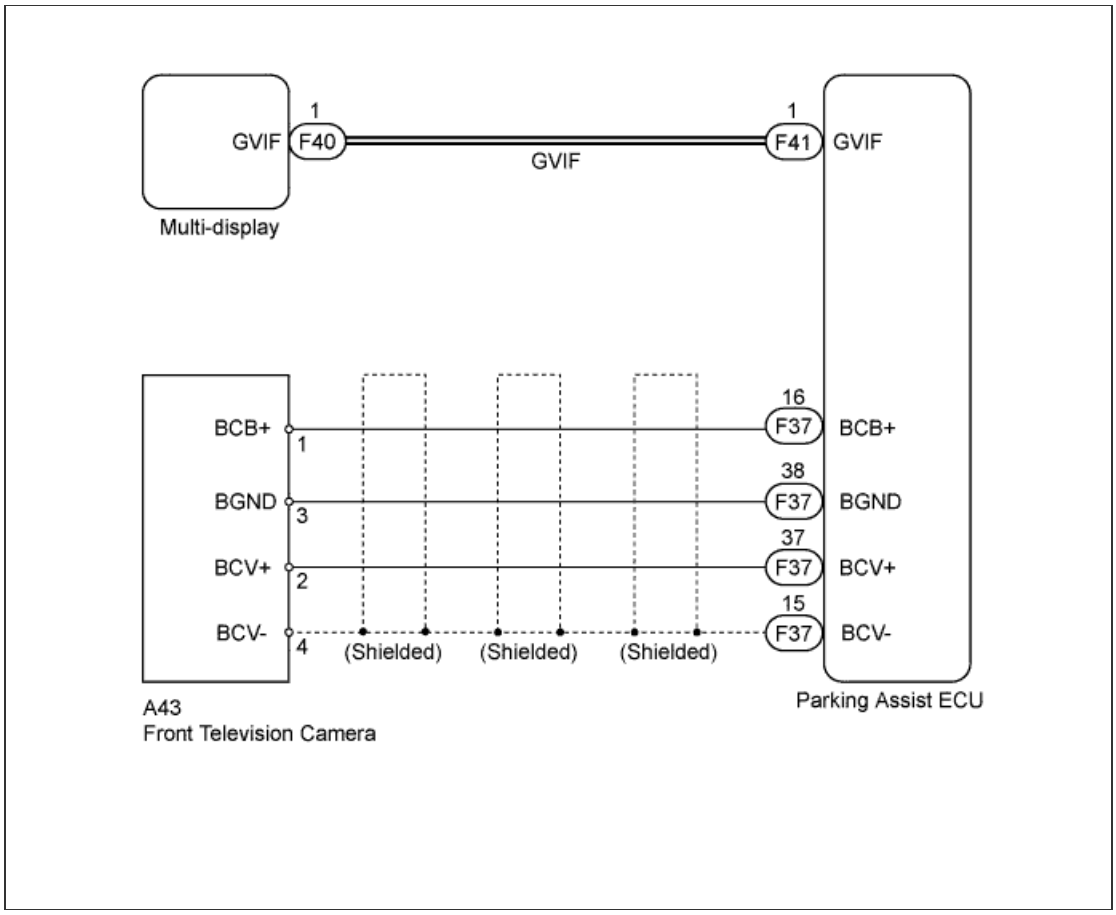
## DTC 5C-40 Camera Picture Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 5C-40 | Open or short in the front television camera signal circuit. | • Front television camera<br>• Harness or connector<br>• Parking assist ECU |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

When replacing the parking assist ECU, perform initialization of the front television camera.

#### 1.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - FRONT TELEVISION CAMERA)

a. Disconnect the F37 ECU connector.

b. Disconnect the A43 camera connector.

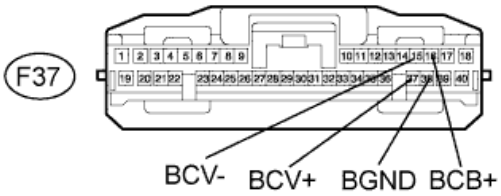
c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

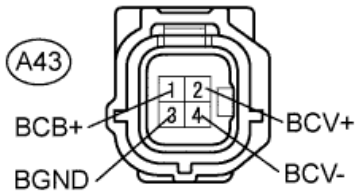
| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F37-37 (BCV+) - A43-2 (BCV+) | Always | Below 1 Ω |
| F37-15 (BCV-) - A43-4 (BCV-) | Always | Below 1 Ω |
| F37-16 (BCB+) - | Always | Below 1 Ω |

| | | |
|---|---|---|
| A43-1 (BCB+) | | |
| F37-38 (BGND) - A43-3 (BGND) | Always | Below 1 Ω |
| F37-37 (BCV+) - Body ground | Always | 10 kΩ or higher |
| F37-15 (BCV-) - Body ground | Always | 10 kΩ or higher |
| F37-38 (BGND) - Body ground | Always | 10 kΩ or higher |
| F37-16 (BCB+) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to Parking Assist ECU)




Front view of wire harness connector:
(to Front Television Camera Assembly)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

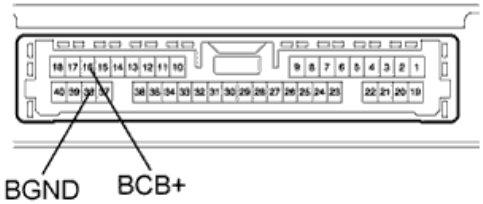
## 2.CHECK PARKING ASSIST ECU

a. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F37-16 (BCB+) - F37-38 (BGND) | Wide view front monitor display screen displayed | 5.8 to 6.5 V |

Component with harness connected:
(Parking Assist ECU)

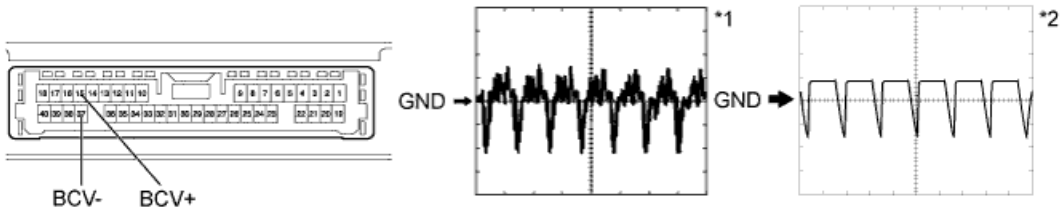



NG → REPLACE PARKING ASSIST ECU (Click here)

OK

## 3.CHECK FRONT TELEVISION CAMERA ASSEMBLY

Component with harness connected:
(Parking Assist ECU)




a. Using an oscilloscope, check the waveform.

**Measurement Condition**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F37-37 (BCV+) - F37-15 (BCV-) |
| Tool Setting | 0.2 V/DIV., 50 µs/DIV. |
| Condition | • Wide view front monitor display screen displayed*1<br>• Camera lens covered to make image black while wide view front monitor display screen displayed*2 |

NG → REPLACE FRONT TELEVISION CAMERA ASSEMBLY (Click here)

OK

**4.REPLACE HARNESS AND CONNECTOR (GVIF CABLE)**

a. Replace the harness and connector (GVIF cable).

NEXT

**5.CHECK DTC OUTPUT**

a. Clear the DTCs (Click here).

b. Recheck for DTCs (Click here).

**OK:**
**DTC 5C-40 is not output.**

NG → REPLACE PARKING ASSIST ECU (Click here)

OK

**END (GVIF CABLE IS DEFECTIVE)**

## DTC C1681 Front Camera Feedback Malfunction

## DTC C1682 Front Camera Current Malfunction

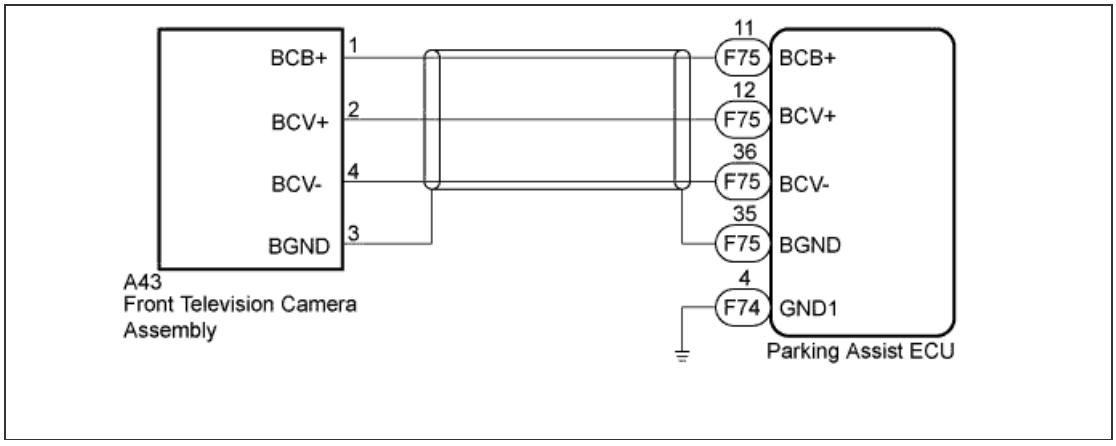
**for Preparation** Click here

### DESCRIPTION

DTC 1681 is stored if the parking assist ECU judges as a result of its self check that a synchronization problem is occurring in the image signal sent from the front television camera assembly to the parking assist ECU.
DTC 1682 is stored if the parking assist ECU judges as a result of its self check that there is a problem with the current supplied from the front television camera assembly connected to the parking assist ECU.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1681 | Front Camera Feedback Malfunction | • Harness or connector<br>• Parking assist ECU<br>• Front television camera assembly |
| C1682 | Front Camera Current Malfunction | |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the parking assist ECU after the cable is disconnected from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as wide view front monitor system may be needed (Click here).**

**1.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - FRONT TELEVISION CAMERA ASSEMBLY AND BODY GROUND)**

a. Disconnect the F74 and F75 parking assist ECU connectors.

b. Disconnect the A43 front television camera assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-36 (BCV-) - A43-4 (BCV-) | Always | Below 1 Ω |
| F75-12 (BCV+) - A43-2 (BCV+) | Always | Below 1 Ω |
| F75-35 (BGND) - A43-3 (BGND) | Always | Below 1 Ω |
| F75-11 (BCB+) - A43-1 (BCB+) | Always | Below 1 Ω |
| F74-4 (GND1) - Body ground | Always | Below 1 Ω |
| F75-36 (BCV-) - Body ground | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| F75-12 (BCV+) - Body ground | Always | 10 kΩ or higher |
| F75-35 (BGND) - Body ground | Always | 10 kΩ or higher |
| F75-11 (BCB+) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 2.CHECK PARKING ASSIST ECU (BCB+, BGND)

a. Reconnect the F74 and F75 parking assist ECU connectors.

b. Measure the resistance according to the value(s) in the table below.

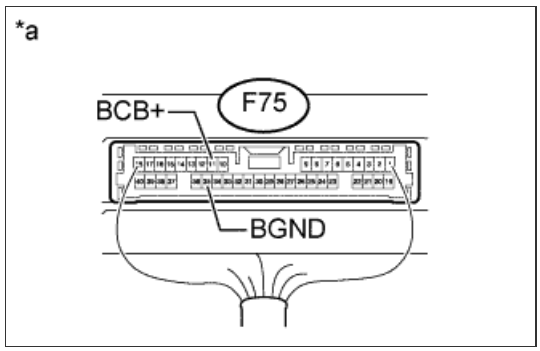
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-35 (BGND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F75-11 (BCB+) - F75-35 (BGND) | Engine switch on (IG), front and side monitor main switch assembly on | 5.5 to 7.05 V |




**Text in Illustration**

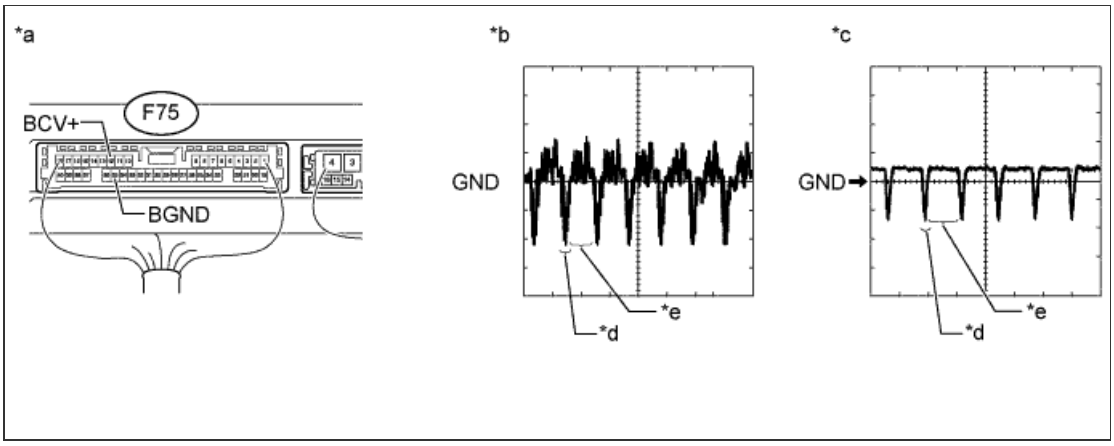
| | |
|---|---|
| *a | Component with harness connected (Parking Assist ECU) |

NG → REPLACE PARKING ASSIST ECU (Click here)

OK

## 3.CHECK FRONT TELEVISION CAMERA ASSEMBLY (BCV+, BGND)

a. Reconnect the A43 front television camera assembly connector.




**Text in Illustration**

| | | | |
|---|---|---|---|
| *a | Component with harness connected (Parking Assist ECU) | *b | Waveform A |
| *c | Waveform B | *d | Synchronization Signal |
| *e | Video Waveform | - | - |

**HINT:**

- **A waterproof connector is used for the front television camera assembly. Therefore, inspect the waveform at the parking assist ECU with the connector connected.**
- **The video waveform changes according to the image sent by the front television camera assembly.**

b. Measure the resistance according to the value(s) in the table below.

**OK:**

**Waveform is as shown in the illustration.**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F75-12 (BCV+) - F75-35 (BGND) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | • Waveform A: Engine switch on (IG), front and side monitor main switch assembly on and camera lens is not covered, displaying an image<br>• Waveform B: Engine switch on (IG), front and side monitor main switch assembly on and camera lens is covered, blacking out the screen |

NG → REPLACE FRONT TELEVISION CAMERA ASSEMBLY (Click here)

OK → REPLACE PARKING ASSIST ECU (Click here)

## DTC 5C-45 Shift Signal Communication Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 5C-45 | No signal is transmitted from the ECM. | • ECM<br>• CAN communication system<br>• Parking assist ECU |

### INSPECTION PROCEDURE

**1.CHECK CAN COMMUNICATION SYSTEM (PARKING ASSIST ECU - ECM)**

a. for LHD:
Refer to the CAN communication system (Click here).

b. for RHD:
Refer to the CAN communication system (Click here).

**NEXT**

**END**

## DTC C1681 Front Camera Feedback Malfunction

## DTC C1682 Front Camera Current Malfunction

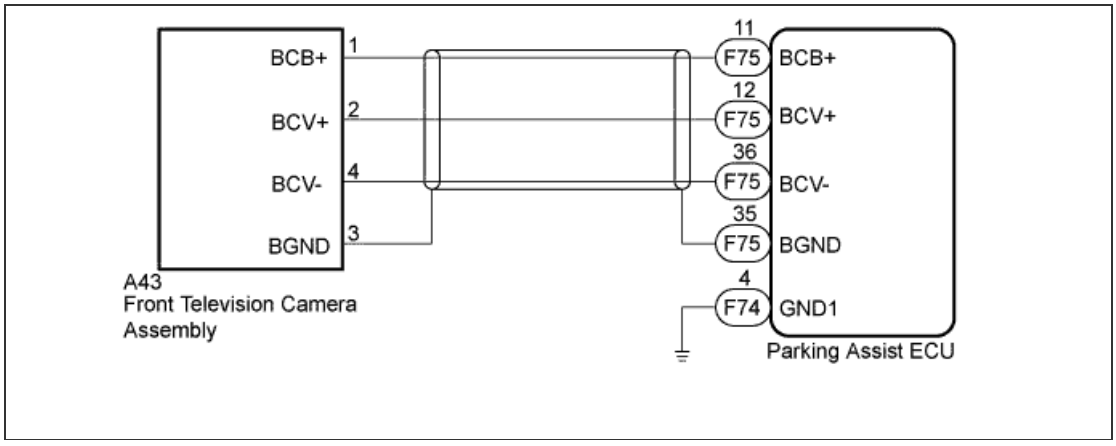
**for Preparation** Click here

### DESCRIPTION

DTC 1681 is stored if the parking assist ECU judges as a result of its self check that a synchronization problem is occurring in the image signal sent from the front television camera assembly to the parking assist ECU.
DTC 1682 is stored if the parking assist ECU judges as a result of its self check that there is a problem with the current supplied from the front television camera assembly connected to the parking assist ECU.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1681 | Front Camera Feedback Malfunction | • Harness or connector<br>• Parking assist ECU<br>• Front television camera assembly |
| C1682 | Front Camera Current Malfunction | |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the parking assist ECU after the cable is disconnected from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as wide view front monitor system may be needed (Click here).**

**1.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - FRONT TELEVISION CAMERA ASSEMBLY AND BODY GROUND)**

a. Disconnect the F74 and F75 parking assist ECU connectors.

b. Disconnect the A43 front television camera assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-36 (BCV-) - A43-4 (BCV-) | Always | Below 1 Ω |
| F75-12 (BCV+) - A43-2 (BCV+) | Always | Below 1 Ω |
| F75-35 (BGND) - A43-3 (BGND) | Always | Below 1 Ω |
| F75-11 (BCB+) - A43-1 (BCB+) | Always | Below 1 Ω |
| F74-4 (GND1) - Body ground | Always | Below 1 Ω |
| F75-36 (BCV-) - Body ground | Always | 10 kΩ or higher |

| | | |
|---|---|---|
| F75-12 (BCV+) - Body ground | Always | 10 kΩ or higher |
| F75-35 (BGND) - Body ground | Always | 10 kΩ or higher |
| F75-11 (BCB+) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 2.CHECK PARKING ASSIST ECU (BCB+, BGND)

a. Reconnect the F74 and F75 parking assist ECU connectors.

b. Measure the resistance according to the value(s) in the table below.

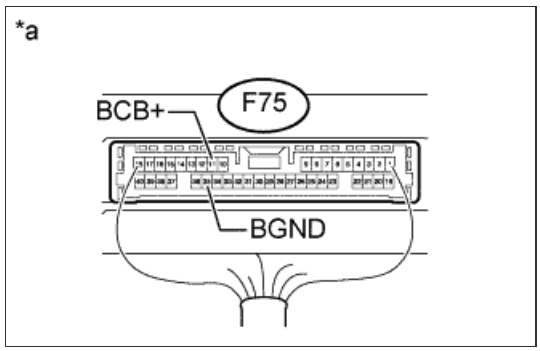
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-35 (BGND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F75-11 (BCB+) - F75-35 (BGND) | Engine switch on (IG), front and side monitor main switch assembly on | 5.5 to 7.05 V |




**Text in Illustration**

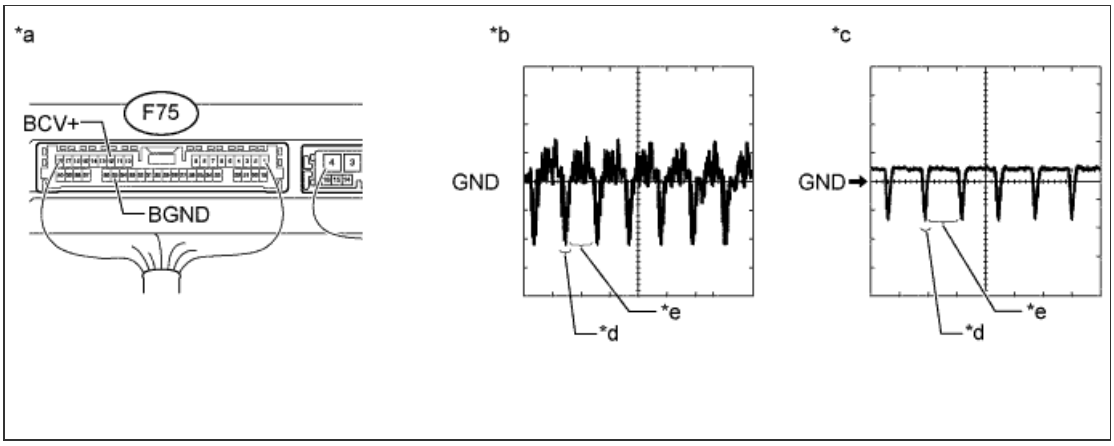
| | |
|---|---|
| *a | Component with harness connected (Parking Assist ECU) |

NG → REPLACE PARKING ASSIST ECU (Click here)

OK

## 3.CHECK FRONT TELEVISION CAMERA ASSEMBLY (BCV+, BGND)

a. Reconnect the A43 front television camera assembly connector.




**Text in Illustration**

| | | | |
|---|---|---|---|
| *a | Component with harness connected (Parking Assist ECU) | *b | Waveform A |
| *c | Waveform B | *d | Synchronization Signal |
| *e | Video Waveform | - | - |

**HINT:**

- **A waterproof connector is used for the front television camera assembly. Therefore, inspect the waveform at the parking assist ECU with the connector connected.**
- **The video waveform changes according to the image sent by the front television camera assembly.**

b. Measure the resistance according to the value(s) in the table below.

**OK:**

**Waveform is as shown in the illustration.**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F75-12 (BCV+) - F75-35 (BGND) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | • Waveform A: Engine switch on (IG), front and side monitor main switch assembly on and camera lens is not covered, displaying an image<br>• Waveform B: Engine switch on (IG), front and side monitor main switch assembly on and camera lens is covered, blacking out the screen |

NG → REPLACE FRONT TELEVISION CAMERA ASSEMBLY (Click here)

OK → REPLACE PARKING ASSIST ECU (Click here)

## DTC C1681 Front Camera Feedback Malfunction

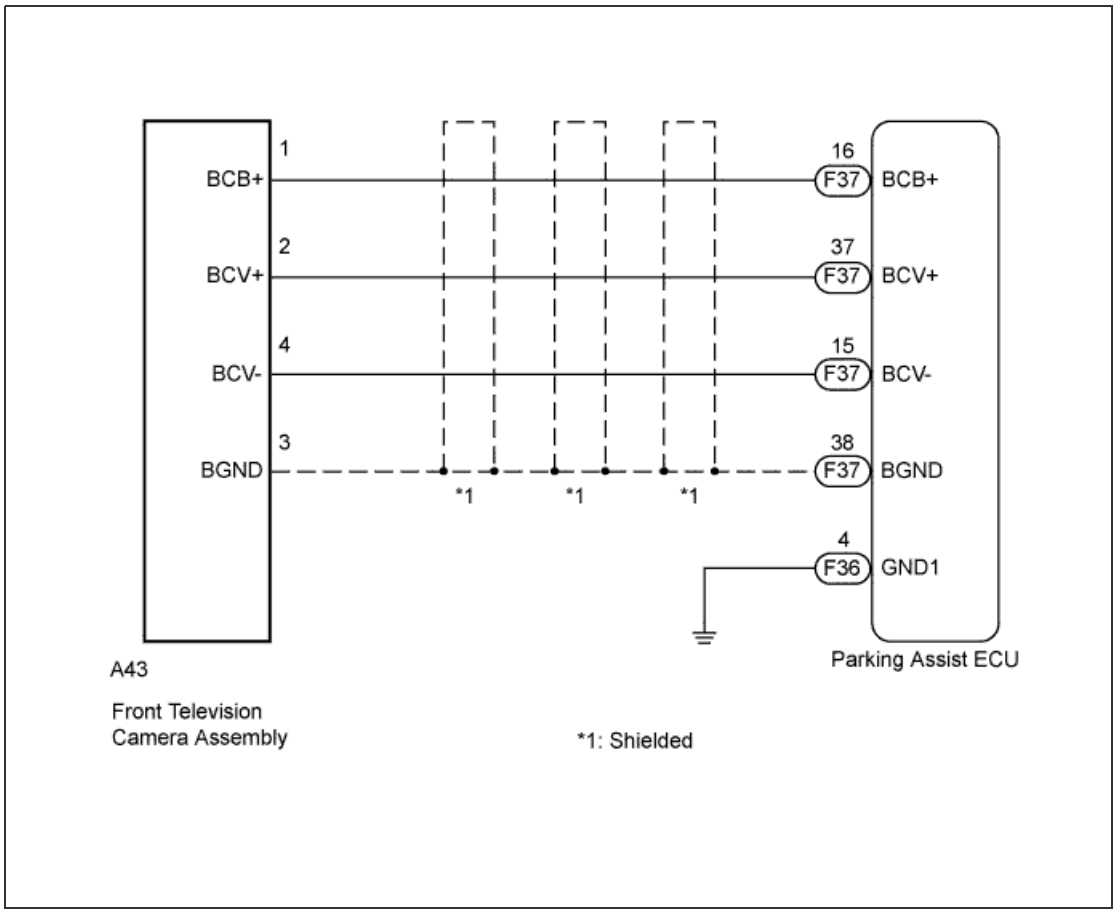
**for Preparation** Click here

### DESCRIPTION

This DTC is stored if the parking assist ECU judges as a result of its self check that a synchronization problem is occurring in the image signal sent from the front television camera assembly to the parking assist ECU.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1681 | Front Camera Feedback Malfunction | • Harness or connector<br>• Parking assist ECU<br>• Front television camera assembly |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the display and navigation module display after the cable is disconnected from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems may be needed (Click here).**

#### 1.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - FRONT TELEVISION CAMERA ASSEMBLY)

a. Disconnect the F37 connector from the parking assist ECU.

b. Disconnect the A43 connector from the front television camera assembly.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F37-15 (BCV-) - | | |

| | | |
|---|---|---|
| A43-4 (BCV-) | Always | Below 1 Ω |
| F37-37 (BCV+) - A43-2 (BCV+) | Always | Below 1 Ω |
| F37-38 (BGND) - A43-3 (BGND) | Always | Below 1 Ω |
| F37-16 (BCB+) - A43-1 (BCB+) | Always | Below 1 Ω |
| F37-15 (BCV-) - Body ground | Always | 10 kΩ or higher |
| F37-37 (BCV+) - Body ground | Always | 10 kΩ or higher |
| F37-38 (BGND) - Body ground | Always | 10 kΩ or higher |
| F37-16 (BCB+) - Body ground | Always | 10 kΩ or higher |

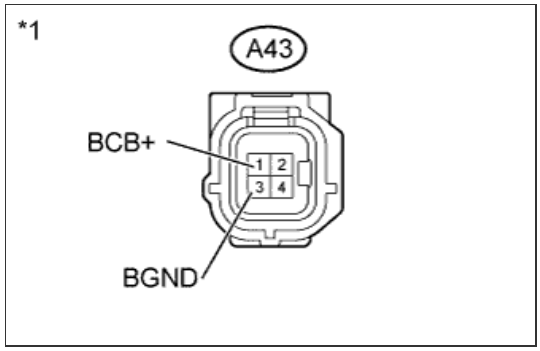
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 2.INSPECT FRONT TELEVISION CAMERA ASSEMBLY (BCB+, BGND)

a. Reconnect the F37 connector to the parking assist ECU.

b. Measure the resistance according to the value(s) in the table below.




**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| A43-3 (BGND) - Body ground | Always | Below 1 Ω |

c. Disconnect the A43 connector from the front television camera assembly.

d. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| A43-3 (BGND) - A43-1 (BCB+) | Wide View Front Monitor Screen Displayed | 5.8 to 7.0 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Front Television Camera Assembly) |

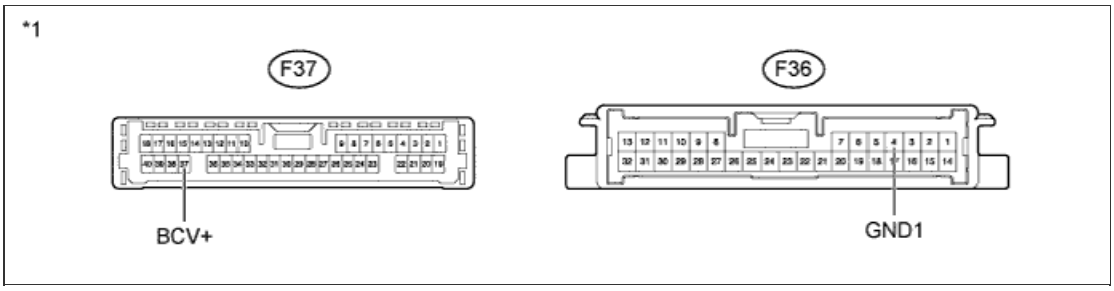
NG → REPLACE PARKING ASSIST ECU (Click here)

OK

## 3.INSPECT PARKING ASSIST ECU (BCV+, GND1)

a. Reconnect the A43 connector to the front television camera assembly.

b. Reconnect the F36 and F37 connectors to the parking assist ECU.




c. Check the waveform of the front television camera assembly using an oscilloscope.

**HINT:**

A waterproof connector is used for the front television camera assembly. Therefore, inspect the waveform at the parking assist ECU with the connector connected.

**OK:**

**Waveform is as shown in the illustration.**

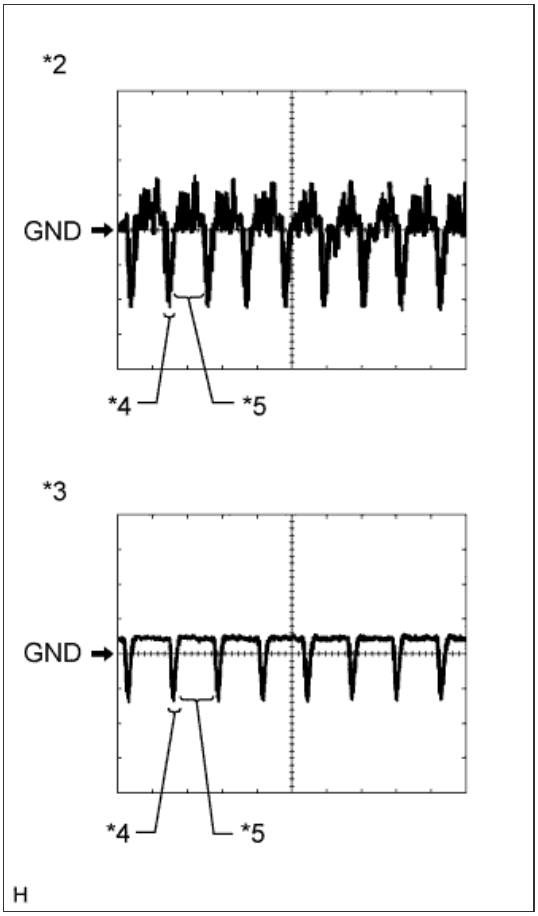
| Item | Content |
|---|---|
| Terminal No. (Symbol) | F37-37 (BCV+) - F36-4 (GND1) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), front and side monitor main switch on |

**HINT:**

The video waveform changes according to the image sent by the front television camera assembly.

**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Parking Assist ECU) |
| *2 | Waveform 1 (under normal conditions) |
| *3 | Waveform 2 (camera lens is covered, blacking out the screen) |
| *4 | Synchronized Signal |
| *5 | Video Waveform |




NG → REPLACE FRONT TELEVISION CAMERA ASSEMBLY (Click here)

OK → REPLACE PARKING ASSIST ECU (Click here)

## DTC C1682 Front Camera Current Malfunction

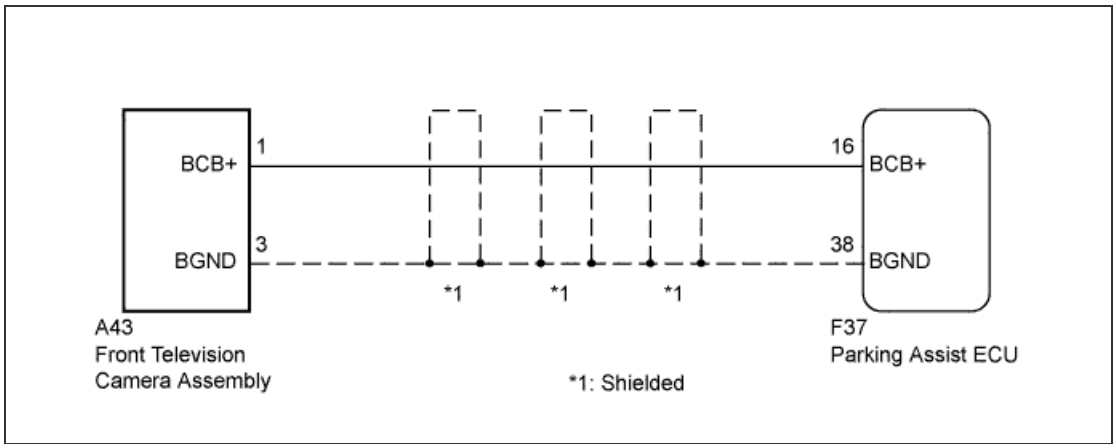
**for Preparation** Click here

### DESCRIPTION

This DTC is stored if the parking assist ECU judges as a result of its self check that there is a problem with the current supplied to the front television camera assembly connected to the parking assist ECU.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1682 | Front Camera Current Malfunction | • Harness or connector<br>• Parking assist ECU<br>• Front television camera assembly |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the display and navigation module display after the cable is disconnected from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems may be needed (Click here).**

**1.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - FRONT TELEVISION CAMERA ASSEMBLY)**

a. Disconnect the F37 connector from the parking assist ECU.

b. Disconnect the A43 connector from the front television camera assembly.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F37-16 (BCB+) - A43-1 (BCB+) | Always | Below 1 Ω |
| F37-38 (BGND) - A43-3 (BGND) | Always | Below 1 Ω |
| F37-16 (BCB+) - Body ground | Always | 10 kΩ or higher |
| F37-38 (BGND) - Body ground | Always | 10 kΩ or higher |

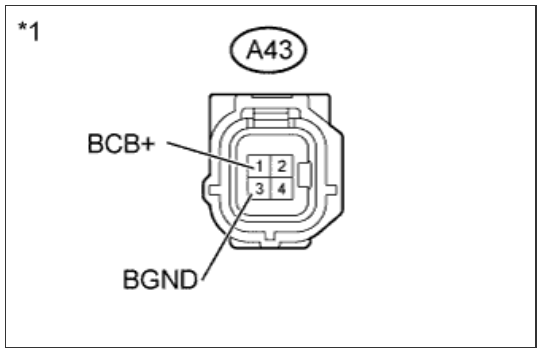
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 2.INSPECT FRONT TELEVISION CAMERA ASSEMBLY (BCB+, BGND)

a. Reconnect the F37 connector to the parking assist ECU.

b. Measure the resistance according to the value(s) in the table below.




**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| A43-3 (BGND) - Body ground | Always | Below 1 Ω |

c. Disconnect the A43 connector from the front television camera assembly.

d. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| A43-3 (BGND) - A43-1 (BCB+) | Wide View Front Monitor Screen Displayed | 5.8 to 7.0 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Front Television Camera Assembly) |

NG → REPLACE PARKING ASSIST ECU (Click here)

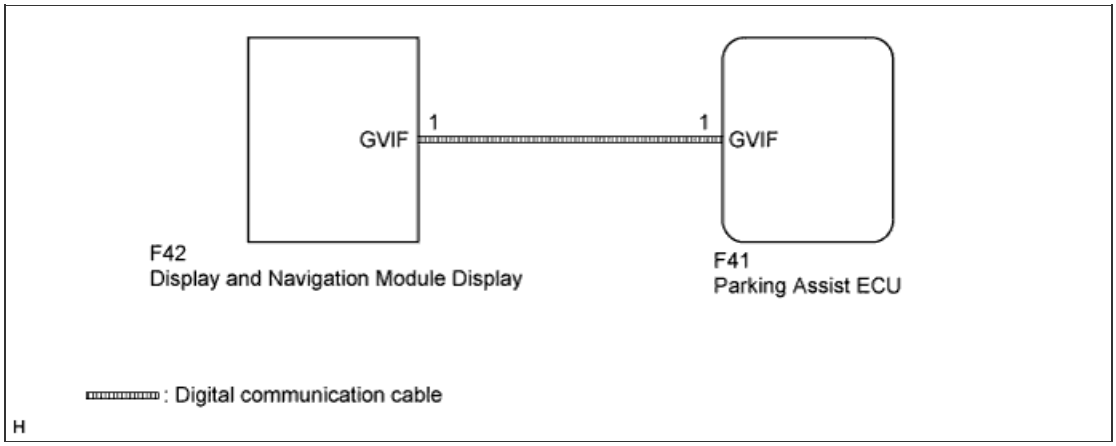
OK → REPLACE FRONT TELEVISION CAMERA ASSEMBLY

**for Preparation** Click here

## DESCRIPTION

The parking assist ECU displays images for the parking assist monitor, front monitor and side monitor screens. The image signals are sent from the parking assist ECU to the display and navigation module display through the digital communication cable.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**HINT:**

Images are difficult to discern even in normal conditions if:

- **Noise may occur in the image depending on electrical devices used in the cabin.**
- **Noise may occur in the image if accessories that generate radio waves have been installed.**
- **The camera screen is frosted over (the image immediately after turning the engine switch on (IG) may be blurred or darker than normal).**
- **The camera lens is dirty with snow, mud, etc.**
- **A strong beam of light, such as a sunbeam or headlight, hits the camera.**
- **It is too dark around the camera (at night etc.).**
- **The ambient temperature around the camera is either too high or too low.**
- **The vehicle is tilted at a steep angle.**
- **The ambience of the camera is too bright. (When a strong light, such as a sunbeam reflected off the vehicle body, hits the camera, the image may be blurred. This is called the "SMEAR" phenomenon, peculiar to the CCD camera.)**

### 1.READ VALUE USING INTELLIGENT TESTER

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Chassis / Parking Assist Monitor System / Data List.

e. Check the Data List for proper functioning of the following items.

**Parking Assist Monitor System**

| Tester Display | Measurement Item/Range | Normal Condition | Diagnostic Note |
|---|---|---|---|
| AISIC Output Status | Output condition of camera display/OK or NG | OK: Output condition of camera display is normal<br>NG: Output condition of camera display is abnormal | - |

NG → REPLACE PARKING ASSIST ECU (Click here)

OK

## 2.CHECK DIGITAL COMMUNICATION CABLE CONNECTOR

a. Check the digital communication cable connector.

i. Check the digital communication cable connectors between the parking assist ECU and display and navigation module display for any connection problems (Click here).

b. Check if the same malfunction recurs when the parking assist monitor, front monitor and side monitor screens are displayed.

**Result**

| Result | Proceed to |
|---|---|
| Malfunction does not reoccur (returns to normal) | A |
| Malfunction reoccurs | B |

B → Go to step 3

A → END

## 3.REPLACE WIRE HARNESS (DIGITAL COMMUNICATION CABLE)

a. Replace the digital communication cable between the parking assist ECU and display and navigation module display with a new one.

b. Check if the same malfunction recurs when the parking assist monitor, front monitor and side monitor screens are displayed.

**Result**

| Result | Proceed to |
|---|---|
| Malfunction does not reoccur (returns to normal) | A |
| Malfunction reoccurs | B |

B → Go to step 4

A → END

## 4.REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY

a. Replace the display and navigation module display with a new or normally functioning one ( Click here).

b. Check if the same malfunction recurs when the parking assist monitor, front monitor and side monitor screens are displayed.

**Result**

| Result | Proceed to |
|---|---|
| Malfunction does not reoccur (returns to normal) | A |
| Malfunction reoccurs | B |

B → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

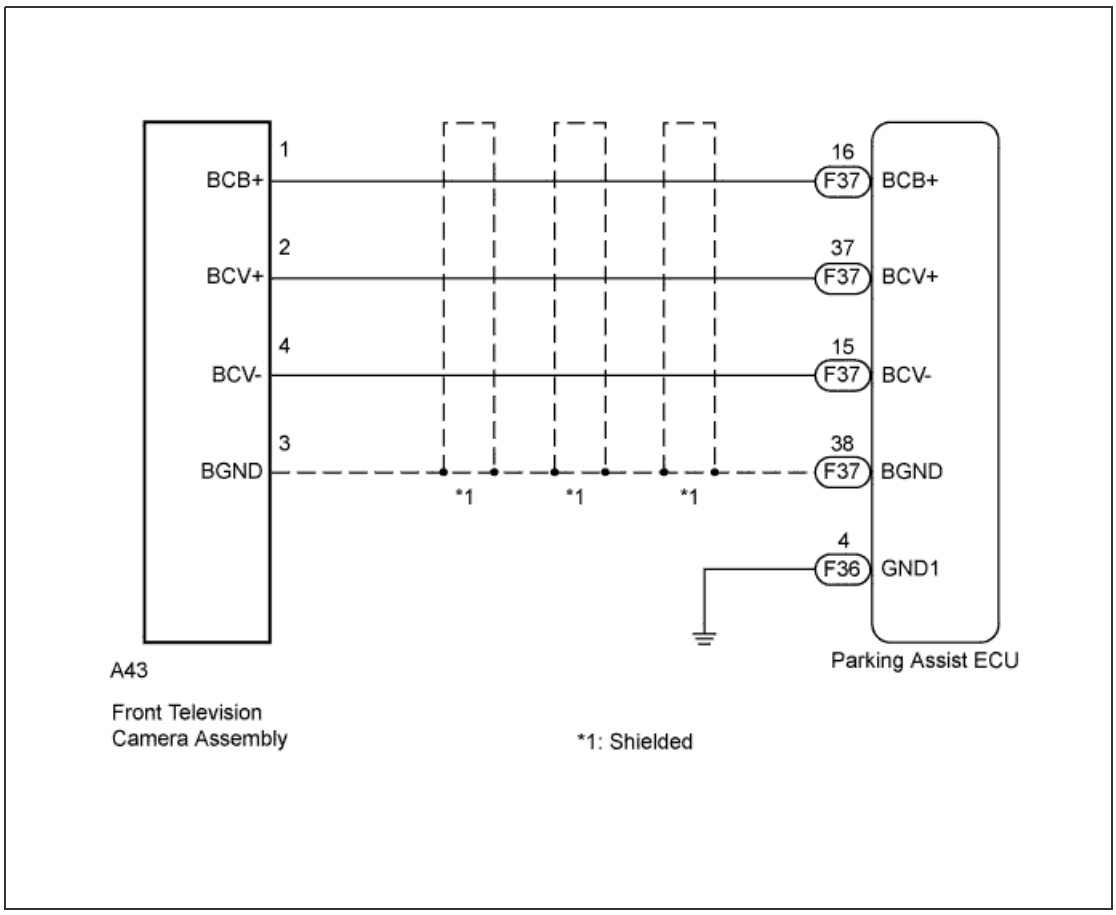
A → END

**for Preparation** Click here

## DESCRIPTION

The display signal from the front television camera assembly is transmitted to the display and navigation module display via the parking assist ECU.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the display and navigation module display after the cable is disconnected from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems may be needed (Click here).**

**HINT:**

Images are difficult to discern even in normal conditions if:

- **Noise may occur in the image depending on electrical devices used in the cabin.**
- **Noise may occur in the image if accessories that generate radio waves have been installed.**
- **The camera screen is frosted over (the image immediately after turning the engine switch on (IG) may be blurred or darker than normal).**
- **The camera lens is dirty with snow, mud, etc.**
- **A strong beam of light, such as a sunbeam or headlight, hits the camera.**
- **It is too dark around the camera (at night etc.).**
- **The ambient temperature around the camera is either too high or too low.**
- **The vehicle is tilted at a steep angle.**
- **The ambience of the camera is too bright. (When a strong light, such as a sunbeam reflected off the vehicle body, hits the camera, the image may be blurred. This is called the "SMEAR" phenomenon, peculiar to the CCD camera.)**

### 1.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - FRONT TELEVISION CAMERA ASSEMBLY)

a. Disconnect the F37 connector from the parking assist ECU.

b. Disconnect the A43 connector from the front television camera assembly.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F37-15 (BCV-) - A43-4 (BCV-) | Always | Below 1 Ω |
| F37-37 (BCV+) - A43-2 (BCV+) | Always | Below 1 Ω |
| F37-38 (BGND) - A43-3 (BGND) | Always | Below 1 Ω |
| F37-16 (BCB+) - A43-1 (BCB+) | Always | Below 1 Ω |
| F37-15 (BCV-) - Body ground | Always | 10 kΩ or higher |
| F37-37 (BCV+) - Body ground | Always | 10 kΩ or higher |
| F37-38 (BGND) - Body ground | Always | 10 kΩ or higher |
| F37-16 (BCB+) - Body ground | Always | 10 kΩ or higher |

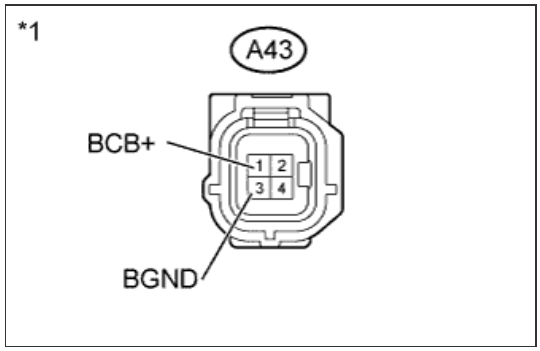
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 2.INSPECT FRONT TELEVISION CAMERA ASSEMBLY (BCB+, BGND)

a. Reconnect the F37 connector to the parking assist ECU.

b. Measure the resistance according to the value(s) in the table below.




**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| A43-3 (BGND) - Body ground | Always | Below 1 Ω |

c. Disconnect the A43 connector from the front television camera assembly.

d. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| A43-3 (BGND) - A43-1 (BCB+) | Wide View Front Monitor Screen Displayed | 5.8 to 7.0 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Front Television Camera Assembly) |

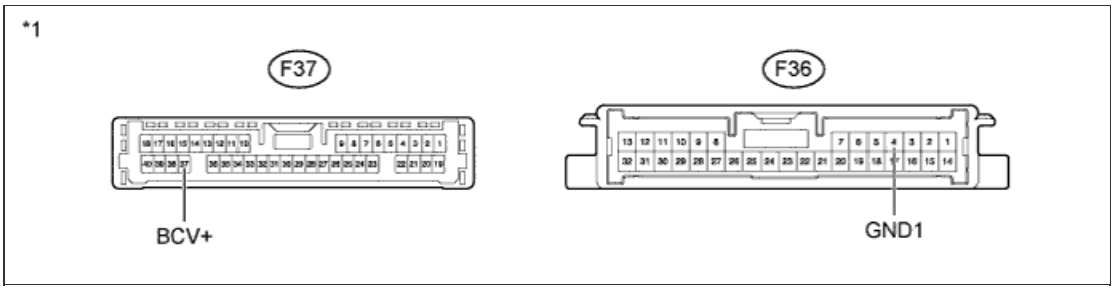
NG → REPLACE PARKING ASSIST ECU (Click here)

OK

## 3.INSPECT PARKING ASSIST ECU (BCV+, GND1)

a. Reconnect the A43 connector to the front television camera assembly.

b. Reconnect the F36 and F37 connectors to the parking assist ECU.




c. Check the waveform of the front television camera assembly using an oscilloscope.

**HINT:**

A waterproof connector is used for the front television camera assembly. Therefore, inspect the waveform at the parking assist ECU with the connector connected.

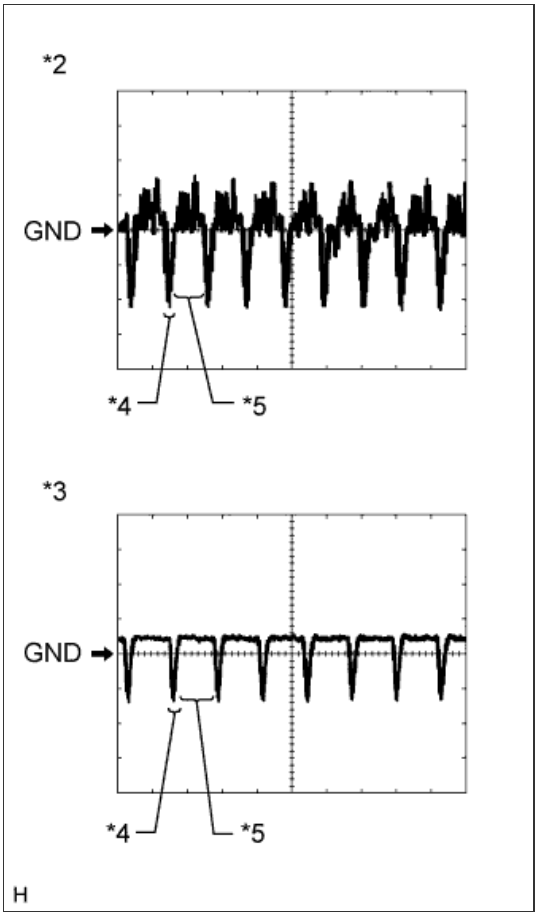
**OK:**

**Waveform is as shown in the illustration.**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F37-37 (BCV+) - F36-4 (GND1) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), front and side monitor main switch on |

**HINT:**

The video waveform changes according to the image sent by the front television camera assembly.




**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Parking Assist ECU) |
| *2 | Waveform 1 (under normal conditions) |
| *3 | Waveform 2 (camera lens is covered, blacking out the screen) |
| *4 | Synchronized Signal |
| *5 | Video Waveform |

NG → REPLACE FRONT TELEVISION CAMERA ASSEMBLY (Click here)

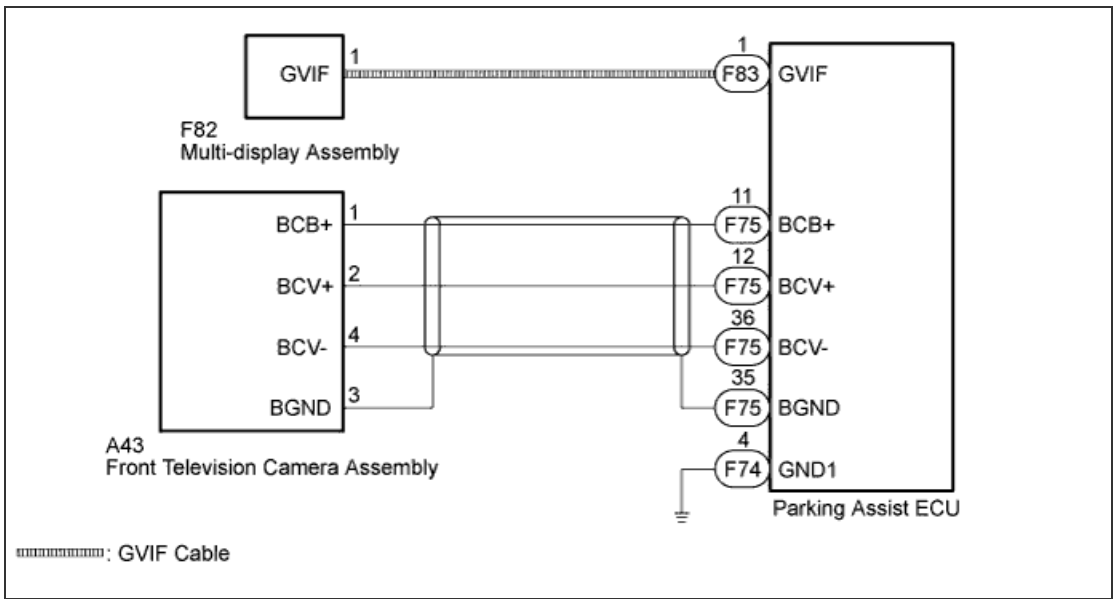
OK → REPLACE PARKING ASSIST ECU (Click here)

**for Preparation** Click here

## DESCRIPTION

The display signal from the front television camera assembly is transmitted to the multi-display assembly via the parking assist ECU.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the parking assist ECU after the cable is disconnected from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as wide view front monitor system may be needed (Click here).**

**HINT:**

Images are difficult to discern even in normal conditions if:

- **Noise may occur in the image depending on electrical devices used in the cabin.**
- **Noise may occur in the image if accessories that generate radio waves have been installed.**
- **The camera screen is extremely cold (the image immediately after turning the engine switch on (IG) may be blurred or darker than normal).**
- **The camera lens is dirty with snow, mud, etc.**
- **A strong beam of light, such as a sunbeam or headlight, hits the camera.**
- **It is too dark around the camera (at night etc.).**
- **The ambient temperature around the camera is either too high or too low.**
- **The vehicle is tilted at a steep angle.**
- **The ambience of the camera is too bright. (When a strong light, such as a sunbeam reflected off the vehicle body, hits the camera, the image may be blurred. This is called the "SMEAR" phenomenon, particular to the CCD camera.)**
- **The camera lens is damaged by plying stones.**

### 1.CHECK SIDE MONITOR SYSTEM

a. Check if the same malfunction occurs when the side monitor screen is displayed.

**Result**

| Result | Proceed to |
|---|---|
| Malfunction occurs when front monitor screen is displayed (side monitor screen is normal). | A |
| Malfunction occurs when front assist monitor screen and side monitor screen are displayed. | B |

B → Go to step 5

A

## 2.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - FRONT TELEVISION CAMERA ASSEMBLY AND BODY GROUND)

a. Disconnect the F74 and F75 parking assist ECU connectors.

b. Disconnect the A43 front television camera assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-36 (BCV-) - A43-4 (BCV-) | Always | Below 1 Ω |
| F75-12 (BCV+) - A43-2 (BCV+) | Always | Below 1 Ω |
| F75-35 (BGND) - A43-3 (BGND) | Always | Below 1 Ω |
| F75-11 (BCB+) - A43-1 (BCB+) | Always | Below 1 Ω |
| F74-4 (GND1) - Body ground | Always | Below 1 Ω |
| F75-36 (BCV-) - Body ground | Always | 10 kΩ or higher |
| F75-12 (BCV+) - Body ground | Always | 10 kΩ or higher |
| F75-35 (BGND) - Body ground | Always | 10 kΩ or higher |
| F75-11 (BCB+) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 3.CHECK PARKING ASSIST ECU (BCB+, BGND)

a. Reconnect the F74 and F75 parking assist ECU connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

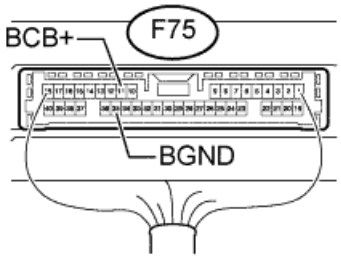
| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-35 (BGND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F75-11 (BCB+) - F75-35 (BGND) | Engine switch on (IG), front and side monitor main switch assembly on | 5.5 to 7.05 V |

*a




**Text in Illustration**

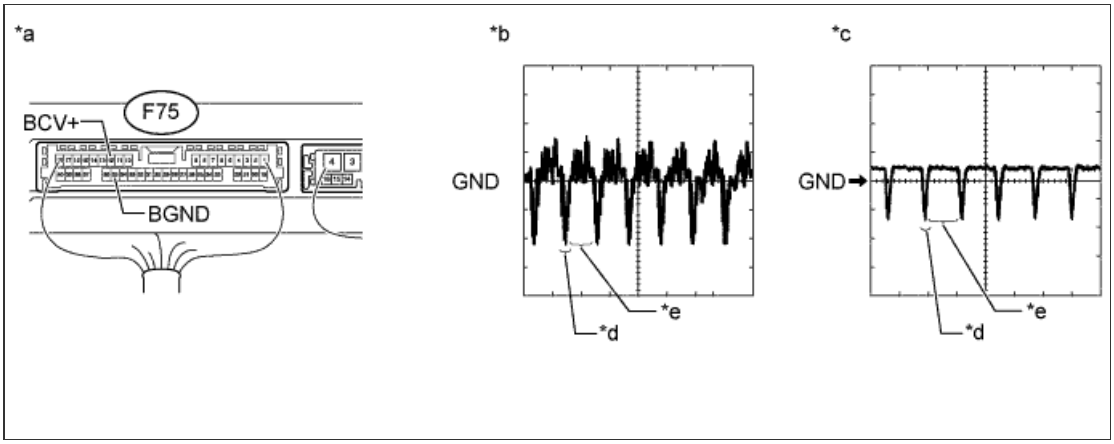
| | |
|---|---|
| *a | Component with harness connected (Parking Assist ECU) |

NG → REPLACE PARKING ASSIST ECU (Click here)

OK

## 4.CHECK FRONT TELEVISION CAMERA ASSEMBLY (BCV+, BGND)

a. Reconnect the A43 front television camera assembly connector.




**Text in Illustration**

| | | | |
|---|---|---|---|
| *a | Component with harness connected (Parking Assist ECU) | *b | Waveform A |
| *c | Waveform B | *d | Synchronization Signal |
| *e | Video Waveform | - | - |

**HINT:**

- **A waterproof connector is used for the front television camera assembly. Therefore, inspect the waveform at the parking assist ECU with the connector connected.**
- **The video waveform changes according to the image sent by the front television camera assembly.**

b. Measure the resistance according to the value(s) in the table below.

**OK:**

**Waveform is as shown in the illustration.**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F75-12 (BCV+) - F75-35 (BGND) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | • Waveform A: Engine switch on (IG), front and side monitor main switch assembly on and camera lens is not covered, displaying an image<br>• Waveform B: Engine switch on (IG), front and side monitor main switch assembly on and camera lens is covered, blacking out the screen |

NG → REPLACE FRONT TELEVISION CAMERA ASSEMBLY (Click here)

OK

5.CHECK HARNESS AND CONNECTOR (GVIF CABLE)

a. Replace GVIF cable with a normally functioning one.

b. Check if the same malfunction recurs when the front monitor and side monitor screens are displayed.

**OK:**
**Malfunction does not reoccur (returns to normal).**

NG → Go to step 6

OK

END (GVIF CABLE IS DEFECTIVE)

6.CHECK MULTI-DISPLAY ASSEMBLY

a. Replace the multi-display assembly with a normally functioning one ( Click here).

b. Check if the same malfunction recurs when the front monitor and side monitor screens are displayed.

**OK:**
**Malfunction does not reoccur (returns to normal).**

NG → REPLACE PARKING ASSIST ECU (Click here)

OK

END (MULTI-DISPLAY IS DEFECTIVE)

**for Preparation** Click here

## DESCRIPTION

On the SIGNAL CHECK screen, it is possible to check if the state of signals sent to the parking assist ECU is normal ( Click here).

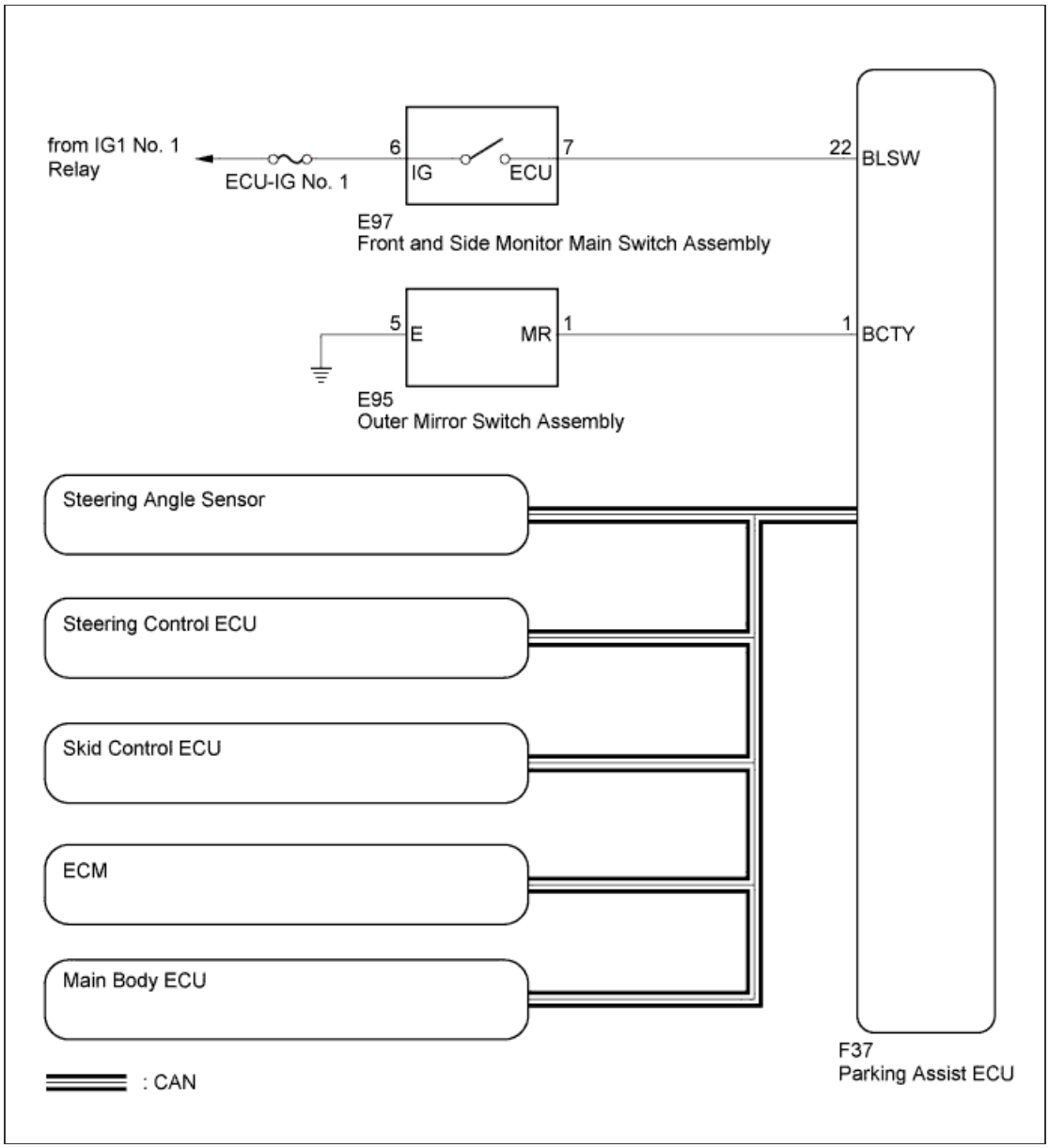
**HINT:**

- **On the SIGNAL CHECK screen, "OK" (blue) is displayed for items with a normal inspection result and input state.**
- **On the SIGNAL CHECK screen, "CHK" (red) is displayed for items with an abnormal inspection result and input state.**
- **Displayed items may differ depending on the specifications.**

| Item | Signal Input Method | Detail | DTC Output when Abnormal Result is Displayed | Signal Receiver |
|---|---|---|---|---|
| SPEED | CAN communication | Speed signal input | DTC is output | Skid control ECU |
| CAMERA SW | Vehicle wire harness | Front and side monitor main switch signal input | DTC is not output | Parking assist ECU |
| BCTY | CAN communication | CAN communication condition with main body ECU | DTC is output | Main body ECU |
| MIRROR SW | Vehicle wire harness | Outer rear view mirror retract signal input | DTC is not output | Parking assist ECU |
| SHIFT | CAN communication | Shift signal input | DTC is output | ECM |
| STR SIG | CAN communication | Steering angle sensor signal input | DTC is output | Spiral with sensor cable sub-assembly |
| WFS SET | Vehicle wire harness | • Front monitor signal input<br>• Side monitor signal input<br>• Front and side monitor main switch signal input | DTC is output | Parking assist ECU |
| VGRS *1 | CAN communication | VGRS signal input | DTC is output | Steering control ECU |
| DEST | CAN communication | Destination information signal input | DTC is output | Main body ECU |
| BRAND | CAN communication | Brand information signal input | DTC is output | Main body ECU |

*1: w/ VGRS

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the display and navigation module display after the cable is disconnected from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems may be needed (Click here).**
- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**
- **When replacing the display and navigation module display, perform vehicle contract setting (w/ G-BOOK system) ( Click here).**

### 1.CHECK DISPLAY CHECK MODE

a. Check which items display "CHK" (red) on the SIGNAL CHECK screen.

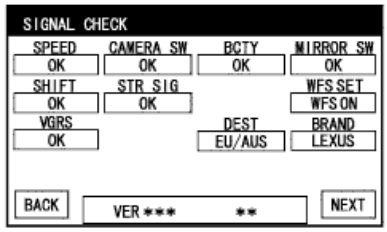
**Text in Illustration**

| | |
|---|---|
| *1 | Example |

**Result**

| Result | Proceed to |
|---|---|
| "MIRROR SW" displays "CHK" (red). | A |
| "CAMERA SW" and "WFS SET" displays "CHK" (red). | B |
| Any of "SPEED", "BCTY", "SHIFT", "STR SIG", "DEST", "VGRS" and "BRAND" display "CHK" (red). | C |

*1



B → Go to step 5

C → CHECK DTC OUTPUT (Click here)

A

## 2.INSPECT OUTER MIRROR SWITCH

a. Inspection outer mirror switch (Click here).

NG → REPLACE OUTER MIRROR SWITCH (Click here)

OK

## 3.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - OUTER MIRROR SWITCH)

a. Disconnect the E37 connector from the parking assist ECU.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E37-1 (BCTY) - E95-1 (MR) | Always | Below 1 Ω |
| E37-1 (BCTY) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 4.CHECK POWER MIRROR CONTROL SYSTEM (POWER RETRACT FUNCTION)

a. Operate the mirror retract switch to check if the power retract mirror function of the outer rear view mirror assembly (passenger side) operates normally (Click here).

NG → GO TO POWER MIRROR CONTROL SYSTEM (Click here)

OK

REPLACE PARKING ASSIST ECU (Click here)

## 5.INSPECT FRONT AND SIDE MONITOR MAIN SWITCH ASSEMBLY

a. Inspection front and side monitor main switch assembly ( Click here).

NG → REPLACE FRONT AND SIDE MONITOR MAIN SWITCH ASSEMBLY (Click here)

OK

## 6.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - MAIN SWITCH ASSEMBLY)

a. Disconnect the F37 connector from the parking assist ECU.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| E97-6 (IG) - Body ground | Engine switch on (IG) | 11 to 14 V |

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F37-22 (BLSW) - Body ground | Always | 10 kΩ or higher |
| E97-7 (ECU) - Body ground | Always | 10 kΩ or higher |
| F37-22 (BLSW) - E97-7 (ECU) | Always | Below 1 Ω |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE PARKING ASSIST ECU (Click here)

**for Preparation** Click here

## 1.PRECAUTIONS FOR SIDE MONITOR SYSTEM

a. Handling precautions:

i. The side monitor system may not function properly if the camera is dropped or subjected to strong shocks, such as striking it, etc.

ii. Scrubbing the lens of the camera may scratch the cover and affect the image.

iii. If waxes or similar compounds adhere to the camera, it is necessary to clean the camera off immediately and wash it with water.

iv. The side monitor system may not function properly if the camera is subjected to sudden temperature changes, such as applying hot water on it when it is cold.

v. If there is condensation, snow, mud, etc. on the camera, wash it with water and wipe it with a soft cloth. If the camera is excessively dirty, wash it with a mild detergent.

b. The system may not operate properly under the following conditions:

i. When driving on frozen, slippery, or snowy roads.

ii. When using tire chains or the spare tire.

iii. When the hood or front passenger door are not completely closed.

iv. When driving on an uneven road that has slopes, bumps, or gravel, etc.

c. Even if the camera is functioning properly, the image may not be clear under the following conditions:

i. When the camera is cold (the image is darker than normal).

ii. When the camera is in a dark area (such as at night).

iii. When the camera is exposed to very high or very low temperatures.

iv. When the vehicle or road is slanted.

v. As a result of the brightness of the ambient lighting.

**HINT:**

When a strong light (such as when sunlight is reflected off a vehicle body) hits the camera, vertical streaks, a phenomenon peculiar to the camera, may appear in the image.

**for Preparation** Click here

## 1.PRECAUTION FOR DISCONNECTING CABLE FROM NEGATIVE BATTERY TERMINAL

**NOTICE:**

- **After the engine switch is turned off, the display and navigation module display (HDD navigation system) records various types of memory and settings. As a result, after turning the engine switch off, make sure to wait for the time specified in the following table before disconnecting the cable from the negative (-) battery terminal.**

**Waiting Time before Disconnecting Cable from Negative (-) Battery Terminal**

| Specification | Waiting Time |
|---|---|
| w/o Telematics transceiver | 60 sec. |
| w/ Telematics transceiver | 120 sec. |

## 2.POINTS TO NOTE WHEN SERVICING

a. Pay attention to the following points when servicing.

i. When disconnecting the cable from the negative (-) battery terminal, "System initializing" may appear on the display and navigation module display. In this case, restore the steering angle neutral point (Click here).

ii. Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the side monitor system may be needed (Click here).

**HINT:**

The side monitor system calibration adjustment values are stored in the parking assist ECU.

iii. When the lens of the side television camera assembly is dirty, wash the lens with water and wipe it off with a soft cloth to obtain clear images. For heavy dirt, use neutral detergent to clean the lens.

## 3.NOTES FOR SIDE TELEVISION CAMERA

a. Notes for the side television camera assembly

i. The side monitor system may not function properly if subjected to a severe blow by any hard object.

ii. Do not scrub the outer casing of the camera (made of transparent resin). Scrubbing may scratch the cover and affect the image. Prevent organic solvents, waxes, bond removing solvents or glass coating from adhering to the cover. If such material adheres to the cover, clean it off immediately and wash with water.

iii. Exposing the camera to a sudden temperature change may affect proper functioning of the camera.

iv. A clear image may not appear if the camera is dirty with snow, mud, etc. In that case, wash it with water and wipe off the lens. Use a detergent to remove dirt if necessary.

b. Images can be difficult to discern even in normal conditions. For example:

i. Noise may occur in the image while adjusting or retracting the outer rear view mirror assembly (passenger side).

ii. Noise may occur in the image depending on electrical devices used in the cabin.

iii. Noise may occur in the image if accessories that generate radio waves have been installed.

iv. The camera screen is extremely cold (the image immediately after turning the engine switch on (IG) may be blurred or darker than normal).

v. The camera lens is dirty with snow, mud, etc.

vi. A strong beam of light, such as a sunbeam or headlight, hits the camera.

vii. It is too dark around the camera (at night etc.).

viii. The ambient temperature around the camera is either too high or too low.

ix. The vehicle is tilted at a steep angle.

x. The ambience of the camera is too bright. (When a strong light, such as a sunbeam reflected off the vehicle body, hits the camera, the image may be blurred. This is called the "SMEAR" phenomenon, peculiar to the CCD camera.)

**for Preparation** Click here

## 1.POINTS TO NOTE WHEN SERVICING

a. Pay attention to the following points when servicing.

i. When disconnecting the cable from the negative (-) battery terminal, "System initializing" may appear on the multi-display assembly. In this case, restore the steering angle neutral point (Click here).

ii. Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the side monitor system may be needed (Click here).

**HINT:**

The side monitor system calibration adjustment values are stored in the parking assist ECU.

iii. When the lens of the side television camera assembly is dirty, wash the lens with water and wipe it off with a soft cloth to obtain clear images. For heavy dirt, use neutral detergent to clean the lens.

## 2.NOTES FOR SIDE TELEVISION CAMERA

a. Notes for the side television camera assembly

i. The side monitor system may not function properly if subjected to a severe blow by any hard object.

ii. Do not scrub the outer casing of the camera (made of transparent resin). Scrubbing may scratch the cover and affect the image. Prevent organic solvents, waxes, bond removing solvents or glass coating from adhering to the cover. If such material adheres to the cover, clean it off immediately and wash with water.

iii. Exposing the camera to a sudden temperature change may affect proper functioning of the camera.

iv. A clear image may not appear if the camera is dirty with snow, mud, etc. In that case, wash it with water and wipe off the lens. Use a detergent to remove dirt if necessary.

b. Images can be difficult to discern even in normal conditions. For example:

i. Noise may occur in the image while adjusting or retracting the outer rear view mirror assembly.

ii. Noise may occur in the image depending on electrical devices used in the cabin.

iii. Noise may occur in the image if accessories that generate radio waves have been installed.

iv. The camera screen is extremely cold (the image immediately after turning the engine switch on (IG) may be blurred or darker than normal).

v. The camera lens is dirty with snow, mud, etc.

vi. A strong beam of light, such as a sunbeam or headlight, hits the camera.

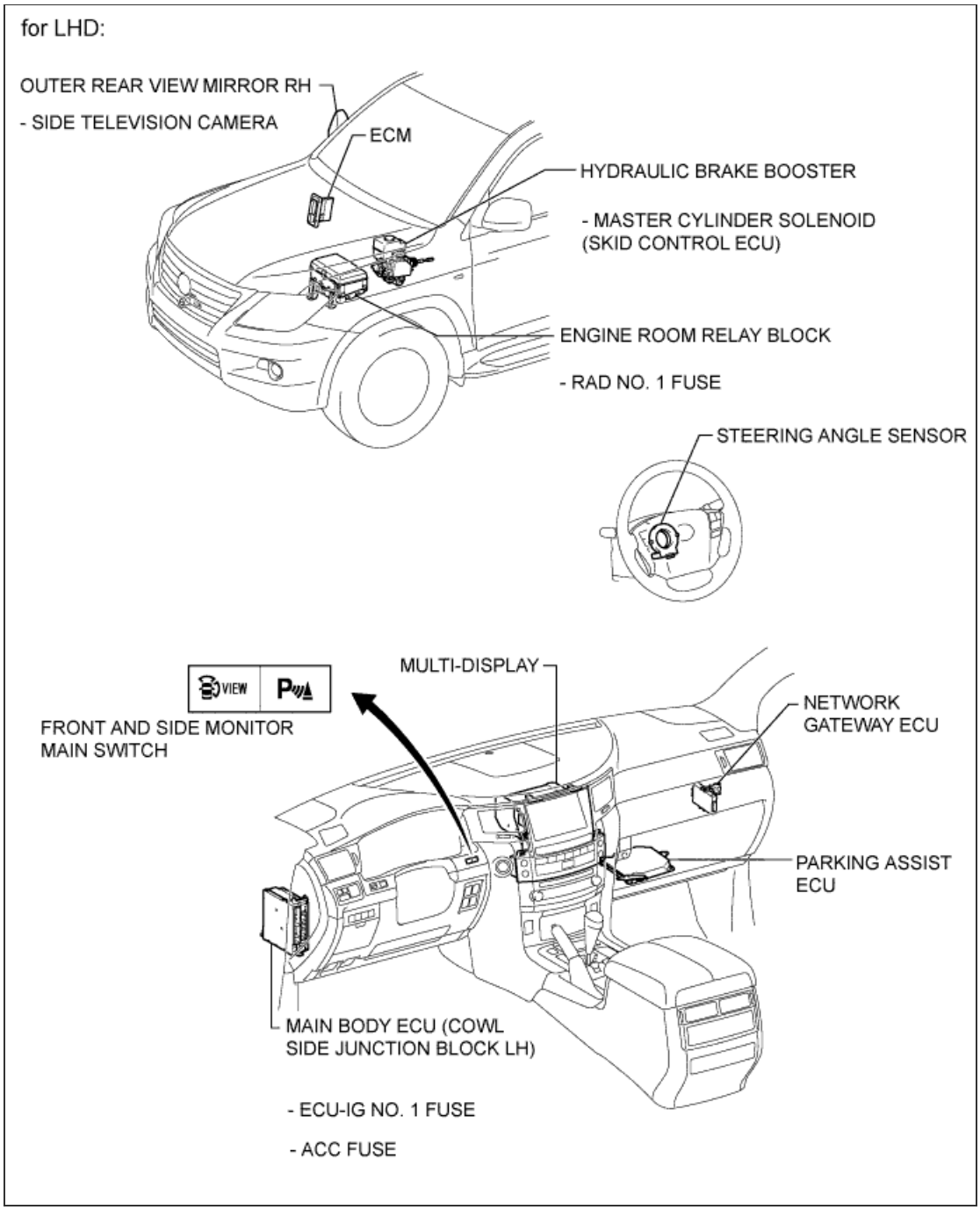
vii. It is too dark around the camera (at night etc.).

viii. The ambient temperature around the camera is either too high or too low.

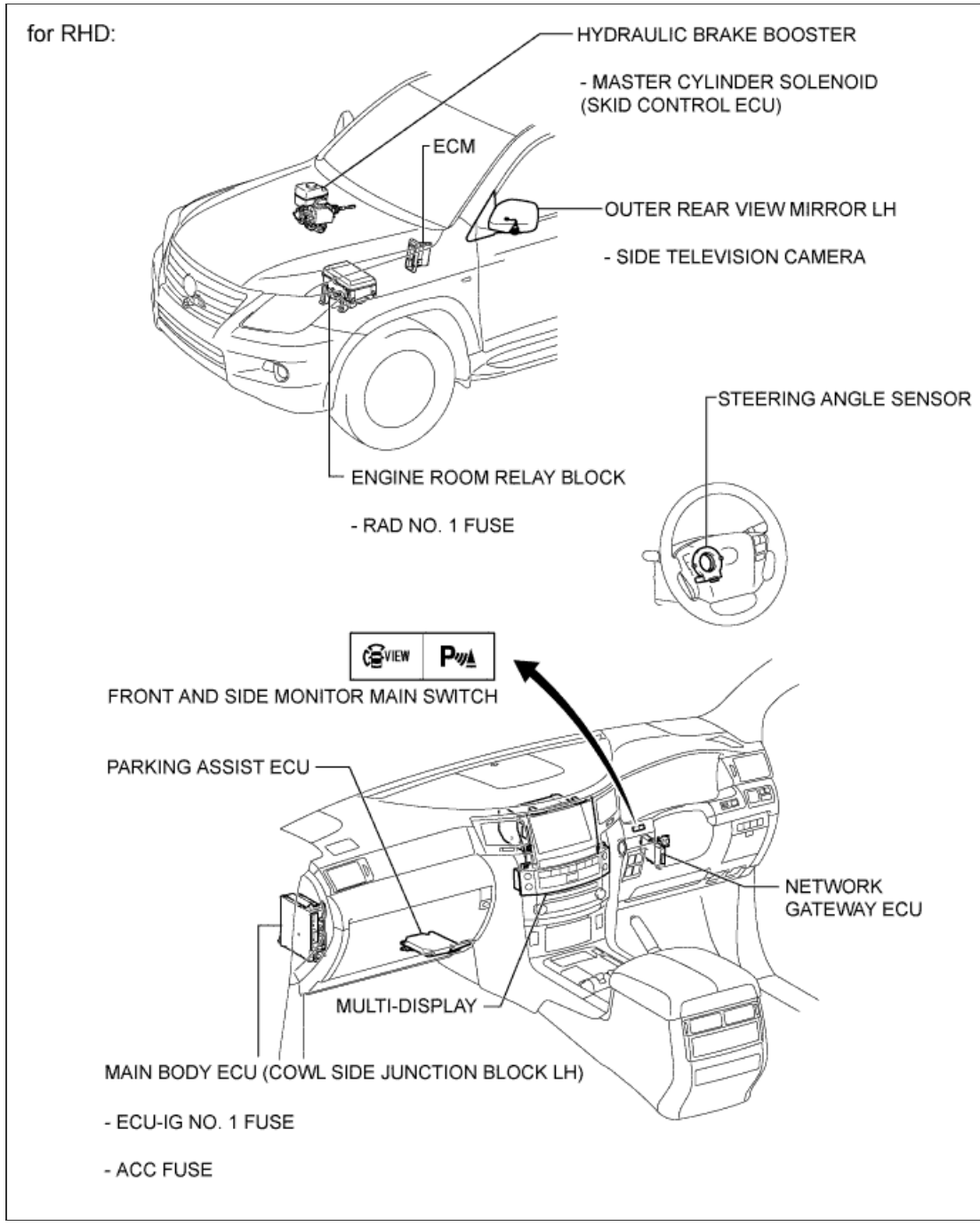
ix. The vehicle is tilted at a steep angle.

x. The ambience of the camera is too bright. (When a strong light, such as a sunbeam reflected off the vehicle body, hits the camera, the image may be blurred. This is called the "SMEAR" phenomenon, particular to the CCD camera.)

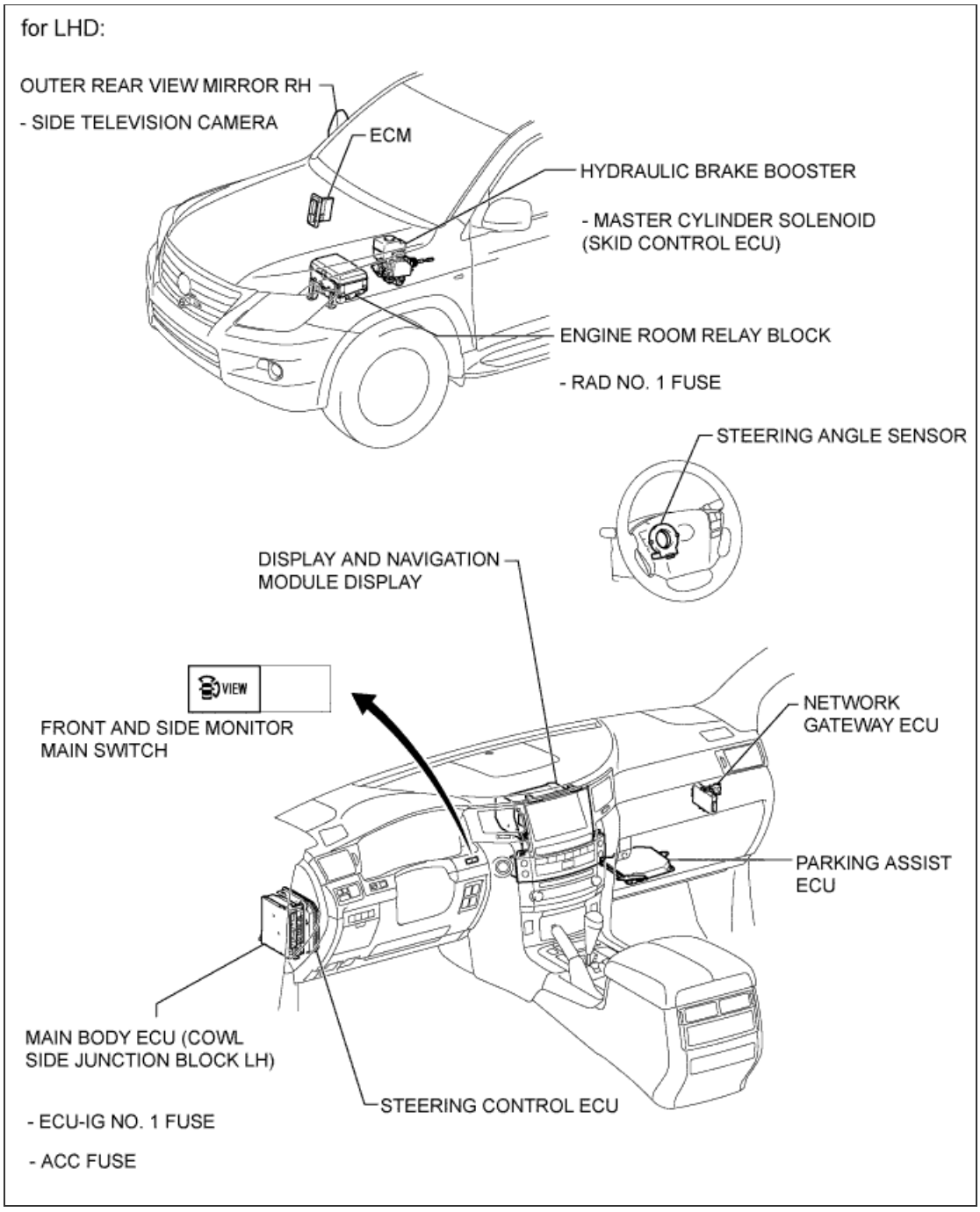
**for Preparation** Click here

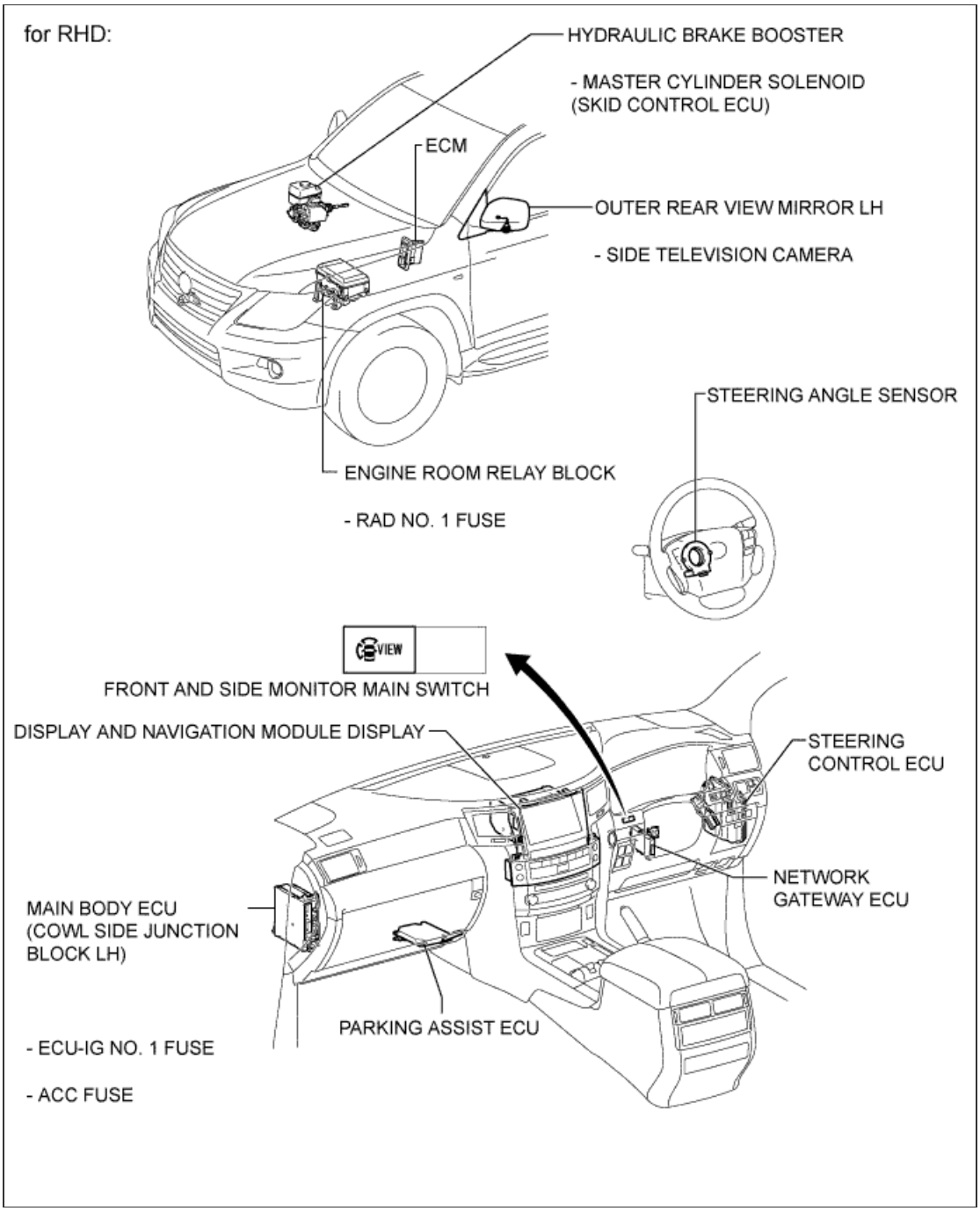


for RHD:

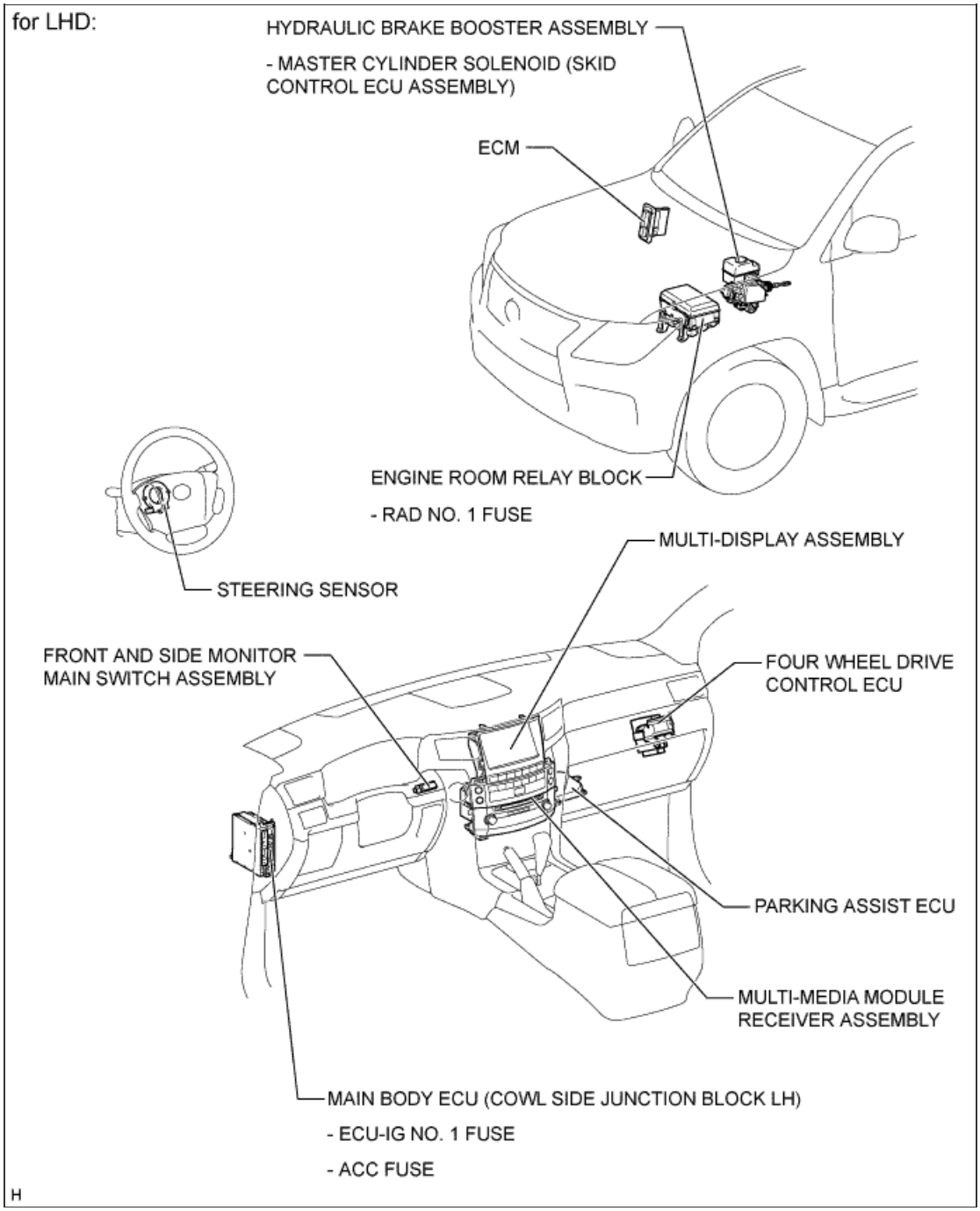

HYDRAULIC BRAKE BOOSTER
- MASTER CYLINDER SOLENOID
(SKID CONTROL ECU)
ECM
OUTER REAR VIEW MIRROR LH
- SIDE TELEVISION CAMERA
STEERING ANGLE SENSOR
ENGINE ROOM RELAY BLOCK
- RAD NO. 1 FUSE
FRONT AND SIDE MONITOR MAIN SWITCH
PARKING ASSIST ECU
NETWORK
GATEWAY ECU
MULTI-DISPLAY
MAIN BODY ECU (COWL SIDE JUNCTION BLOCK LH)
- ECU-IG NO. 1 FUSE
- ACC FUSE

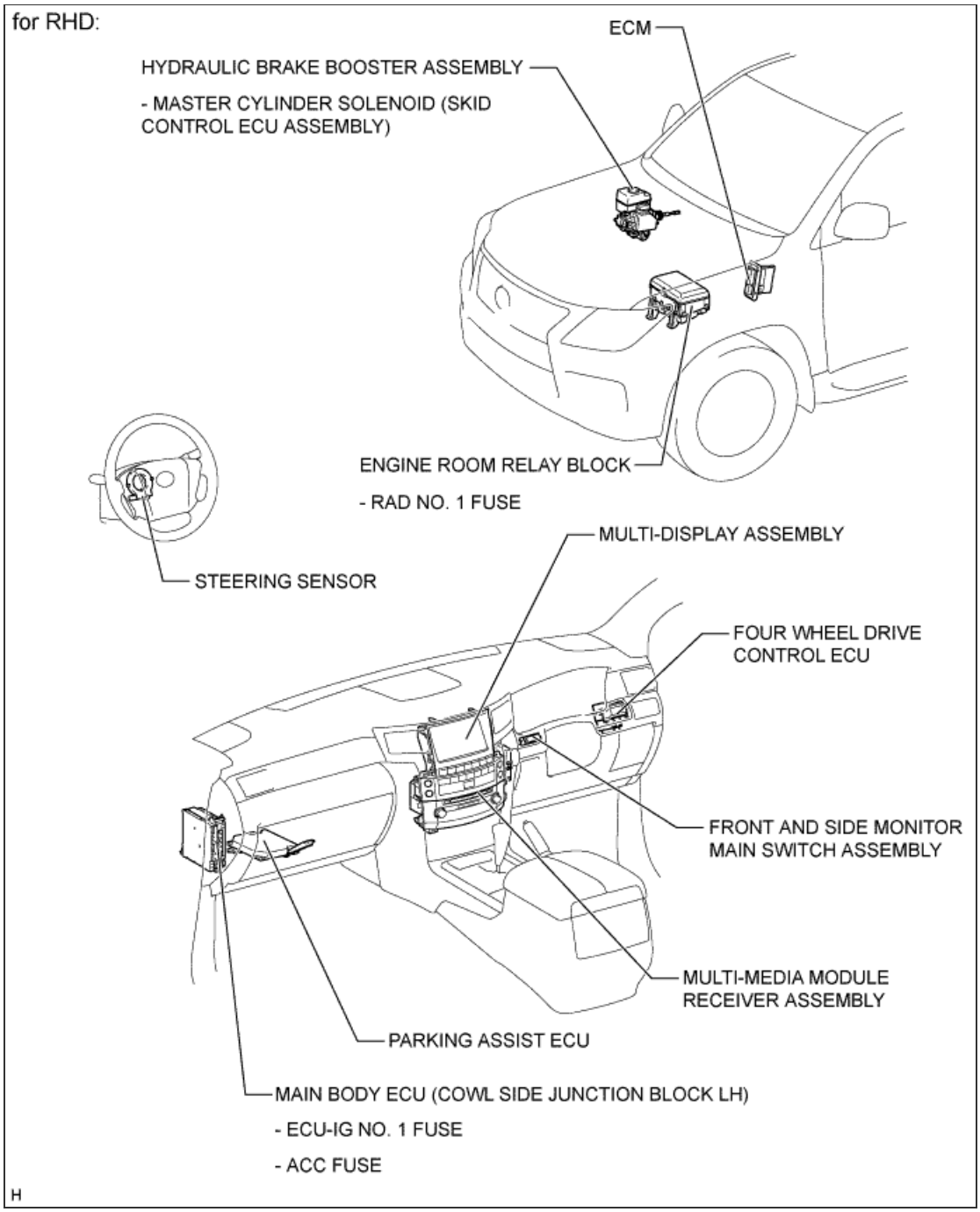
**for Preparation** Click here

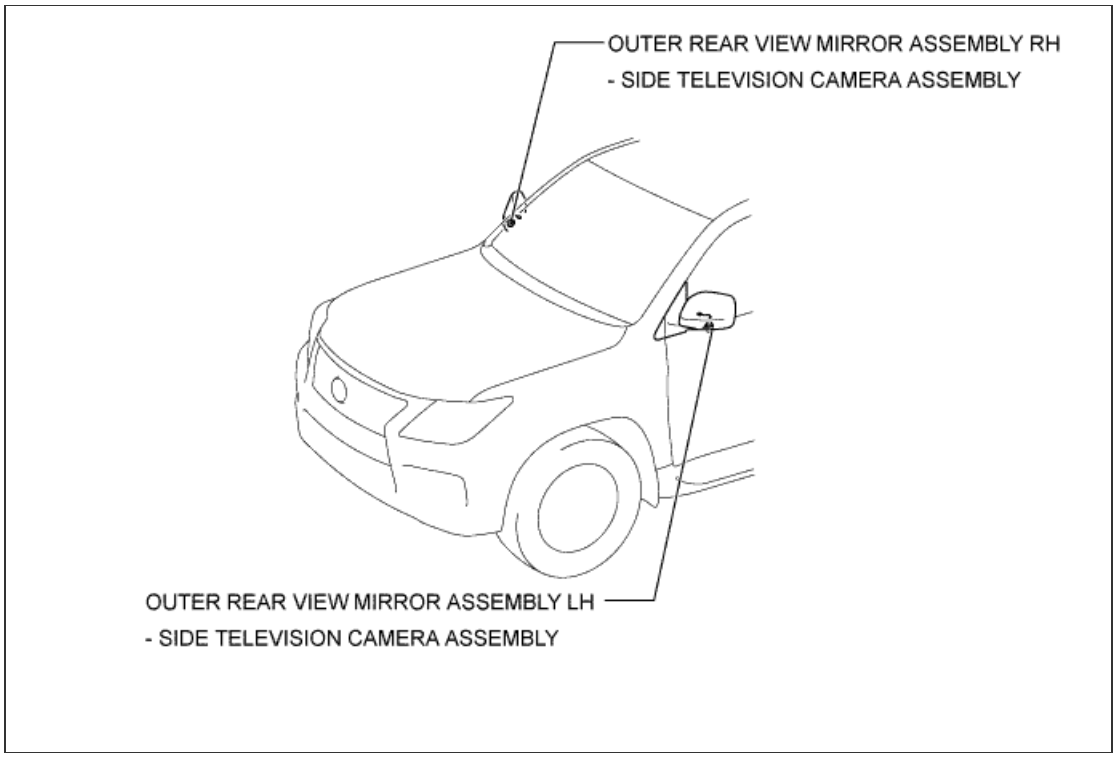



for RHD:
HYDRAULIC BRAKE BOOSTER
- MASTER CYLINDER SOLENOID
(SKID CONTROL ECU)
ECM
OUTER REAR VIEW MIRROR LH
- SIDE TELEVISION CAMERA
STEERING ANGLE SENSOR
ENGINE ROOM RELAY BLOCK
- RAD NO. 1 FUSE
VIEW
FRONT AND SIDE MONITOR MAIN SWITCH
DISPLAY AND NAVIGATION MODULE DISPLAY
STEERING
CONTROL ECU
NETWORK
GATEWAY ECU
MAIN BODY ECU
(COWL SIDE JUNCTION
BLOCK LH)
PARKING ASSIST ECU
- ECU-IG NO. 1 FUSE
- ACC FUSE

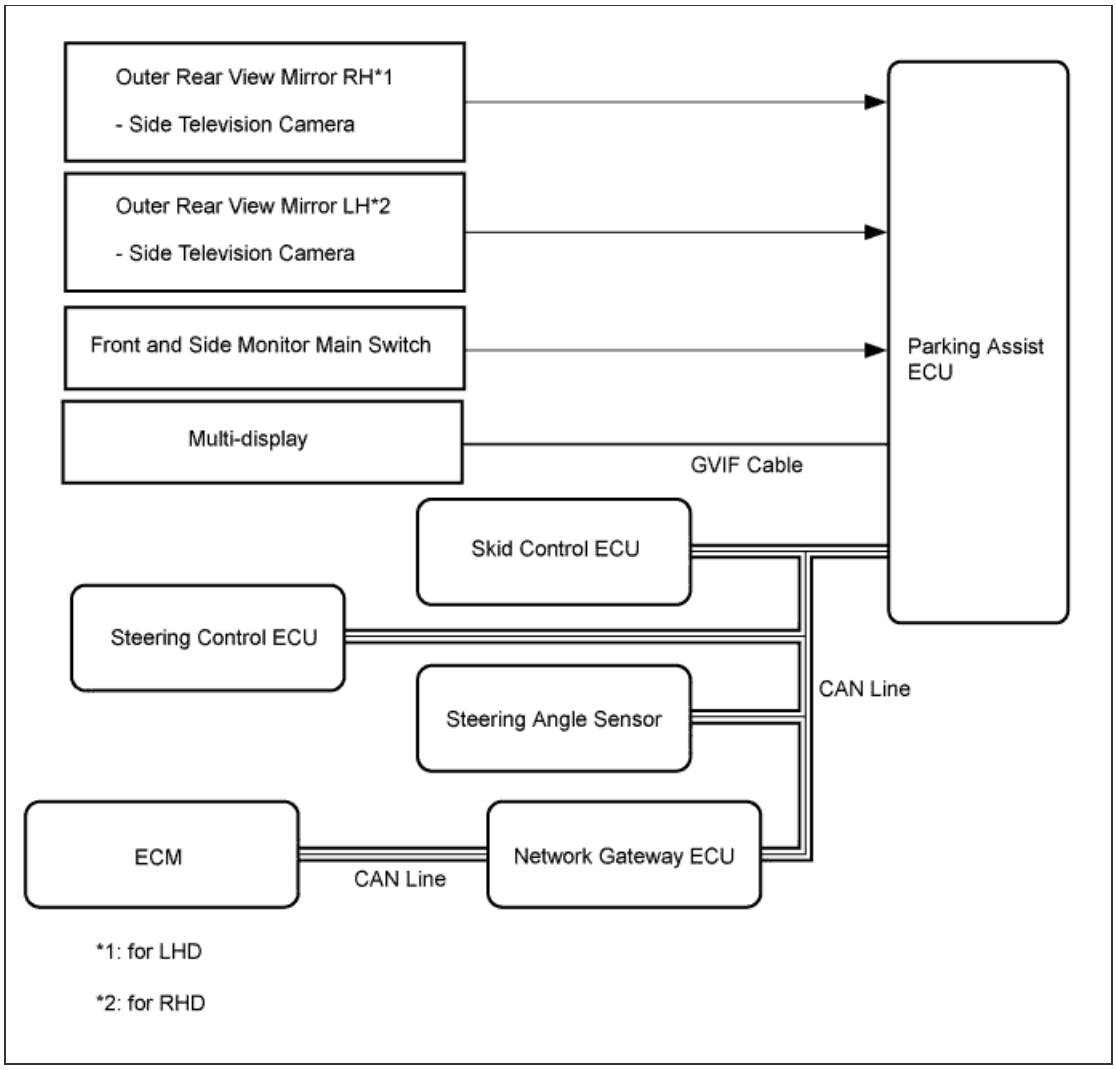
**for Preparation** Click here




for RHD:
ECM
HYDRAULIC BRAKE BOOSTER ASSEMBLY
- MASTER CYLINDER SOLENOID (SKID CONTROL ECU ASSEMBLY)
ENGINE ROOM RELAY BLOCK
- RAD NO. 1 FUSE
STEERING SENSOR
MULTI-DISPLAY ASSEMBLY
FOUR WHEEL DRIVE CONTROL ECU
FRONT AND SIDE MONITOR MAIN SWITCH ASSEMBLY
MULTI-MEDIA MODULE RECEIVER ASSEMBLY
PARKING ASSIST ECU
MAIN BODY ECU (COWL SIDE JUNCTION BLOCK LH)
- ECU-IG NO. 1 FUSE
- ACC FUSE
H


OUTER REAR VIEW MIRROR ASSEMBLY RH
- SIDE TELEVISION CAMERA ASSEMBLY
OUTER REAR VIEW MIRROR ASSEMBLY LH
- SIDE TELEVISION CAMERA ASSEMBLY

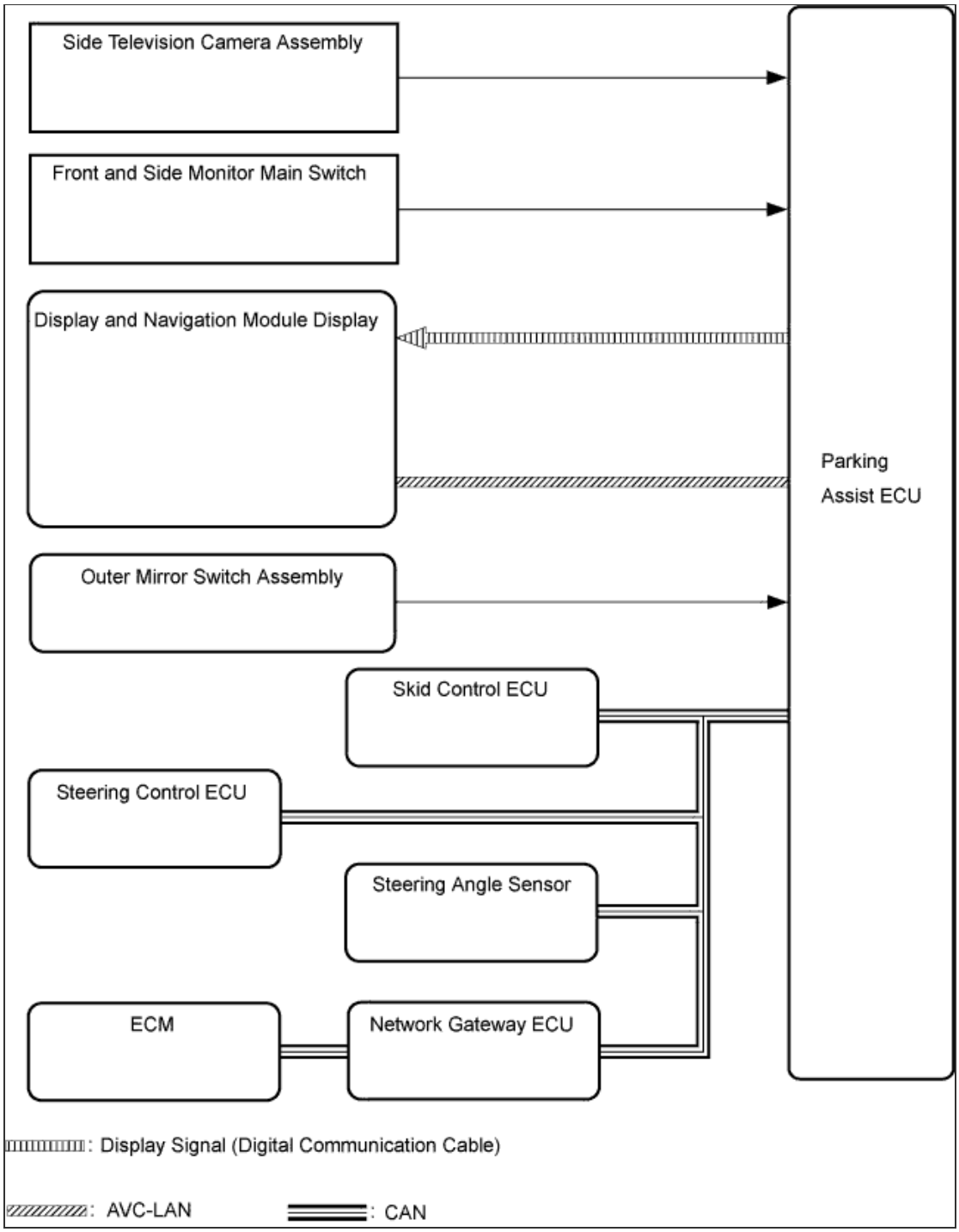
**for Preparation** Click here




**Communication Table**

| Sender ECU | Receiver ECU | Signal | Line |
|---|---|---|---|
| Skid Control ECU | Parking Assist ECU | Vehicle speed signal | CAN |
| ECM | Parking Assist ECU | Shift position signal | CAN |
| Steering Angle Sensor | Parking Assist ECU | Vehicle angle data signal | CAN |
| Steering Control ECU | Parking Assist ECU | Variable gear ratio steering system information signal | CAN |

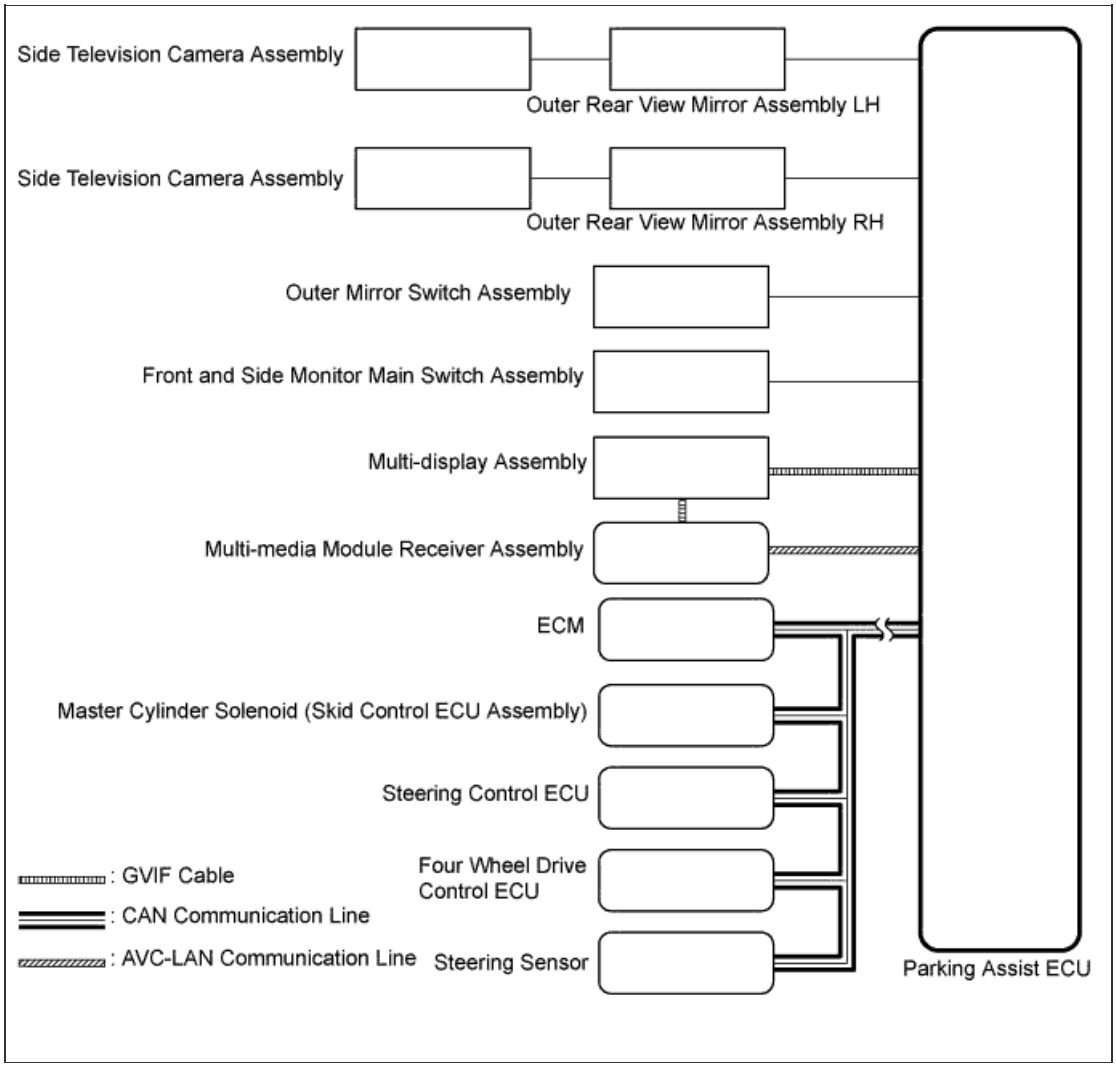
**for Preparation** Click here




**Communication Table**

| Sender ECU | Receiver ECU | Signal | Line |
|---|---|---|---|
| Display and Navigation Module Display | Parking Assist ECU | Vehicle angle data | AVC-LAN |
| Parking Assist ECU | Display and Navigation Module Display | Display | Digital communication cable |
| Skid Control ECU | Parking Assist ECU | Vehicle speed signal | CAN |
| ECM | Parking Assist ECU | Shift position signal | CAN |
| Steering Angle Sensor | Parking Assist ECU | Vehicle angle data signal | CAN |
| Steering Control ECU | Parking Assist ECU | Variable gear ratio steering system information signal | CAN |

**for Preparation** Click here




### Communication Table

| Sender ECU | Receiver ECU | Signal | Line |
|---|---|---|---|
| Multi-media Module Receiver Assembly | Parking Assist ECU | Vehicle angle data | AVC-LAN |
| • Parking Assist ECU<br>• Multi-media Module Receiver Assembly | Multi-display Assembly | Display | GVIF cable |
| Steering Sensor | Parking Assist ECU | Steering angle | CAN |
| Steering Control ECU | Parking Assist ECU | • VGRS relative angle<br>• Vehicle information | CAN |
| Master Cylinder Solenoid (Skid Control ECU Assembly) | Parking Assist ECU | • Inner brake information<br>• ABS ACT information | CAN |
| Four Wheel Drive Control ECU | Parking Assist ECU | L4 Condition signal | CAN |
| ECM | Parking Assist ECU | Shift position signal | CAN |

**for Preparation** Click here

## SIDE MONITOR SYSTEM DESCRIPTION

a. The side monitor system is controlled by the parking assist ECU. This system is equipped with a television camera built into the front passenger side outer mirror. Images from the camera are displayed on the display screen to inform the driver of conditions on the side of the vehicle, assist in smooth movement to the road shoulder, and help prevent vehicle accidents.

## FUNCTION OF COMPONENTS

a. The side monitor system operates by controlling the components listed below.

| Components | Function |
|---|---|
| Side television camera | Built into the front passenger side outer mirror and sends camera images to the parking assist ECU. |
| Parking assist ECU | Receives image signals and sends these signals to the multi-display to display the view from the side in front of the vehicle on the screen. |
| Front and side monitor main switch | When auto-display mode is not set and the vehicle speed is approximately 12 km/h (7 mph) or less, by pressing the main switch, the display changes from the displayed screen to the wide view front and side monitor simultaneous display screen.<br><br>**HINT:**<br>• **When the vehicle speed is approximately 12 km/h (7 mph) or less, auto-display mode is not set, the front and side monitor main switch is on, and the shift lever is in R, only the wide view front and side monitor simultaneous display screen will be displayed. The display will not change to the wide view front display screen or side monitor display screen.**<br>• **While the wide view front monitor display screen is displayed, if the DISP switch is pressed, the vehicle speed exceeds the display permission vehicle speed (approximately 12 km/h (7 mph) or less), or the shift lever is moved to R and the screen changes to the rear view monitor, the display changes in the following order the next time the wide view front and side monitor simultaneous display screen is displayed: wide view front and side monitor simultaneous display screen → wide view front monitor display screen → side monitor display screen.**<br>• **While the side monitor display screen is displayed, if the DISP switch is pressed, the vehicle speed exceeds the display permission vehicle speed (approximately 12 km/h (7 mph) or less), or the shift lever is moved to R and the screen changes to the rear view monitor, the display changes in the following order the next time the wide view front and side monitor simultaneous display screen is displayed: wide view front and side monitor simultaneous display screen → side monitor display screen → wide view front monitor display screen.** |
| Skid control ECU | Receives vehicle speed signals from the vehicle speed sensor and transmits these signals to the parking assist ECU using the CAN communication line. |
| Multi-display | Receives side television camera display signals from the parking assist ECU, and displays the camera image on the display screen. |
| ECM | Sends shift position signals to the parking assist ECU. |
| Network gateway ECU | Performs CAN communication line switching between the ECM and parking assist ECU. |

| | |
|---|---|
| Steering angle sensor | Detects the angle of the steering wheel and sends the resulting signals to the parking assist ECU through CAN communication. |
| Steering control ECU | Receives the variable gear ratio steering signal from the steering angle sensor. |

## SIDE MONITOR SYSTEM CONTROL DESCRIPTION

a. Side monitor operation conditions (when auto-display mode is set).

i. When the following conditions are met, the side monitor display screen automatically changes to the wide view front and side monitor simultaneous display screen.

| Condition | Engine Switch | AUTO Switch | Vehicle Speed | Shift Lever |
|---|---|---|---|---|
| 1 | On (IG) | On | Decreases to 10 km/h (6 mph) or less from a speed of 12 km/h (7 mph) or more | Moved from P to D or N |
| 2 | On (IG) | On | 12 km/h (7 mph) or less | Moved from R to D or N |

**HINT:**

The AUTO switch is displayed in the bottom left when the side monitor is displayed. Auto-display mode can be set/unset by turning the AUTO switch on/off.

b. Side monitor operation conditions (when auto-display mode is not set).

i. When the following conditions are met and the wide view front and side monitor main switch is pushed, the side monitor display screen changes to the wide view front and side monitor simultaneous display screen.

| Engine Switch | AUTO Switch | Vehicle Speed |
|---|---|---|
| On (IG) | Off | 12 km/h (7 mph) or less |

## DIAGNOSTIC FUNCTION

a. The side monitor system can be adjusted with the "Diagnostic Menu" of the multi-display.

**HINT:**

If any of the work listed below is performed, it is necessary to perform adjustments/inspections via the "Diagnostic Menu".

| Work | Adjustment Item | See page |
|---|---|---|
| • When the installation angle of the side television camera assembly is misaligned (such as when the camera is removed or installed).<br>• When replacing the side television camera assembly.<br>• When replacing the parking assist ECU. | Side television camera assembly position setting | Click here |
| When replacing the parking assist ECU. | • Steering angle neutral point adjustment<br>• Left/right maximum steering angle adjustment | Click here |
| • When disconnecting the battery cable.<br>• When removing/installing or replacing the steering angle sensor.<br>• When the expected course lines are not displayed in expected course line display mode, and when there is not a malfunction in the steering angle sensor. | Steering angle neutral point adjustment | Click here |

**for Preparation** Click here

## GENERAL

a. This system has a side television camera assembly built into the outer rear view mirror assembly (passenger side) to display the passenger side view of the vehicle on the display and navigation module display.

b. This system consists of the following components:

i. Side television camera assembly

ii. Parking assist ECU

- Outer mirror switch assembly

iii. Display and navigation module display

iv. Skid Control ECU

v. Main body ECU

vi. Front and Side Monitor Main Switch

- Steering angle sensor
- ECM
- Steering control ECU

c. This system is equipped with a self-diagnosis system, which is operated on a designated window that appears on the display panel, just as in the navigation system.

## FUNCTION OF COMPONENTS

a. The parking assist ECU controls the system by using information from the following components.

| Item | Function |
|---|---|
| Parking assist ECU | • Turns the side television camera assembly on or off based on parameters such as the display settings, the front and side monitor main switch signal, the shift signal and the vehicle speed signal.<br>• Transmits the wide view front and side monitor, side monitor, or wide view front monitor signals to the multi-display based on parameters such as the display settings, the front and side monitor main switch signal, the shift signal and the vehicle speed signal.<br>• Depending on the display settings, renders the output display for the wide view front and side monitor, the side monitor, or the wide view front monitor, and outputs them to the screen of the multi-display.<br>• With the video feed from the side television camera assembly showing the vehicle's left-side surroundings as a base, uses vehicle information such as the signal from the steering angle sensor to calculate and overlay a composite image and output this to the screen of the multi-display.<br>• Renders each configuration page in the diagnosis window and outputs the screen to the multi-display.<br>• When the outer mirror retraction signal is received, terminates the side camera collimation/alignment.<br>• Stores each configuration setting from the diagnosis window. |
| Side television camera | Generates a video feed showing the passenger side of the vehicle and transmits the video to the parking assist ECU. |
| Front and side monitor main switch | Operating the switch sends a signal to the parking assist ECU. |
| Outer mirror switch | Transmits outer mirror retraction signal to parking assist ECU. |
| Steering angle sensor | Transmits steering angle signal and sensor status signal to multi-display via CAN communication. |

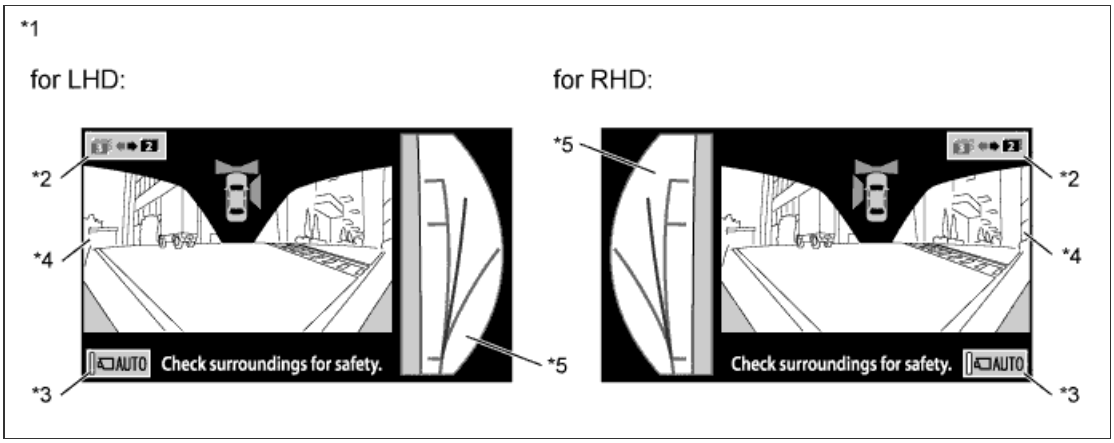
| | |
|---|---|
| ECM | Transmits shift position signal, drivetrain signal, engine type signal, and system status signals to the parking assist ECU via CAN communication. |
| Skid control ECU | Transmits vehicle speed signal and system status signals to the parking assist ECU via CAN communication. |
| Display and navigation module display | This touchpanel display is used to view and interact with the wide view front and side monitor, side view monitor, wide view front monitor, and diagnosis screens. |

## OPERATION EXPLANATION

a. The front and side monitor main switch ON signal is sent from the main switch to the parking assist ECU.
After receiving the front and side monitor main switch ON signal, the parking assist ECU switches the display signal for the display and navigation module display from the navigation system to the side monitor system.

## DISPLAY CONDITIONS FOR SIDE MONITOR DISPLAY

a. Screen display operation




**Text in Illustration**

| | | | |
|---|---|---|---|
| *1 | Wide View Front and Side Monitor Screen | *2 | Change Display Mode Switch (Illustration Shows Mode 3) |
| *3 | Automatic Display Mode Set/Cancel Switch (Illustration Shows Autzomatic Display Mode Off) | *4 | Wide View Front Monitor Screen |
| *5 | Side Monitor Screen | - | - |

i. After the display conditions have been met while the wide view front monitor system and the side monitor system are operating normally (when no DTCs are output), the wide view front and side monitor screen will be the initial display in both manual and automatic modes.

**HINT:**

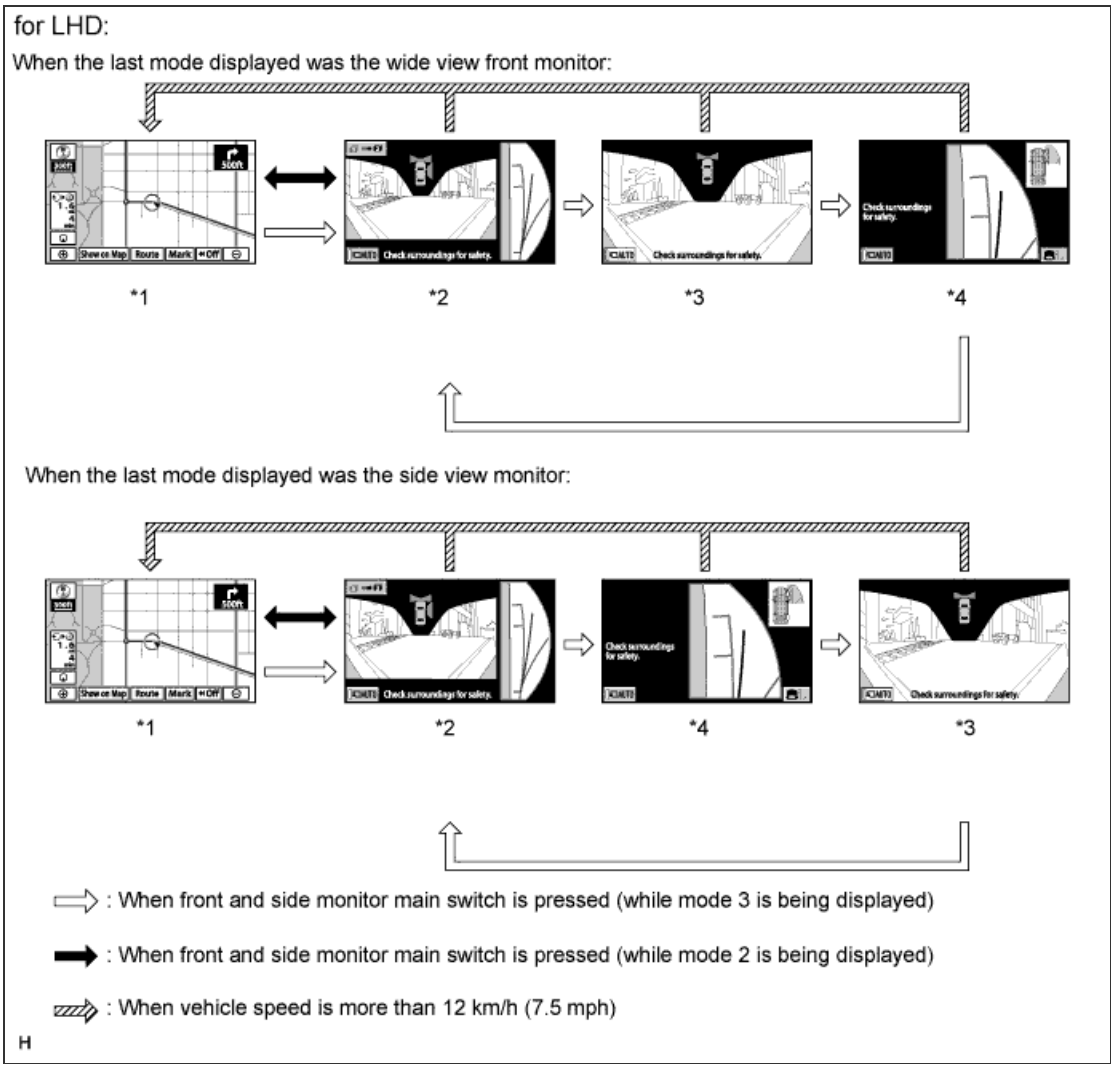
- **When the shift lever is in a position other than R, and the wide view front and side monitor screen displays the change display mode switch or the automatic mode set / cancel switch, the following operations are possible.**
- **Change display mode button**

| Display Mode | Change Display Mode Switch | Function |
|---|---|---|
| 3 | 3 is grayed out | While the wide view front and side monitor screen is displayed, pressing the front and side monitor main switch will change to either the wide view front monitor or the side view monitor displays (the specific transition will depend on the last mode displayed). |
| 2 | 2 is grayed out | While the wide view front and side monitor screen is displayed, pressing the front and side monitor main switch will change to the navigation screen, the information configuration screen, or similar. |

- **Automatic display mode set/cancel button**

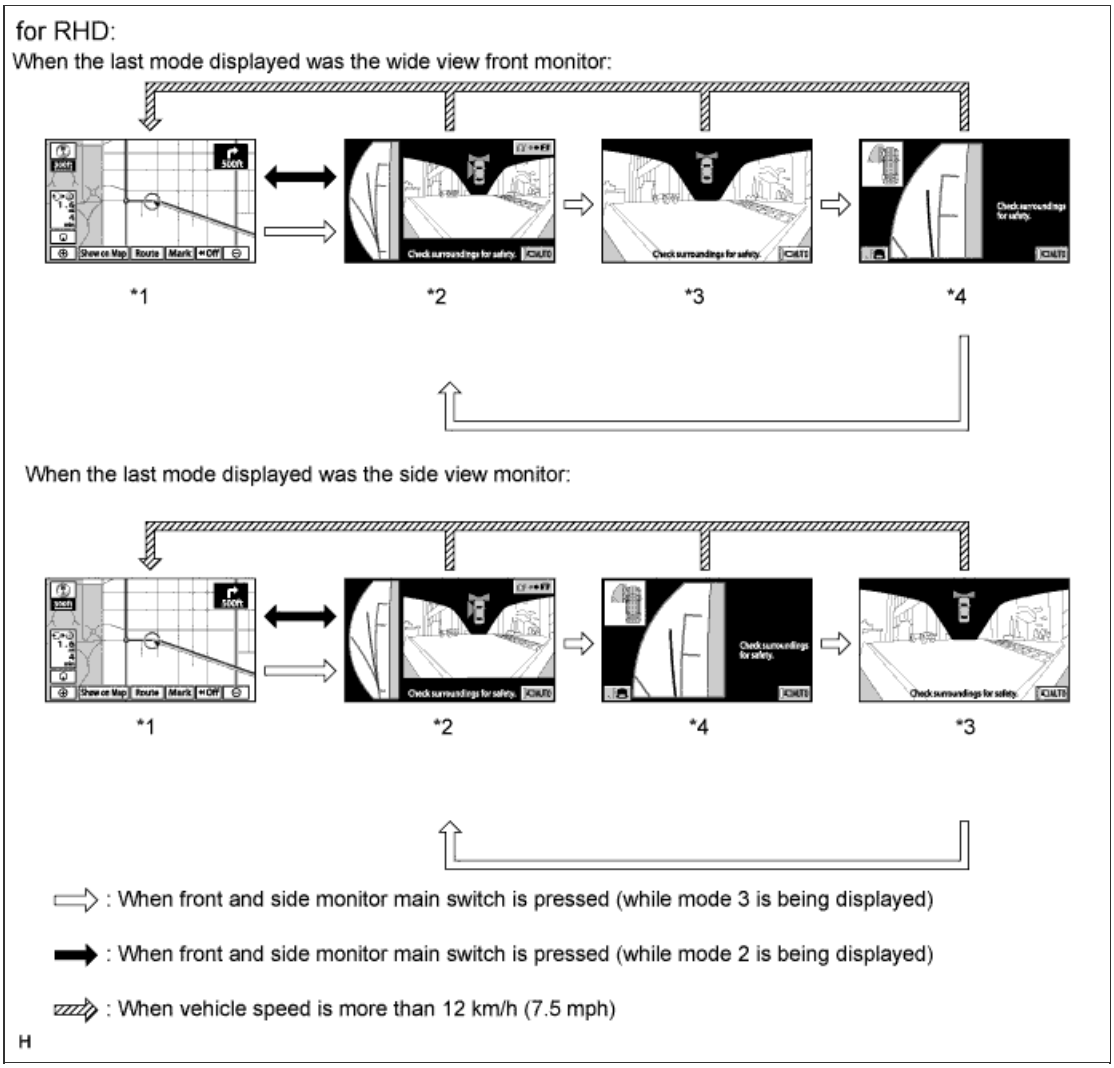
| Automatic Mode Display Button (Indicator in the Button) | Display Mode |
|---|---|
| ON (Illuminated) | Automatic Display Mode |
| OFF (Not Illuminated) | Manual Display Mode |

b. Display conditions for manual display mode (Shift lever in a position other than R)




**Text in Illustration**

| | | | |
|---|---|---|---|
| *1 | Navigation Display etc. | *2 | Wide View Front and Side Monitor Screen |
| *3 | Wide View Front Monitor Screen | *4 | Side Monitor Screen |




**Text in Illustration**

| | | | |
|---|---|---|---|
| *1 | Navigation Display etc. | *2 | Wide View Front and Side Monitor Screen |
| *3 | Wide View Front Monitor Screen | *4 | Side Monitor Screen |

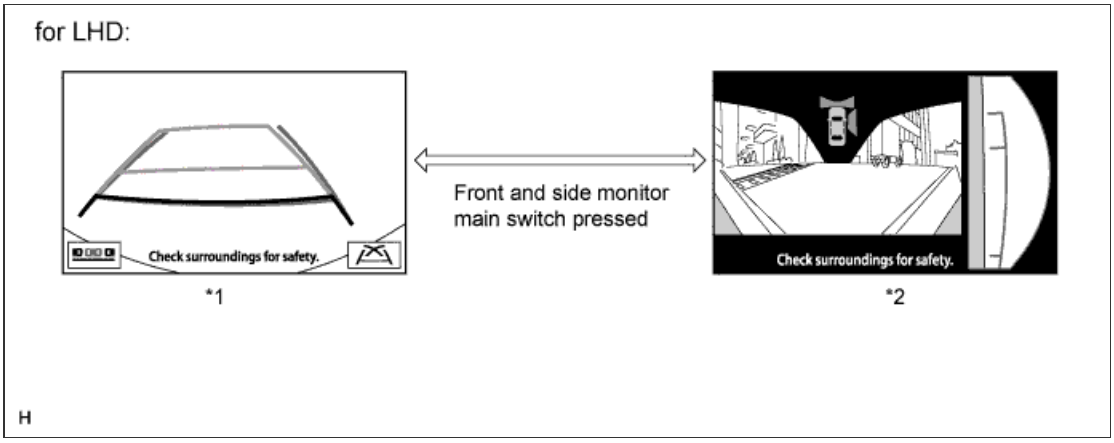
i. During manual display mode (shift lever in a position other than R), during IG ON or engine startup (no DTCs are output), if the following conditions have been met, pressing the front and side monitor main switch will change the display mode as follows.

| Automatic mode display button | Display and Navigation Module Display Screen | Shift Lever Position | Vehicle Speed | Last Mode Screen | Screen (changes due to front and side monitor main switch operation) |
|---|---|---|---|---|---|
| OFF | Navigation display etc. | Other than R | 12 km/h (7.5 mph) or less | Wide view front monitor display | Navigation display etc. → Wide view front and side monitor display → Wide view front monitor display → Side monitor display → Wide view front and side monitor display |
| OFF | Navigation display etc. | Other than R | 12 km/h (7.5 mph) or less | Side monitor display | Navigation display etc. → Wide view front and side monitor display → Side monitor display → Wide view front monitor display → Wide view front and side monitor display |

**HINT:**

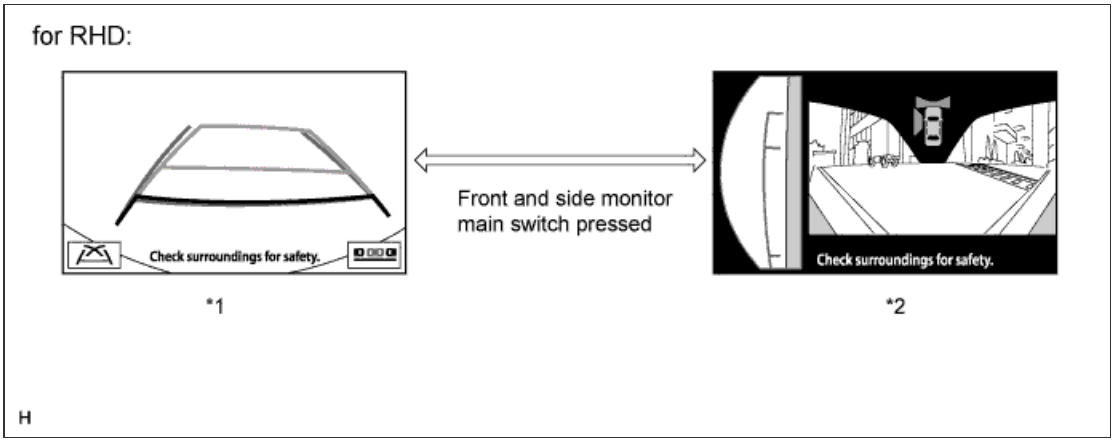
*1: In this case, the side monitor display is in path line deletion mode.

c. Display conditions for manual display mode (Shift lever in R)




**Text in Illustration**

| | | | |
|---|---|---|---|
| *1 | Parking Assist Monitor Display | *2 | Wide View Front and Side Monitor Display |




**Text in Illustration**

| | | | |
|---|---|---|---|
| *1 | Parking Assist Monitor Display | *2 | Wide View Front and Side Monitor Display |

i. During manual display mode (shift lever in R position), during IG ON or engine startup (no DTCs are output), if the following conditions have been met, pressing the front and side monitor main switch will change the display mode as follows.

| Display and Navigation Module Display Screen | Vehicle Speed | Screen (changes due to front and side monitor main switch operation) |
|---|---|---|
| Navigation Display etc. | 12 km/h (7.5 mph) or less | Parking assist monitor display → Wide view front monitor and side monitor display → Parking assist monitor display |

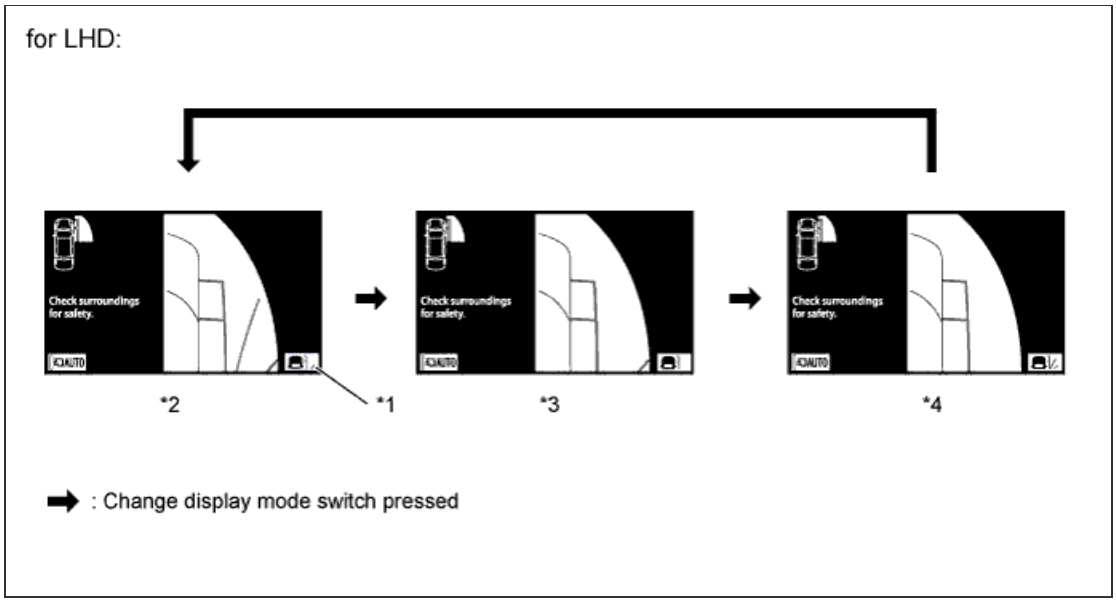
d. Display conditions for automatic display mode

i. In automatic display mode, the side monitor system automatically changes the displayed image depending on the vehicle conditions while the following conditions are met and the system is operating normally (no DTCs output).

| Vehicle Condition | Display and Navigation Module Display Screen | Shift Position | Vehicle Speed | Screen |
|---|---|---|---|---|
| Stopped → Driving | Navigation display etc. | Except in P or R | 12 km/h (7.5 mph) or less | Navigation display etc. → Wide view front monitor and side monitor display *1 |
| Driving → Stopped | Navigation display etc. | Except in P or R | 10 km/h (6.2 mph) or less | Navigation display etc. → Wide view front monitor and side monitor display *1 |

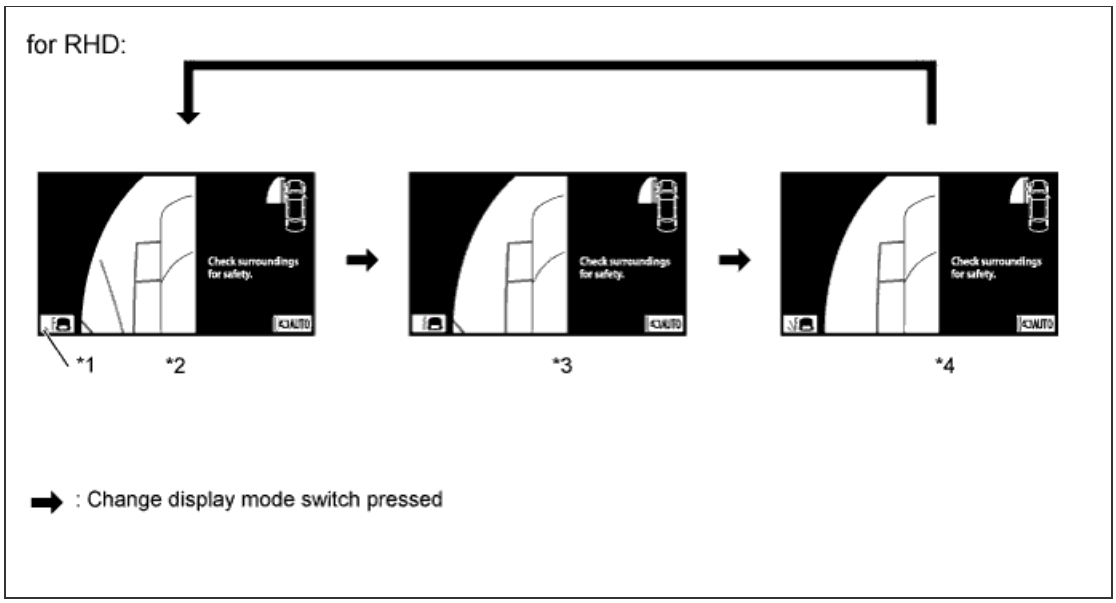
*1: Screen changes and screen transition conditions after the screen is automatically changed are the same as those for manual display mode (shift lever in a position other than R).

## SIDE MONITOR DISPLAY MODE SETTING




**Text in Illustration**

| | | | |
|---|---|---|---|
| *1 | Change Display Mode Switch | *2 | Predicted Minimum Turning Path Line + Predicted Path Line Mode |
| *3 | Predicted Minimum Turning Path Line Mode | *4 | Predicted Path Line Mode |




**Text in Illustration**

| | | | |
|---|---|---|---|
| *1 | Change Display Mode Switch | *2 | Predicted Minimum Turning Path Line + Predicted Path Line Mode |
| *3 | Predicted Minimum Turning Path Line Mode | *4 | Predicted Path Line Mode |

a. When the side monitor screen is displayed, pressing the change display mode switch will change the display modes of the side monitor system.

b. The side monitor system switches display modes when the side monitor display is displayed and the line mode button is operated. In each display mode, when the display range button (for forward view) is operated, the forward view is displayed on the screen.

**HINT:**

- **The display mode selected on the side monitor screen will also take effect for the wide view front and side monitor screen when the shift lever is not in R.**
- **When the wide view front and side monitor screen is displayed with the shift lever in R, the side monitor will not display the predicted path line.**

**Side Monitor Display Mode**

| Side Monitor Display Mode | Vehicle Width Parallel Line (Green) | Predicted Minimum Turning Path Line (Green) | Predicted Path Line (Yellow) |
|---|---|---|---|
| Predicted Minimum Turning Path Line + Predicted Path | | | |

| | | | |
|---|---|---|---|
| Line Mode | Displayed | Displayed | Displayed |
| Predicted Minimum Turning Path Line Mode | Displayed | Displayed | Not displayed |
| Path Line Deletion Mode | Displayed | Not displayed | Not displayed |

## COMMUNICATION SYSTEM OUTLINE

a. The components of the side monitor system communicate with each other through the AVC-LAN. If a short circuit or open circuit occurs in the AVC-LAN, communication is interrupted and the side monitor system will stop functioning.

## DIAGNOSTIC FUNCTION OUTLINE

a. This side monitor system has a diagnostic function displayed in the display and navigation module display. This function enables the calibration (adjustment and confirmation) of the system (Click here).

b. The system can check the following items by using the intelligent tester.

| Item | Proceed to |
|---|---|
| DTC | Click here |
| Data List / Active Test | Click here |

**for Preparation** Click here

## GENERAL

a. This system has a side television camera assembly built into the outer rear view mirror assembly (passenger side) to display the passenger side view of the vehicle on the display and navigation module display.

b. This system consists of the following components:

i. Outer rear view mirror assembly LH (side television camera assembly)

ii. Outer rear view mirror assembly RH (side television camera assembly)

iii. Parking assist ECU

iv. Multi-media module receiver assembly

v. Multi-display assembly

vi. Master cylinder solenoid (skid control ECU assembly)

vii. Steering sensor

viii. Steering control ECU

ix. Front and side monitor main switch assembly

x. Outer mirror switch assembly

xi. Four wheel drive control ECU

c. This system is equipped with a self-diagnosis system, which is operated on a designated window that appears on the display panel, just as in the navigation system.

## FUNCTION OF COMPONENTS

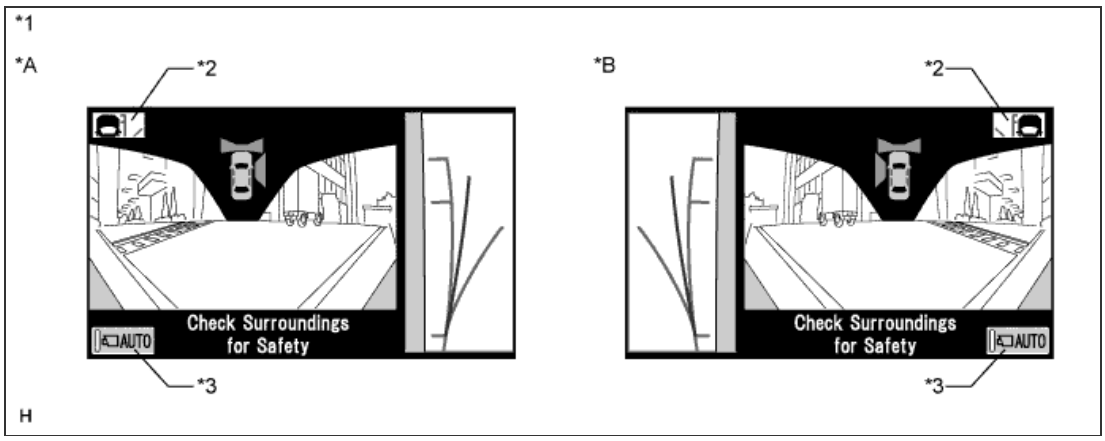
a. The parking assist ECU controls the system by using information from the following components.

| Item | Function |
|---|---|
| Parking Assist ECU | • Turns the side television camera assembly on or off based on parameters such as the display settings, the front and side monitor main switch signal, the shift signal and the vehicle speed signal.<br>• Transmits the wide view front and side monitor, side monitor, or wide view front monitor signals to the multi-media module receiver assembly based on parameters such as the display settings, the front and side monitor main switch signal, the shift signal and the vehicle speed signal.<br>• Depending on the display settings, renders the output display for the wide view front and side monitor, the side monitor, or the wide view front monitor, and outputs them to the screen of the multi-display assembly.<br>• With the video feed from the side television camera assembly showing the vehicle's left-side surroundings as a base, uses vehicle information such as the signal from the steering angle sensor to calculate and overlay a composite image and output this to the screen of the multi-display.<br>• Renders each configuration page in the diagnosis window and outputs the screen to the multi-display assembly.<br>• When the outer mirror retraction signal is received, terminates the side camera collimation/alignment.<br>• Stores each configuration setting from the diagnosis window. |
| Multi-media Module Receiver Assembly | Communicates with the parking assist ECU through AVC-LAN communication. |
| Multi-display Assembly | This touch panel display is used to view and interact with the wide view front and side monitor, side view monitor, wide view front monitor, and diagnosis screens. |
| Side television camera assembly | Generates a video feed showing the passenger side of the vehicle and transmits the video to the parking assist ECU. |
| Front and Side Monitor Main Switch Assembly | Operating the switch sends a signal to the parking assist ECU. |

| | |
|---|---|
| Outer Mirror Switch Assembly | Transmits outer mirror retraction signal to parking assist ECU. |
| Steering Sensor | Transmits steering angle signal and sensor status signal to multi-display via CAN communication. |
| Steering Control ECU | Sends the VGRS relative angle and vehicle condition to the parking assist ECU through CAN communication. |
| Master Cylinder Solenoid (Skid Control ECU Assembly) | Sends the inner brake information and ABS ACT information to the parking assist ECU through CAN communication. |
| Four Wheel Drive Control ECU | Sends the L4 condition signal to the parking assist ECU through CAN communication. |
| ECM | Sends the vehicle condition, 2WD/4WD information and shift position information to the parking assist ECU through CAN communication. |

## DISPLAY CONDITIONS FOR SIDE MONITOR DISPLAY

a. Screen display operation



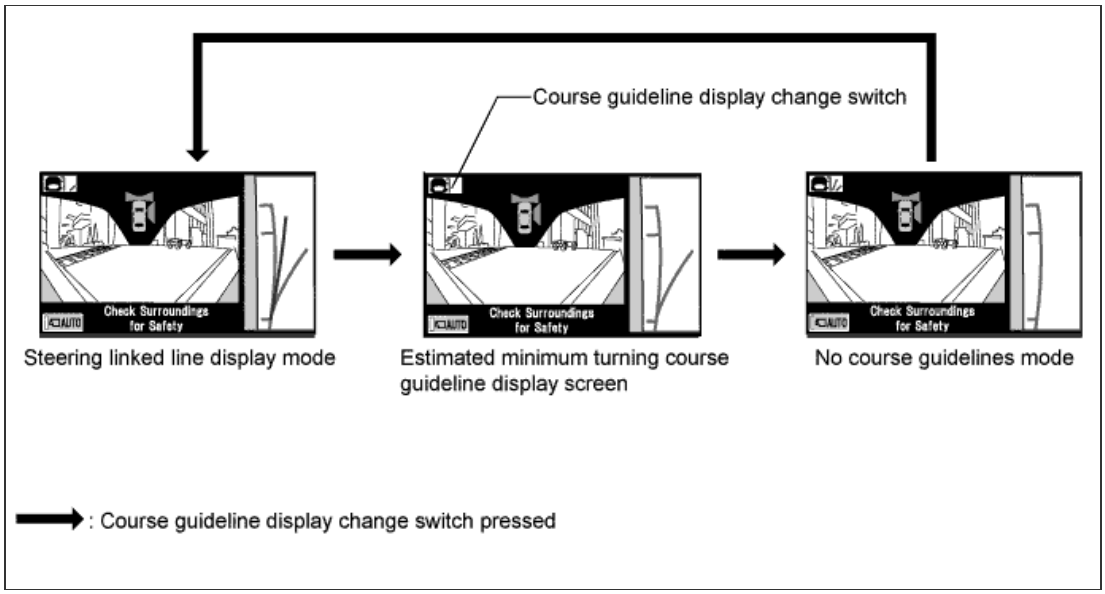

**Text in Illustration**

| | | | |
|---|---|---|---|
| *A | for LHD | *B | for RHD |
| *1 | Wide View Front and Side Monitor Screen | *2 | Course guideline display change switch |
| *3 | Automatic display mode set/cancel switch (Illustration shows automatic display mode off) | - | - |

i. After the display conditions are met when the wide view front and side monitor systems are normally functioning, if the screen is changed from the manual display mode or automatic display mode screen, the wide view front and side monitor screen (H4 mode) or wide view front monitor screen (L4 mode) is displayed as the initial screen.

**HINT:**

- **If the shift lever is not in R and the wide view front and side monitor screen is displayed, the course guideline display change switch and automatic display mode set/cancel switch are displayed and the following operations can be performed.**
- **For the course guideline display change switch, refer to the below procedures.**




| Side Monitor Screen Display Mode | Vehicle Width Parallel Lines (Blue) | Estimated Minimum Turning Course Guidelines (Blue) | Estimated Course Guidelines (Yellow) |
|---|---|---|---|
| No course guidelines mode | Displayed | Not Displayed | Not Displayed |
| Estimated minimum turning course guideline display screen | Displayed | Displayed | Not Displayed |
| Steering linked line display mode | Displayed | Displayed | Displayed |

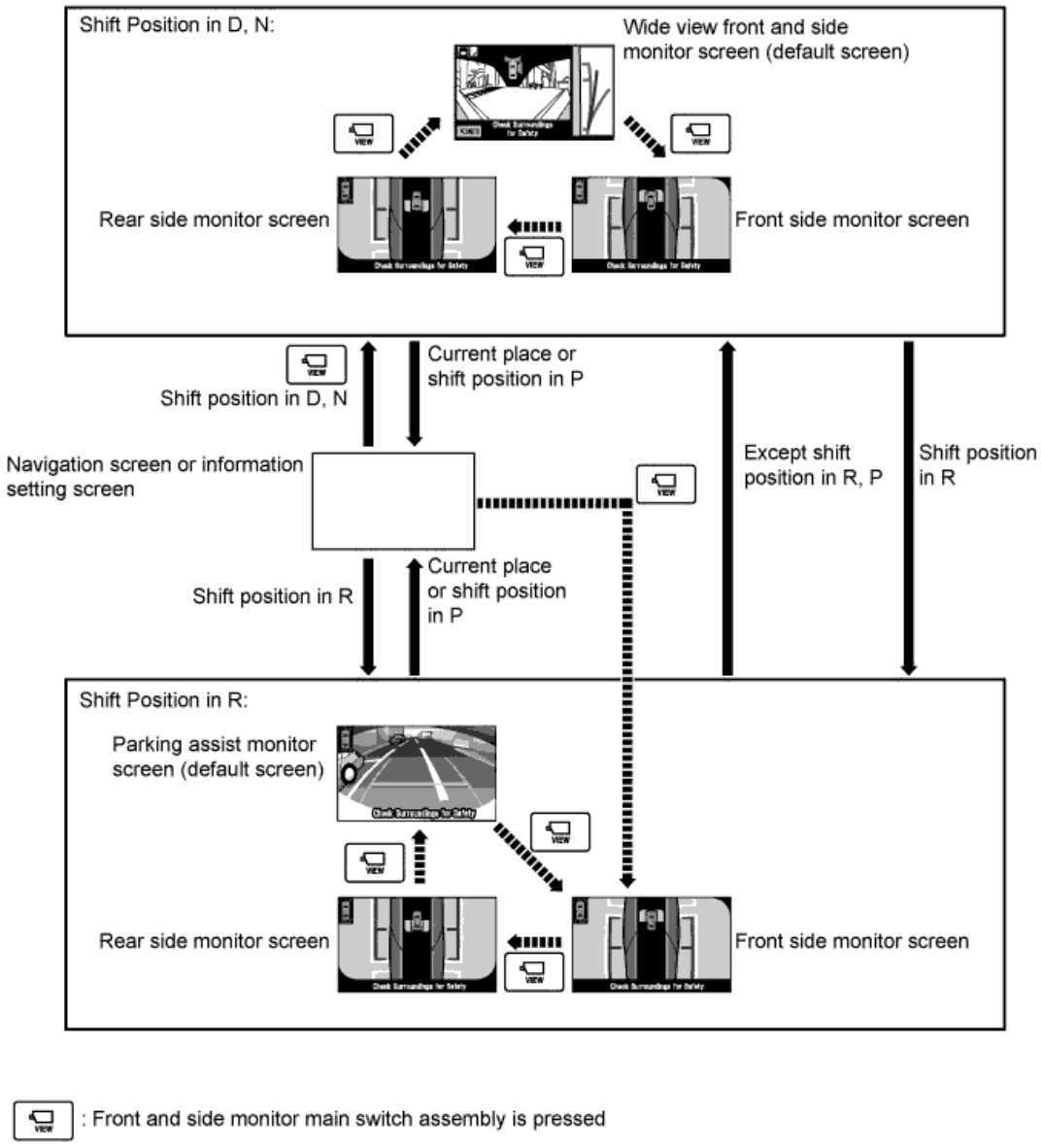
- **Automatic display mode set/cancel switch**

| Automatic mode display switch (Indicator in the button) | Display mode |
|---|---|
| ON (Illuminated) | Automatic display mode |
| OFF (Not illuminated) | Manual display mode |

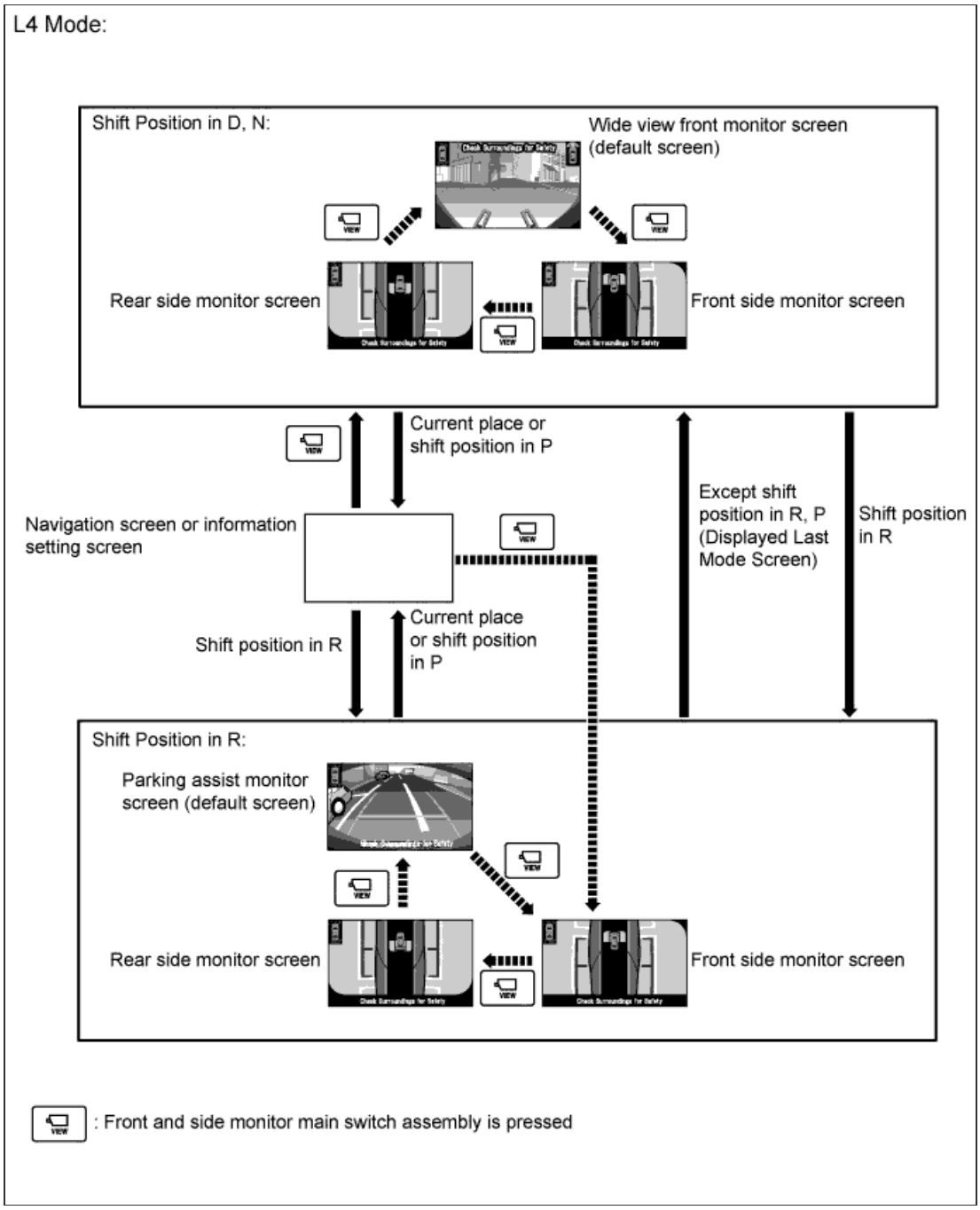
- **The last mode screen is the screen that was displayed last when the screen was changed to the navigation screen, information setting screen, etc.**

b. Display conditions for manual display mode

H4 Mode:




: Front and side monitor main switch assembly is pressed




i. H4 mode:
During manual display mode (shift lever in a position other than R), during engine switch on (IG) or engine startup (no DTCs are output), if the following conditions have been met, pressing the front and side monitor main switch will change the display mode as follows

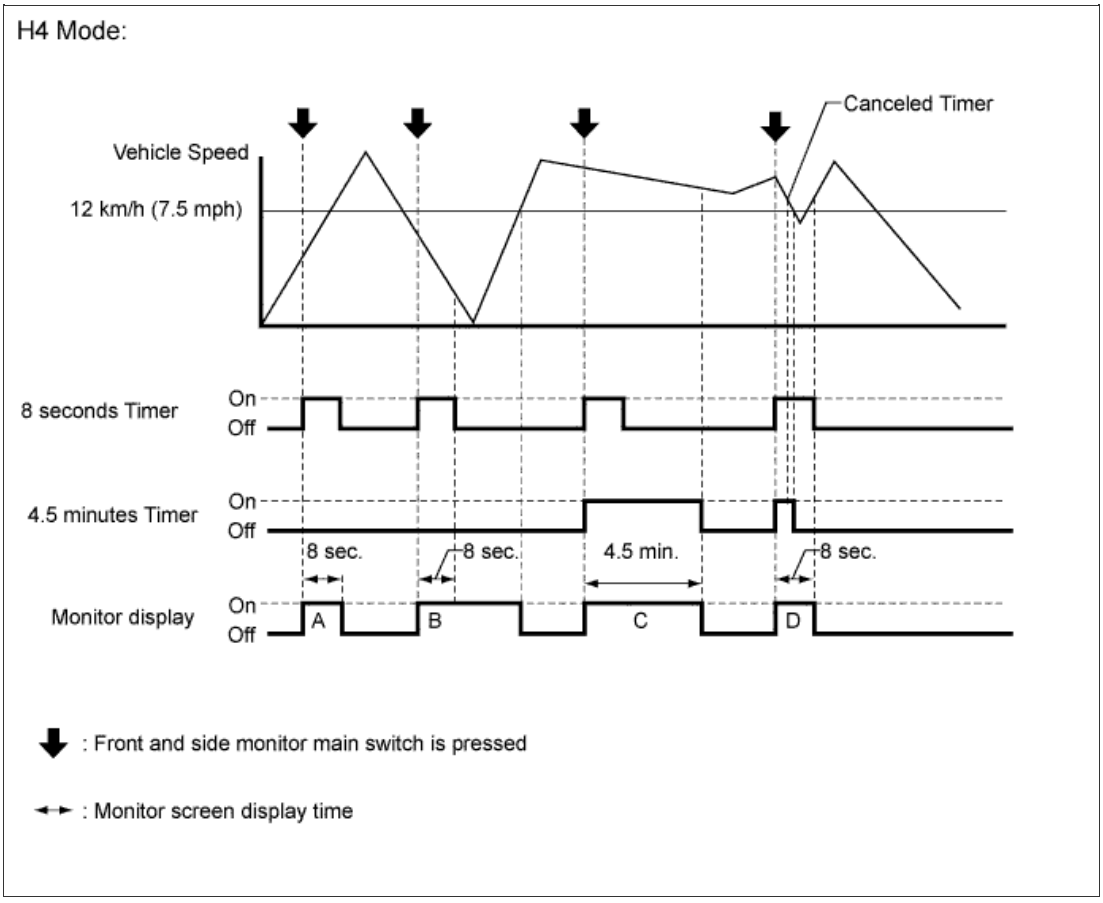
| Automatic Mode Display Switch | Multi-display Screen | Shift Lever Position | Vehicle Speed | Screen (changes due to front and side monitor main switch assembly operation) |
|---|---|---|---|---|
| OFF | Navigation screen or information setting screen | Other than R | 12 km/h (7.5 mph) or less | Navigation screen or information setting screen → Wide view front and side monitor screen → Front side monitor screen → Rear side monitor screen → Wide view front and side monitor screen |
| | | R position | 0 km/h (0 mph) | Navigation screen or information setting screen → Parking assist monitor screen → Wide view front and side monitor screen → Front side monitor screen → Rear side monitor screen → Parking assist monitor screen |

ii. L4 mode:
In manual display mode, when the following conditions are met with the engine switch on (IG) or the engine started (no DTCs are output), the screen display can be changed by pressing the front and side monitor main switch assembly.

| Automatic Mode Display Switch | Multi-display Screen | Shift Lever Position | Vehicle Speed | Screen (changes due to front and side monitor main switch assembly operation) |
|---|---|---|---|---|
| OFF | Navigation screen or information setting screen | Other than R | 12 km/h (7.5 mph) or less | Navigation screen or information setting screen → Wide view front monitor screen → Front side monitor screen → Rear side monitor screen → Wide view front monitor screen |
| | | R position | 0 km/h (0 mph) | Navigation screen or information setting screen → Parking assist monitor screen → Wide view front and side monitor screen → Front side monitor screen → Rear side monitor screen → Parking assist monitor screen |

c. Screen display timer function

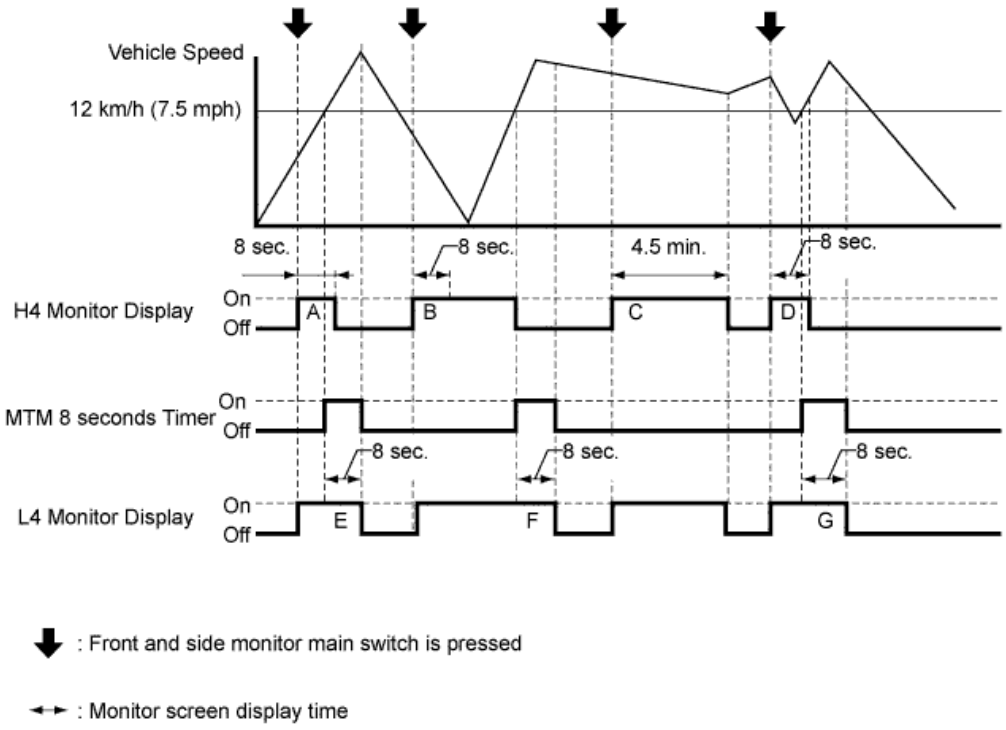
i. During manual display mode (when the shift lever is not in R), when the front and side monitor main switch is pressed and the following conditions are met, the wide view front and side monitor screen is displayed for a certain period of time even when the vehicle speed is more than 12 km/h (7.5 mph).




| Screen Display Time | Time when Front and Side Monitor Main Switch Assembly is Pressed | Change in Vehicle Speed | Timer Operation Time | Note |
|---|---|---|---|---|
| A<br>B | 12 km/h (7.5 mph) or less | 12 km/h (7.5 mph) or less | 8 seconds | When the front and side monitor main switch assembly is pressed with the vehicle speed at 12 km/h (7.5 mph) or less, the camera screen is displayed for 8 seconds from the moment the switch is pressed. After this, if the vehicle |

| | | | | |
|---|---|---|---|---|
| | | | | speed increases to above 12 km/h (7.5 mph), the camera screen is not displayed. |
| C | More than 12 km/h (7.5 mph) | More than 12 km/h (7.5 mph) | 8 seconds or 4 minutes and 30 seconds | When the front and side monitor main switch assembly is pressed while the vehicle speed is more than 12 km/h (7.5 mph), the camera screen is displayed for 4 minutes and 30 seconds the moment the switch is pressed (when the vehicle speed is more than 12 km/h (7.5 mph) after 4 minutes and 30 seconds elapse from the time the switch is pressed). |
| D | More than 12 km/h (7.5 mph) | More than 12 km/h (7.5 mph) → 12 km/h (7.5 mph) or less → More than 12 km/h (7.5 mph) | 8 seconds or 4 minutes and 30 seconds | When the front and side monitor main switch assembly is pressed while the vehicle speed is more than 12 km/h (7.5 mph), the screen display timer operates and the camera screen is displayed. However, after the vehicle speed decreases to 12 km/h (7.5 mph) or less within 4 minutes and 30 seconds (after 8 seconds have elapsed), if the vehicle speed increases to more than 12 km/h (7.5 mph) again, the screen switches to the navigation or information setting screen.<br>After the vehicle speed decreases to 12 km/h (7.5 mph) or less within 8 seconds, if the vehicle speed increases to more than 12 km/h (7.5 mph) again, the 4 minutes 30 seconds timer is canceled and the camera screen is displayed for 8 seconds the moment the front and side monitor main switch assembly is pressed. |

L4 Mode:

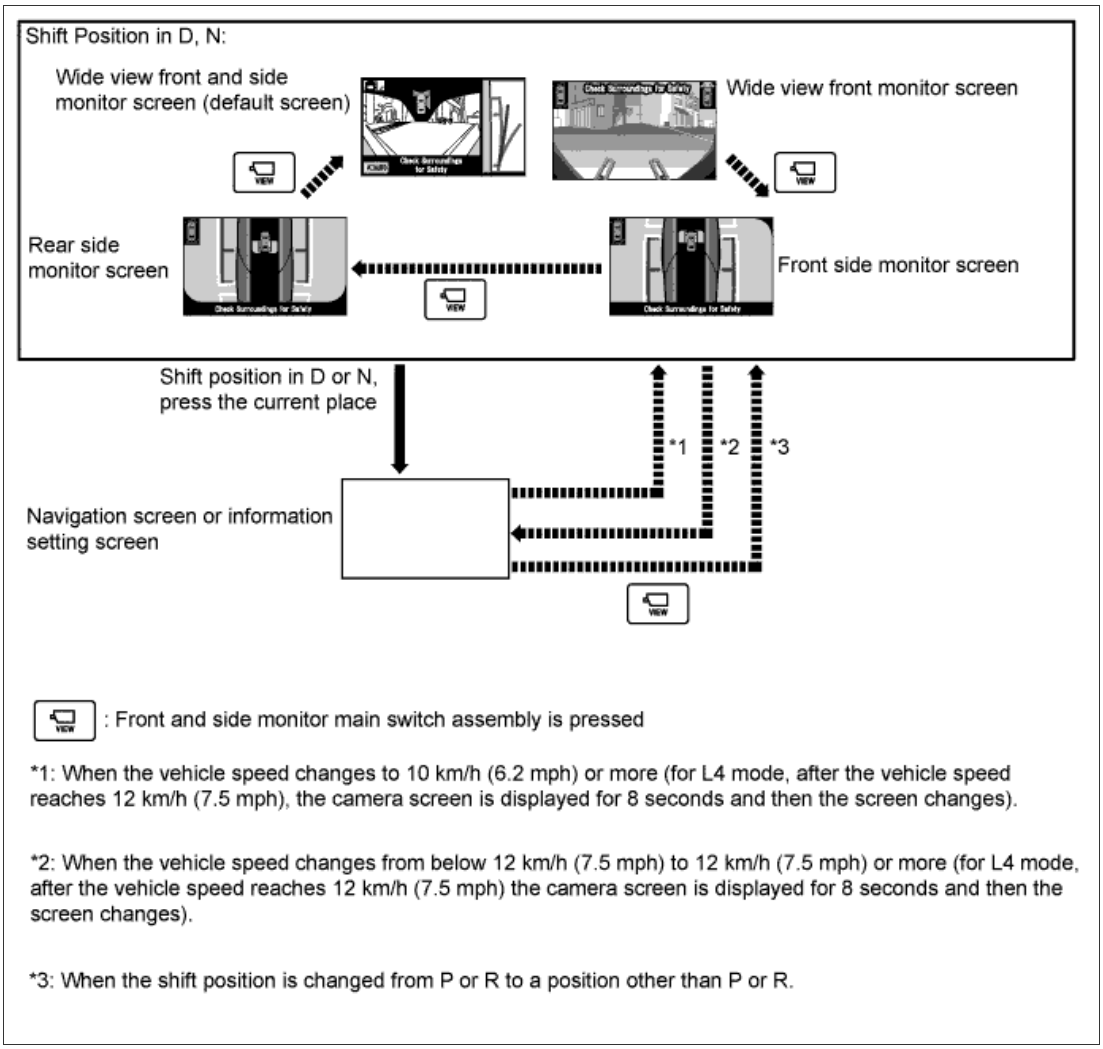



| Screen Display Time | Time when Front and Side Monitor Main Switch Assembly is | Change in Vehicle Speed | Timer Operation Time | Note |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| | Pressed | | | |
| A<br>B | 12 km/h (7.5 mph) or less | 12 km/h (7.5 mph) or less | 8 seconds | When the front and side monitor main switch assembly is pressed with the vehicle speed at 12 km/h (7.5 mph) or less, the camera screen is displayed for 8 seconds from the moment the switch is pressed. After this, if the vehicle speed increases to above 12 km/h (7.5 mph), the camera screen is not displayed. |
| C | More than 12 km/h (7.5 mph) | More than 12 km/h (7.5 mph) | 8 seconds or 4 minutes and 30 seconds | When the front and side monitor main switch assembly is pressed while the vehicle speed is more than 12 km/h (7.5 mph), the camera screen is displayed for 4 minutes and 30 seconds the moment the switch is pressed (when the vehicle speed is more than 12 km/h (7.5 mph) after 4 minutes and 30 seconds elapse from the time the switch is pressed). |
| D | More than 12 km/h (7.5 mph) | More than 12 km/h (7.5 mph) → 12 km/h (7.5 mph) or less → More than 12 km/h (7.5 mph) | 8 seconds or 4 minutes and 30 seconds | When the front and side monitor main switch assembly is pressed while the vehicle speed is more than 12 km/h (7.5 mph), the screen display timer operates and the camera screen is displayed. However, after the vehicle speed decreases to 12 km/h (7.5 mph) or less within 4 minutes and 30 seconds (after 8 seconds have elapsed), if the vehicle speed increases to more than 12 km/h (7.5 mph) again, the screen switches to the navigation or information setting screen.<br>After the vehicle speed decreases to 12 km/h (7.5 mph) or less within 8 seconds, if the vehicle speed increases to more than 12 km/h (7.5 mph) again, the 4 minutes 30 seconds timer is canceled and the camera screen is displayed for 8 seconds the moment the front and side monitor main switch assembly is pressed. |
| E<br>F<br>G | More than 12 km/h (7.5 mph) | More than 12 km/h (7.5 mph) | 8 seconds | If the vehicle speed is more than 12 km/h (7.5 mph), the camera screen is displayed for 8 seconds. After that, the camera screen is not displayed. The timer is canceled the moment the vehicle speed decreases to below 12 km/h (7.5 mph) during the 8 second timer. |

d. Display conditions for automatic display mode

i. In automatic display mode, the screen display is automatically displayed according to driving conditions when the following conditions are met and the wide view front and side monitor systems are normally operating.




| Vehicle Condition | Multi-display Assembly Display Screen | Shift Lever | Vehicle Speed | Display Screen |
|---|---|---|---|---|
| Stopped → Driving | Navigation screen or information setting screen | Not in P or R | 12 km/h (7.5 mph) or less | Navigation screen or information setting screen → Wide view front monitor and side monitor screen* |
| Driving → Stopped | | Not in P or R | 10 km/h (6.2 mph) or less | Navigation screen or information setting screen → Wide view front monitor and side monitor screen* |

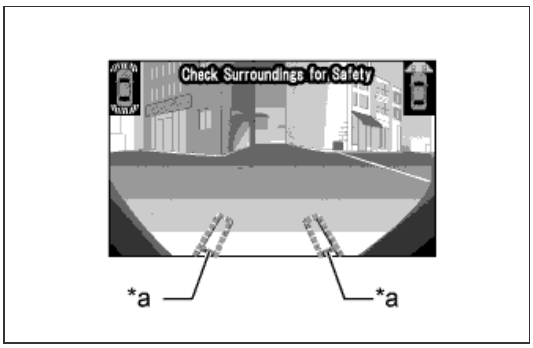
*:The conditions to change the screen after the display screen changes automatically are the same as in manual display mode.

e. Off-road turn assist function

i. With the off-road turn assist function on, the path traveled is displayed as dotted lines on the front screen. In this state, the vehicle may not move exactly as the front lines indicate. (The lines indicate the direction the front wheels are turned. However, with the off-road assist function on, the vehicle turns using a difference in drive force between the left and right wheels.)

**Text in Illustration**

| | |
|---|---|
| *a | Line Indicating Travel Path |




## OPERATION EXPLANATION

a. The front and side monitor main switch ON signal is sent from the main switch to the parking assist ECU.

After receiving the front and side monitor main switch ON signal, the parking assist ECU switches the display signal for the display and navigation module display from the navigation system to the side monitor system.

## COMMUNICATION SYSTEM OUTLINE

a. The components of the side monitor system communicate with each other through the AVC-LAN. If a short circuit or open circuit occurs in the AVC-LAN, communication is interrupted and the side monitor system will stop functioning.

## DIAGNOSTIC FUNCTION OUTLINE

a. This side monitor system has a diagnostic function displayed in the display and navigation module display. This function enables the calibration (adjustment and confirmation) of the system (Click here).

b. The system can check the following items by using the intelligent tester.

| Item | Proceed to |
|---|---|
| DTC | Click here |

**for Preparation** Click here

**HINT:**

- **Use the following procedures to troubleshoot the side monitor system.**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

NEXT

## 2.INSPECT BATTERY VOLTAGE

**Standard voltage:**
**11 to 14 V**

If the voltage is below 11 V, replace or recharge the battery before proceeding.

NEXT

## 3.CHECK COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM*

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

**Result**

| Result | Proceed to |
|---|---|
| CAN DTC is not output | A |
| CAN DTC is output (for LHD) | B |
| CAN DTC is output (for RHD) | C |

B. → Go to CAN COMMUNICATION SYSTEM (Click here)

C. → Go to CAN COMMUNICATION SYSTEM (Click here)

A

## 4.CHECK DTC OUTPUT*

a. Check for DTCs (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| No DTC is output | A |
| DTC is output | B |

B. → Go to DIAGNOSTIC TROUBLE CODE CHART ( Click here)

A

## 5.PROBLEM SYMPTOMS TABLE

a. Refer to the Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in problem symptoms table | A |
| Fault is listed in problem symptoms table | B |

B. → Go to step 7

A

## 6.OVERALL ANALYSIS AND TROUBLESHOOTING*

a. Terminals of ECU (Click here).

NEXT

## 7.ADJUST, REPAIR OR REPLACE

NEXT

## 8.CONFIRMATION TEST

NEXT

## END

**for Preparation** Click here

**HINT:**

- **Use the following procedure to troubleshoot the side monitor system.**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

NEXT

## 2.INSPECT BATTERY VOLTAGE

a. Measure the battery voltage with the engine switch off.

**Standard Voltage:**
**11 to 14 V**

If the voltage is below 11 V, replace or recharge the battery before proceeding to the next step.

NEXT

## 3.CHECK NAVIGATION SYSTEM

a. Refer to the navigation system (for HDD) (Click here).

b. Refer to the navigation system (for DVD) (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Navigation system is normal | A |
| Navigation system (for HDD) is abnormal | B |
| Navigation system (for DVD) is abnormal | C |

B. → GO TO NAVIGATION SYSTEM (Click here)

C. → GO TO NAVIGATION SYSTEM (Click here)

A

## 4.CHECK COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM*

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

**Result**

| Result | Proceed to |
|---|---|
| CAN DTC is not output | A |
| CAN DTC is output (for LHD) | B |
| CAN DTC is output (for RHD) | C |

B. → GO TO CAN COMMUNICATION SYSTEM (Click here)

C. → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

## 5.CHECK FOR DTC*

a. Check for DTCs and note any codes that are output ( Click here).

b. Clear the DTC (Click here).

c. Recheck for DTCs. Try to prompt the DTC by simulating the original activity that the DTC suggests.

**NOTICE:**

The parking assist ECU may store the DTCs of the following system. If DTCs other than those specified in Diagnostic Trouble Code Chart of the side monitor system are output, refer to Diagnostic Trouble Code Chart for the applicable system.

| System | Proceed to |
|---|---|
| Parking Assist Monitor System | Click here |

**Result**

| Result | Proceed to |
|---|---|
| DTC is not output | A |
| DTC is output | B |

B. → Go to step 8

A

## 6.PROBLEM SYMPTOMS TABLE

a. Refer to the Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in Problem Symptoms Table | A |
| Fault is listed in Problem Symptoms Table | B |

B. → Go to step 8

A

## 7.OVERALL ANALYSIS AND TROUBLESHOOTING

a. Refer to Terminals of ECU (Click here).

NEXT

## 8.ADJUST, REPAIR OR REPLACE

NEXT

## 9.CONFIRMATION TEST

NEXT

END

**for Preparation** Click here

**HINT:**

- **Use the following procedure to troubleshoot the side monitor system.**
- ***: Use the intelligent tester.**

## 1.VEHICLE BROUGHT TO WORKSHOP

NEXT

## 2.INSPECT BATTERY VOLTAGE

**Standard voltage:**
**11 to 14 V**

If the voltage is below 11 V, replace or recharge the battery before proceeding.

NEXT

## 3.CHECK NAVIGATION SYSTEM

a. Refer to the navigation system (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Navigation system is normal | A |
| Navigation system is abnormal | B |

B. Go to NAVIGATION SYSTEM (**Click here**)

A

## 4.CHECK COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM*

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

- for LHD: Click here
- for RHD: Click here

**Result**

| Result | Proceed to |
|---|---|
| CAN DTC is not output | A |
| CAN DTC is output (for LHD) | B |
| CAN DTC is output (for RHD) | C |

B. Go to CAN COMMUNICATION SYSTEM (**Click here**)

C. Go to CAN COMMUNICATION SYSTEM (**Click here**)

A

## 5.CHECK FOR DTC*

a. Check for DTCs and note any codes that are output ( Click here).

b. Clear the DTC (Click here).

c. Recheck for DTCs. Try to prompt the DTC by simulating the original activity that the DTC suggests.

**NOTICE:**

The parking assist ECU may store the DTCs of the following system. If DTCs other than those specified in Diagnostic Trouble Code Chart of the side monitor system are output, refer to Diagnostic Trouble Code Chart for the applicable system.

| System | Proceed to |
|---|---|
| Parking Assist Monitor System (w/ Side Monitor System) | Click here |
| Wide View Front Monitor System | Click here |

**Result**

| Result | Proceed to |
|---|---|
| DTC is not output | A |
| DTC is output | B |

B. → Go to step 8

A

## 6.PROBLEM SYMPTOMS TABLE

a. Refer to the Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in Problem Symptoms Table | A |
| Fault is listed in Problem Symptoms Table | B |

B. → ADJUST, REPAIR OR REPLACE IN ACCORDANCE WITH PROBLEM SYMPTOMS TABLE

A

## 7.OVERALL ANALYSIS AND TROUBLESHOOTING

a. Terminals of ECU (Click here).

NEXT

## 8.ADJUST, REPAIR OR REPLACE

NEXT

## 9.CONFIRMATION TEST

NEXT

END

**for Preparation** Click here

## INITIALIZE SIDE MONITOR SYSTEM

a. If the following operations are performed, "System initializing" is displayed on the multi-display.

| Part Name | Operation | Initialization Item |
|---|---|---|
| Battery cable | Disconnect | Store the steering angle neutral point in memory |
| Steering angle sensor connector | Disconnect | Store the steering angle neutral point in memory |

b. When "System initializing" is displayed, correct the steering angle neutral point using either of the following methods.

i. METHOD 1:
Fully turn the steering wheel to the right and left.

ii. METHOD 2:

1. Drive the vehicle at more than 20 km/h (12 mph) for more than 5 minutes on a straight road with as little traffic congestion as possible.

   **HINT:**

   While driving at a constant vehicle speed, the ECU recognizes the point where the steering angle changes the least and memorizes it as the steering angle neutral point.

2. Stop the vehicle and check whether the neutral point is stored or not. If it is not stored, drive the vehicle according to the previous step again (the neutral point is stored by driving the vehicle straight).

**for Preparation** Click here

## INITIALIZE SIDE MONITOR SYSTEM

a. If the following operations are performed, "System initializing" is displayed on the display and navigation module display.

| Part Name | Operation | Initialization Item |
|---|---|---|
| Battery cable | Disconnect | Store the steering angle neutral point in memory |
| Steering angle sensor connector | Disconnect | Store the steering angle neutral point in memory |

b. When "System initializing" is displayed, correct the steering angle neutral point using either of the following methods.

i. METHOD 1:
Fully turn the steering wheel to the right and left.

ii. METHOD 2:

1. Drive the vehicle at more than 20 km/h (12 mph) for more than 5 minutes on a straight road with as little traffic congestion as possible.

   **HINT:**

   While driving at a constant vehicle speed, the ECU recognizes the point where the steering angle changes the least and memorizes it as the steering angle neutral point.

2. Stop the vehicle and check whether the neutral point is stored or not. If it is not stored, drive the vehicle according to the previous step again (the neutral point is stored by driving the vehicle straight).

**for Preparation** Click here

## INITIALIZE SIDE MONITOR SYSTEM

a. When "System initializing" is displayed on the multimedia module receiver assembly, correct the steering angle neutral point using the following method.

i. Fully turn the steering wheel to the right and left on flat ground.

**NOTICE:**

Memorizing the steering angle neutral point must be carried out with the engine started. Apply the parking brake, depress the brake pedal, check that the shift lever is in P, and ensure that the vehicle is not moving.

**HINT:**

The "?" button is displayed at the same time as "System initializing". If the "?" button is selected, this method is displayed.

**for Preparation** Click here

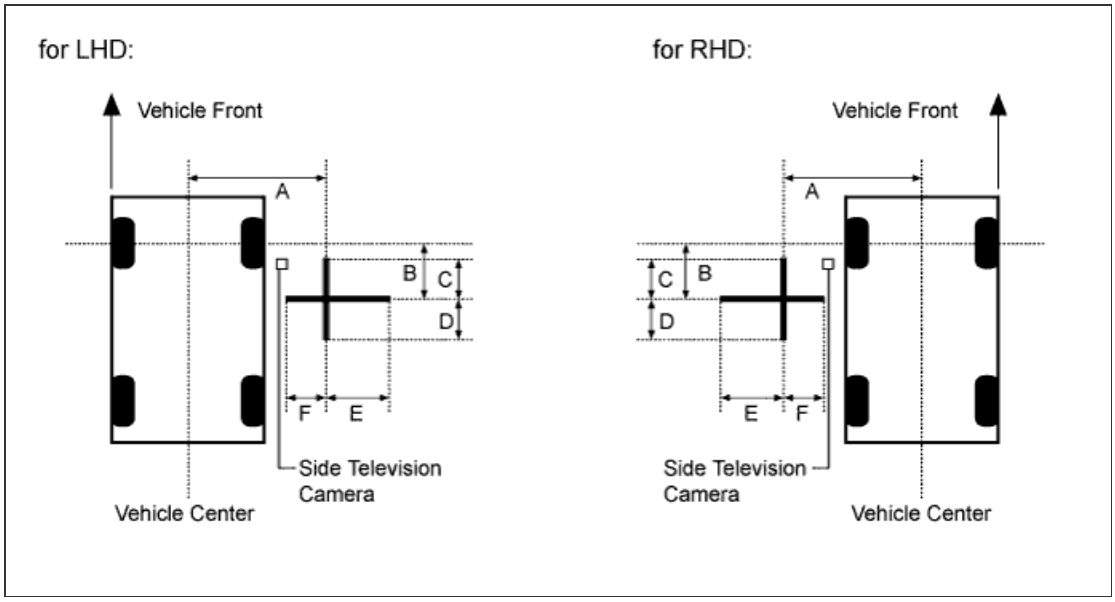
## INSPECTION AND ADJUSTMENT

a. Preparation for adjustment.

i. Make sure that the outer mirror is in the driving position.

ii. Center the steering wheel and stop the vehicle.

iii. Set the adjustment target bar as shown in the illustration.




| Position | Standard Value |
|---|---|
| A | 1178 to 1188 mm (46.4 to 46.8 in.) |
| B | 1176 to 1186 mm (46.3 to 46.7 in.) |
| C | 495 to 505 mm (19.5 to 19.9 in.) |
| D | 495 to 505 mm (19.5 to 19.9 in.) |
| E | 495 to 505 mm (19.5 to 19.9 in.) |
| F | 175 to 185 mm (6.89 to 7.28 in.) |

**HINT:**

- **As the adjustment target bar is a 50 mm (1.97 in.) wide piece of tape affixed to the floor, confirm the color on the vehicle display to make sure it is highly visible.**
- **Before stopping the vehicle, be sure to move the vehicle forward and in reverse and check that the tires are facing straight ahead with the steering wheel centered.**

b. Diagnosis activation.

i. Turn the engine switch on (IG).

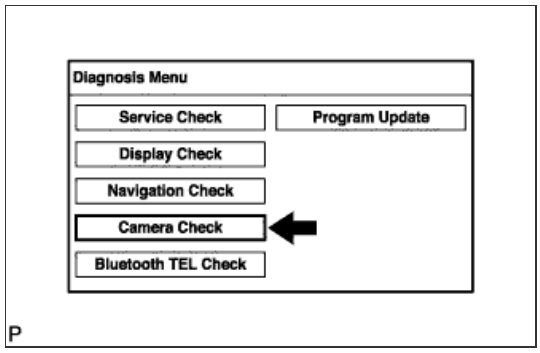
ii. Activate diagnosis mode (Click here).

iii. From the Diagnosis Menu, select "Camera Check".

iv. From the Mode Setting, select "Side Camera Setting".

**HINT:**

After performing the side camera position setting, the option on the menu display will dim. To perform the adjustment again, touch the dimmed button for 2 seconds or more.



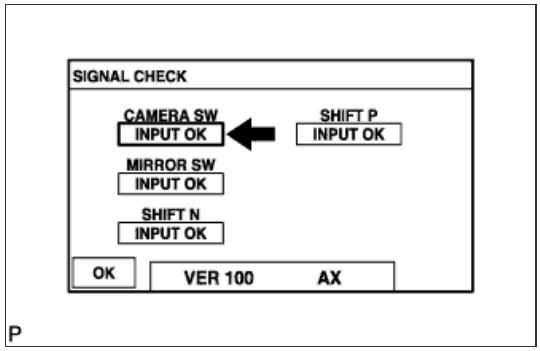

## SIGNAL CONNECTION CHECK

a. "CAMERA SW" check.

i. Check that "INPUT OK" (indicated by the arrow in the illustration) under "CAMERA SW" is displayed in blue, and then touch the display.

ii. Check that "INPUT OK" (indicated by the arrow in the illustration) changes to "CHECK" (displayed in red), and then press the front and side monitor main switch.

iii. Check that "INPUT OK" (indicated by the arrow in the illustration) under "CAMERA SW" is displayed in blue.

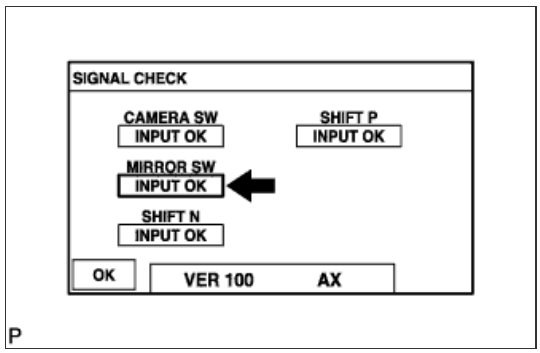



b. "MIRROR SW" check.

i. Check that "INPUT OK" (indicated by the arrow in the illustration) under "MIRROR SW" is displayed in blue, and then touch the display.

ii. Check that "INPUT OK" (indicated by the arrow in the illustration) changes to "CHECK" (displayed in red), and then press the outer mirror switch.

iii. Check that "INPUT OK" (indicated by the arrow in the illustration) under "MIRROR SW" is displayed in blue.

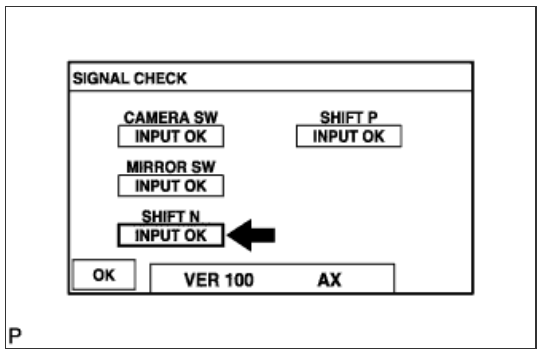



c. "SHIFT N" check.

i. Check that "INPUT OK" (indicated by the arrow in the illustration) under "SHIFT N" is displayed in blue, and then touch the display.

ii. Check that "INPUT OK" (indicated by the arrow in the illustration) changes to "CHECK" (displayed in red), and then move the shift lever to N.

iii. Check that "INPUT OK" (indicated by the arrow in the illustration) under "SHIFT N" is displayed in blue.

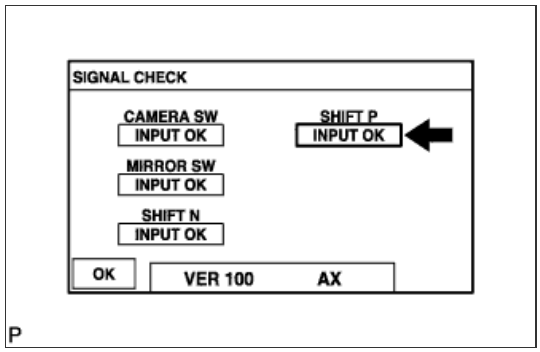



d. "SHIFT P" check.

i. Check that "INPUT OK" (indicated by the arrow in the illustration) under "SHIFT P" is displayed in blue, and then touch the display.

ii. Check that "INPUT OK" (indicated by the arrow in the illustration) changes to "CHECK" (displayed in red), and then move the shift lever to P.

iii. Check that "INPUT OK" (indicated by the arrow in the illustration) under "SHIFT P" is displayed in blue.




**HINT:**

- **After the cable is connected to the negative (-) battery terminal, even if each signal is only input 1 time into the parking assist ECU, "INPUT OK" is displayed.**
- **If the signals are not input, "CHECK" and the item are displayed in red.**
- **If "INPUT OK" is displayed in blue for all signals, it is possible to proceed to the next screen by touching "OK".**
- **If "CHECK" is displayed in red for 1 or more items, touch "CHECK" (the color will change from red to orange) and then touch "OK" to proceed to the next screen.**

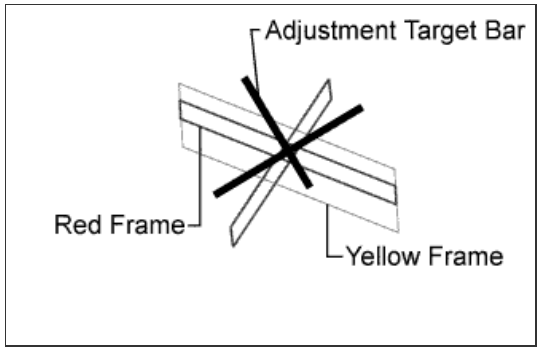
e. Select "OK".

**HINT:**

If the outer mirror is retracted, a "beep" will sound and the side monitor camera position setting screen will not be displayed.

## SIDE CAMERA POSITION SETTING

a. Colors displayed in the adjustment screen.

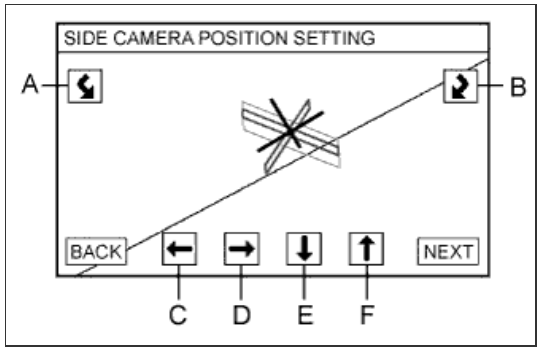



b. Side camera position setting.

i. Press the buttons labeled A and B to rotate the yellow frame.

ii. Next press the buttons labeled C, D, E, and F to move the yellow frame left, right, up, and down. Align the yellow frame so that the adjustment target bar is in the center of the red frame.

iii. Select "NEXT" to proceed to the side verify mode.




c. Side verify mode.

i. Check that the adjustment target bar and the cross line displayed on the screen overlap.

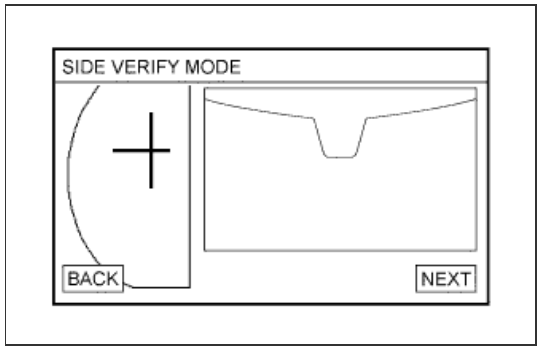
**HINT:**

If they do not overlap, perform the position setting again.

ii. Select "NEXT".

**HINT:**

When "NEXT" is selected, a "beep" will sound for several seconds.



**for Preparation** Click here

## ADJUST SIDE MONITOR SYSTEM

a. This side monitor system can be set from the diagnostic screen of the display and navigation module display.

b. If the following operations are performed, it is necessary to perform adjustments and checks on the diagnostic screen.

| Part Name | Operation | Adjustment Item | Proceed to |
|---|---|---|---|
| Spiral with sensor cable sub-assembly | • Removal and installation of the spiral with sensor cable sub-assembly<br>• Removal and installation of the connector of the spiral with sensor cable sub-assembly | Steering angle neutral point | Click here |
| | | Steering angle setting | Click here |
| Spiral with sensor cable sub-assembly | Replacement | Steering angle neutral point | Click here |
| | | Steering angle setting | Click here |
| Parking assist ECU | Replacement | Parking assist ECU initialization | Click here |
| Suspension, tires, etc. | The vehicle height changes because of suspension or tire replacement | Rear television camera optical axis (Camera position setting) | Click here |
| | | Side television camera optical axis (Camera position setting) | Step 2 |
| Side television camera assembly | • Replace<br>• Installation angle of the side television camera changes because of the removal and installation of the side television camera, etc. | Side television camera optical axis (Camera position setting) | Step 2 |
| Outer rear view mirror assembly (passenger side) | Replacement | Side television camera optical axis (Camera position setting) | Step 2 |
| Display and navigation module display | Replacement | Vehicle contract setting | Click here |

**HINT:**

- **The adjustment values stored while performing side monitor system calibration are stored in the parking assist ECU.**
- **After the engine switch is turned off, the display and navigation module display (HDD navigation system) records various types of memory and settings. As a result, after turning the engine switch off, make sure to wait for the time specified in the following table before disconnecting the cable from the negative (-) battery terminal.**

**Waiting Time before Disconnecting Cable from Negative (-) Battery Terminal**

| Specification | Waiting Time |
|---|---|
| w/o Telematics transceiver | 60 sec. |
| w/ Telematics transceiver | 120 sec. |

## SIDE CAMERA POSITION SETTING

**HINT:**

Be sure to check for DTCs before performing this procedure ( Click here).

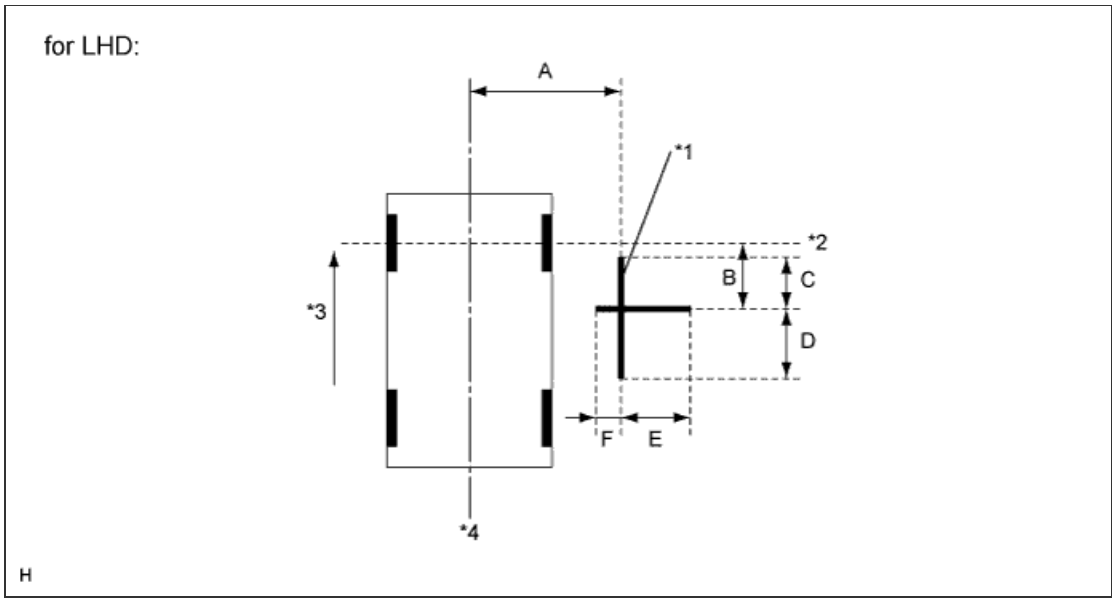
a. Preparation for adjustment

i. Park the vehicle with the steering wheel centered.

ii. Set a target bar for optical axis adjustment of the side television camera.

**HINT:**

Only when adjusting the optical axis of the camera, create a target bar for adjustment.

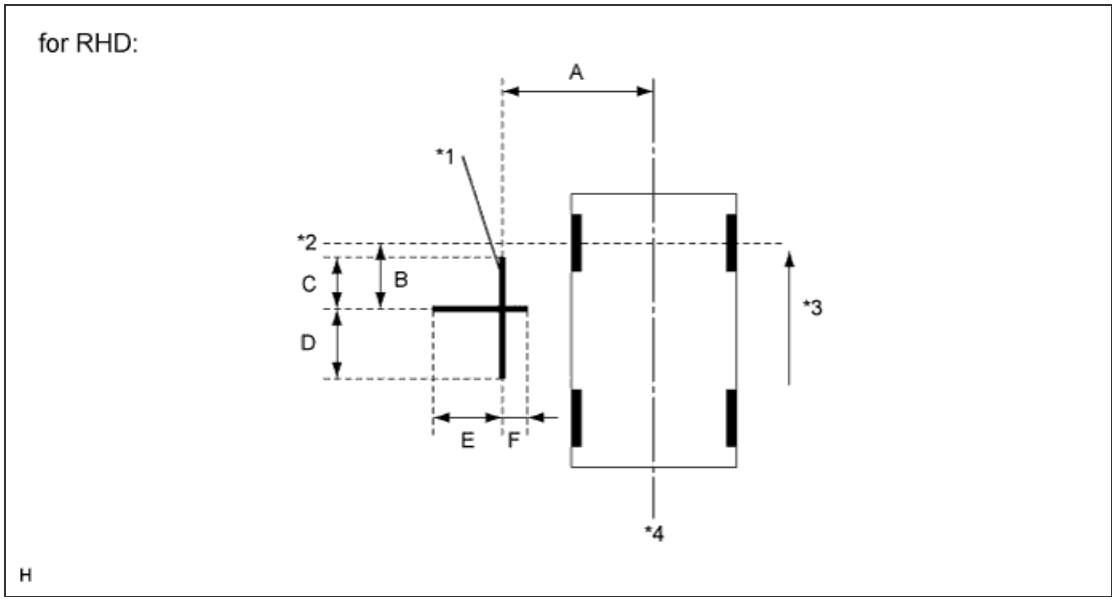



**Text in Illustration**

| | | | |
|---|---|---|---|
| *1 | Target Bar for Side Camera Adjustment | *2 | Front Wheel Axis |
| *3 | Front Side | *4 | Vehicle Center |

**Dimension:**

| A | B | C | D | E | F |
|---|---|---|---|---|---|
| 1183 mm (3.88 ft.) | 1181 mm (3.87 ft.) | 500 mm (1.64 ft.) | 500 mm (1.64 ft.) | 500 mm (1.64 ft.) | 180 mm (7.09 in.) |




**Text in Illustration**

| | | | |
|---|---|---|---|
| *1 | Target Bar for Side Camera Adjustment | *2 | Front Wheel Axis |
| *3 | Front Side | *4 | Vehicle Center |

**Dimension:**

| A | B | C | D | E | F |
|---|---|---|---|---|---|
| 1183 mm (3.88 ft.) | 1181 mm (3.87 ft.) | 500 mm (1.64 ft.) | 500 mm (1.64 ft.) | 500 mm (1.64 ft.) | 180 mm (7.09 in.) |

**HINT:**

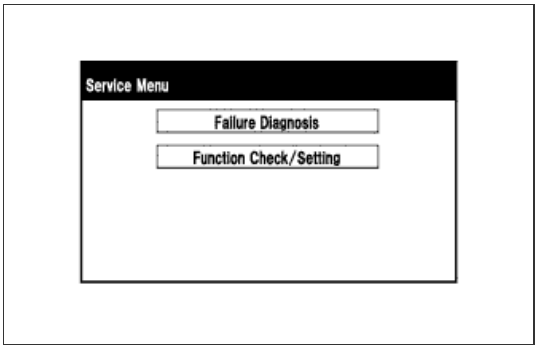
Target bars for side camera adjustment should be made with 2 pieces of 2.5 cm wide tape; one piece should be 100 cm (3.28 ft.) (C+D) and the other should be 68 cm (2.23 ft.) (E+F) long. Check the tape color on the display and navigation module display and choose a tape color which can be easily seen.

**b.** Start the diagnostic mode (Click here).

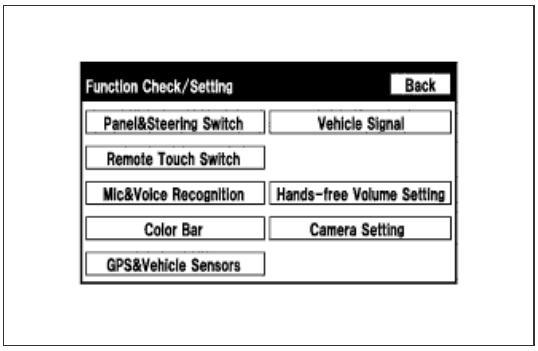
**NOTICE:**

Mode setting must be carried out with the engine start. Apply the parking brake, depress the brake pedal, move the shift lever to P, and ensure that the vehicle is not moving.

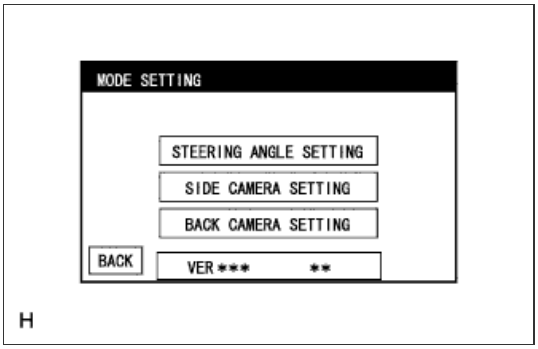
**i.** Select "Function Check/Setting" on the Service Menu screen.




**ii.** Select the "Camera Setting" on the Function Check/Setting screen."




**iii.** Select the "SIDE CAMERA SETTING" on the MODE SETTING screen.




H

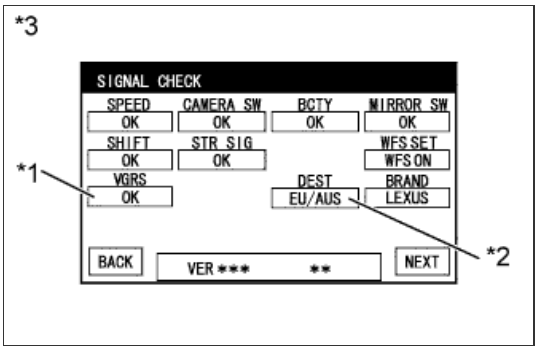
**iv.** Select "NEXT" on the SIGNAL CHECK screen.

**Text in Illustration**

| | |
|---|---|
| *1 | w/ VGRS |
| *2 | "EU/AUS" or "GCC/ZAF" |
| *3 | Example |

**NOTICE:**

- **When "CHK" (red) is displayed for any items on the SIGNAL CHECK screen, selecting "NEXT" will not change the screen to the SIDE CAMERA POSITION SETTING screen.**
- **When "CHK" (red) is displayed for any items on the SIGNAL CHECK screen, perform inspections using the SIGNAL CHECK screen (Click here).**




**HINT:**

- **When the outer mirrors are retracted, selecting "NEXT" will not change the screen to the SIDE CAMERA POSITION SETTING screen.**
- **If the screen does not change to the SIDE CAMERA POSITION SETTING screen even though the outer mirrors are extended, perform the MIRROR SW check on the SIGNAL CHECK screen (Click here).**
- **If the screen does not change to the SIDE CAMERA POSITION SETTING screen even after "OK" (blue) is displayed as a result of the MIRROR SW check on the SIGNAL CHECK screen, replace the parking assist ECU (Click here).**

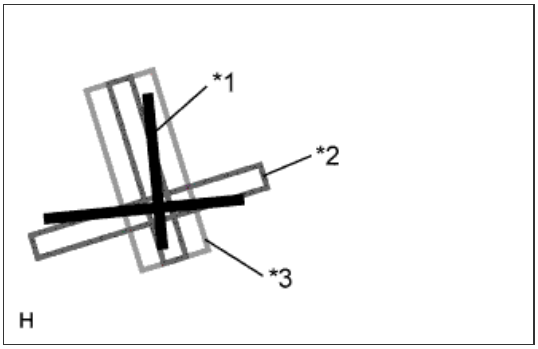
c. SIDE CAMERA POSITION SETTING

**HINT:**

Colors used on the side camera position setting screen

**Text in Illustration**

| | |
|---|---|
| *1 | Target Bar for Side Camera Adjustment |
| *2 | Red Frame |
| *3 | Yellow Frame |



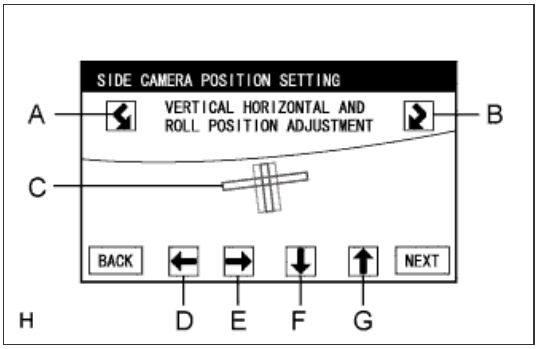

i. Perform the roll angle adjustment.

- Select switches A and B to rotate C so that it is parallel to the target adjustment bar.

ii. Perform the vertical and horizontal position adjustment.

- Select the directional switches D, E, F and G to move C so that the target adjustment bar is centered in C.

iii. Select "NEXT" to display SIDE VERIFY MODE.




d. SIDE VERIFY MODE

i. Check that the red cross and the target adjustment bar are aligned.

**HINT:**

If they are not aligned, select "BACK" and perform SIDE CAMERA POSITION SETTING again.

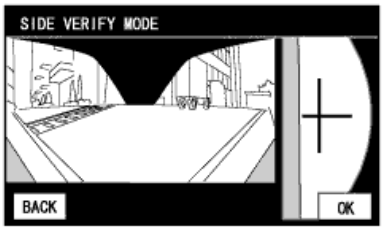
ii. Select "OK" to store the side camera aiming adjustment value and change the screen to the STEERING ANGLE SETTING screen.

**HINT:**

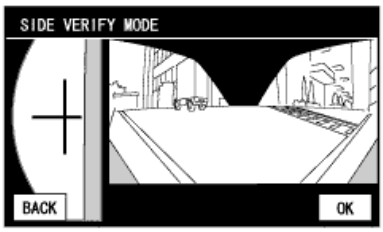
- **When "OK" is selected, a beep will sound to confirm that the side camera aiming adjustment values have been stored.**
- **The adjustment value will not be stored unless "OK" is selected.**

e. Finish the diagnostic mode (Click here).

for LHD:




for RHD:




H

**for Preparation** Click here

## ADJUST SIDE MONITOR SYSTEM

a. This side monitor system can be set from the diagnostic screen of the multi-display assembly.

b. If the following operations are performed, it is necessary to perform adjustments and checks on the diagnostic screen.

| Part Name | Operation | Adjustment Item | Proceed to |
|---|---|---|---|
| Steering sensor | • Removal and installation of the Steering angle sensor<br>• Removal and installation of the connector of the Steering angle sensor<br>• Replacement | Steering angle neutral point | Click here |
| | | Steering angle setting | Click here |
| Multi-media module receiver assembly | Replacement | Vehicle contract setting | Click here |
| Parking assist ECU | Replacement | Parking assist ECU initialization | Click here |
| Suspension, tires, etc. | The vehicle height changes because of suspension or tire replacement | Rear television camera optical axis (Camera position setting) | Click here |
| | | Side television camera optical axis (Camera position setting) | Procedure 1 |
| Side television camera assembly | • Replacement<br>• Installation angle of the side television camera changes because of the removal and installation of the side television camera, etc. | Side television camera optical axis (Camera position setting) | Procedure 1 |
| Outer rear view mirror assembly | Replacement | Side television camera optical axis (Camera position setting) | Procedure 1 |

**HINT:**

- **The adjustment values stored while performing side monitor system calibration are stored in the parking assist ECU.**
- **After the engine switch is turned off, the multi-media module receiver assembly records various types of memory and settings. As a result, after turning the engine switch off, make sure to wait for the time specified in the following table before disconnecting the cable from the negative (-) battery terminal.**

**Waiting Time before Disconnecting Cable from Negative (-) Battery Terminal**

| Specification | Waiting Time |
|---|---|
| Vehicle enrolled in G-BOOK system | 6 minutes |
| Vehicle not enrolled in G-BOOK system | 1 minute |

## SIDE CAMERA SETTING (Procedure 1)

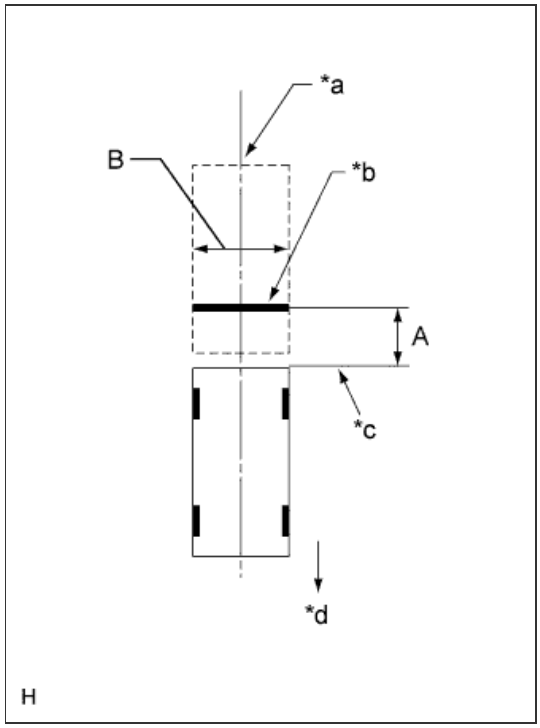
**HINT:**

Be sure to check for DTCs before performing this procedure ( Click here).

a. Preparation for adjustment

i. Park the vehicle with the steering wheel centered.

ii. Set a target bar for optical axis adjustment of the rear television camera assembly.




**HINT:**

Only when adjusting the optical axis of the camera assembly, create a target bar for adjustment.

**Dimension:**

| Area | Specification |
|---|---|
| A | 824 to 834 mm (2.70 to 2.74 ft.) |
| B | 1995 to 2005 mm (6.55 to 6.58 ft.) |

**Text in Illustration**

| | |
|---|---|
| *a | Vehicle Center |
| *b | Target Bar for Back Camera Adjustment |
| *c | Vehicle End |
| *d | Front Side |

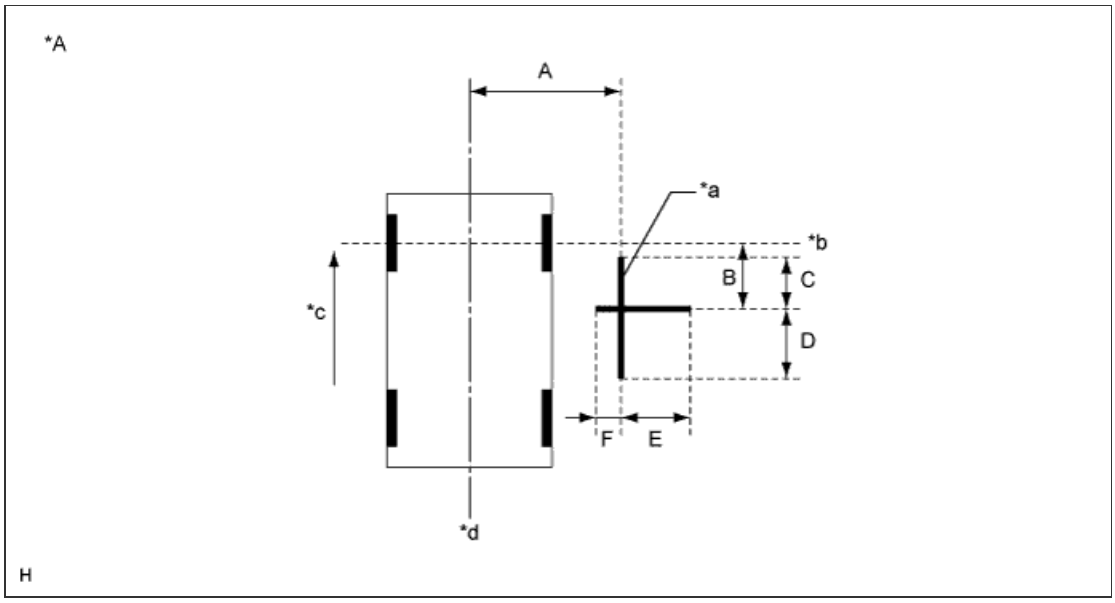
**HINT:**

- **Set a piece of tape on the ground as the target bar for adjustment. Its width and length are 20 to 30 mm (0.787 to 1.18 in.) and 1995 to 2005 mm (6.55 to 6.58 ft.), respectively. Check the color on the multi-display assembly and choose a tape color which can be easily seen.**
- **Before parking the vehicle, be sure to move the vehicle forward and in reverse to check that the tires are facing straight ahead with the steering wheel centered.**
- **Check that the back door is fully closed.**

iii. Set a target bar for optical axis adjustment of the side television camera assembly.

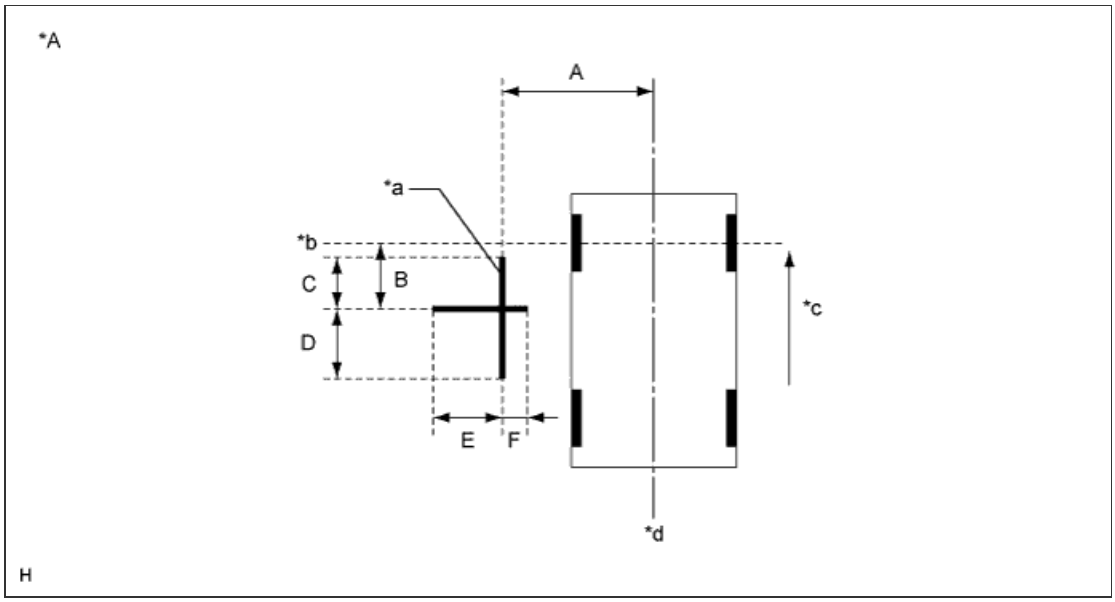
**HINT:**

Only when adjusting the optical axis of the camera assembly, create a target bar for adjustment.




**Text in Illustration**

| | | | |
|---|---|---|---|
| *A | for LHD | - | - |
| *a | Target Bar for Side Camera Adjustment | *b | Front Wheel Axis |
| *c | Front Side | *d | Vehicle Center |




**Text in Illustration**

| | | | |
|---|---|---|---|
| *A | for RHD | - | - |
| *a | Target Bar for Side Camera Adjustment | *b | Front Wheel Axis |
| *c | Front Side | *d | Vehicle Center |

**Dimension:**

| A | B | C | D | E | F |
|---|---|---|---|---|---|
| 1183 mm (3.88 ft.) | 1181 mm (3.87 ft.) | 500 mm (1.64 ft.) | 500 mm (1.64 ft.) | 500 mm (1.64 ft.) | 180 mm (7.09 in.) |

**HINT:**

Target bars for side camera adjustment should be made with 2 pieces of 2.5 cm wide tape; one piece should be 100 cm (3.28 ft.) (C+D) and the other should be 68 cm (2.23 ft.) (E+F) long. Check the tape color on the multi-display assembly and choose a tape color which can be easily seen.

b. Start diagnostic mode (Click here).

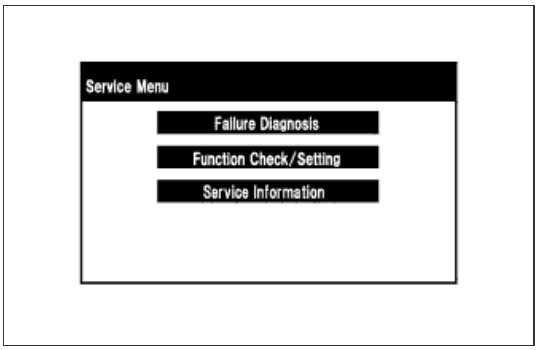
**NOTICE:**

Alignment must be performed with the engine running. For this reason, it is necessary to apply the parking brake, depress the brake pedal, and move the shift lever into the P position, and to exercise all other necessary caution to ensure that the vehicle does not begin moving unexpectedly.

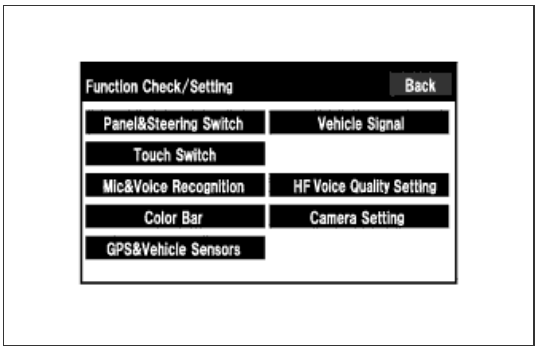
**HINT:**

The displayed items may differ depending on vehicle specifications.

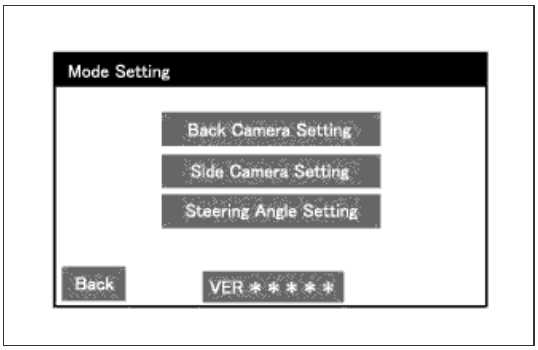
i. Select "Function Check/Setting" on the [Service Menu] screen.




ii. Select "Camera Setting" on the [Function Check/Setting] screen.



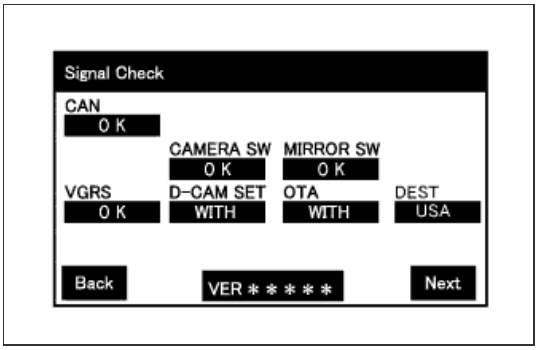

iii. Select "Side Camera Setting" on the [Mode Setting] screen.




**HINT:**

To select a grayed out item, select and hold the item for 2 seconds or more.

iv. Select "Next" on the [Signal Check] screen.



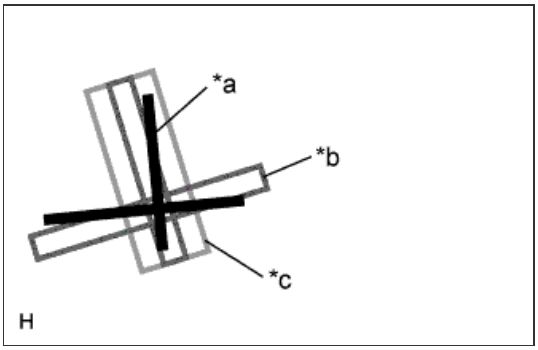

**NOTICE:**

- **When "CHK" (red) is displayed for any items on the [Signal Check] screen, selecting "Next" will not change the screen to the [Side Camera Position Setting] screen.**
- **When "CHK" (red) is displayed for any items on the [Signal Check] screen, perform inspections using the [Signal Check] screen (Click here).**

**HINT:**

- **When the outer mirrors are retracted, selecting "Next" will not change the screen to the [Side Camera Position Setting] screen.**
- **If the screen does not change to the [Side Camera Position Setting] screen even though the outer mirrors are extended, perform the "MIRROR SW" check on the [Signal Check] screen (Click here).**
- **If the screen does not change to the [Side Camera Position Setting] screen even after "OK" (blue) is displayed as a result of the MIRROR SW check on the [Signal Check] screen, replace the parking assist ECU (Click here).**

c. Side Camera Position Setting:




**HINT:**

Colors used on the [Side Camera Position Setting] screen

**Text in Illustration**

| | |
|---|---|
| *a | Target Adjustment Bar for Side Camera Position Setting |
| *b | Red Frame |
| *c | Yellow Frame |

i. Perform the roll angle adjustment.

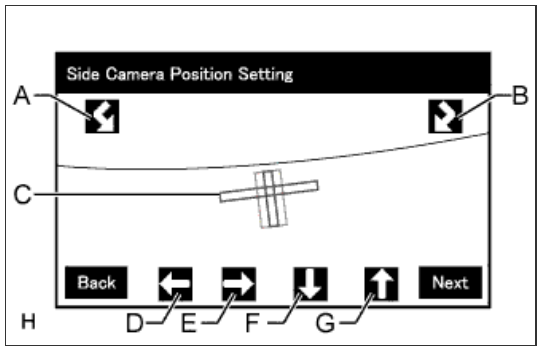
- Select switches A and B to rotate C so that it is parallel to the target adjustment bar.

ii. Perform the vertical and horizontal position adjustment.

- Select the directional switches D, E, F and G to move C

so that the target adjustment bar is centered in C.

iii. Select "Next" to display [Side Verify Mode].



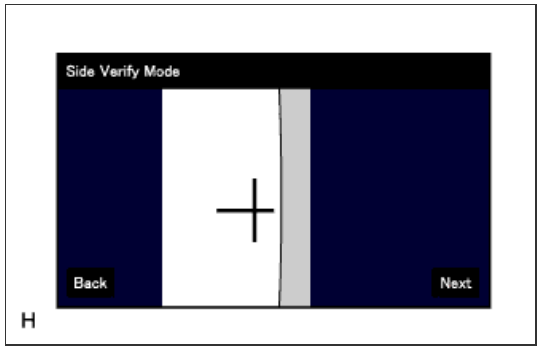

d. Side Verify Mode:

i. Check that the red cross and the target adjustment bar are aligned.

**HINT:**

If they are not aligned, select "Back" and perform [Side Camera Position Setting] again.

ii. Select "Next" to display [Side Camera Signal Check].

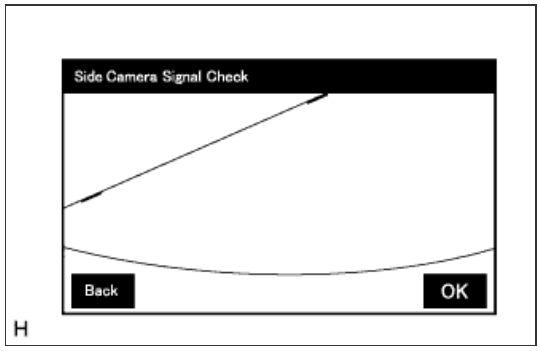



e. Side Camera Signal Check:

i. Select "OK" to store the side camera aiming adjustment value and change the screen to the [Service Menu] screen.

**HINT:**

- **When "OK" is selected, a beep will sound to confirm that the side camera aiming adjustment values have been stored.**
- **The adjustment value will not be stored unless "Back" is selected.**




f. Finish diagnostic mode (Click here).

**for Preparation** Click here

**HINT:**

Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

**Side Monitor System**

| Symptom | Suspected Area | See page |
|---|---|---|
| When auto-display mode is set, display does not change to appropriate screen even though vehicle speed exceeds display permission vehicle speed (approximately 12 km/h (7 mph) or less) | Master Cylinder Solenoid (Skid Control ECU)*1 | Click here |
| | Master Cylinder Solenoid (Skid Control ECU)*2 | Click here |
| | CAN Communication System*1 | Click here |
| | CAN Communication System*2 | Click here |
| | Parking Assist ECU | Click here |
| When auto-display mode is set, display does not change from displayed screen even though vehicle speed is reduced to display permission vehicle speed (approximately 10 km/h (6 mph) or less) | Master Cylinder Solenoid (Skid Control ECU)*1 | Click here |
| | Master Cylinder Solenoid (Skid Control ECU)*2 | Click here |
| | CAN Communication System*1 | Click here |
| | CAN Communication System*2 | Click here |
| | Parking Assist ECU | Click here |
| Display lines are not aligned (camera image is tilted) | Confirm side monitor camera installation condition | Click here |
| | Side television camera position setting | Click here |
| Expected course lines are not displayed and "System initializing" is displayed | Adjust steering angle neutral point | Click here |
| Expected course lines are not displayed | Adjust steering angle neutral point | Click here |
| | Settings inspection (check that the expected course lines are not disabled) | - |
| When auto-display mode is not set, display does not change from displayed screen even though operating main switch while within display permission vehicle speed (approximately 12 km/h (7 mph) or less) | Front and Side Monitor Main Switch | Click here |
| | Harness or connector | - |
| | CAN Communication System*1 | Click here |
| | CAN Communication System*2 | Click here |
| | Master Cylinder Solenoid (Skid Control ECU)*1 | Click here |
| | Master Cylinder Solenoid (Skid Control ECU)*2 | Click here |
| | Parking Assist ECU | Click here |
| Expected course lines are not displayed, and "Guidance unavailable" is displayed | Check if DTC 5C-41, 5C-42, 5C-43, or 5C-44 is output | Click here |
| | Parking Assist ECU | Click here |
| Side monitor image has irregular color, is distorted, or is not displayed (screen is black) | Check if DTC 5C-40 is output | Click here |

| | | |
|---|---|---|
| | Parking Assist ECU | Click here |

*1: for LHD
*2: for RHD

**for Preparation** Click here

**HINT:**

- **Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms the listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**
- **Inspect the fuses and relays related to this system before inspecting the suspected area below.**

**NOTICE:**

The following inspection procedure of the side monitor system is described on the assumption that the navigation system is normal. If navigation system has any malfunction, first proceed with troubleshooting of the navigation system.

### General

| Symptom | Suspected Area | See page |
|---|---|---|
| When the front and side monitor main switch on, the side monitor image is not displayed (screen is not black). | ECU power source circuit | Click here |
| | "CHK" message(s) are displayed on the SIGNAL CHECK screen | Click here |
| | Images from all cameras are abnormal | Click here |
| | Parking assist ECU | Click here |
| When the front and side monitor main switch on, the side monitor image is not displayed (screen is black). | Image from camera for side monitor is abnormal | Click here |
| | Parking assist ECU | Click here |
| When the front and side monitor main switch off, the side monitor image is displayed. | "CHK" message(s) are displayed on the SIGNAL CHECK screen | Click here |
| | Parking assist ECU | Click here |

### Display Malfunction

| Symptom | Suspected Area | See page |
|---|---|---|
| Assist lines are not displayed. | Parking assist ECU | Click here |
| "System initializing" is displayed. | Correct the steering angle neutral point | Click here |
| Images from all cameras (rear and side television camera) are abnormal. | Images from all cameras are abnormal | Click here |
| | Parking assist ECU | Click here |
| Image from camera for side monitor is abnormal (parking assist monitor system is normal). | Image from camera for side monitor is abnormal | Click here |
| | Parking assist ECU | Click here |
| Message indicating "System not ready" is displayed even after setting is finished. | Parking assist ECU | Click here |

### Side Monitor System Malfunction

| Symptom | Suspected Area | See page |
|---|---|---|
| "CHK" message(s) are displayed on the SIGNAL CHECK screen. | "CHK" message(s) are displayed on the SIGNAL CHECK screen | Click here |

**for Preparation** Click here

**HINT:**

- **Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms the listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**
- **Inspect the fuses and relays related to this system before inspecting the suspected area below.**

**NOTICE:**

The following inspection procedure of the side monitor system is described on the assumption that the navigation system is normal. If navigation system has any malfunction, first proceed with troubleshooting of the navigation system.

### General

| Symptom | Suspected Area | See page |
|---|---|---|
| When the front and side monitor main switch on, the side monitor image is not displayed (screen is not black). | Proceed to ["CHK" message(s) are displayed on the SIGNAL CHECK screen] | Click here |
| | Data List/Active Test - AISIC Output Status | Click here |
| | GVIF cable | - |
| | Parking Assist ECU | Click here |
| | Multi-display assembly | Click here |
| When the front and side monitor main switch on, the side monitor image is not displayed (screen is black). | Data List/Active Test - AISIC Output Status | Click here |
| | GVIF cable | - |
| | Parking Assist ECU | Click here |
| | Multi-display assembly | Click here |
| When the front and side monitor main switch off, the side monitor image is displayed. | Proceed to ["CHK" Message(s) are Displayed on the SIGNAL CHECK Screen] | Click here |
| | Multi-media module receiver assembly | Click here |

### Display Malfunction

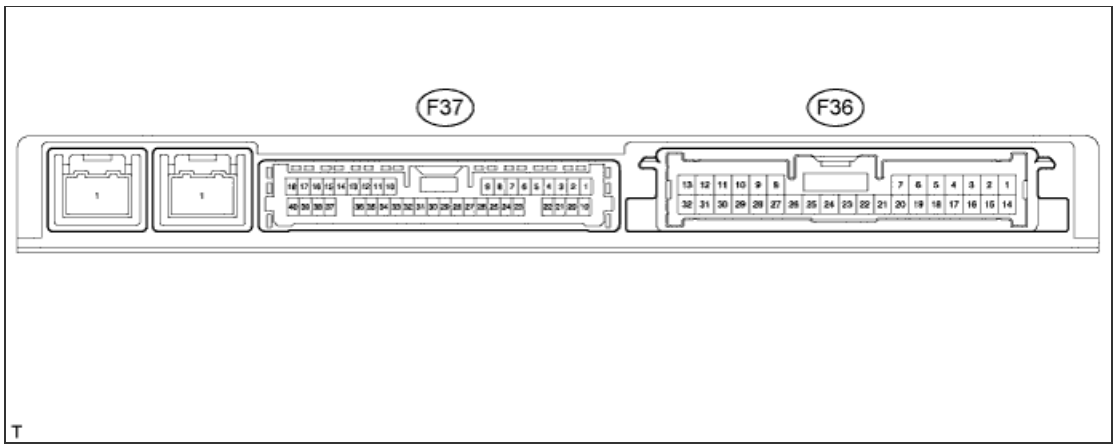
| Symptom | Suspected Area | See page |
|---|---|---|
| Assist lines are not displayed. | Parking assist ECU | Click here |
| "System initializing" is displayed. | Correct the steering angle neutral point | Click here |
| Images from all cameras (rear and side television camera) are abnormal. | Data List/Active Test - AISIC Output Status | Click here |
| | GVIF cable | - |
| | Parking assist ECU | Click here |
| | Multi-display assembly | Click here |
| Image from camera for side monitor is abnormal (parking assist monitor system is normal). | Proceed to [Image from Camera for Side Monitor is Abnormal] | Click here |
| Message indicating "System not ready" is displayed even after setting is finished. | Parking assist ECU | Click here |

### Side Monitor System Malfunction

| Symptom | Suspected Area | See page |
|---|---|---|
| "CHK" message(s) are displayed on the SIGNAL CHECK screen. | Proceed to ["CHK" Message(s) are Displayed on the SIGNAL CHECK Screen] | Click here |

**for Preparation** Click here

## CHECK PARKING ASSIST ECU




a. Disconnect the F36 and F37 ECU connectors.

b. Measure the voltage and resistance according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F36-6 (+B) - F36-4 (GND1) | L - W-B | Power source signal | Always | 11 to 14 V |
| F36-1 (IG) - F36-4 (GND1) | G - W-B | IG power source signal | Engine switch on (IG) | 11 to 14 V |
| F36-1 (IG) - F36-4 (GND1) | G - W-B | IG power source signal | Engine switch off | Below 1 V |
| F36-14 (ACC) - F36-4 (GND1) | GR - W-B | ACC power source signal | Engine switch on (ACC) | 11 to 14 V |
| F36-14 (ACC) - F36-4 (GND1) | GR - W-B | ACC power source signal | Engine switch off | Below 1 V |
| F37-22 (BLSW) - F36-4 (GND1) | G - W-B | Front and side monitor main switch power source signal | Engine switch on (IG), front and side monitor main switch on | 11 to 14 V |
| F37-22 (BLSW) - F36-4 (GND1) | G - W-B | Front and side monitor main switch power source signal | Engine switch on (IG), front and side monitor main switch off | Below 1 V |
| F36-4 (GND1) - Body ground | W-B - Body ground | ECU ground | Always | Below 1 Ω |

c. Reconnect the F36 and F37 ECU connectors.

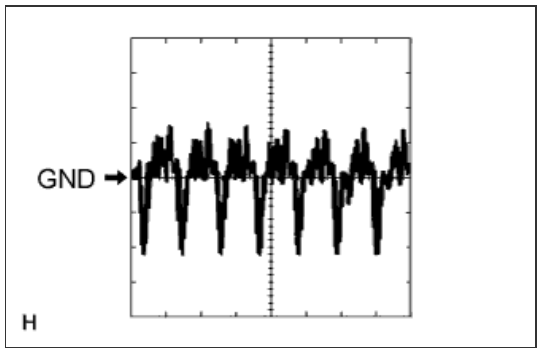
d. Measure the voltage and waveform according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F37-36 (SCV-) - F36-4 (GND1) | Shielded - W-B | Side television camera ground | Always | Below 1 V |
| F37-13 (SGND) - F36-4 (GND1) | W - W-B | Side television camera ground (shielded) | Always | Below 1 V |
| F37-12 (SCV+) - F36-4 (GND1) | R - W-B | Display signal | Side monitor display screen displayed | Waveform 1 |
| F37-12 (SCV+) - F36-4 (GND1) | R - W-B | Display signal | Camera lens covered to make image black while side view monitor display screen displayed | Waveform 2 |
| F37-14 (SCB+) - F36-4 (GND1) | B - W-B | Side television camera power source signal | Side monitor display screen displayed | 5.8 to 6.5 V |

e. Using an oscilloscope, check the waveform 1.

**Waveform 1 (Reference)**

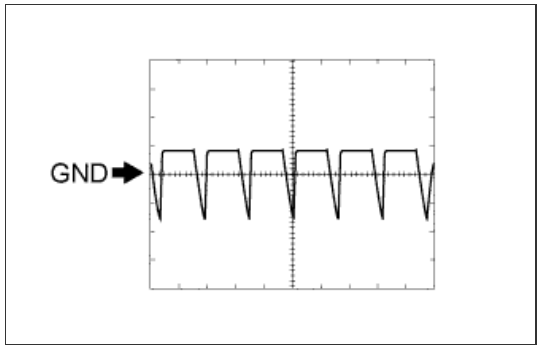
| Item | Content |
|---|---|
| Terminal No. (Symbol) | F37-12 (SCV+) - F36-4 (GND1) |
| Tool Setting | 0.2 V/DIV., 50 µs/DIV. |
| Condition | Side monitor display screen displayed |




f. Using an oscilloscope, check waveform 2.

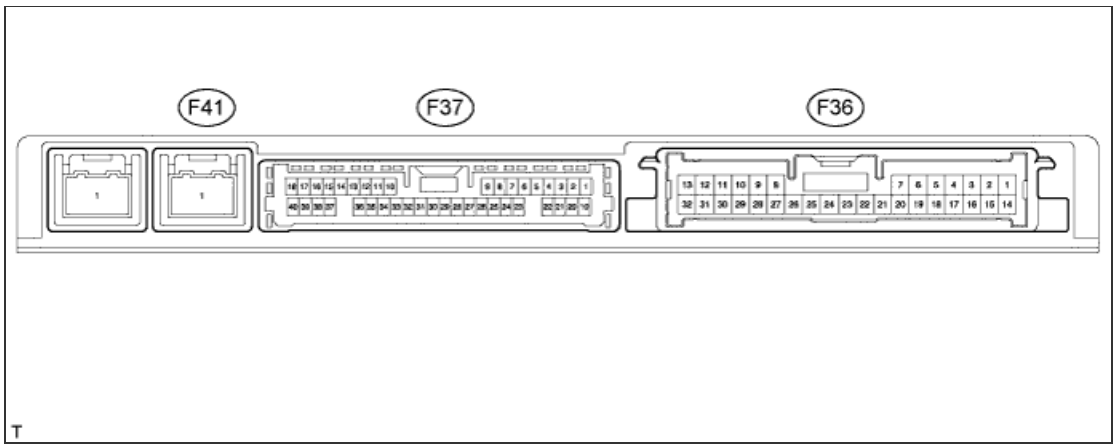
**Waveform 2 (Reference)**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F37-12 (SCV+) - F36-4 (GND1) |
| Tool Setting | 0.2 V/DIV., 50 µs/DIV. |
| Condition | Camera lens covered to make image black while side view monitor display screen displayed |



**for Preparation** Click here

## PARKING ASSIST ECU




a. Disconnect the F36 connector from the ECU.

b. Measure the resistance and voltage of each terminal of the wire harness side connector.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F36-6 (+B) - F36-4 (GND1) | L - W-B | Power source signal | Always | 11 to 14 V |
| F36-4 (GND1) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F36-1 (IG) - F36-4 (GND1) | G - W-B | IG Power source signal | Engine switch on (IG) | 11 to 14 V |
| F36-14 (ACC) - F36-4 (GND1) | GR - W-B | ACC Power source signal | Engine switch off (ACC) | 11 to 14 V |

If the result is not as specified, there may be a malfunction on the wire harness side.

c. Reconnect the F36 connector to the ECU.

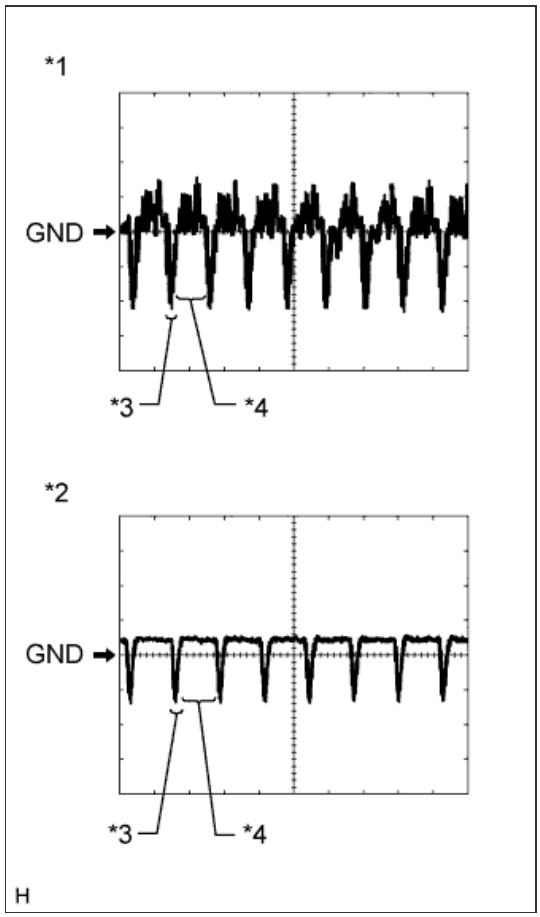
d. Measure the voltage and check for pulses according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F36-10 (CANL) - F36-4 (GND1) | L - W-B | CAN communication signal | CAN communication circuit | Pulse generation |
| F36-9 (CANH) - F36-4 (GND1) | V - W-B | CAN communication signal | CAN communication circuit | Pulse generation |
| F37-22 (BLSW) - F36-4 (GND1) | G - W-B | Front and side monitor main switch signal | Engine switch on (IG) Front and side monitor main switch pushed in | 11 to 14 V |
| | | | Engine switch on (IG) Front and side monitor main switch not pushed in | Below 1 V |
| F36-32 (TX-) - F36-31 (TX+) | L - W | AVC-LAN communication signal | - | - |
| F37-36 (SCV-) - F36-4 (GND1) | W - W-B | Side television camera ground | Always | Below 1 V |
| F37-12 (SCV+) - F36-4 (GND1) | R - W-B | Side television camera display signal (NTSC) input | Engine switch on (IG) Front and side monitor main switch on Under normal conditions | Pulse generation (See waveform 1) |
| | | | Engine switch on (IG) Front and side monitor main switch on Camera lens is covered, blacking out the screen | Pulse generation (See waveform 2) |

| | | | | |
|---|---|---|---|---|
| F37-13 (SGND) - F36-4 (GND1) | Shielded - W-B | Side television camera ground (shield) | Always | Below 1 V |
| F37-14 (SCB+) - F36-4 (GND1) | B - W-B | Power source to side television camera | Engine switch on (IG) Shift lever in R | 5.8 to 7.0 V |

If the result is not as specified, the ECU may have a malfunction.

e. Reference (Oscilloscope waveform):




**HINT:**

A waterproof connector is used for the side television camera assembly. Therefore, inspect the waveform at the parking assist ECU with the connector connected.

i. Waveform 1 (under normal conditions)

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F37-12 (SCV+) - F36-4 (GND1) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), shift lever in R |

**HINT:**

The video waveform changes according to the image sent by the side television camera assembly.

ii. Waveform 2 (camera lens is covered, blacking out the screen)

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F37-12 (SCV+) - F36-4 (GND1) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), shift lever in R |

**HINT:**

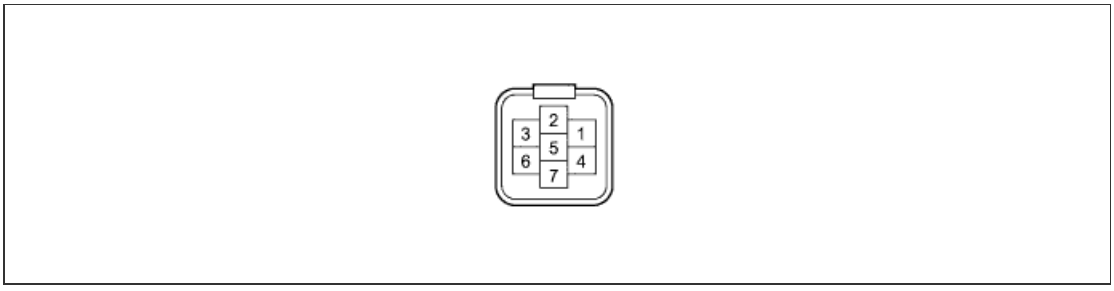
The video waveform changes according to the image sent by the side television camera assembly.

**Text in Illustration**

| | |
|---|---|
| *1 | Waveform 1 (under normal conditions) |
| *2 | Waveform 2 (camera lens is covered, blacking out the screen) |
| *3 | Synchronized Signal |
| *4 | Video Waveform |

## SIDE TELEVISION CAMERA ASSEMBLY

a. Disconnect the connector from the side television camera assembly.




b. Measure the voltage of each terminal of the wire harness side connector.

| | | | |
|---|---|---|---|

| Terminal No. (Symbol) | Terminal Description | Condition | Specified Condition |
|---|---|---|---|
| 4 (SGND) - Body ground | Ground | Always | Below 1 V |
| 1 (SCB+) - 4 (SGND) | Power source | Engine switch on (IG)<br>Front and side monitor main switch on | 5.8 to 7.0 V |

If the result is not as specified, there may be a malfunction on the wire harness side.

c. Reconnect the connector to the side television camera assembly.

d. Check for pulses between each terminal of the connector.

| Terminal No. (Symbol) | Terminal Description | Condition | Specified Condition |
|---|---|---|---|
| 3 (SCV+) - 6 (SCV-) | Display signal | Engine switch on (IG)<br>Front and side monitor main switch on<br>Under normal conditions | Pulse generation<br>(See waveform 1) |
| | | Engine switch on (IG)<br>Front and side monitor main switch on<br>Camera lens covered, blacking out screen | Pulse generation<br>(See waveform 2) |

**HINT:**

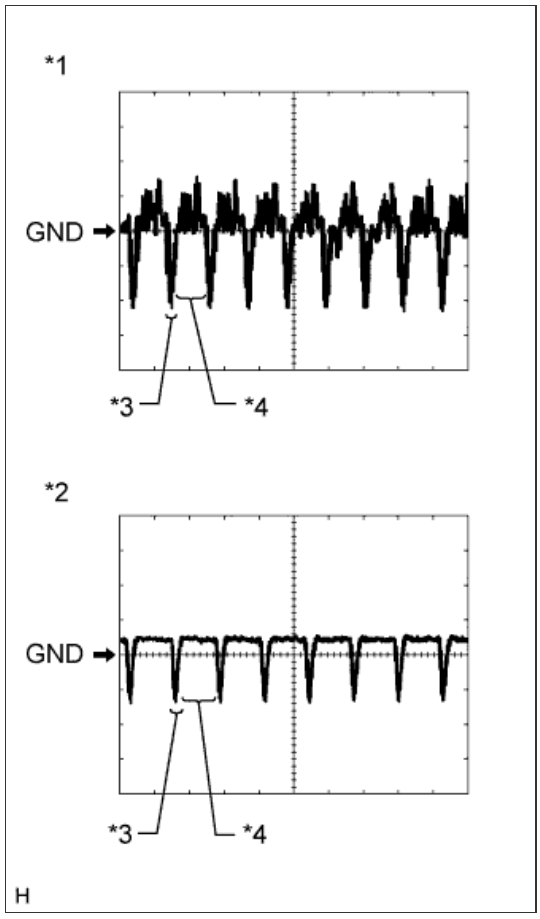
A waterproof connector is used for the side television camera assembly. Therefore, inspect the waveform at the parking assist ECU with the connector connected.

If the result is not as specified, the camera may have a malfunction.

e. Reference (Oscilloscope waveform):

**HINT:**

A waterproof connector is used for the side television camera assembly. Therefore, inspect the waveform at the parking assist ECU with the connector connected.




i. Waveform 1 (under normal conditions)

| Item | Content |
|---|---|
| Terminal No. (Symbol) | 3 (SCV+) - 6 (SCV-) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), front and side monitor main switch on |

**HINT:**

The video waveform changes according to the image sent by the side television camera assembly.

ii. Waveform 2 (camera lens is covered, blacking out the screen)

| Item | Content |
|---|---|
| Terminal No. (Symbol) | 3 (SCV+) - 6 (SCV-) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), front and side monitor main switch on |

**HINT:**

The video waveform changes according to the image sent by the side television camera assembly.

**Text in Illustration**

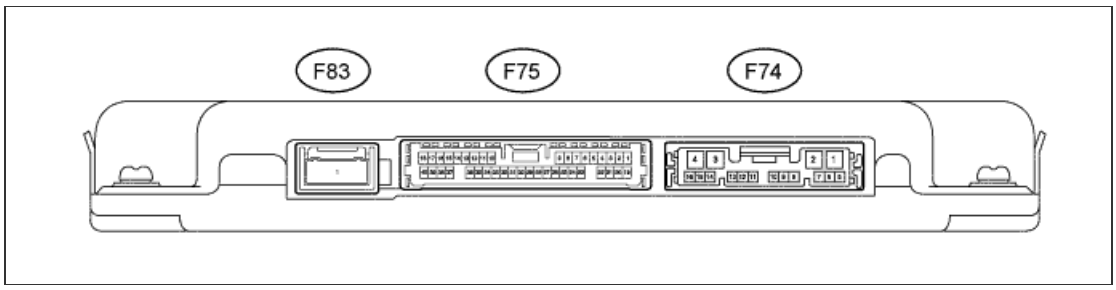
| | |
|---|---|
| *1 | Waveform 1 (under normal conditions) |
| *2 | Waveform 2 (camera lens is covered, blacking out the screen) |
| *3 | Synchronized Signal |
| *4 | Video Waveform |

## DISPLAY AND NAVIGATION MODULE DISPLAY

- for HDD navigation system (Click here).
- for DVD navigation system (Click here).

**for Preparation** Click here

## PARKING ASSIST ECU




a. Disconnect the F74 and F75 parking assist ECU connectors.

b. Measure the voltage and resistance according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F74-1 (+B) - F74-4 (GND1) | L - W-B | Power source signal | Always | 11 to 14 V |
| F74-4 (GND1) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| F74-8 (IG) - F74-4 (GND1) | G - W-B | IG Power source signal | Engine switch on (IG) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F74-9 (ACC) - F74-4 (GND1) | GR - W-B | ACC Power source signal | Engine switch off (ACC) | 11 to 14 V |
| | | | Engine switch off | Below 1 V |
| F75-7 (BLSW) - F74-4 (GND1) | G - W-B | Front and side monitor main switch power source signal | Engine switch on (IG), front and side monitor main switch assembly on | 11 to 14 V |

c. Reconnect the F74 and F75 parking assist ECU connectors.

d. Measure the voltage according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| F74-10 (TX-) | L | AVC-LAN communication signal | - | - |
| F74-11 (TX+) | W | AVC-LAN communication signal | - | - |
| F75-34 (SCV-) - F75-33 (SGND) | W - Shielded | Side television camera ground | Always | Below 1 V |
| F75-10 (SCV+) - F75-33 (SGND) | R - Shielded | Side television camera display signal input | Engine switch on (IG), front and side monitor main switch assembly on | Pulse generation (See waveform) |
| F75-33 (SGND) - F74-4 (GND1) | Shielded - W-B | Side television camera ground (shield) | Always | Below 1 V |
| F75-32 (SCB+) - F75-33 (SGND) | B - Shielded | Power source to side television camera | Engine switch on (IG), shift lever in R | 5.5 to 7.05 V |
| F75-31 (DCV-) - F75-29 (DGND) | W - Shielded | Side television camera ground | Always | Below 1 V |
| F75-30 (DCV+) - F75-29 (DGND) | R - Shielded | Side television camera display signal input | Engine switch on (IG), front and side monitor main switch assembly on | Pulse generation (See waveform) |
| F75-29 (DGND) - F74-4 (GND1) | Shielded - W-B | Side television camera ground (shield) | Always | Below 1 V |
| F75-28 (DCB+) - F75-29 (DGND) | B - Shielded | Power source to side television camera | Engine switch on (IG), front and side monitor main switch assembly on | 5.5 to 7.05 V |

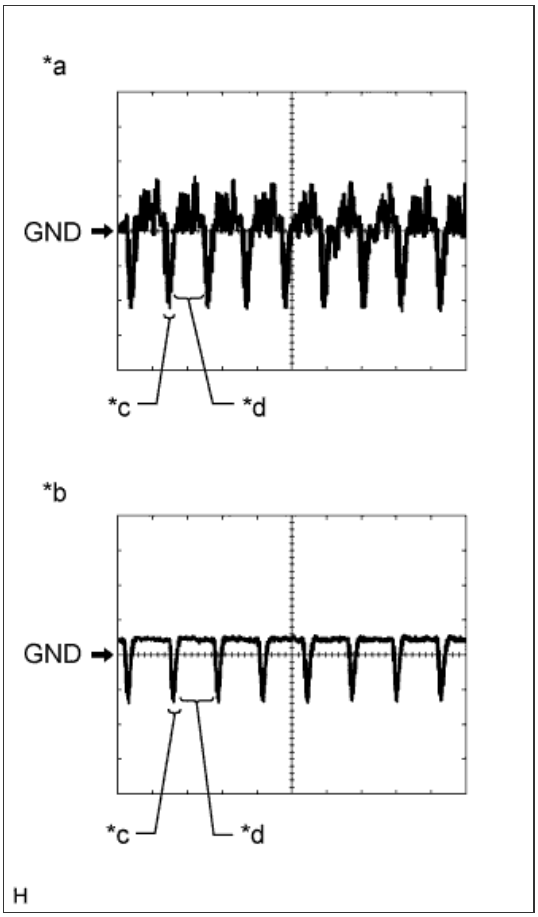
e. Using an oscilloscope, check waveform.

**Text in Illustration**

| | |
|---|---|
| *a | Waveform A (under normal conditions) |
| *b | Waveform B (camera lens is covered, blacking out the screen) |
| *c | Synchronized Signal |
| *d | Video Waveform |

**HINT:**

The video waveform changes according to the image sent by the side television camera assembly.

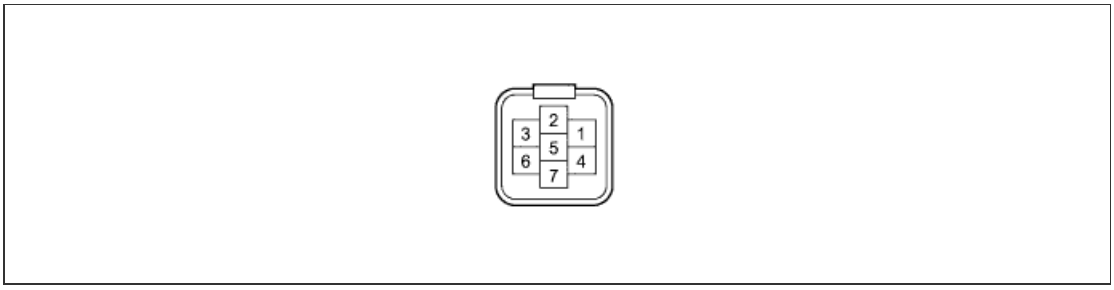



i. Waveform

| Item | Content |
|---|---|
| Terminal No. (Symbol) | • F75-10 (SCV+) - F75-33 (SGND)<br>• F75-30 (DCV+) - F75-29 (DGND) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | • Waveform A: Engine switch on (IG), front and side monitor main switch assembly on and camera lens is not covered, displaying an image<br>• Waveform B: Engine switch on (IG), front and side monitor main switch assembly on and camera lens is not covered, displaying an image. |

## SIDE TELEVISION CAMERA ASSEMBLY

a. Disconnect the side television camera assembly connector.




b. Measure the voltage according to the value(s) in the table below.

**for LHD**

| Terminal No. (Symbol) | Terminal Description | Condition | Specified Condition |
|---|---|---|---|
| 4 - Body ground | Ground | Always | Below 1 V |
| 1 - 4 | Power source | Engine switch on (IG)<br>Front and side monitor main switch on | 5.8 to 7.0 V |

**for RHD**

| Terminal No. (Symbol) | Terminal Description | Condition | Specified Condition |
|---|---|---|---|
| 4 - Body ground | Ground | Always | Below 1 V |
| 1 - 4 | Power source | Engine switch on (IG)<br>Front and side monitor main switch on | 5.8 to 7.0 V |

c. Reconnect the side television camera assembly connector.

**HINT:**

A waterproof connector is used for the front television camera assembly. Therefore, inspect the waveform at the parking assist ECU with the connector connected.

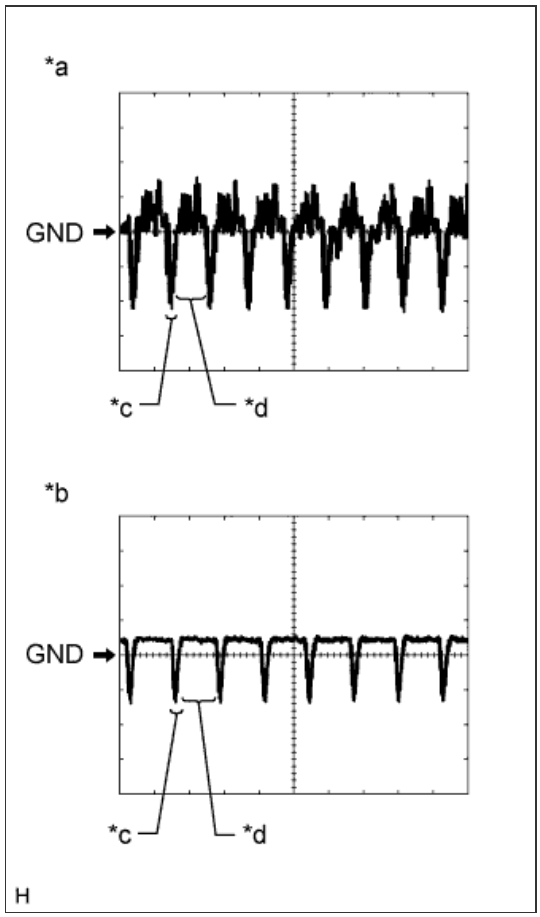
d. Measure the voltage according to the value(s) in the table below.

| Terminal No. (Symbol) | Terminal Description | Condition | Specified Condition |
|---|---|---|---|
| 3 - 4 | Display signal | Engine switch on (IG), front and side monitor main switch assembly on | Pulse generation (See waveform) |

e. Using an oscilloscope, check waveform.

**Text in Illustration**

| | |
|---|---|
| *a | Waveform A (under normal conditions) |
| *b | Waveform B (camera lens is covered, blacking out the screen) |
| *c | Synchronized Signal |
| *d | Video Waveform |




**HINT:**

The video waveform changes according to the image sent by the side television camera assembly.

i. Waveform 1

| Item | Content |
|---|---|
| Terminal No. (Symbol) | 3 - 4 |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | • Waveform A: Engine switch on (IG), front and side monitor main switch assembly on and camera lens is not covered, displaying an image.<br>• Waveform B: Engine switch on (IG), front and side monitor main switch assembly on and camera lens is covered, blacking out the screen. |

**MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)**

**MULTI-DISPLAY ASSEMBLY (Click here)**

**for Preparation** Click here

## SIDE MONITOR DIAGNOSIS SYSTEM

a. In the side monitor diagnosis system, signals received by the parking assist ECU can be checked and the side monitor system can be calibrated, adjusted and checked on the display and navigation module display.

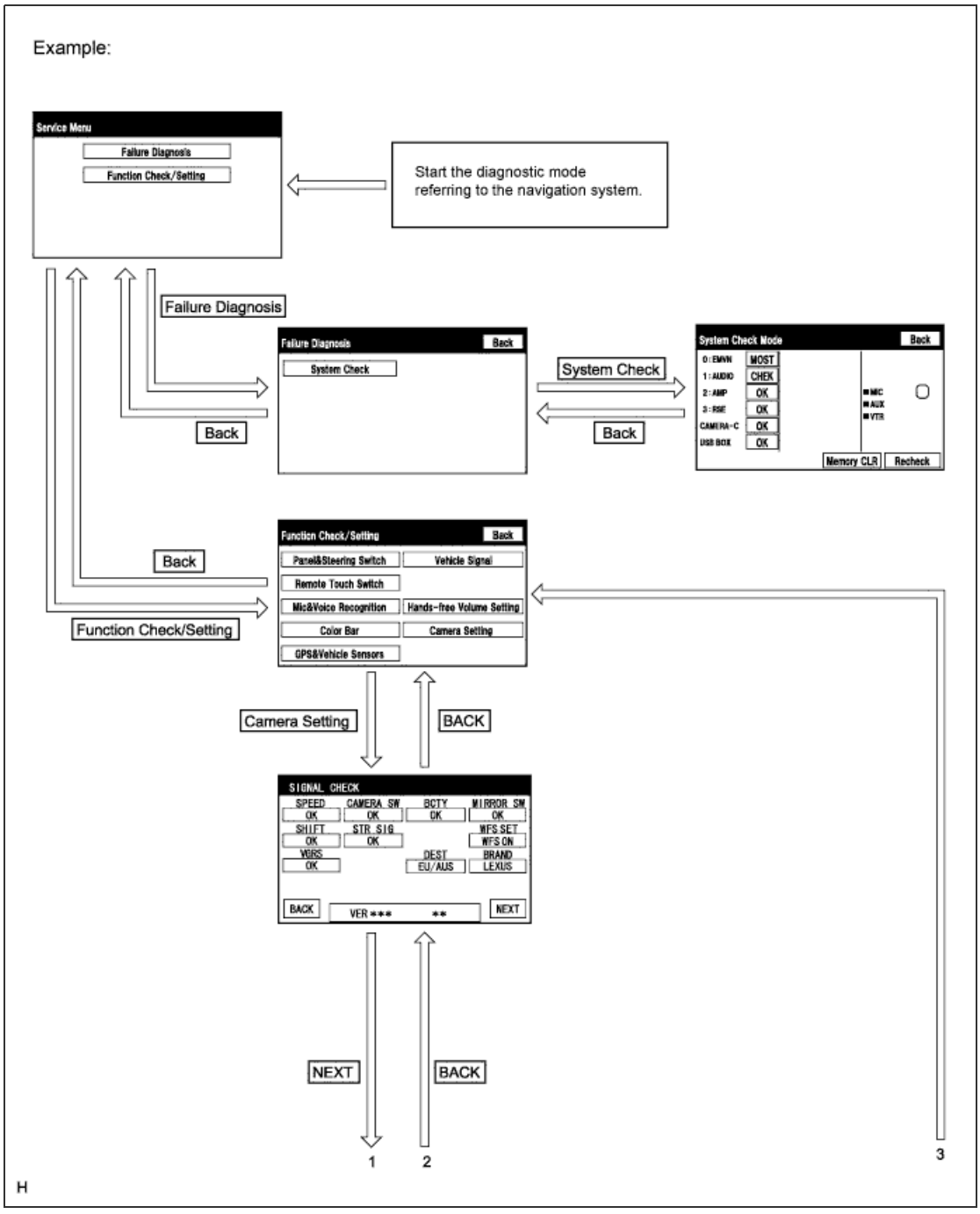
**NOTICE:**

Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the side monitor system may be needed (Click here).

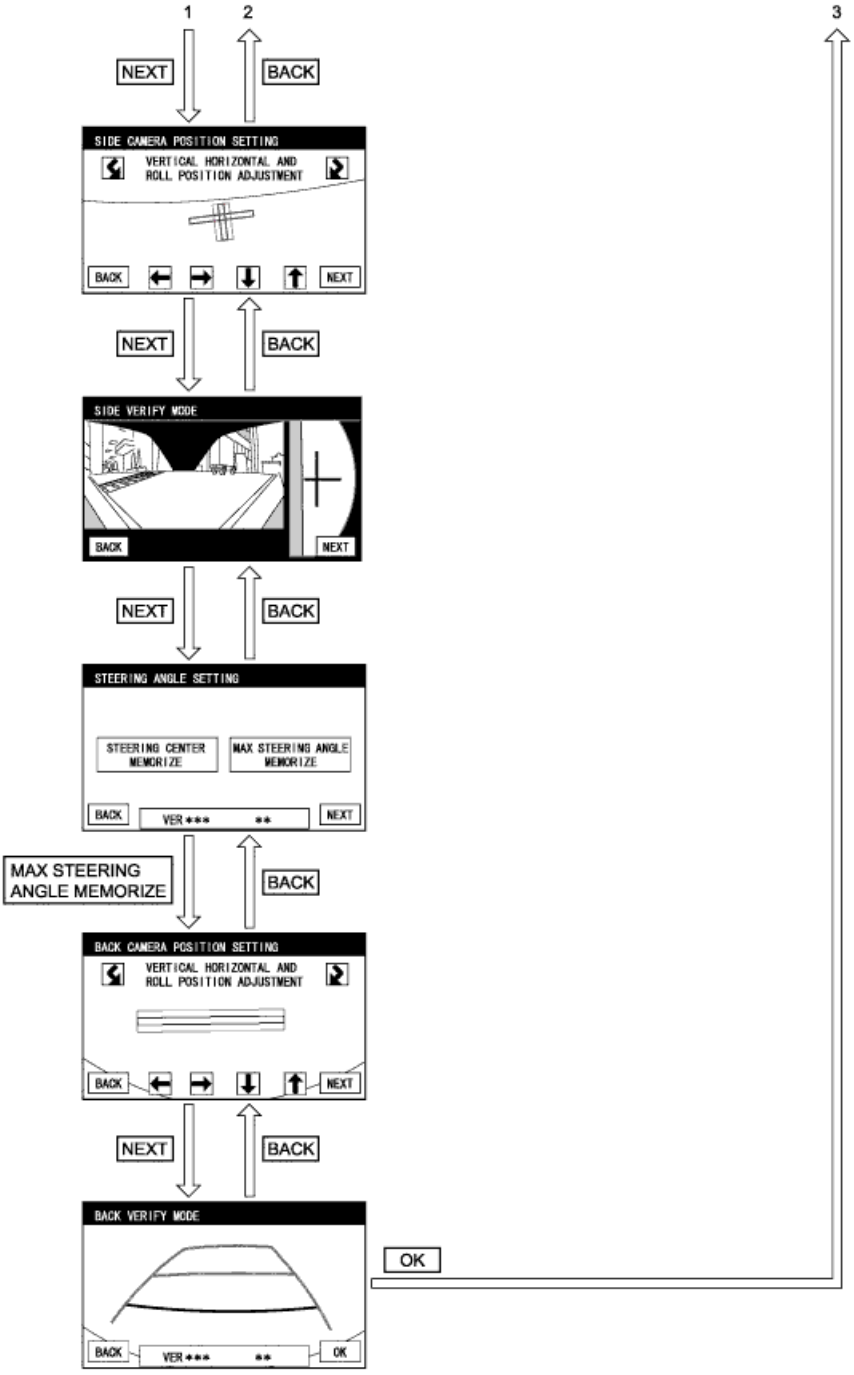
**HINT:**

The displayed screens and items may differ depending on vehicle specifications.

## DIAGNOSIS SCREEN TRANSITION (during first-time parking assist ECU initialization)

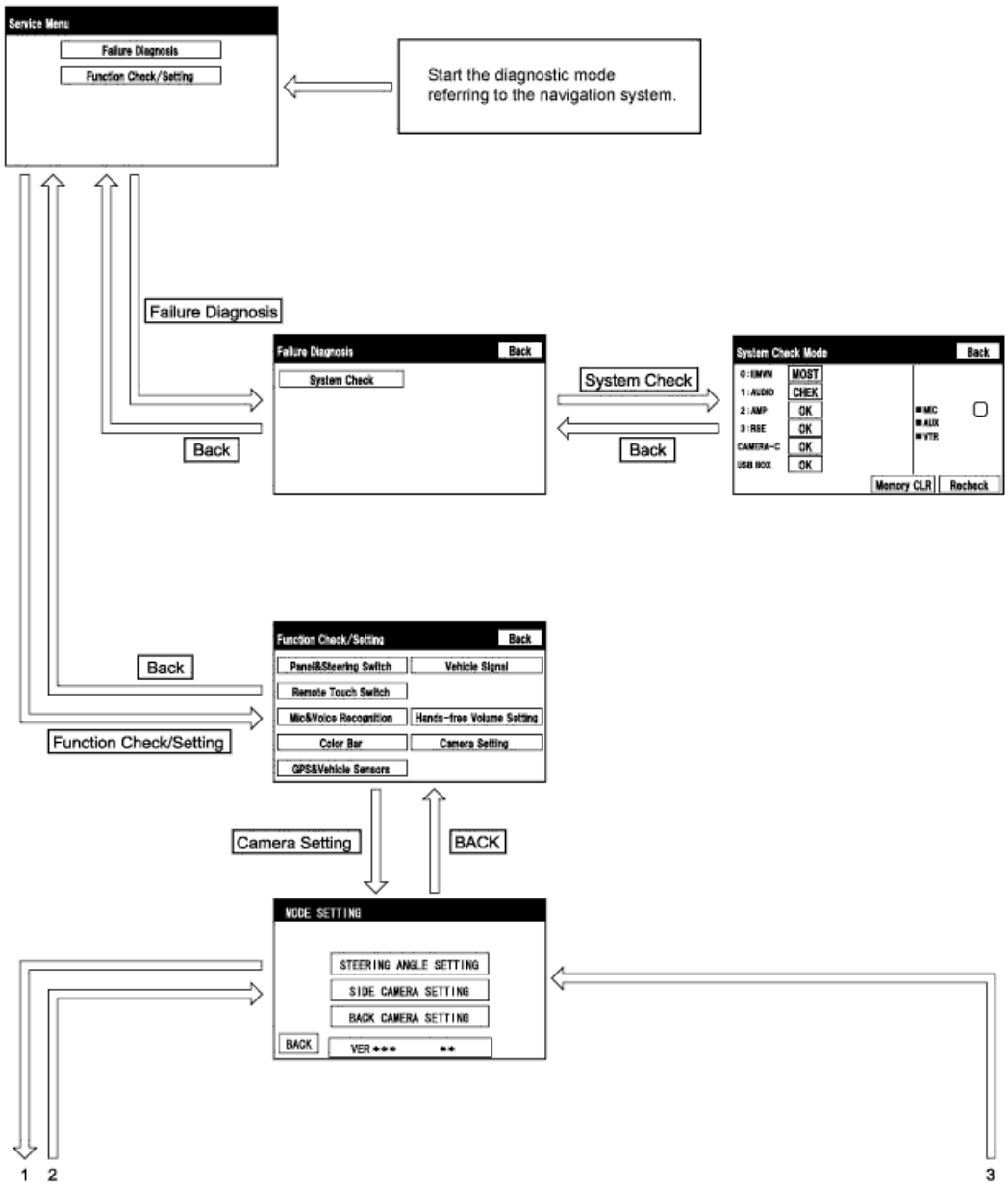


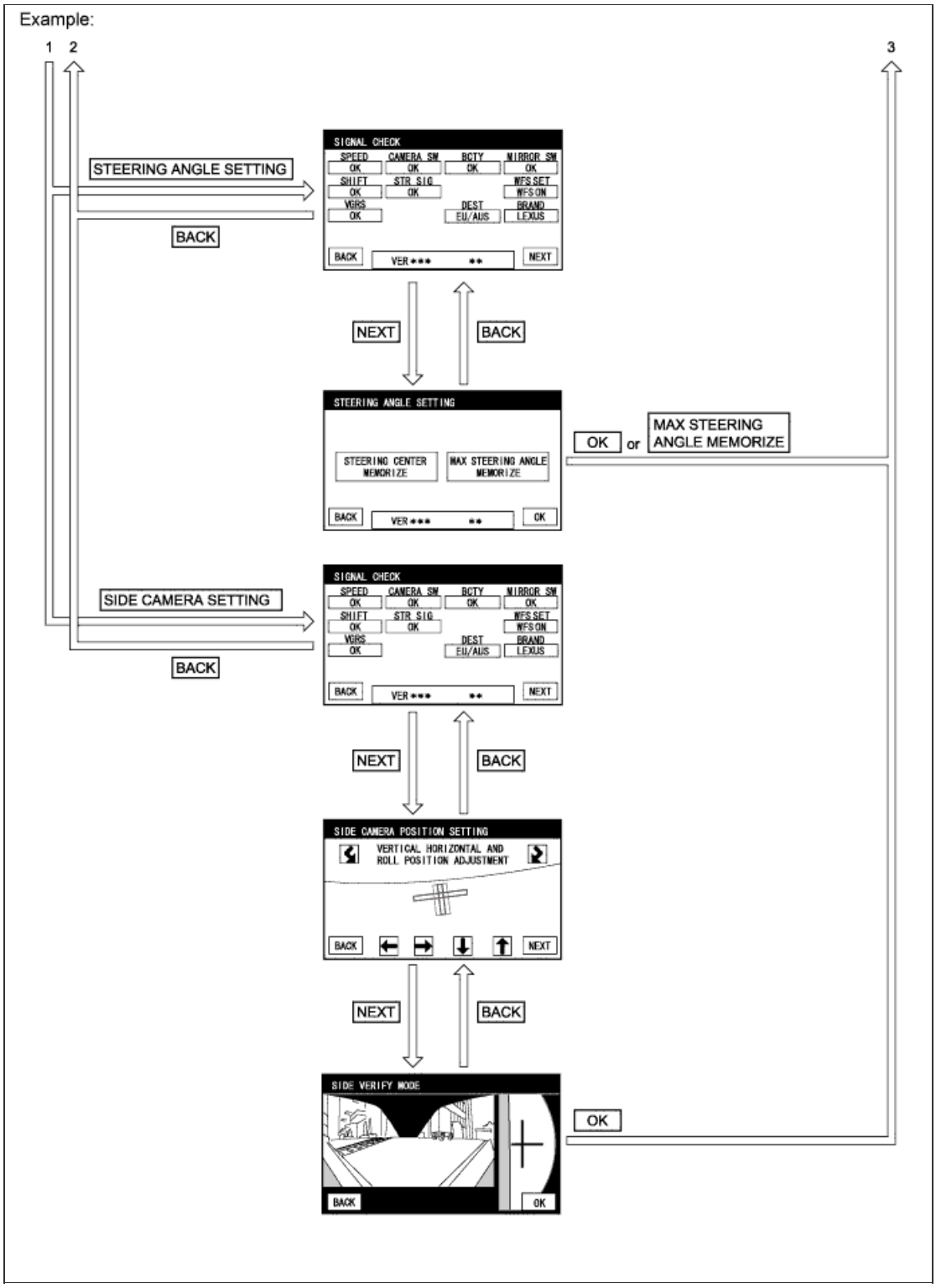
Example:




**DIAGNOSIS SCREEN TRANSITION (after parking assist ECU initialization)**

Example:


Service Menu
Failure Diagnosis
Function Check/Setting
Start the diagnostic mode referring to the navigation system.
Failure Diagnosis
Back
Failure Diagnosis
Back
System Check
System Check
Back
System Check Mode
Back
0 : BMVN
MOST
1 : AUDIO
CHEK
2 : AMP
OK
3 : RSE
OK
CAMERA-C
OK
USB BOX
OK
MIC
AUX
VTR
Memory CLR
Recheck
Back
Function Check/Setting
Function Check/Setting
Back
Panel&Steering Switch
Vehicle Signal
Remote Touch Switch
Mic&Voice Recognition
Hands-free Volume Setting
Color Bar
Camera Setting
GPS&Vehicle Sensors
Camera Setting
BACK
MODE SETTING
STEERING ANGLE SETTING
SIDE CAMERA SETTING
BACK CAMERA SETTING
BACK
VER***
**
1
2
3



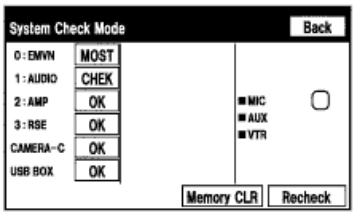

## DIAGNOSTIC MODE

a. Start diagnostic mode (Click here).

b. Failure diagnosis (Click here).

c. System check (check using system check mode screen) (Click here).

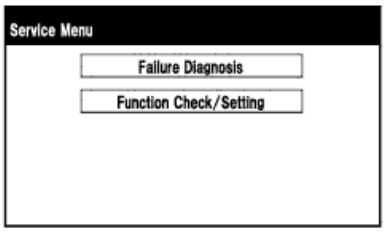
d. Finish diagnostic mode (Click here).




## SIGNAL CHECK (parking assist ECU input signal)

a. Start diagnostic mode (Click here).

i. Select "Function Check/Setting" on the Service Menu screen to display the Function Check/Setting screen.

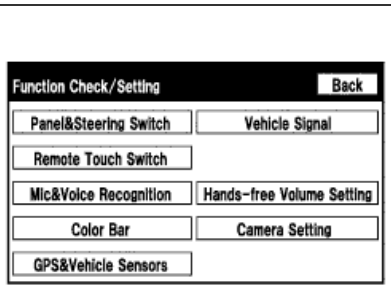



ii. Select "Camera Setting" on the Function Check/Setting screen.

**HINT:**

After "Camera Setting" is selected, the screen transitions differ depending on whether initialization of the parking assist ECU was performed after parking assist ECU replacement.

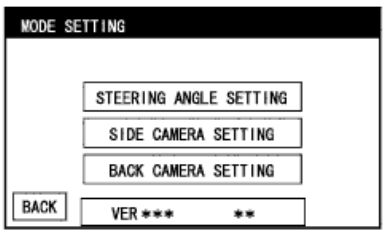
| Parking Assist ECU Initialization | Screen Transition |
|---|---|
| Not performed | SIGNAL CHECK screen |
| Performed | MODE SETTING screen |




iii. When the screen changes to the MODE SETTING screen, select "BACK CAMERA SETTING" to display the SIGNAL CHECK screen.

**HINT:**

To select a grayed out item, select and hold the item for 2 seconds or more.



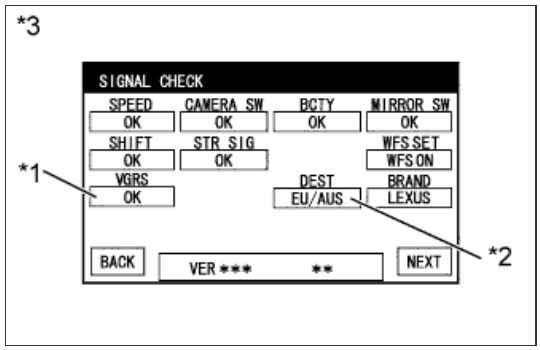

H

b. SIGNAL CHECK

**Text in Illustration**

| | |
|---|---|
| *1 | w/ VGRS |
| *2 | "EU/AUS" or "GCC/ZAF" |
| | |

*3 Example




i. On the SIGNAL CHECK screen, it is possible to inspect the state of signals sent to the parking assist ECU and check the settings.

| Item | Inspection Detail | Note |
|---|---|---|
| SPEED | Speed signal input | When "CHK" (red) is displayed, selecting "NEXT" will not change to the next screen. |
| CAMERA SW | Front and side monitor main switch signal input | |
| BCTY | CAN communication condition with main body ECU | |
| MIRROR SW | Outer rear view mirror retract signal input | |
| SHIFT | Shift signal input | |
| STR SIG | Steering angle sensor signal input | |
| WFS SET | Front monitor signal and side monitor switch signal input | |
| VGRS *1 | VGRS signal input | |
| DEST | Destination information signal input | |
| BRAND | Brand information input | |

*1: w/VGRS

**HINT:**

- **When "CHK" (red) is displayed, perform inspections based on the result of the following inspections.**
- **If performing the adjustment after proceeding to the next screen, confirm that all items display "OK" (blue) before selecting "NEXT".**

c. SPEED inspection

**HINT:**

If "CHK" (red) is displayed for "SPEED", check for DTCs and perform troubleshooting based on the output DTCs ( Click here).

d. CAMERA SW inspection

i. Check that "OK" (blue) is displayed for "CAMERA SW" and select "OK".

ii. Check that "OK" (blue) changes to "CHK" (red). Press the front and side monitor main switch and check that "CHK" (red) returns to "OK" (blue).

**HINT:**

If "CHK" (red) remains displayed or the "CAMERA SW" inspection result is not normal, perform troubleshooting according to Problem Symptoms Table ("CHK" message(s) are displayed on the SIGNAL CHECK screen) (Click here).

e. BCTY inspection

**HINT:**

If "CHK" (red) is displayed for "BCTY", check for DTCs and perform troubleshooting based on the output DTCs ( Click here).

f. MIRROR SW inspection

i. Check that "OK" (blue) is displayed for "MIRROR SW" and select "OK".

ii. Check that "OK" (blue) changes to "CHK" (red). Press the outer mirror switch and check that "CHK" (red) returns to "OK" (blue).

**HINT:**

After operating the outer mirror retract switch, if the outer mirror remains in the retracted state, return the outer mirror to the driving position. If "CHK" (red) remains displayed or the "MIRROR SW" inspection result is not normal, perform troubleshooting according to Problem Symptoms Table ("CHK" message(s) are displayed on the SIGNAL CHECK screen) (Click here).

g. SHIFT inspection

**HINT:**

If "CHK" (red) is displayed for "SHIFT", check for DTCs and perform troubleshooting based on the output DTCs ( Click here).

h. STR SIG inspection

**HINT:**

If "CHK" (red) is displayed for "STR SIG", check for DTCs and perform troubleshooting based on the output DTCs ( Click here).

i. WFS SET inspection

**HINT:**

If "CHK" is displayed, perform a CAMERA SW check and a camera connection check ( Click here).

j. VGRS inspection (w/ VGRS)

**HINT:**

If "CHK" (red) is displayed for "VGRS", check for DTCs and perform troubleshooting based on the output DTCs ( Click here).

k. DEST inspection

**HINT:**

If "CHK" (red) is displayed for "DEST", check for DTCs and perform troubleshooting based on the output DTCs ( Click here).

l. BRAND inspection

**HINT:**

If "CHK" (red) is displayed for "BRAND", check for DTCs and perform troubleshooting based on the output DTCs ( Click here).

m. Finish diagnostic mode (Click here).

## CALIBRATION WHEN SERVICING VEHICLE

**NOTICE:**

Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the side monitor system may be needed (Click here).

**for Preparation** Click here

## SIDE MONITOR DIAGNOSIS SYSTEM

a. For side monitor system diagnosis, signals received by the parking assist ECU can be checked and the side monitor system can be calibrated, adjusted and checked using the multi-display assembly.

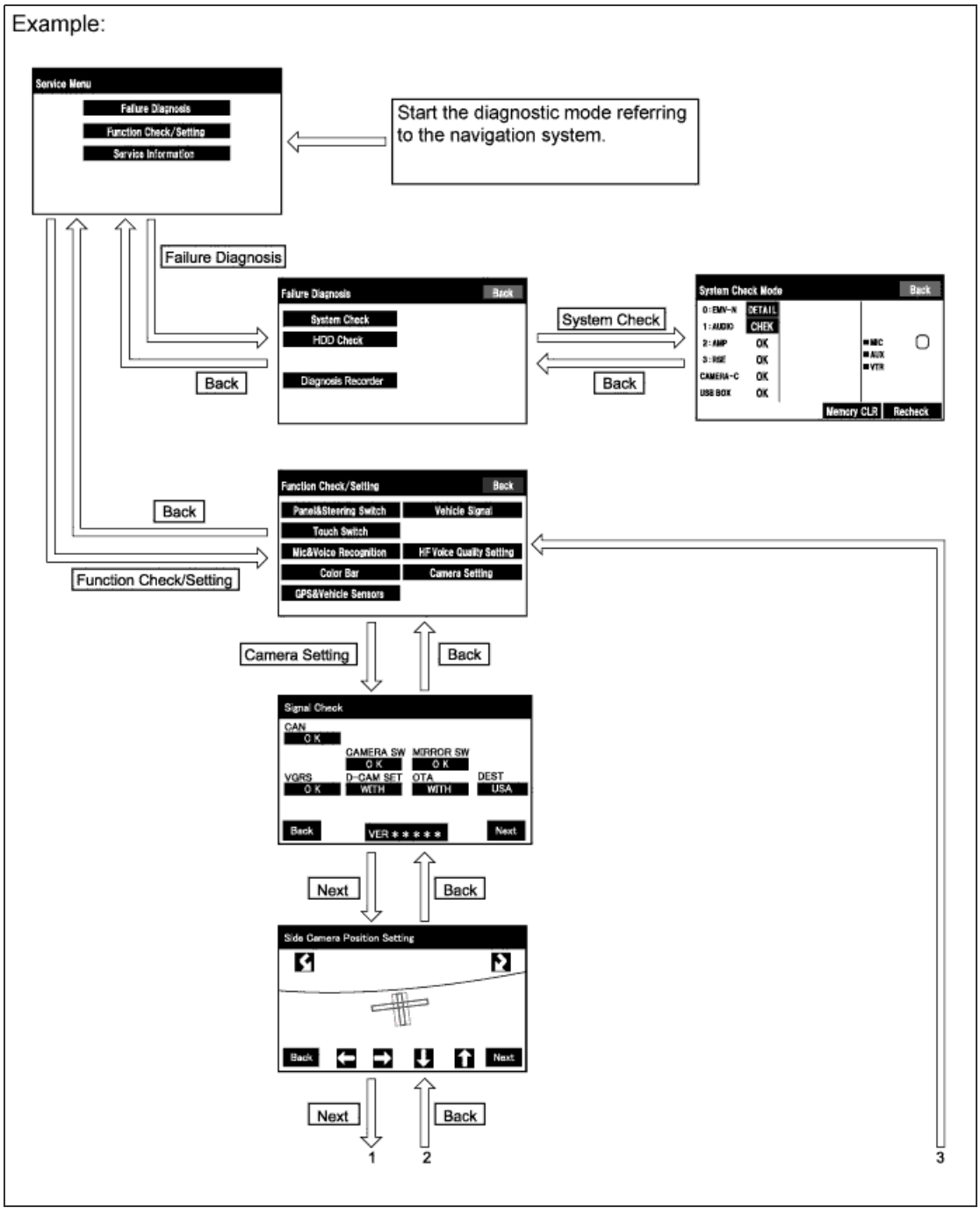
**NOTICE:**

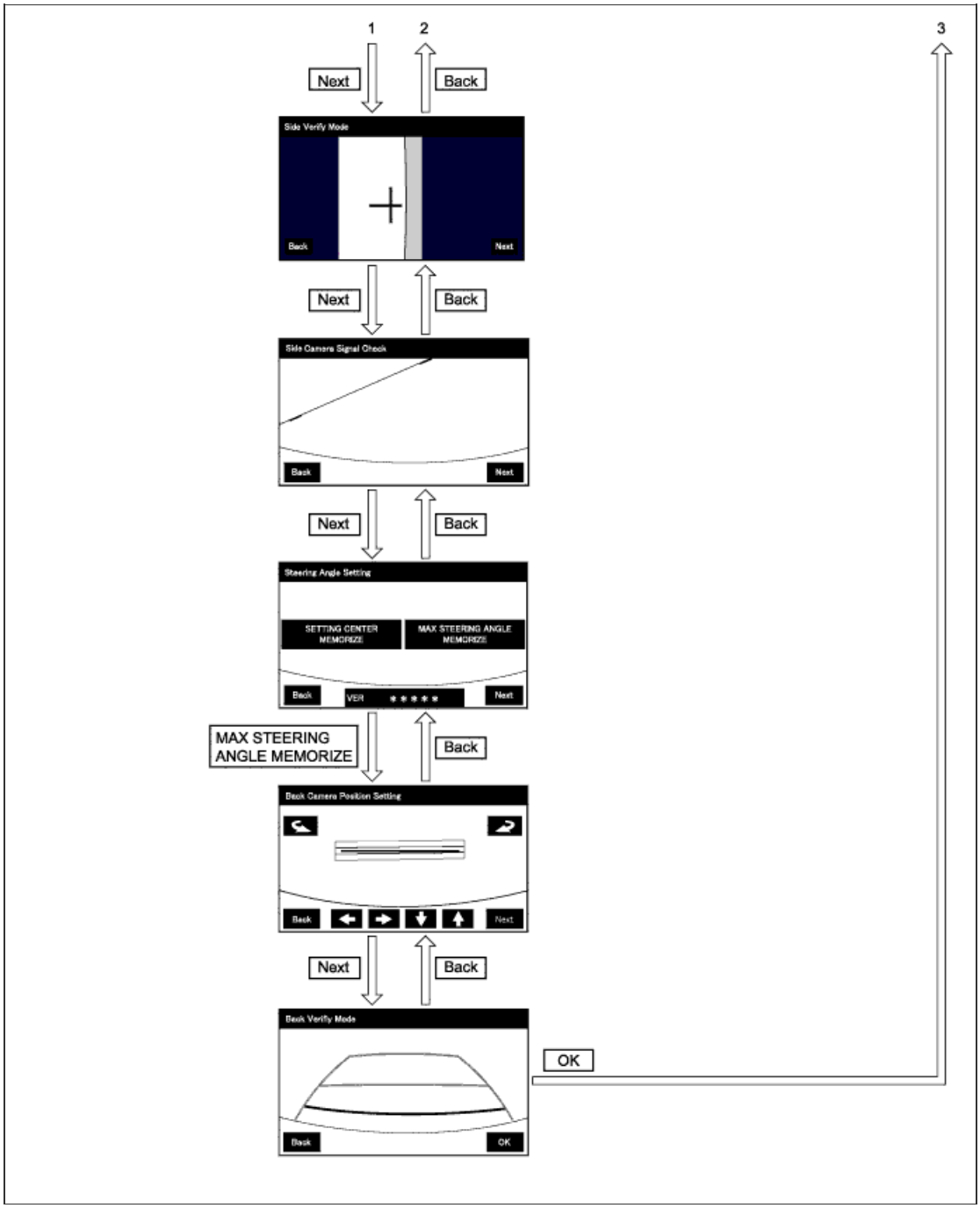
Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the side monitor system may be needed (Click here).

**HINT:**

The displayed screens and items may differ depending on vehicle specifications.

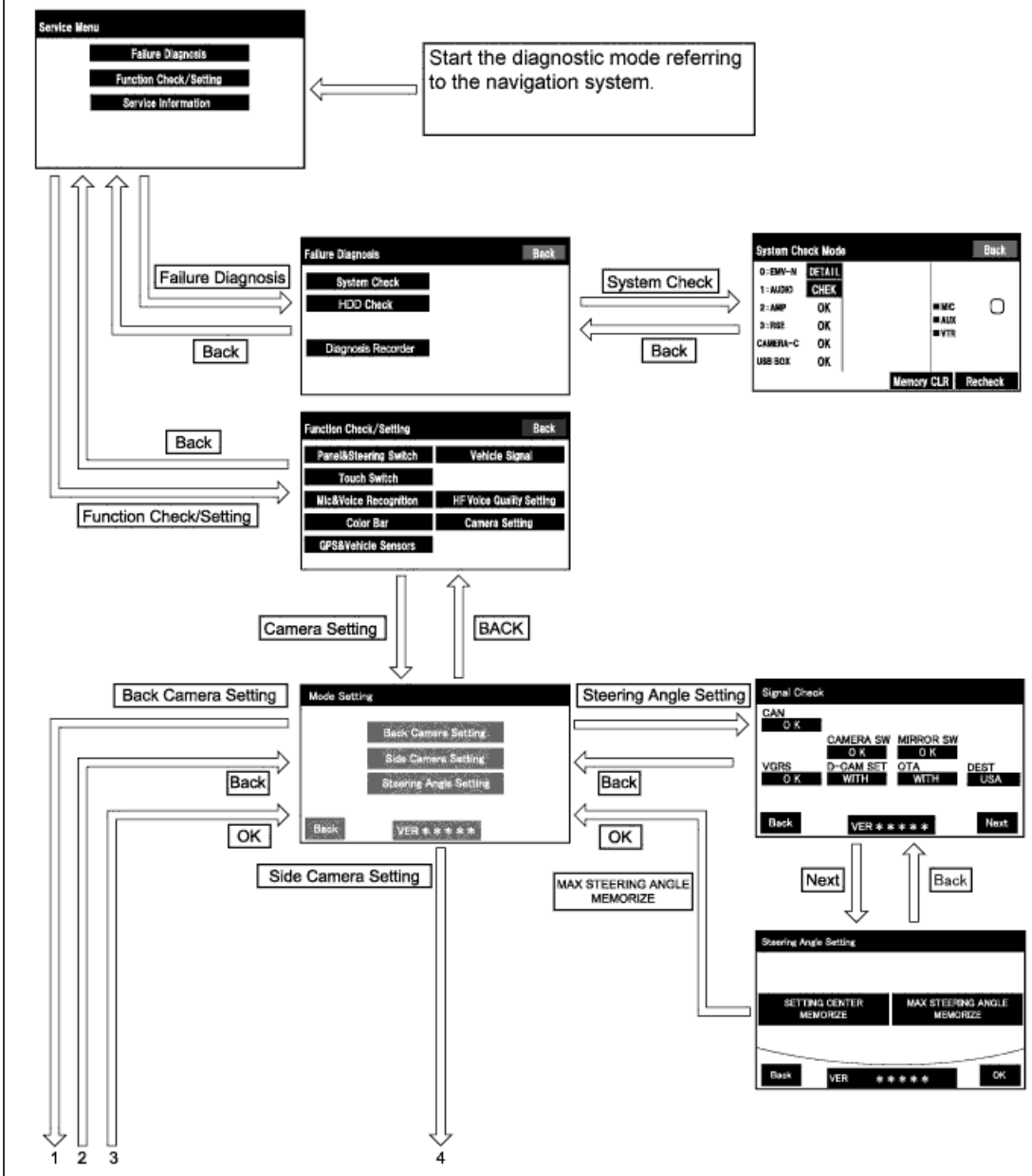
## DIAGNOSIS SCREEN TRANSITION (during parking assist ECU initialization)

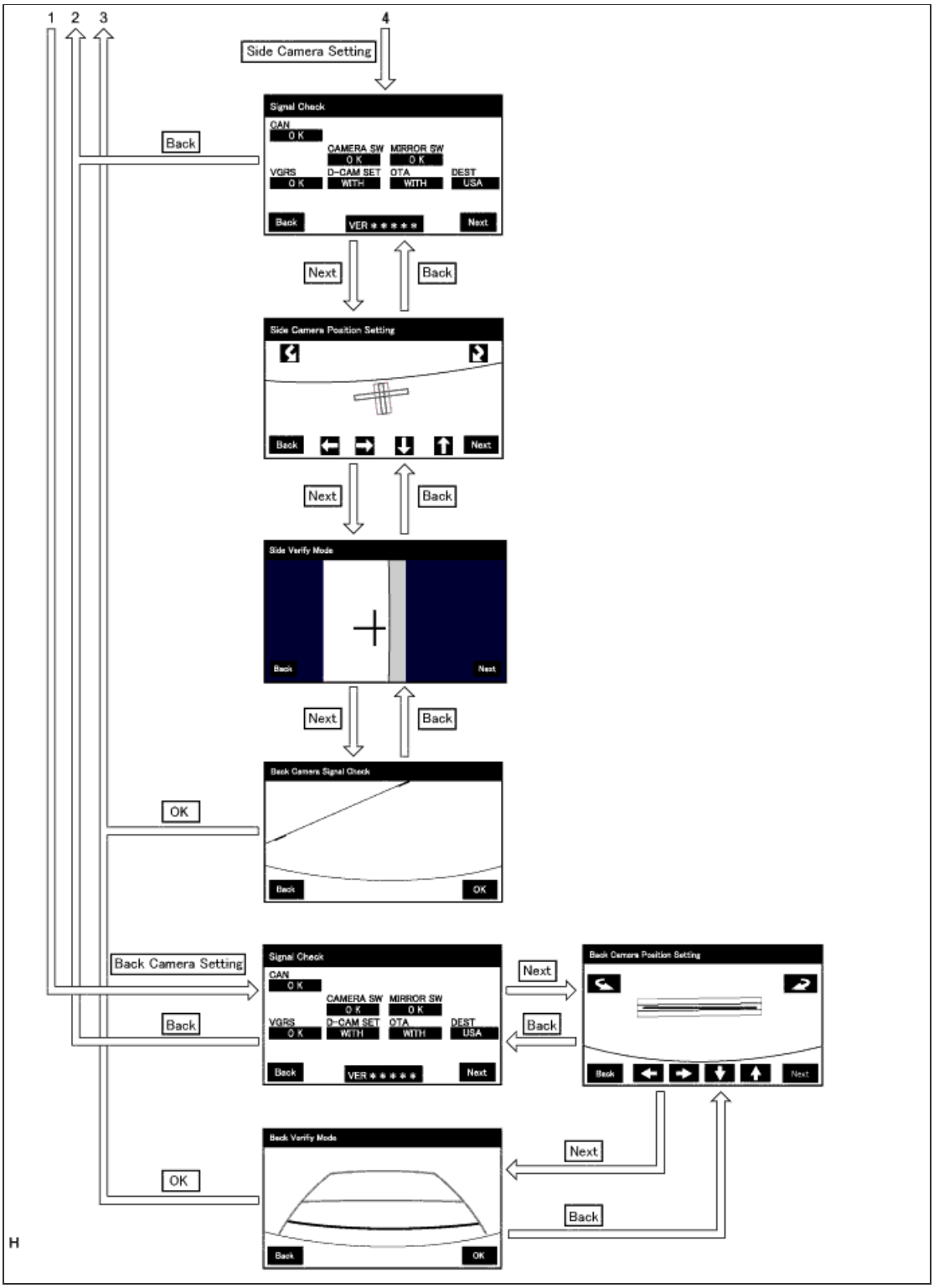





**DIAGNOSIS SCREEN TRANSITION (after parking assist ECU initialization)**

Example:


Service Menu
Failure Diagnosis
Function Check/Setting
Service Information
Start the diagnostic mode referring to the navigation system.
Failure Diagnosis
Back
Failure Diagnosis
Back
System Check
HDD Check
Diagnosis Recorder
System Check
Back
System Check Mode
Back
0 : EMV-N
1 : AUDIO
2 : AMP
3 : RSE
CAMERA-C
USB BOX
DETAIL
CHEK
OK
OK
OK
OK
MIC
AUX
VTR
Memory CLR
Recheck
Back
Function Check/Setting
Function Check/Setting
Back
Panel&Steering Switch
Vehicle Signal
Touch Switch
Mic&Voice Recognition
HF Voice Quality Setting
Color Bar
Camera Setting
GPS&Vehicle Sensors
Camera Setting
BACK
Back Camera Setting
Back
OK
Side Camera Setting
Mode Setting
Back Camera Setting
Side Camera Setting
Steering Angle Setting
Back
VER * * * * *
Steering Angle Setting
Back
OK
MAX STEERING ANGLE MEMORIZE
Signal Check
CAN
O K
CAMERA SW
O K
MIRROR SW
O K
VGRS
O K
D-CAM SET
WITH
OTA
WITH
DEST
USA
Back
VER * * * * *
Next
Next
Back
Steering Angle Setting
SETTING CENTER MEMORIZE
MAX STEERING ANGLE MEMORIZE
Back
VER * * * * *
OK
1
2
3
4



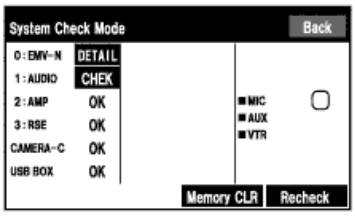

## DIAGNOSTIC MODE

a. Start diagnostic mode (Click here).

b. Failure diagnosis (Click here).

c. System check (check using system check mode screen) (Click here).

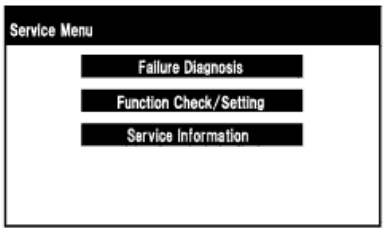
d. Finish diagnostic mode (Click here).




## SIGNAL CHECK (parking assist ECU input signal)

a. Start diagnostic mode (Click here).

i. Select "Function Check/Setting" on the [Service Menu screen] to display the Function Check/Setting screen.

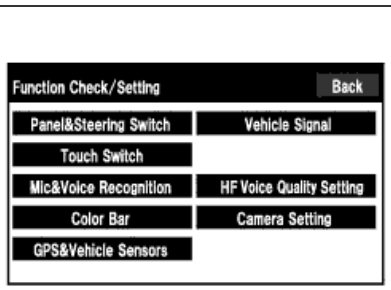



ii. Select "Camera Setting" on the [Function Check/Setting] screen.

**HINT:**

After "Camera Setting" is selected, the screen transitions differ depending on whether initialization of the parking assist ECU was performed after parking assist ECU replacement.

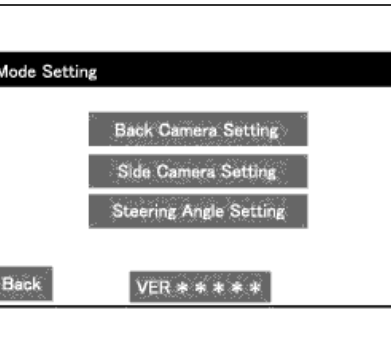
| Parking Assist ECU Initialization | Screen Transition |
|---|---|
| Not performed | [Signal Check] screen |
| Performed | [Mode Setting] screen |




iii. When the screen changes to the [Mode Setting] screen, select "Back Camera Setting" to display the [Signal Check] screen.

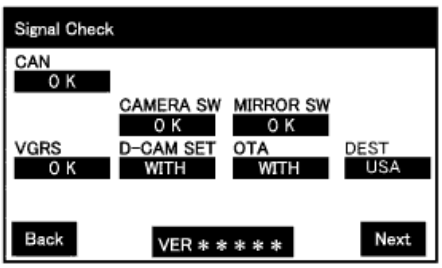
**HINT:**

To select a grayed out item, select and hold the item for 2 seconds or more.




b. Signal Check:

i. On the [Signal Check] screen, it is possible to inspect the state of signals sent to the parking assist ECU and check the settings.




| Item | Inspection Detail | Note |
|---|---|---|
| CAN | Speed signal input | When "CHK" (red) is displayed, selecting "Next" will not change to the next screen. |
| CAMERA SW | Front and side monitor main switch signal input | |
| MIRROR SW | Outer rear view mirror retract signal input | |
| VGRS | VGRS signal input | |
| D-CAM SET | Driver side camera information signal input | - |
| OTA | Off-road turn assist function information input | - |
| DEST | Destination code signal input | - |

**HINT:**

- **When "CHK" (red) is displayed, perform inspections based on the result of the following inspections.**
- **If performing the adjustment after proceeding to the next screen, confirm that all items display "OK" (blue) before selecting "Next".**

c. CAN inspection;

**HINT:**

If "CHK" (red) is displayed for "CAN", check for DTCs and perform troubleshooting based on the output DTCs ( Click here).

d. CAMERA SW inspection;

i. Check that "OK" (blue) is displayed for "CAMERA SW" and select "OK".

ii. Check that "OK" (blue) changes to "CHK" (red). Press the front and side monitor main switch (steering pad switch assembly) and check that "CHK" (red) returns to "OK" (blue).

**HINT:**

If "CHK" (red) remains displayed or the "CAMERA SW" inspection result is not normal, perform troubleshooting according to Problem Symptoms Table ("CHK" message(s) are displayed on the [Signal Check] screen) (Click here).

e. MIRROR SW inspection;

i. Check that "OK" (blue) is displayed for "MIRROR SW" and select "OK".

ii. Check that "OK" (blue) changes to "CHK" (red). Press the outer mirror switch and check that "CHK" (red) returns to "OK" (blue).

**HINT:**

After operating the outer mirror retract switch, if the outer mirror remains in the retracted state, return the outer mirror to the driving position. If "CHK" (red) remains displayed or the "MIRROR SW" inspection result is not normal, perform troubleshooting according to Problem Symptoms Table ("CHK" message(s) are displayed on the [Signal Check] screen) (Click here)

f. VGRS inspection;

**HINT:**

If "CHK" (red) is displayed for "VGRS", check for DTCs and perform troubleshooting based on the output DTCs (See page ).

g. D-CAM SET inspection;

i. Check that "WITH" (blue) is displayed for "D-CAM SET".

h. OTA inspection:

i. Check that displayed for "OTA" is matched off-road turn assist function for vehicles.

i. DEST inspection:

i. Check that displayed for "DEST" is matched destination code for vehicles.

j. Finish diagnostic mode (Click here).

## CALIBRATION WHEN SERVICING VEHICLE

**NOTICE:**

Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as theside monitor system may be needed (Click here).

**for Preparation** Click here

**HINT:**

- **Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be exactly the same as the actual vehicle.**
- **If the system cannot enter the diagnostic mode, inspect all AVC-LAN communication components and repair or replace problem parts (Click here).**
- **After turning the engine switch on (IG) and before entering diagnostic mode, check that the air conditioning can be operated on the display screen. Otherwise, some items cannot be checked.**

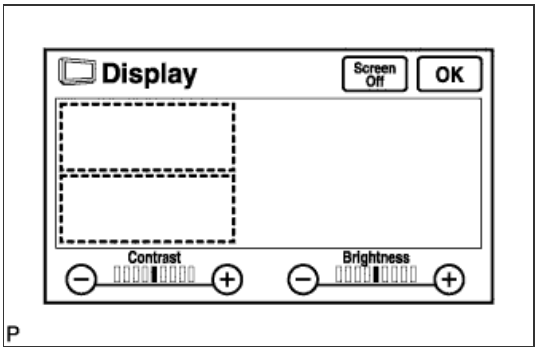
## START DIAGNOSTIC MODE

a. Start the engine.

b. Switch to the "Display Check" screen.

c. From the display quality adjustment screen, touch the corners of the screen in the following order: upper left → lower left → upper left → lower left → upper left → lower left.

d. The diagnostic mode starts and the "Diagnosis Inspection" screen will be displayed. Service inspection starts automatically and the result will be displayed.



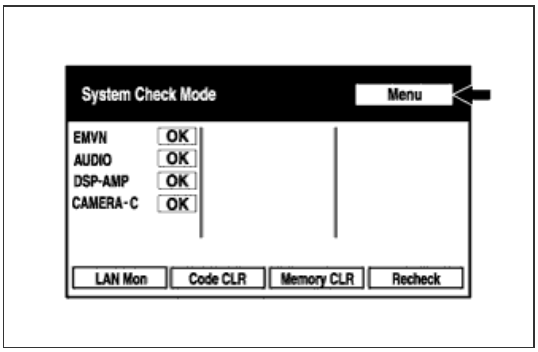

P

## FINISH DIAGNOSTIC MODE

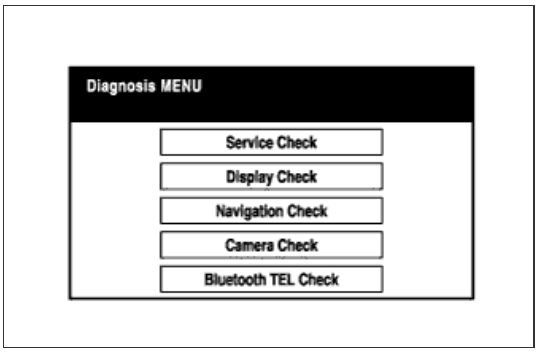
a. Turn the engine switch off.

## DIAGNOSIS MENU

a. Press the "Menu" switch on the "System Check Mode" screen.



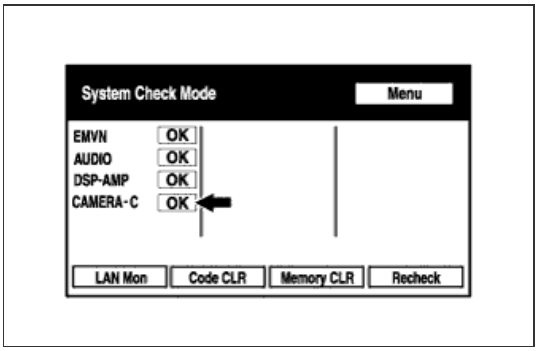

b. The "Diagnosis MENU" screen will be displayed.




## CHECK DTC

a. Read the system check result.

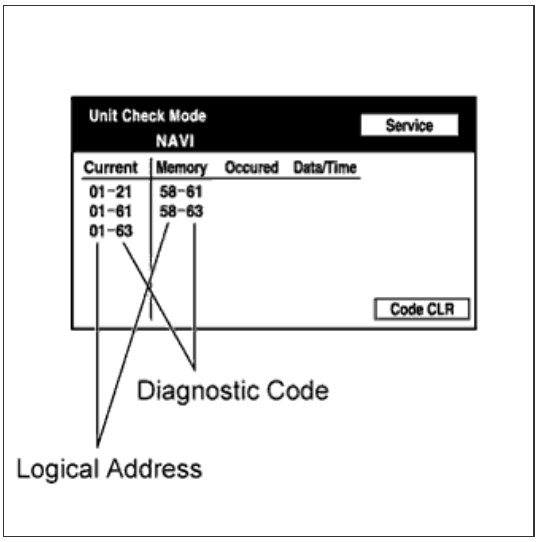
i. If the check result is "EXCH", "CHEK" or "Old", touch the displayed check result.



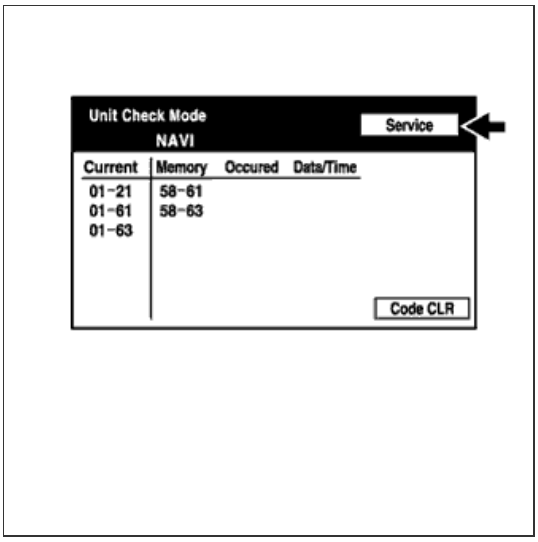

ii. View the results on the "Unit Check Mode" screen and record them.

**HINT:**

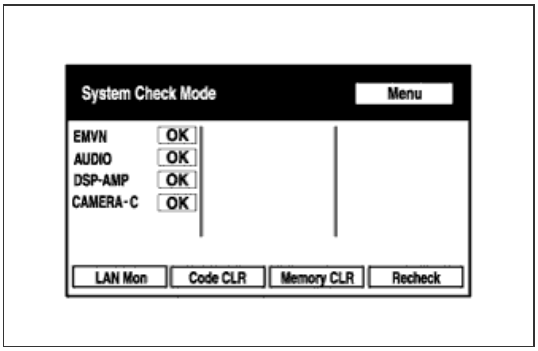
- **If all check results are "OK", go to the communication DTC check.**
- **If a device name is not known, its logical address is displayed.**




iii. When proceeding to view the results of another device, press the "Service" switch.




iv. Return to the "System Check Mode" screen. Repeat the steps above to read the other results of the system check.

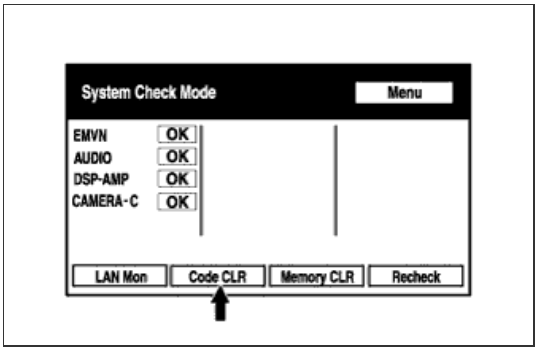



## DTC CLEAR / RECHECK

a. Clear DTCs

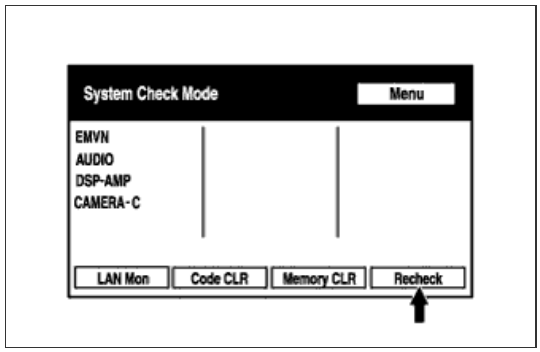
i. Press the "Code CLR" switch for 3 seconds.

ii. The check results are cleared.

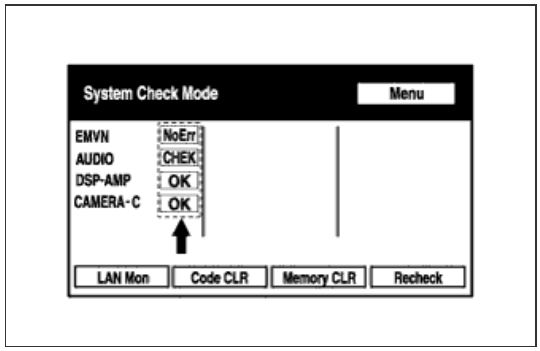



b. Recheck

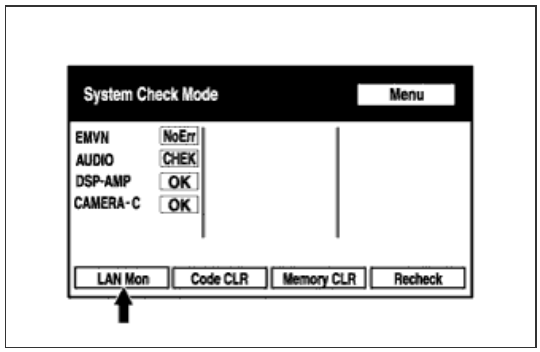
i. Press the "Recheck" switch.



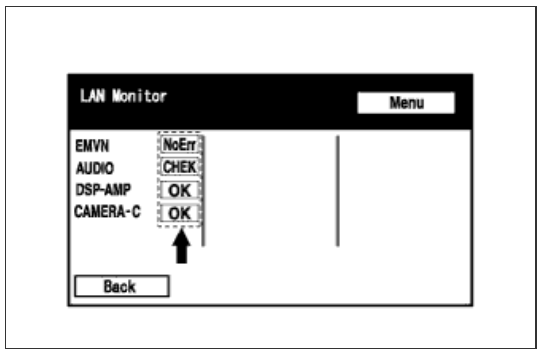

ii. Confirm that all diagnostic codes are "OK" when the check results are displayed. If a code other than "OK" is displayed, troubleshoot again.




iii. Press the "LAN Mon" switch to change to the "LAN Monitor" screen.




iv. Confirm that all diagnostic codes are "No Err". If a code other than "No Err" is displayed, troubleshoot again.



**for Preparation** Click here

## CHECK DTC

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Chassis / Parking Assist Monitor System / DTC.

e. Check the details of the DTCs ( Click here).

**HINT:**

Parking assist ECU may output the DTCs of the following system. If DTCs other than those specified in Diagnostic Trouble Code Chart of the side monitor system are output, refer to Diagnostic Trouble Code Chart for the applicable system.

| System | Proceed to |
|---|---|
| Parking assist monitor system | Click here |

## CLEAR DTC

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Operate the intelligent tester to clear the codes. Enter the following menus: Chassis / Parking Assist Monitor System / DTC.

e. According to the display on the intelligent tester, select the trouble code data display with the clear button.

**for Preparation** Click here

## CHECK DTC

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Chassis / Parking Assist Monitor System / DTC.

e. Check the details of the DTCs ( Click here).

**HINT:**

Parking assist ECU may output the DTCs of the following system. If DTCs other than those specified in Diagnostic Trouble Code Chart of the side monitor system are output, refer to Diagnostic Trouble Code Chart for the applicable system.

| System | Proceed to |
|---|---|
| Parking assist monitor system (w/ Side Monitor System) | Click here |
| Wide view front monitor system | Click here |

## CLEAR DTC

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Operate the intelligent tester to clear the codes. Enter the following menus: Chassis / Parking Assist Monitor System / DTC.

e. According to the display on the intelligent tester, select the trouble code data display with the clear button.

**for Preparation** Click here

**HINT:**

If a trouble code is output during the DTC check, inspect the trouble areas listed for that code. For details of the code, refer to the "See page" below.

**Side Monitor System**

| DTC Code | Detection Item | Trouble Area | See page |
|---|---|---|---|
| 5C-40 | Camera Picture Error | - Side television camera<br>- Outer rear view mirror RH*1<br>- Outer rear view mirror LH*2<br>- Harness or connector<br>- Parking assist ECU | Click here |
| 5C-41 | Steering Sensor Error | - Steering angle sensor | Click here |
| 5C-42 | Steering Sensor Communication Error | - Steering angle sensor<br>- CAN communication system<br>- Parking assist ECU | Click here |
| 5C-43 | Steering Control ECU Error | - Steering control ECU | Click here |
| 5C-44 | Steering Control ECU Communication Error | - Steering control ECU<br>- CAN communication system<br>- Parking assist ECU | Click here |
| 5C-45 | Shift Signal Communication Error | - ECM<br>- CAN communication system<br>- Parking assist ECU | Click here |

*1: for LHD
*2: for RHD

**for Preparation** Click here

**HINT:**

If a trouble code is output during the DTC check, inspect the trouble areas listed for that code. For details of the code, refer to the "See page" in the DTC chart. Inspect fuses and relays before investigating the trouble areas shown in the table below.

**Side Monitor System**

| DTC Code | Detection Item | Trouble Area | See page |
|---|---|---|---|
| C1683 | Side Camera Feedback Malfunction | - Harness or connector<br>- Parking assist ECU<br>- Side television camera assembly<br>- Outer rear view mirror assembly (passenger side) | Click here |
| C1684 | Side Camera Current Malfunction | - Harness or connector<br>- Parking assist ECU<br>- Side television camera assembly<br>- Outer rear view mirror assembly (passenger side) | Click here |

**for Preparation** Click here

### Side Monitor System

| DTC Code | Detection Item | See page |
|---|---|---|
| C1683 | Side Camera Feedback Malfunction | Click here |
| C1684 | Side Camera Current Malfunction | Click here |
| C1686 | Driver Side Camera Video Sync Signal Malfunction | Click here |
| C1687 | Over Current Detected in Driver Side Camera | Click here |
| C1693 | Side Camera Initialization Incomplete | Click here |

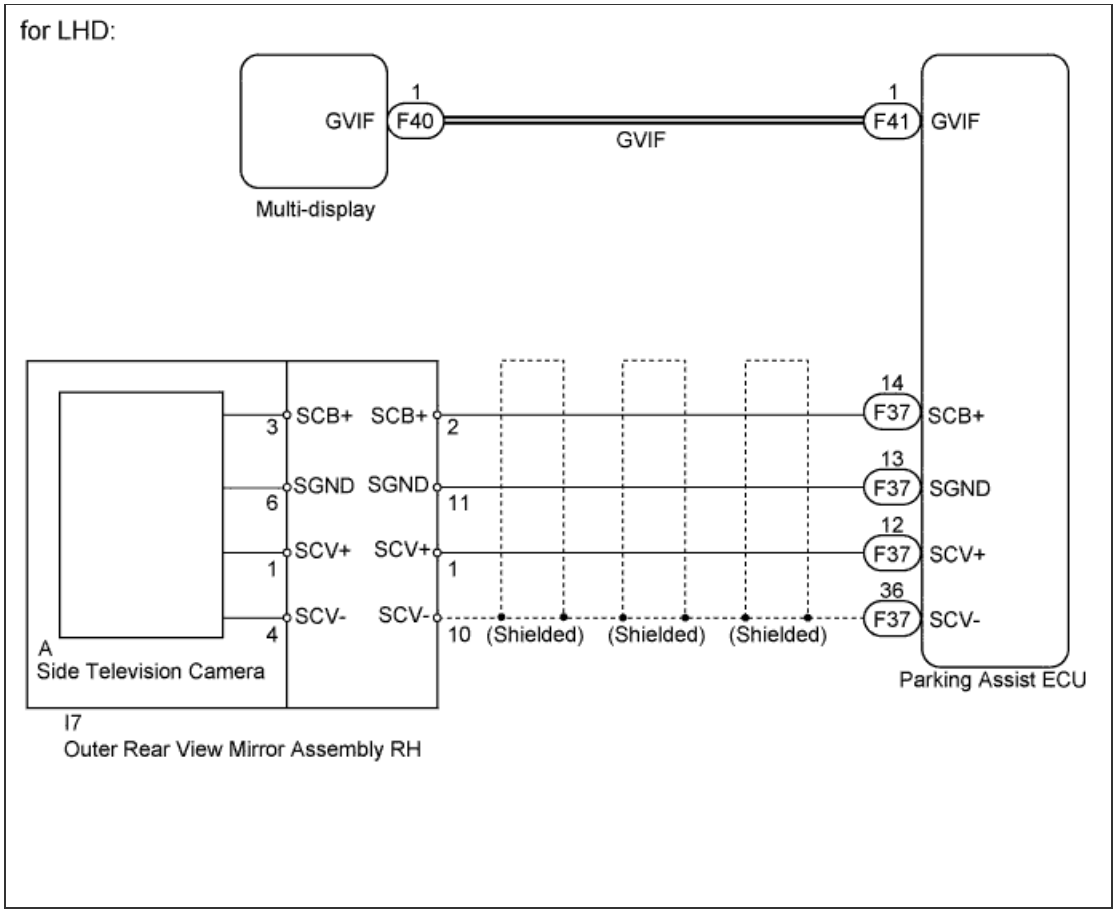
**for Preparation** Click here

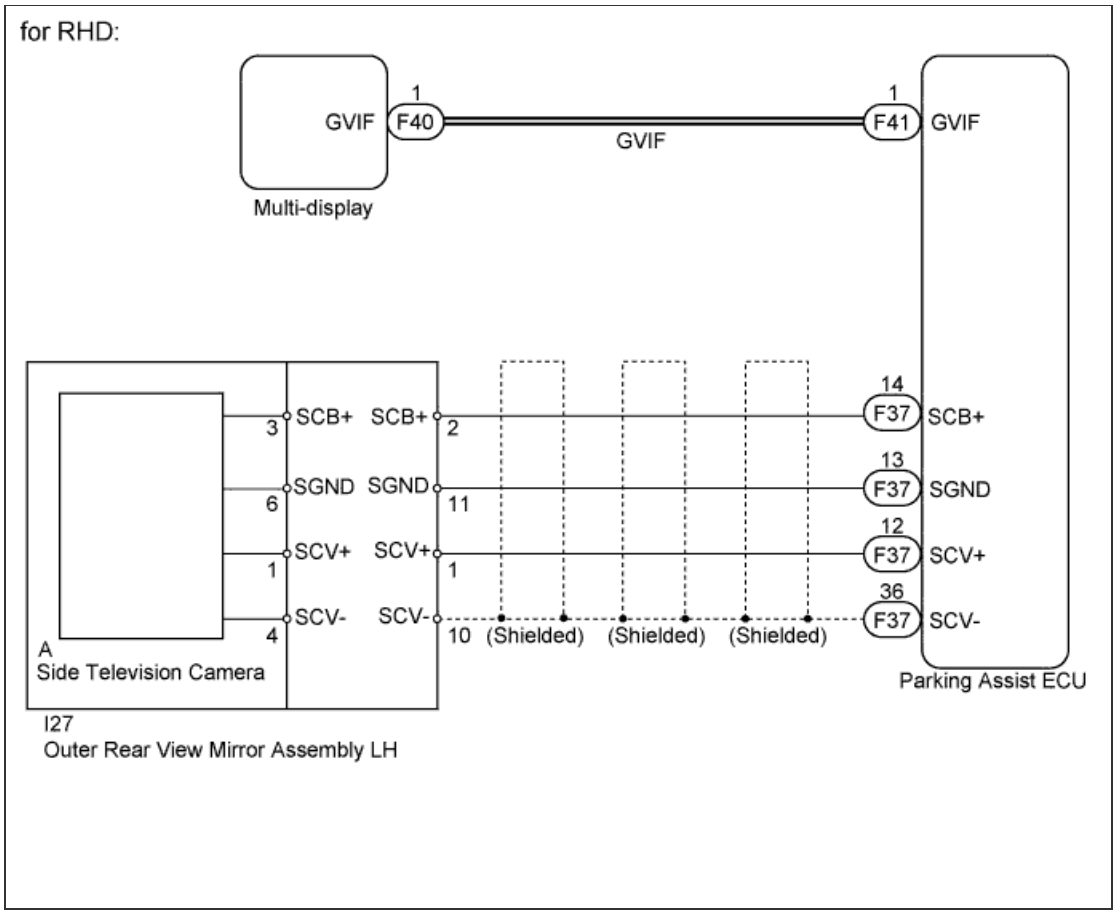
## DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 5C-40 | Open or short in the side television camera signal circuit. | • Side television camera<br>• Outer rear view mirror RH*1<br>• Outer rear view mirror LH*2<br>• Harness or connector<br>• Parking assist ECU |

*1: for LHD
*2: for RHD

## WIRING DIAGRAM






## INSPECTION PROCEDURE

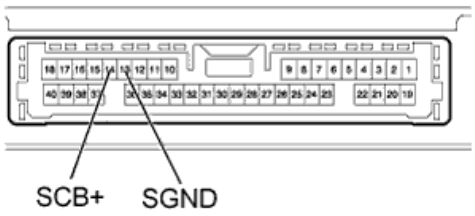
### 1.CHECK PARKING ASSIST ECU

a. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F37-14 (SCB+) - F37-13 (SGND) | Side monitor display screen displayed | 5.8 to 6.5 V |

Component with harness connected:
(Parking Assist ECU)




NG → REPLACE PARKING ASSIST ECU (Click here)

OK

### 2.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - OUTER REAR VIEW MIRROR)

a. for LHD:

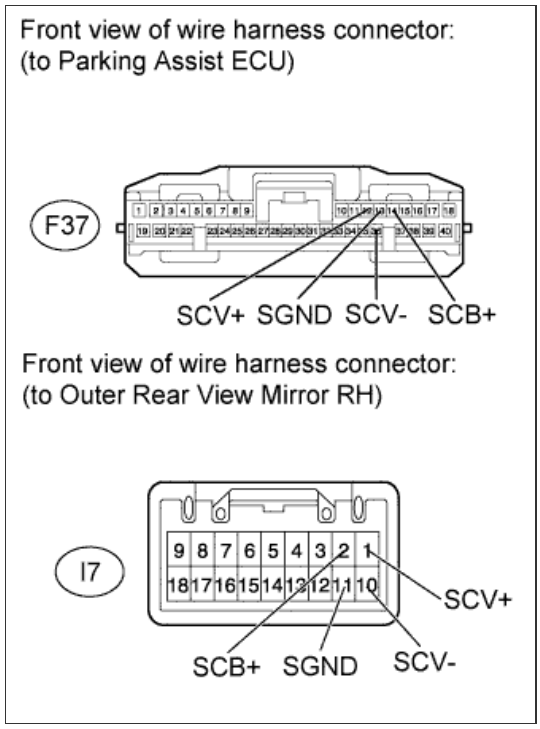
i. Disconnect the F37 ECU connector.

ii. Disconnect the I7 mirror connector.

iii. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F37-14 (SCB+) - I7-2 (SCB+) | Always | Below 1 Ω |
| F37-13 (SGND) - I7-11 (SGND) | Always | Below 1 Ω |
| F37-12 (SCV+) - I7-1 (SCV+) | Always | Below 1 Ω |
| F37-36 (SCV-) - I7-10 (SCV-) | Always | Below 1 Ω |
| F37-14 (SCB+) - Body ground | Always | 10 kΩ or higher |
| F37-13 (SGND) - Body ground | Always | 10 kΩ or higher |
| F37-12 (SCV+) - Body ground | Always | 10 kΩ or higher |
| F37-36 (SCV-) - Body ground | Always | 10 kΩ or higher |




b. for RHD:

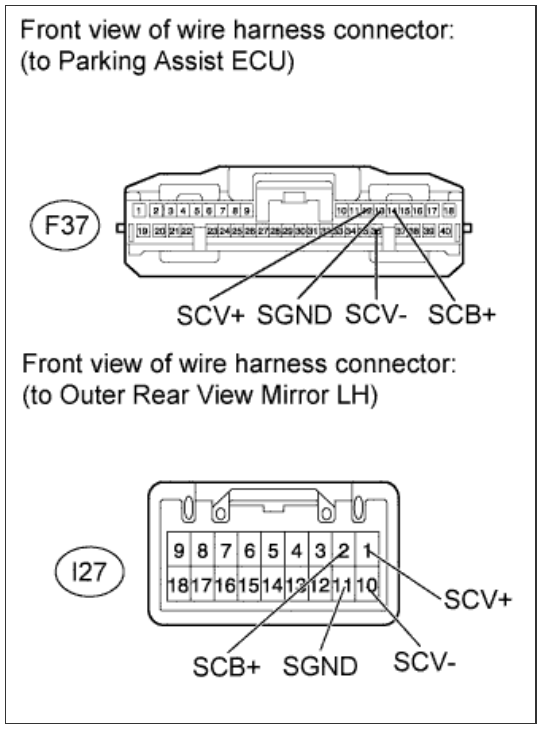
i. Disconnect the F37 ECU connector.

ii. Disconnect the I27 mirror connector.

iii. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F37-14 (SCB+) - I27-2 (SCB+) | Always | Below 1 Ω |
| F37-13 (SGND) - I27-11 (SGND) | Always | Below 1 Ω |
| F37-12 (SCV+) - I27-1 (SCV+) | Always | Below 1 Ω |
| F37-36 (SCV-) - I27-10 (SCV-) | Always | Below 1 Ω |
| F37-14 (SCB+) - Body ground | Always | 10 kΩ or higher |
| F37-13 (SGND) - Body ground | Always | 10 kΩ or higher |
| F37-12 (SCV+) - Body ground | Always | 10 kΩ or higher |
| F37-36 (SCV-) - Body ground | Always | 10 kΩ or higher |




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 3.INSPECT OUTER REAR VIEW MIRROR ASSEMBLY

a. for LHD:

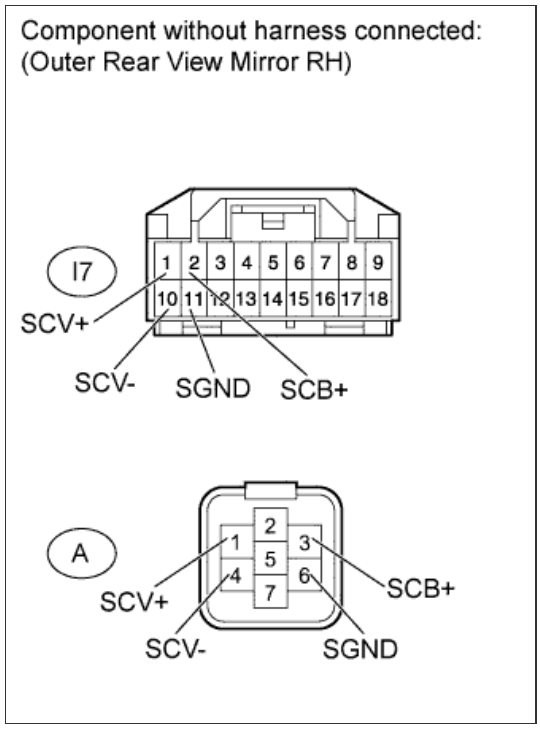
i. Remove the outer rear view mirror RH ( Click here).

ii. Disconnect the side television camera connector.

iii. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| I7-2 (SCB+) - A-3 (SCB+) | Always | Below 1 Ω |
| I7-11 (SGND) - A-6 (SGND) | Always | Below 1 Ω |
| I7-1 (SCV+) - A-1 (SCV+) | Always | Below 1 Ω |
| I7-10 (SCV-) - A-4 (SCV-) | Always | Below 1 Ω |




b. for RHD:

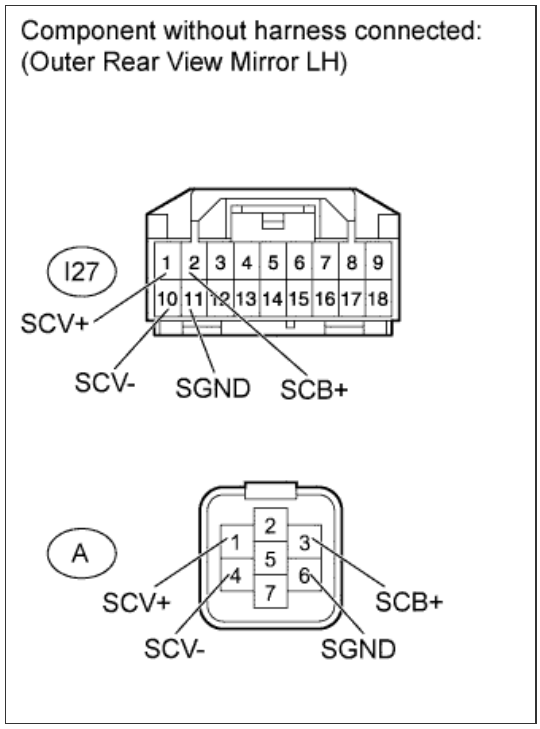
i. Remove the outer rear view mirror LH ( Click here ).

ii. Disconnect the side television camera connector.

iii. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| I27-2 (SCB+) - A-3 (SCB+) | Always | Below 1 Ω |
| I27-11 (SGND) - A-6 (SGND) | Always | Below 1 Ω |
| I27-1 (SCV+) - A-1 (SCV+) | Always | Below 1 Ω |
| I27-10 (SCV-) - A-4 (SCV-) | Always | Below 1 Ω |




**Result**

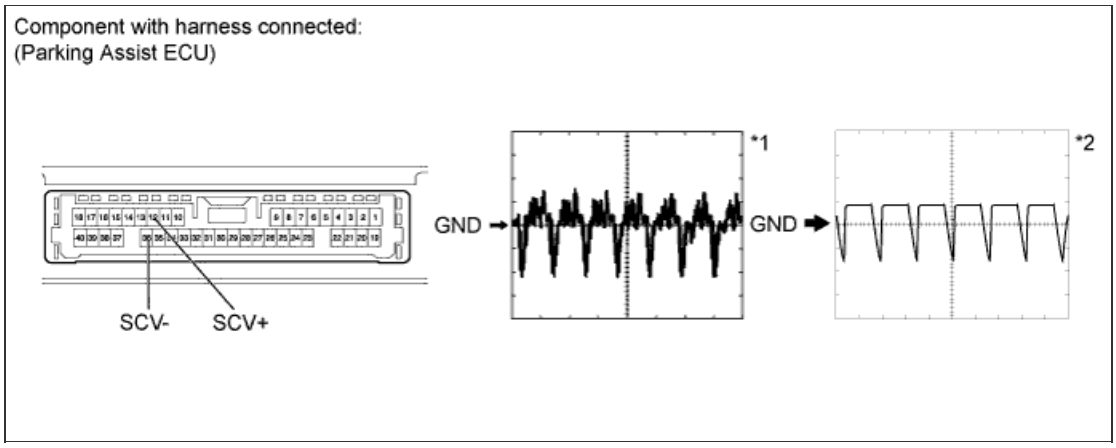
| Result | Proceed to |
|---|---|
| OK | A |
| NG (for LHD) | B |
| NG (for RHD) | C |

B → REPLACE OUTER REAR VIEW MIRROR ASSEMBLY RH ( Click here)

C → REPLACE OUTER REAR VIEW MIRROR ASSEMBLY LH ( Click here)

A

**4.CHECK SIDE TELEVISION CAMERA ASSEMBLY**




a. Using an oscilloscope, check the waveform.

**Measurement Condition**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F37-12 (SCV+) - F37-36 (SCV-) |
| Tool Setting | 0.2 V/DIV., 50 µs/DIV. |
| Condition | • Side monitor display screen displayed*1<br>• Camera lens covered to make image black while side view monitor display screen displayed*2 |

NG → REPLACE SIDE TELEVISION CAMERA ASSEMBLY (Click here)

OK

**5.REPLACE HARNESS AND CONNECTOR (GVIF CABLE)**

a. Replace the harness and connector (GVIF cable).

NEXT

**6.CHECK DTC OUTPUT**

a. Clear the DTCs (Click here).

b. Recheck for DTCs (Click here).

**OK:**
**DTC 5C-40 is not output.**

NG → REPLACE PARKING ASSIST ECU (Click here)

OK

**END (GVIF CABLE IS DEFECTIVE)**

## DTC C1683 Side Camera Feedback Malfunction

## DTC C1684 Side Camera Current Malfunction

**for Preparation** Click here

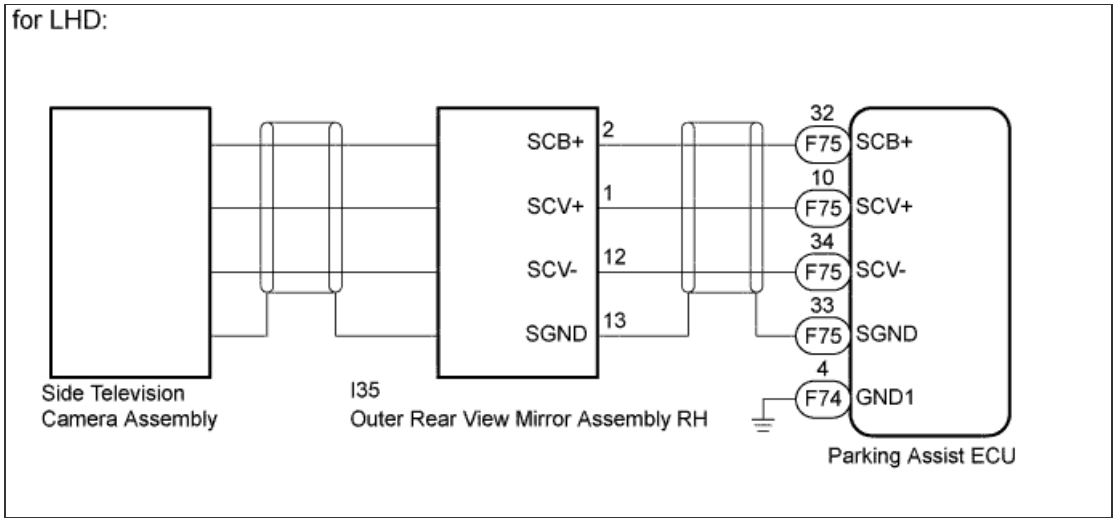
### DESCRIPTION

DTC C1683 is stored if the parking assist ECU judges as a result of its self check that a synchronization problem is occurring in the image signal sent from the side television camera assembly (for Front Passenger Side) to the parking assist ECU.
DTC C1684 is stored if the parking assist ECU judges as a result of its self check that there is a problem with the current supplied from the side television camera assembly (for Front Passenger Side) connected to the parking assist ECU.

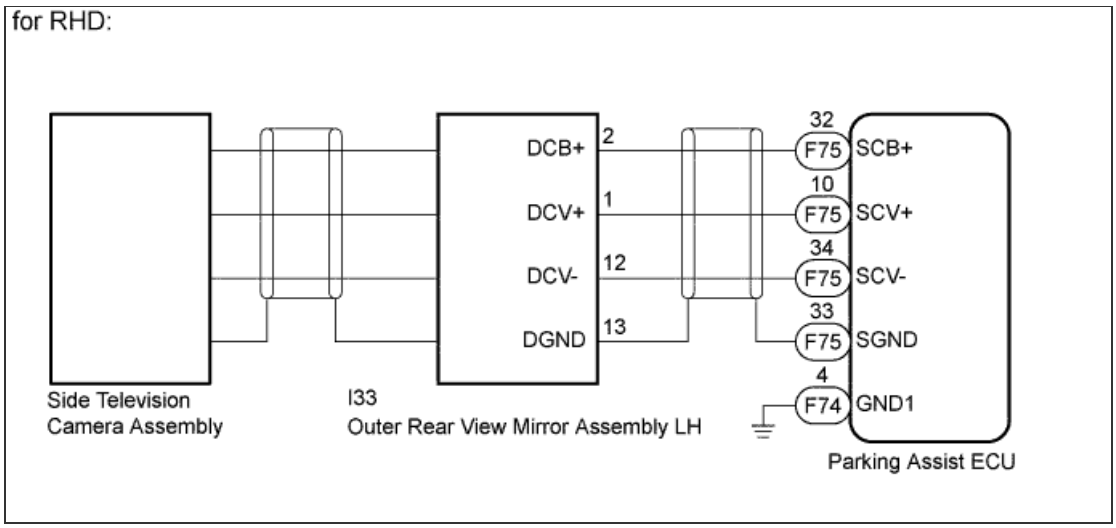
| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1683 | Side Camera Feedback Malfunction | • Harness or connector<br>• Parking assist ECU<br>• Side television camera assembly (for Front Passenger Side)<br>• Outer rear view mirror assembly (for Front Passenger Side) |
| C1684 | Side Camera Current Malfunction | |

### WIRING DIAGRAM

for LHD:




for RHD:




### INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the parking assist ECU after the cable is disconnected from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of**

other systems as well as the side monitor system may be needed (Click here).

**1.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - OUTER REAR VIEW MIRROR ASSEMBLY AND BODY GROUND)**

a. Disconnect the F74 and F75 parking assist ECU connectors.

b. Disconnect the I35*1 or I33*2 outer rear view mirror assembly (for Front Passenger Side) connector.

*1: for LHD
*2: for RHD

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LHD:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-34 (SCV-) - I35-12 (SCV-) | Always | Below 1 Ω |
| F75-10 (SCV+) - I35-1 (SCV+) | Always | Below 1 Ω |
| F75-33 (SGND) - I35-13 (SGND) | Always | Below 1 Ω |
| F75-32 (SCB+) - I35-2 (SCB+) | Always | Below 1 Ω |
| F74-4 (GND1) - Body ground | Always | Below 1 Ω |
| F75-34 (SCV-) - Body ground | Always | 10 kΩ or higher |
| F75-10 (SCV+) - Body ground | Always | 10 kΩ or higher |
| F75-33 (SGND) - Body ground | Always | 10 kΩ or higher |
| F75-32 (SCB+) - Body ground | Always | 10 kΩ or higher |

**for RHD:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-34 (SCV-) - I33-12 (DCV-) | Always | Below 1 Ω |
| F75-10 (SCV+) - I33-1 (DCV+) | Always | Below 1 Ω |
| F75-33 (SGND) - I33-13 (DGND) | Always | Below 1 Ω |
| F75-32 (SCB+) - I33-2 (DCB+) | Always | Below 1 Ω |
| F74-4 (GND1) - Body ground | Always | Below 1 Ω |
| F75-34 (SCV-) - Body ground | Always | 10 kΩ or higher |
| F75-10 (SCV+) - Body ground | Always | 10 kΩ or higher |
| F75-33 (SGND) - Body ground | Always | 10 kΩ or higher |
| F75-32 (SCB+) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**2.CHECK PARKING ASSIST ECU (SCB+, SGND)**

a. Reconnect the F74 and F75 parking assist ECU connectors.

b. Measure the resistance according to the value(s) in the table below.

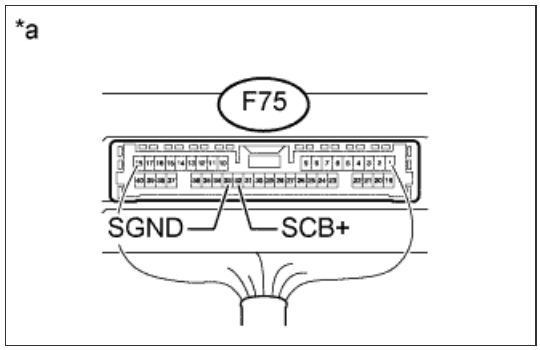
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-33 (SGND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F75-32 (SCB+) - F75-33 (SGND) | Engine switch on (IG), front and side monitor main switch assembly on | 5.5 to 7.05 V |




**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Parking Assist ECU) |

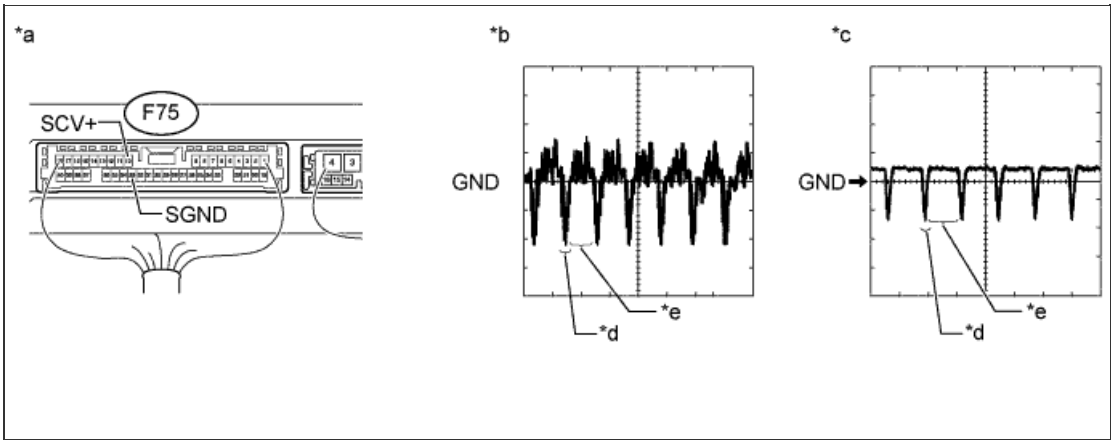
NG → REPLACE PARKING ASSIST ECU (Click here)

OK

**3.CHECK OUTER REAR VIEW MIRROR ASSEMBLY (SCV+, SGND OR DCV+, DGND)**

a. Reconnect the I35*1 or I33*2 outer rear view mirror assembly (for Front Passenger Side) connector.

*1: for LHD
*2: for RHD




**Text in Illustration**

| | | | |
|---|---|---|---|
| *a | Component with harness connected (Parking Assist ECU) | *b | Waveform A |
| *c | Waveform B | *d | Synchronization Signal |
| *e | Video Waveform | - | - |

**HINT:**

- **A waterproof connector is used for the side television camera assembly (for Front Passenger Side). Therefore, inspect the waveform at the parking assist ECU with the connector connected.**
- **The video waveform changes according to the image sent by the side television camera assembly (for Front Passenger Side).**

b. Measure the resistance according to the value(s) in the table below.

**OK:**

**Waveform is as shown in the illustration.**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F75-10 (SCV+) - F75-33 (SGND) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | • Waveform A: Engine switch on (IG), front and side monitor main switch assembly on and camera lens is not covered, displaying an image<br>• Waveform B: Engine switch on (IG), front and side monitor main switch assembly on and camera lens is covered, blacking out the screen |

NG → Go to step 4

OK ↓

REPLACE PARKING ASSIST ECU (Click here)

**4.REPLACE SIDE TELEVISION CAMERA ASSEMBLY**

a. Replace the side television camera assembly (for Front Passenger Side) with a new or normally functioning one ( Click here).

NEXT ↓

**5.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**

**DTC C1683 or C1684 is not output.**

NG → REPLACE OUTER REAR VIEW MIRROR ASSEMBLY (Click here)

OK ↓

END (SIDE TELEVISION CAMERA ASSEMBLY IS DEFECTIVE)

## DTC 5C-41 Steering Sensor Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 5C-41 | A fail flag is transmitted from the steering angle sensor. | Steering angle sensor |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs.

**1.REPLACE STEERING ANGLE SENSOR**

a. Replace the steering angle sensor ( Click here).

**NEXT**

**END**

## DTC C1683 Side Camera Feedback Malfunction

## DTC C1684 Side Camera Current Malfunction

**for Preparation** Click here

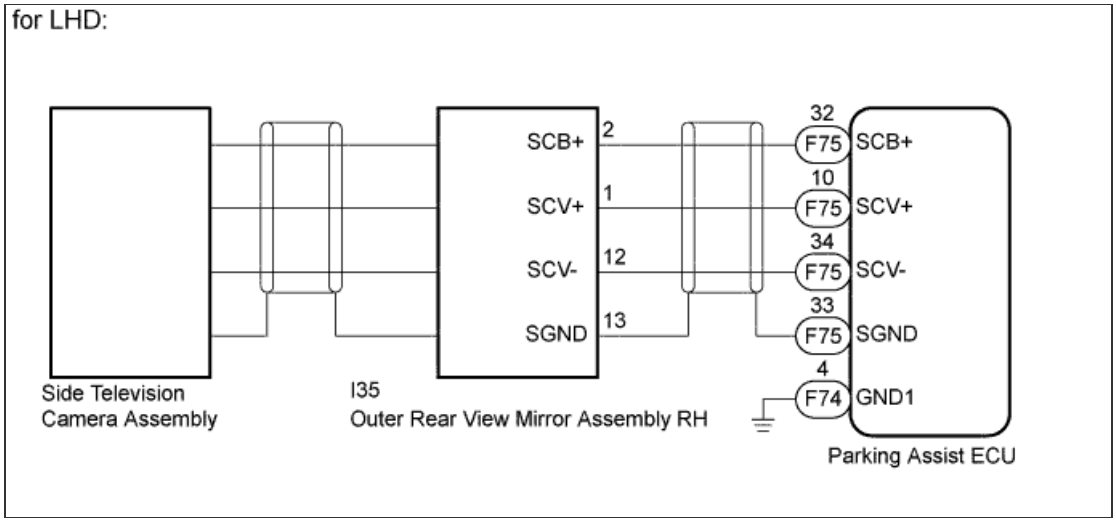
### DESCRIPTION

DTC C1683 is stored if the parking assist ECU judges as a result of its self check that a synchronization problem is occurring in the image signal sent from the side television camera assembly (for Front Passenger Side) to the parking assist ECU.
DTC C1684 is stored if the parking assist ECU judges as a result of its self check that there is a problem with the current supplied from the side television camera assembly (for Front Passenger Side) connected to the parking assist ECU.

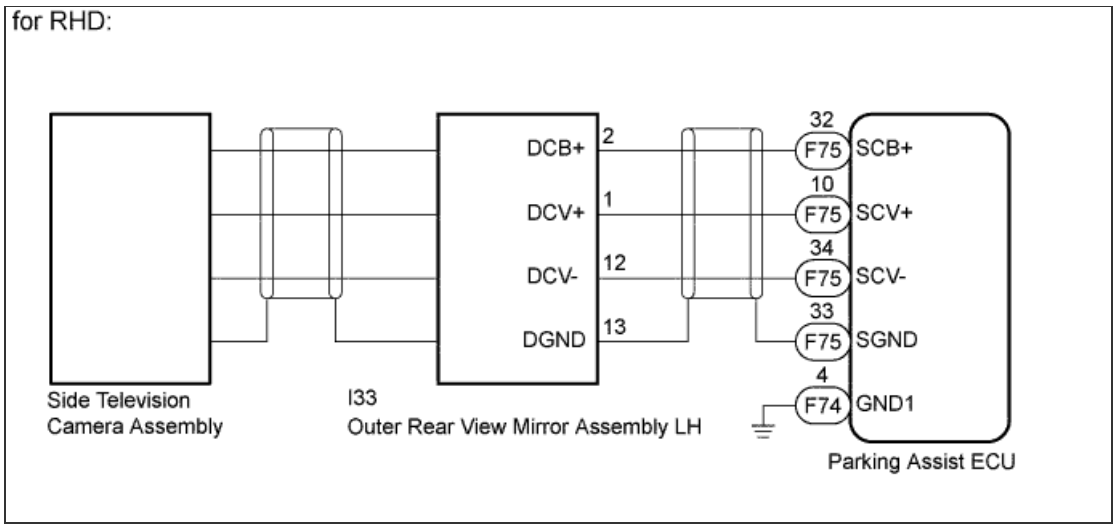
| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1683 | Side Camera Feedback Malfunction | • Harness or connector<br>• Parking assist ECU<br>• Side television camera assembly (for Front Passenger Side)<br>• Outer rear view mirror assembly (for Front Passenger Side) |
| C1684 | Side Camera Current Malfunction | |

### WIRING DIAGRAM

for LHD:




for RHD:




### INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the parking assist ECU after the cable is disconnected from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of**

other systems as well as the side monitor system may be needed (Click here).

**1.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - OUTER REAR VIEW MIRROR ASSEMBLY AND BODY GROUND)**

a. Disconnect the F74 and F75 parking assist ECU connectors.

b. Disconnect the I35*1 or I33*2 outer rear view mirror assembly (for Front Passenger Side) connector.

*1: for LHD
*2: for RHD

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LHD:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-34 (SCV-) - I35-12 (SCV-) | Always | Below 1 Ω |
| F75-10 (SCV+) - I35-1 (SCV+) | Always | Below 1 Ω |
| F75-33 (SGND) - I35-13 (SGND) | Always | Below 1 Ω |
| F75-32 (SCB+) - I35-2 (SCB+) | Always | Below 1 Ω |
| F74-4 (GND1) - Body ground | Always | Below 1 Ω |
| F75-34 (SCV-) - Body ground | Always | 10 kΩ or higher |
| F75-10 (SCV+) - Body ground | Always | 10 kΩ or higher |
| F75-33 (SGND) - Body ground | Always | 10 kΩ or higher |
| F75-32 (SCB+) - Body ground | Always | 10 kΩ or higher |

**for RHD:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-34 (SCV-) - I33-12 (DCV-) | Always | Below 1 Ω |
| F75-10 (SCV+) - I33-1 (DCV+) | Always | Below 1 Ω |
| F75-33 (SGND) - I33-13 (DGND) | Always | Below 1 Ω |
| F75-32 (SCB+) - I33-2 (DCB+) | Always | Below 1 Ω |
| F74-4 (GND1) - Body ground | Always | Below 1 Ω |
| F75-34 (SCV-) - Body ground | Always | 10 kΩ or higher |
| F75-10 (SCV+) - Body ground | Always | 10 kΩ or higher |
| F75-33 (SGND) - Body ground | Always | 10 kΩ or higher |
| F75-32 (SCB+) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**2.CHECK PARKING ASSIST ECU (SCB+, SGND)**

a. Reconnect the F74 and F75 parking assist ECU connectors.

b. Measure the resistance according to the value(s) in the table below.

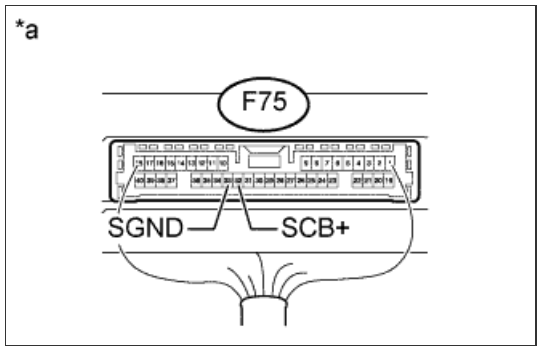
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-33 (SGND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F75-32 (SCB+) - F75-33 (SGND) | Engine switch on (IG), front and side monitor main switch assembly on | 5.5 to 7.05 V |




**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Parking Assist ECU) |

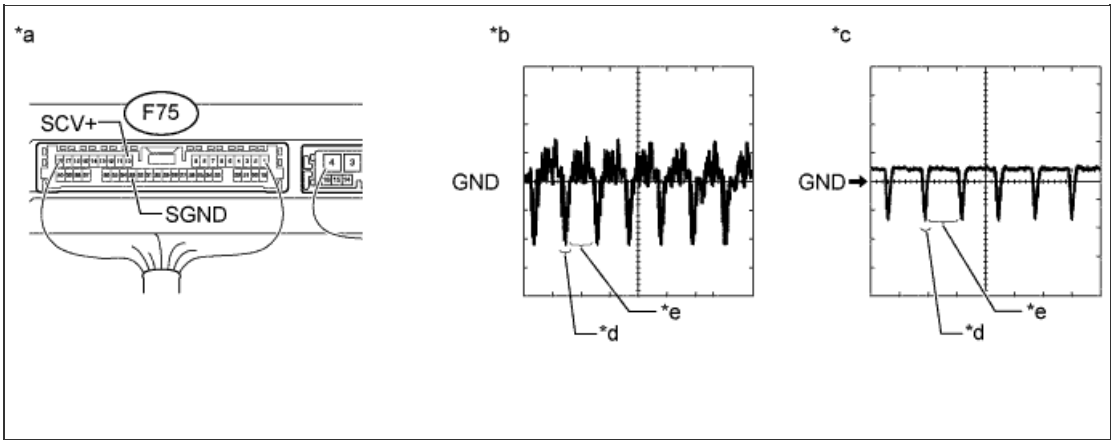
NG → REPLACE PARKING ASSIST ECU (Click here)

OK

**3.CHECK OUTER REAR VIEW MIRROR ASSEMBLY (SCV+, SGND OR DCV+, DGND)**

a. Reconnect the I35*1 or I33*2 outer rear view mirror assembly (for Front Passenger Side) connector.

*1: for LHD
*2: for RHD




**Text in Illustration**

| | | | |
|---|---|---|---|
| *a | Component with harness connected (Parking Assist ECU) | *b | Waveform A |
| *c | Waveform B | *d | Synchronization Signal |
| *e | Video Waveform | - | - |

**HINT:**

- **A waterproof connector is used for the side television camera assembly (for Front Passenger Side). Therefore, inspect the waveform at the parking assist ECU with the connector connected.**
- **The video waveform changes according to the image sent by the side television camera assembly (for Front Passenger Side).**

b. Measure the resistance according to the value(s) in the table below.

**OK:**

**Waveform is as shown in the illustration.**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F75-10 (SCV+) - F75-33 (SGND) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | • Waveform A: Engine switch on (IG), front and side monitor main switch assembly on and camera lens is not covered, displaying an image<br>• Waveform B: Engine switch on (IG), front and side monitor main switch assembly on and camera lens is covered, blacking out the screen |

NG → Go to step 4

OK ↓

REPLACE PARKING ASSIST ECU (Click here)

**4.REPLACE SIDE TELEVISION CAMERA ASSEMBLY**

a. Replace the side television camera assembly (for Front Passenger Side) with a new or normally functioning one ( Click here).

NEXT ↓

**5.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**

**DTC C1683 or C1684 is not output.**

NG → REPLACE OUTER REAR VIEW MIRROR ASSEMBLY (Click here)

OK ↓

END (SIDE TELEVISION CAMERA ASSEMBLY IS DEFECTIVE)

## DTC 5C-42 Steering Sensor Communication Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 5C-42 | No signal is transmitted from the steering angle sensor. | • Steering angle sensor<br>• CAN communication system<br>• Parking assist ECU |

### INSPECTION PROCEDURE

**1.CHECK CAN COMMUNICATION SYSTEM (PARKING ASSIST ECU - STEERING ANGLE SENSOR)**

a. for LHD:
Refer to the CAN communication system (Click here).

b. for RHD:
Refer to the CAN communication system (Click here).

**NEXT**

**END**

## DTC C1684 Side Camera Current Malfunction

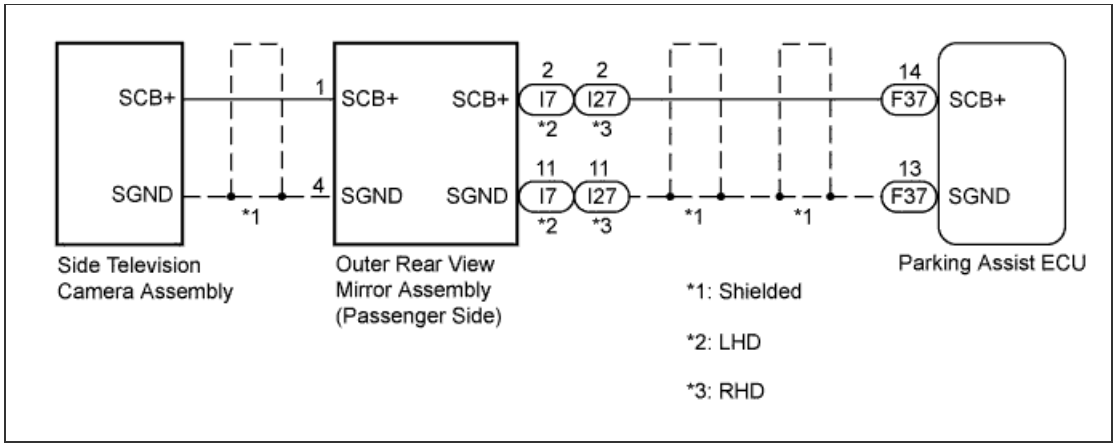
**for Preparation** Click here

### DESCRIPTION

This DTC is stored if the parking assist ECU judges as a result of its self check that there is a problem with the current supplied to the side television camera assembly connected to the parking assist ECU.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1684 | Side Camera Current Malfunction | • Harness or connector<br>• Parking assist ECU<br>• Side television camera assembly<br>• Outer rear view mirror assembly (passenger side) |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the display and navigation module display after the cable is disconnected from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the side monitor system may be needed (Click here).**

#### 1.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - OUTER REAR VIEW MIRROR ASSEMBLY)

a. Disconnect the F37 connector from the parking assist ECU.

b. for LHD:

i. Disconnect the I7 connector from the outer rear view mirror assembly RH.

ii. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F37-13 (SGND) - I7-11 (SGND) | Always | Below 1 Ω |
| F37-14 (SCB+) - I7-2 (SCB+) | Always | Below 1 Ω |
| F37-13 (SGND) - Body ground | Always | 10 kΩ or higher |
| F37-14 (SCB+) - Body ground | Always | 10 kΩ or higher |

c. for RHD:

i. Disconnect the I27 connector from the outer rear view mirror assembly LH.

ii. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F37-13 (SGND) - I27-11 (SGND) | Always | Below 1 Ω |
| F37-14 (SCB+) - I27-2 (SCB+) | Always | Below 1 Ω |
| F37-13 (SGND) - Body ground | Always | 10 kΩ or higher |
| F37-14 (SCB+) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**2.INSPECT OUTER REAR VIEW MIRROR ASSEMBLY (SCB+, SGND)**

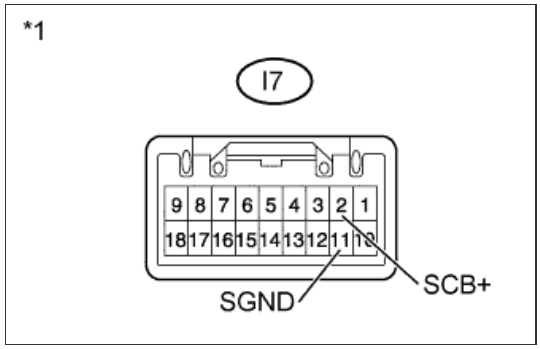
a. for LHD:

i. Disconnect the I7 connector from the outer rear view mirror assembly RH.

ii. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| I7-11 (SGND) - I7-2 (SCB+) | Engine switch on (IG) Front and side monitor main switch on | 5.8 to 7.0 V |



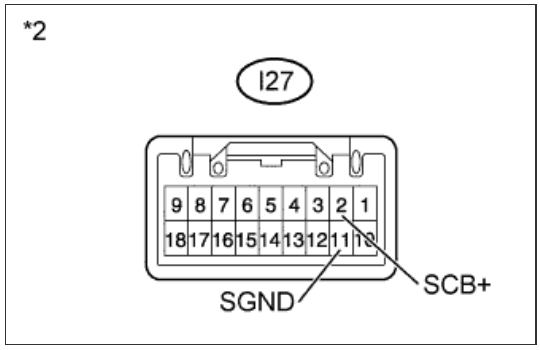

b. for RHD:

i. Disconnect the I27 connector from the outer rear view mirror assembly LH.

ii. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| I27-11 (SGND) - I27-2 (SCB+) | Engine switch on (IG) Front and side monitor main switch on | 5.8 to 7.0 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Outer Rear View Mirror Assembly RH) |
| *2 | Front view of wire harness connector (to Outer Rear View Mirror Assembly LH) |

NG → REPLACE PARKING ASSIST ECU (Click here)

OK

3.REPLACE SIDE TELEVISION CAMERA ASSEMBLY

a. Replace the side television camera assembly with a new or normally functioning one ( Click here).

NEXT

4.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

| Result | Proceed to |
|---|---|
| DTC C1684 is output | A |
| No DTC is output | B |

B

END

A

REPLACE OUTER REAR VIEW MIRROR ASSEMBLY (**Click here**)

## DTC 5C-43 Steering Control ECU Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 5C-43 | VGRS=1 is sent from the steering control ECU. | Steering control ECU |

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs.

**1.CHECK DTC OUTPUT**

a. Clear the DTCs (Click here).

b. Recheck for DTCs (Click here).

**OK:**
**DTC 5C-43 is not output.**

NG → **Go to step 2**

OK ↓

**USE SIMULATION METHOD TO CHECK (Click here)**

**2.REPLACE STEERING CONTROL ECU**

a. for LHD:
Replace the steering control ECU (Click here).

b. for RHD:
Replace the steering control ECU (Click here).

NEXT ↓

**3.CHECK DTC OUTPUT**

a. Clear the DTCs (Click here).

b. Recheck for DTCs (Click here).

**OK:**
**DTC 5C-43 is not output.**

NG → **GO TO VARIABLE GEAR RATIO STEERING SYSTEM (Click here)**

OK ↓

**END (STEERING CONTROL ECU IS DEFECTIVE)**

## DTC C1686 Driver Side Camera Video Sync Signal Malfunction

## DTC C1687 Over Current Detected in Driver Side Camera

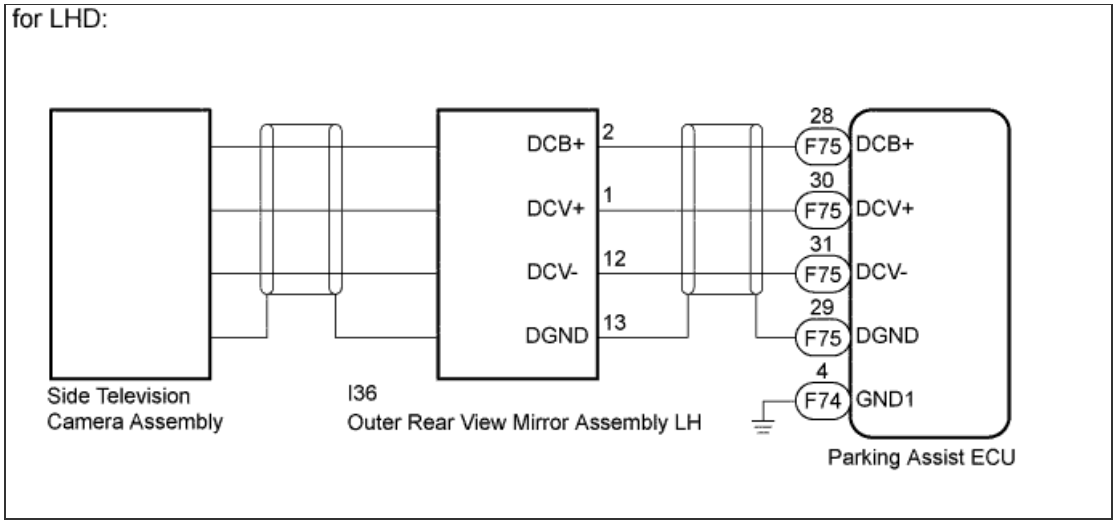
**for Preparation** Click here

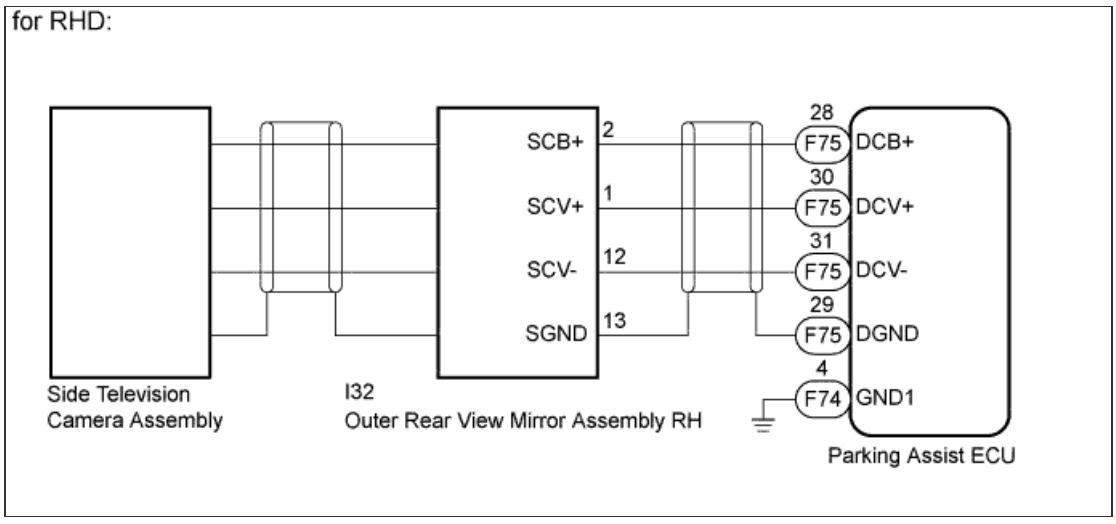
### DESCRIPTION

DTC C1686 is stored if the parking assist ECU judges as a result of its self check that a synchronization problem is occurring in the image signal sent from the side television camera assembly (for Driver Side) to the parking assist ECU.
DTC C1687 is stored if the parking assist ECU judges as a result of its self check that there is a problem with the current supplied from the side television camera assembly (for Driver Side) connected to the parking assist ECU.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1686 | Side Camera Feedback Malfunction | • Harness or connector<br>• Parking assist ECU<br>• Side television camera assembly (for Driver Side)<br>• Outer rear view mirror assembly (for Driver Side) |
| C1687 | Side Camera Current Malfunction | |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the parking assist ECU after the cable is disconnected from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of**

other systems as well as the side monitor system may be needed (Click here).

**1.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - OUTER REAR VIEW MIRROR ASSEMBLY AND BODY GROUND)**

a. Disconnect the F74 and F75 parking assist ECU connectors.

b. Disconnect the I36*1 or I32*2 outer rear view mirror assembly (for Driver Side) connector.

*1: for LHD
*2: for RHD

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LHD:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-31 (DCV-) - I36-12 (DCV-) | Always | Below 1 Ω |
| F75-30 (DCV+) - I36-1 (DCV+) | Always | Below 1 Ω |
| F75-29 (DGND) - I36-13 (DGND) | Always | Below 1 Ω |
| F75-28 (DCB+) - I36-2 (DCB+) | Always | Below 1 Ω |
| F74-4 (GND1) - Body ground | Always | Below 1 Ω |
| F75-31 (DCV-) - Body ground | Always | 10 kΩ or higher |
| F75-30 (DCV+) - Body ground | Always | 10 kΩ or higher |
| F75-29 (DGND) - Body ground | Always | 10 kΩ or higher |
| F75-28 (DCB+) - Body ground | Always | 10 kΩ or higher |

**for RHD:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-31 (DCV-) - I32-12 (SCV-) | Always | Below 1 Ω |
| F75-30 (DCV+) - I32-1 (SCV+) | Always | Below 1 Ω |
| F75-29 (DGND) - I32-13 (SGND) | Always | Below 1 Ω |
| F75-28 (DCB+) - I32-2 (SCB+) | Always | Below 1 Ω |
| F74-4 (GND1) - Body ground | Always | Below 1 Ω |
| F75-31 (DCV-) - Body ground | Always | 10 kΩ or higher |
| F75-30 (DCV+) - Body ground | Always | 10 kΩ or higher |
| F75-29 (DGND) - Body ground | Always | 10 kΩ or higher |
| F75-28 (DCB+) - Body ground | Always | 10 kΩ or higher |

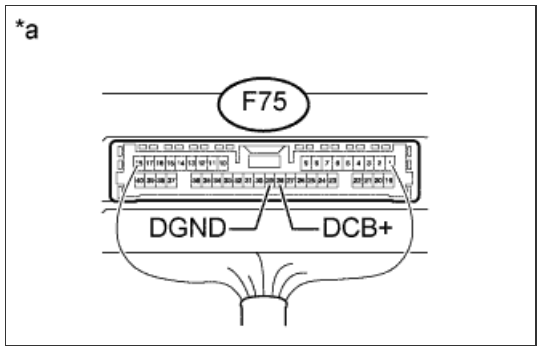
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**2.CHECK PARKING ASSIST ECU (DCB+, DGND)**

a. Reconnect the F74 and F75 parking assist ECU connectors.

b. Measure the resistance according to the value(s) in the table below.




**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-29 (DGND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-28 (DCB+) - F75-29 (DGND) | Engine switch on (IG), front and side monitor main switch assembly on | 5.5 to 7.05 V |

**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Parking Assist ECU) |

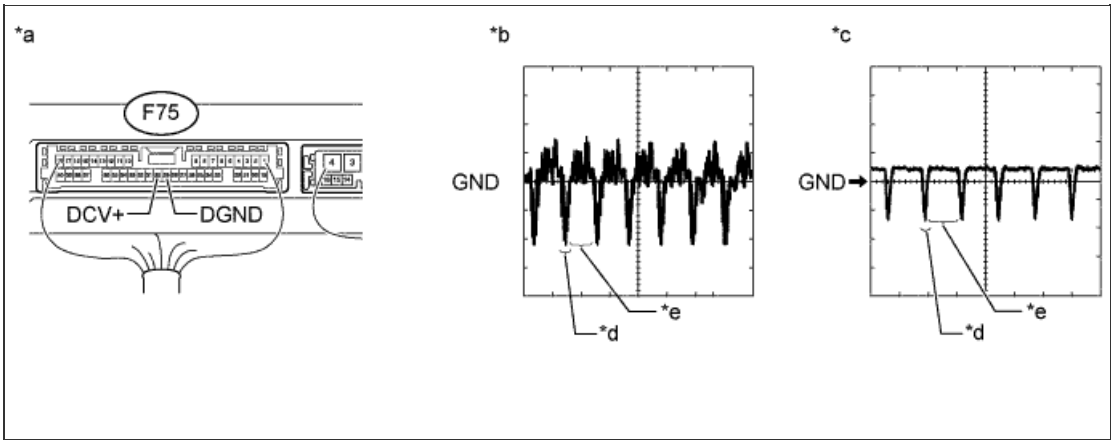
NG → REPLACE PARKING ASSIST ECU (Click here)

OK

**3.CHECK OUTER REAR VIEW MIRROR ASSEMBLY (DCV+, DGND OR SCV+. SGND)**

a. Reconnect the I36*1 or I32*2 outer rear view mirror assembly (for Front Passenger Side) connector.

*1: for LHD
*2: for RHD




**Text in Illustration**

| | | | |
|---|---|---|---|
| *a | Component with harness connected (Parking Assist ECU) | *b | Waveform A |
| *c | Waveform B | *d | Synchronization Signal |
| *e | Video Waveform | - | - |

**HINT:**

- **A waterproof connector is used for the side television camera assembly (for Driver Side). Therefore, inspect the waveform at the parking assist ECU with the connector connected.**
- **The video waveform changes according to the image sent by the side television camera assembly (for Driver Side).**

b. Measure the resistance according to the value(s) in the table below.

**OK:**

**Waveform is as shown in the illustration.**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F75-30 (DCV+) - F75-29 (DGND) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | • Waveform A: Engine switch on (IG), front and side monitor main switch assembly on and camera lens is not covered, displaying an image<br>• Waveform B: Engine switch on (IG), front and side monitor main switch assembly on and camera lens is covered, blacking out the screen |

NG → Go to step 4

OK

REPLACE PARKING ASSIST ECU (Click here)

4.REPLACE SIDE TELEVISION CAMERA ASSEMBLY

a. Replace the side television camera assembly (for Driver Side) with a new or normally functioning one ( Click here).

NEXT

5.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C1686 or C1687 is not output.**

B → REPLACE OUTER REAR VIEW MIRROR ASSEMBLY (Click here)

A

END (SIDE TELEVISION CAMERA ASSEMBLY IS DEFECTIVE)

## DTC 5C-44 Steering Control ECU Communication Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 5C-44 | "VGRS available" information is received normally from the steering angle sensor, but the signal from the steering control ECU is not received for 1 second or more. | • Steering control ECU<br>• CAN communication system<br>• Parking assist ECU |

### INSPECTION PROCEDURE

**1.CHECK CAN COMMUNICATION SYSTEM (PARKING ASSIST ECU - STEERING CONTROL ECU)**

a. for LHD:
Refer to the CAN communication system (Click here).

b. for RHD:
Refer to the CAN communication system (Click here).

**NEXT**

**END**

## DTC C1686 Driver Side Camera Video Sync Signal Malfunction

## DTC C1687 Over Current Detected in Driver Side Camera

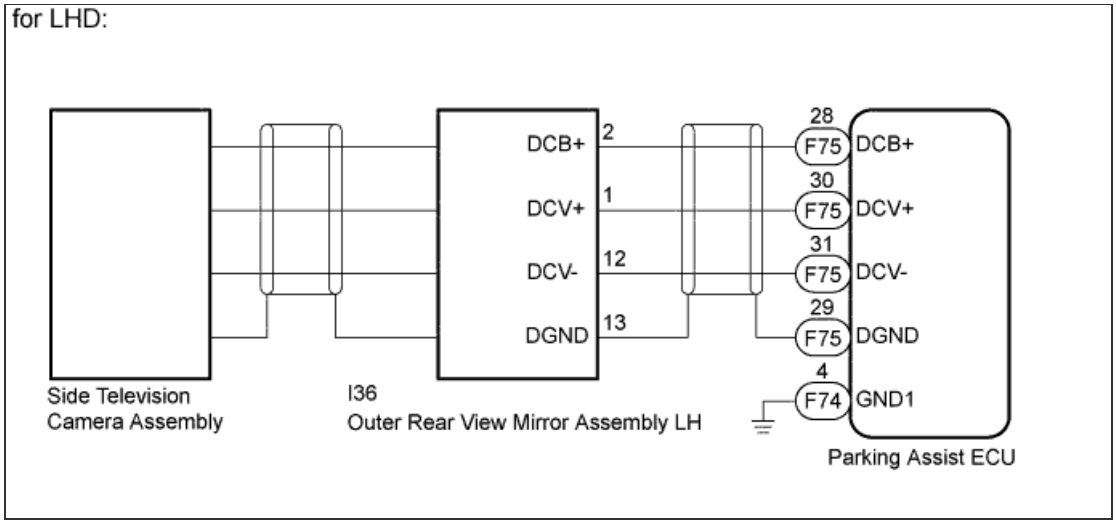
**for Preparation** Click here

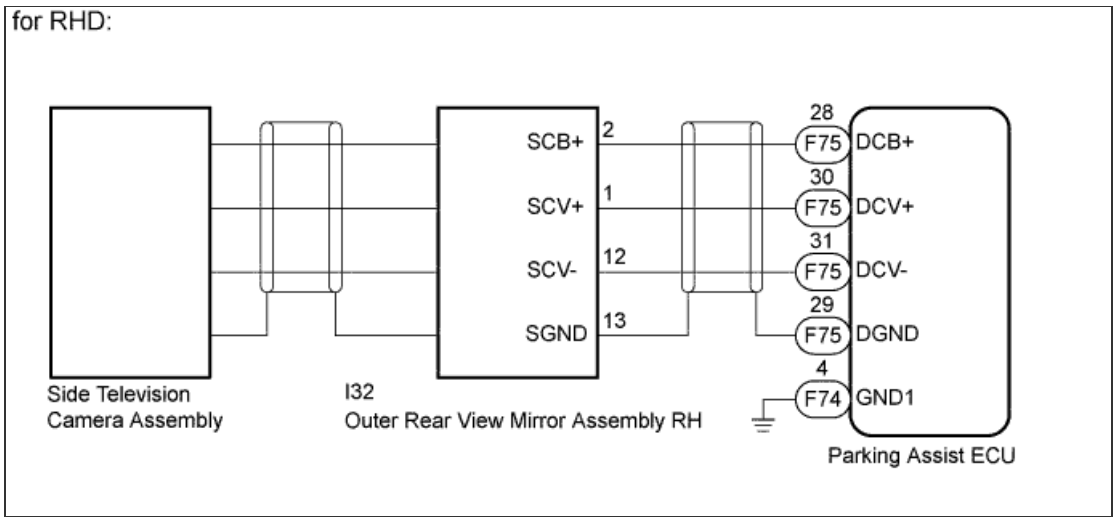
### DESCRIPTION

DTC C1686 is stored if the parking assist ECU judges as a result of its self check that a synchronization problem is occurring in the image signal sent from the side television camera assembly (for Driver Side) to the parking assist ECU.
DTC C1687 is stored if the parking assist ECU judges as a result of its self check that there is a problem with the current supplied from the side television camera assembly (for Driver Side) connected to the parking assist ECU.

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1686 | Side Camera Feedback Malfunction | • Harness or connector<br>• Parking assist ECU<br>• Side television camera assembly (for Driver Side)<br>• Outer rear view mirror assembly (for Driver Side) |
| C1687 | Side Camera Current Malfunction | |

### WIRING DIAGRAM




### INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the parking assist ECU after the cable is disconnected from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of**

other systems as well as the side monitor system may be needed (Click here).

**1.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - OUTER REAR VIEW MIRROR ASSEMBLY AND BODY GROUND)**

a. Disconnect the F74 and F75 parking assist ECU connectors.

b. Disconnect the I36*1 or I32*2 outer rear view mirror assembly (for Driver Side) connector.

*1: for LHD
*2: for RHD

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LHD:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-31 (DCV-) - I36-12 (DCV-) | Always | Below 1 Ω |
| F75-30 (DCV+) - I36-1 (DCV+) | Always | Below 1 Ω |
| F75-29 (DGND) - I36-13 (DGND) | Always | Below 1 Ω |
| F75-28 (DCB+) - I36-2 (DCB+) | Always | Below 1 Ω |
| F74-4 (GND1) - Body ground | Always | Below 1 Ω |
| F75-31 (DCV-) - Body ground | Always | 10 kΩ or higher |
| F75-30 (DCV+) - Body ground | Always | 10 kΩ or higher |
| F75-29 (DGND) - Body ground | Always | 10 kΩ or higher |
| F75-28 (DCB+) - Body ground | Always | 10 kΩ or higher |

**for RHD:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-31 (DCV-) - I32-12 (SCV-) | Always | Below 1 Ω |
| F75-30 (DCV+) - I32-1 (SCV+) | Always | Below 1 Ω |
| F75-29 (DGND) - I32-13 (SGND) | Always | Below 1 Ω |
| F75-28 (DCB+) - I32-2 (SCB+) | Always | Below 1 Ω |
| F74-4 (GND1) - Body ground | Always | Below 1 Ω |
| F75-31 (DCV-) - Body ground | Always | 10 kΩ or higher |
| F75-30 (DCV+) - Body ground | Always | 10 kΩ or higher |
| F75-29 (DGND) - Body ground | Always | 10 kΩ or higher |
| F75-28 (DCB+) - Body ground | Always | 10 kΩ or higher |

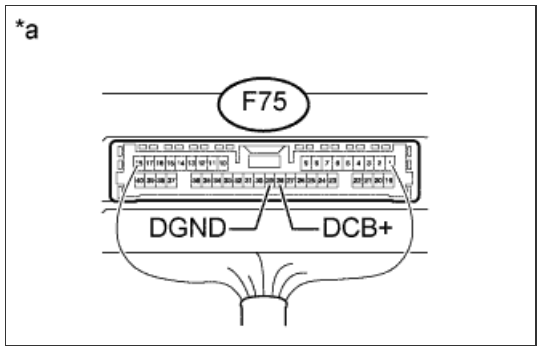
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**2.CHECK PARKING ASSIST ECU (DCB+, DGND)**

a. Reconnect the F74 and F75 parking assist ECU connectors.

b. Measure the resistance according to the value(s) in the table below.




**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-29 (DGND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-28 (DCB+) - F75-29 (DGND) | Engine switch on (IG), front and side monitor main switch assembly on | 5.5 to 7.05 V |

**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Parking Assist ECU) |

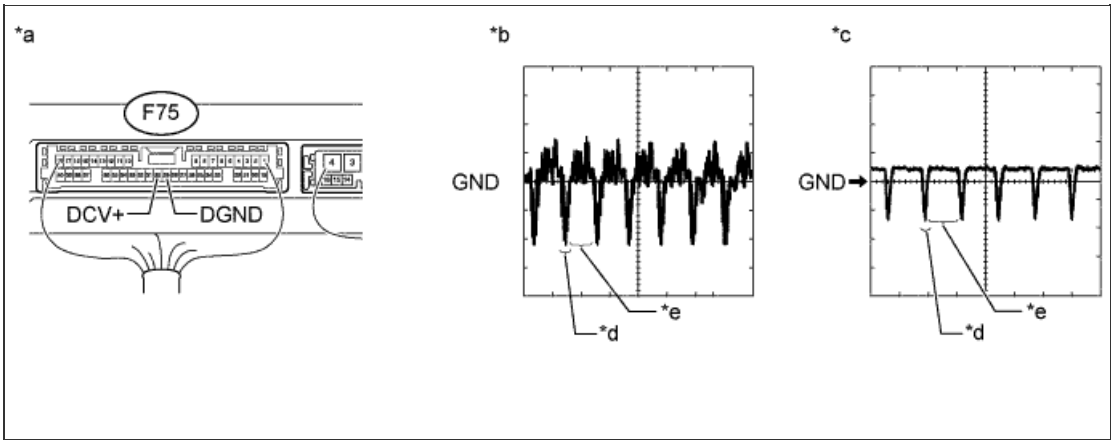
NG → REPLACE PARKING ASSIST ECU (Click here)

OK

**3.CHECK OUTER REAR VIEW MIRROR ASSEMBLY (DCV+, DGND OR SCV+. SGND)**

a. Reconnect the I36*1 or I32*2 outer rear view mirror assembly (for Front Passenger Side) connector.

*1: for LHD
*2: for RHD




**Text in Illustration**

| | | | |
|---|---|---|---|
| *a | Component with harness connected (Parking Assist ECU) | *b | Waveform A |
| *c | Waveform B | *d | Synchronization Signal |
| *e | Video Waveform | - | - |

**HINT:**

- **A waterproof connector is used for the side television camera assembly (for Driver Side). Therefore, inspect the waveform at the parking assist ECU with the connector connected.**
- **The video waveform changes according to the image sent by the side television camera assembly (for Driver Side).**

b. Measure the resistance according to the value(s) in the table below.

**OK:**

**Waveform is as shown in the illustration.**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F75-30 (DCV+) - F75-29 (DGND) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | • Waveform A: Engine switch on (IG), front and side monitor main switch assembly on and camera lens is not covered, displaying an image<br>• Waveform B: Engine switch on (IG), front and side monitor main switch assembly on and camera lens is covered, blacking out the screen |

NG → Go to step 4

OK

REPLACE PARKING ASSIST ECU (Click here)

4.REPLACE SIDE TELEVISION CAMERA ASSEMBLY

a. Replace the side television camera assembly (for Driver Side) with a new or normally functioning one ( Click here).

NEXT

5.CHECK FOR DTC

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C1686 or C1687 is not output.**

B → REPLACE OUTER REAR VIEW MIRROR ASSEMBLY (Click here)

A

END (SIDE TELEVISION CAMERA ASSEMBLY IS DEFECTIVE)

## DTC 5C-45 Shift Signal Communication Error

**for Preparation** Click here

### DESCRIPTION

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| 5C-45 | No signal is transmitted from the ECM. | • ECM<br>• CAN communication system<br>• Parking assist ECU |

### INSPECTION PROCEDURE

**1.CHECK CAN COMMUNICATION SYSTEM (ECM - PARKING ASSIST ECU)**

a. for LHD:
Refer to the CAN communication system (Click here).

b. for RHD:
Refer to the CAN communication system (Click here).

**NEXT**

**END**

# DTC C1693 Side Camera Initialization Incomplete

**for Preparation** Click here

## DESCRIPTION

This DTC is stored when the parking assist ECU judges that the side camera initial setting has not been memorized (side television camera optical axis adjustment is incompleted).

| DTC Code | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1693 | Side camera initial setting has not been memorized | • Side television camera optical axis adjustment<br>• Parking assist ECU |

## INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the parking assist ECU after the cable is disconnected from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the side monitor system may be needed (Click here).**

**1.ADJUST SETTINGS (CAMERA POSITION SETTING)**

a. Perform the following procedure depending on the memory conditions to register the vehicle information into the parking assist ECU.

i. Refer to side television camera optical axis adjustment ( Click here).

**NEXT**

**2.CHECK FOR DTC**

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**OK:**
**DTC C1693 is not output.**

**HINT:**

- **If DTC C1693 is output, perform the side television camera assembly optical axis adjustment again.**
- **If DTC C1693 is still output after performing the rear television camera assembly optical axis adjustment 3 times, replace the parking assist ECU.**

**NG** → **REPLACE PARKING ASSIST ECU (Click here)**

**OK**

**END (SETTINGS ARE DEFECTIVE)**

# DTC C1683 Side Camera Feedback Malfunction

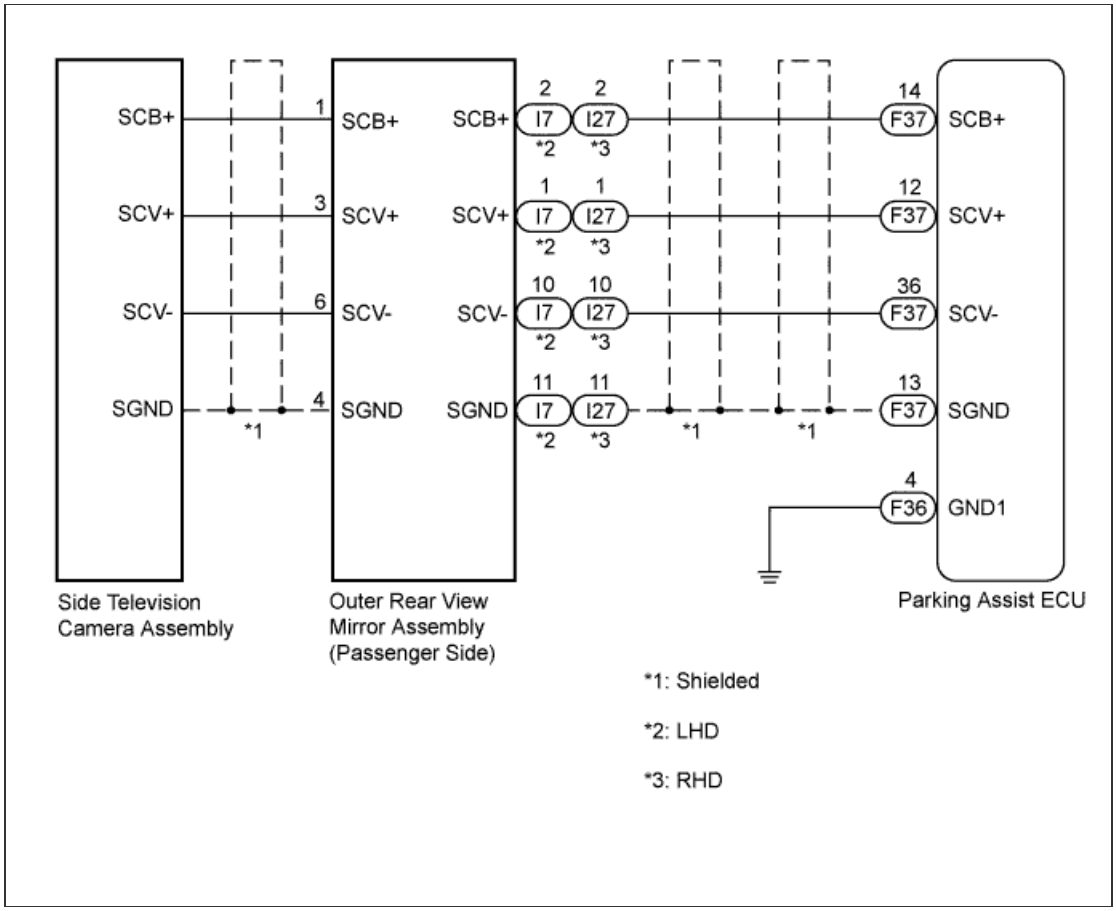
**for Preparation** Click here

## DESCRIPTION

This DTC is stored if the parking assist ECU judges as a result of its self check that a synchronization problem is occurring in the image signal sent from the side television camera assembly to the parking assist ECU.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| C1683 | Side Camera Feedback Malfunction | • Harness or connector<br>• Parking assist ECU<br>• Side television camera assembly<br>• Outer rear view mirror assembly (passenger side) |

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the display and navigation module display after the cable is disconnected from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the side monitor system may be needed (Click here).**

### 1.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - OUTER REAR VIEW MIRROR ASSEMBLY)

a. Disconnect the F37 connector from the parking assist ECU.

b. for LHD:

i. Disconnect the I7 connector from the outer rear view mirror assembly RH.

ii. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| | | |
|---|---|---|

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F37-36 (SCV-) - I7-10 (SCV-) | Always | Below 1 Ω |
| F37-12 (SCV+) - I7-1 (SCV+) | Always | Below 1 Ω |
| F37-13 (SGND) - I7-11 (SGND) | Always | Below 1 Ω |
| F37-14 (SCB+) - I7-2 (SCB+) | Always | Below 1 Ω |
| F37-36 (SCV-) - Body ground | Always | 10 kΩ or higher |
| F37-12 (SCV+) - Body ground | Always | 10 kΩ or higher |
| F37-13 (SGND) - Body ground | Always | 10 kΩ or higher |
| F37-14 (SCB+) - Body ground | Always | 10 kΩ or higher |

c. for RHD:

i. Disconnect the I27 connector from the outer rear view mirror assembly LH.

ii. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F37-36 (SCV-) - I27-10 (SCV-) | Always | Below 1 Ω |
| F37-12 (SCV+) - I27-1 (SCV+) | Always | Below 1 Ω |
| F37-13 (SGND) - I27-11 (SGND) | Always | Below 1 Ω |
| F37-14 (SCB+) - I27-2 (SCB+) | Always | Below 1 Ω |
| F37-36 (SCV-) - Body ground | Always | 10 kΩ or higher |
| F37-12 (SCV+) - Body ground | Always | 10 kΩ or higher |
| F37-13 (SGND) - Body ground | Always | 10 kΩ or higher |
| F37-14 (SCB+) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**2.INSPECT PARKING ASSIST ECU (SCV-, SGND)**

a. Reconnect the F37 connector to the parking assist ECU.

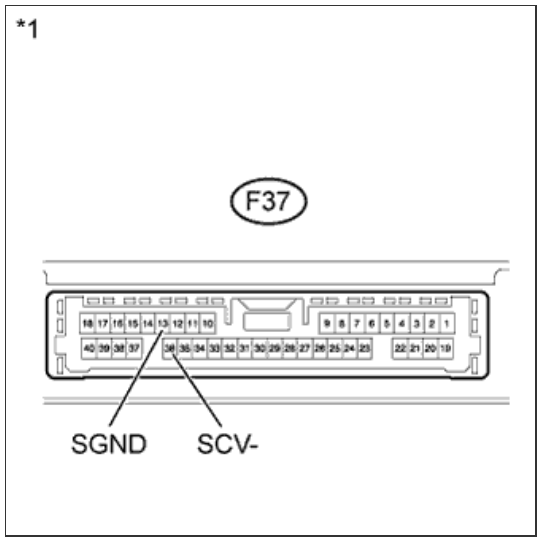
b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F37-36 (SCV-) - Body ground | Always | Below 1 Ω |
| F37-13 (SGND) - Body ground | Always | Below 1 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Parking Assist ECU) |




NG → REPLACE PARKING ASSIST ECU (Click here)

OK

### 3.INSPECT OUTER REAR VIEW MIRROR ASSEMBLY (SCB+, SGND)

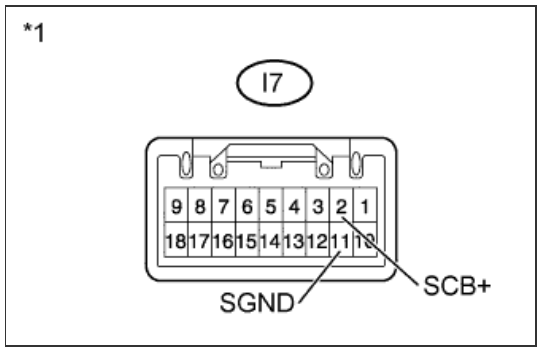
a. for LHD:

i. Disconnect the I7 connector from the outer rear view mirror assembly RH.

ii. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| I7-11 (SGND) - I7-2 (SCB+) | Engine switch on (IG) Front and side monitor main switch on | 5.8 to 7.0 V |



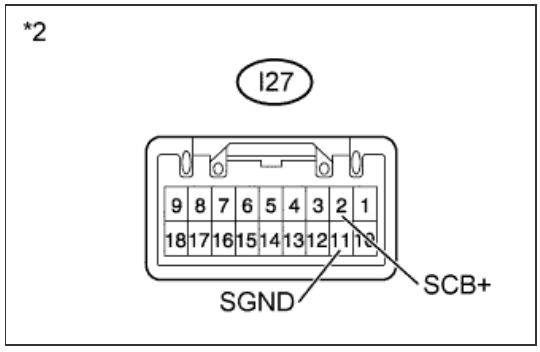

b. for RHD:

i. Disconnect the I27 connector from the outer rear view mirror assembly LH.

ii. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| I27-11 (SGND) - I27-2 (SCB+) | Engine switch on (IG) Front and side monitor main switch on | 5.8 to 7.0 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Outer Rear View Mirror Assembly RH) |
| *2 | Front view of wire harness connector (to Outer Rear View Mirror Assembly LH) |

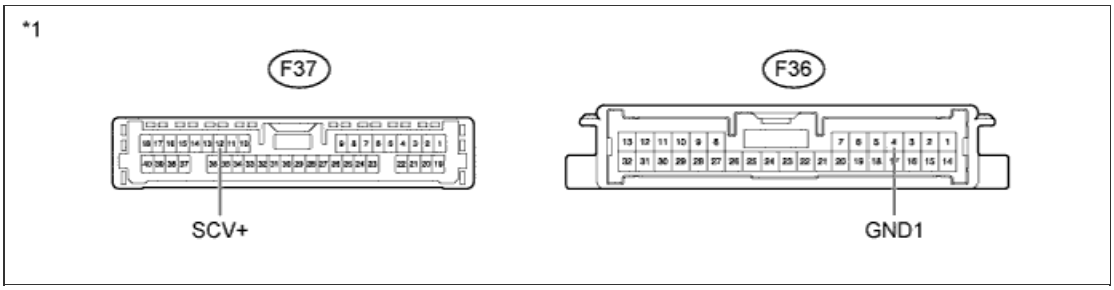
NG → REPLACE PARKING ASSIST ECU (Click here)

OK

## 4.INSPECT PARKING ASSIST ECU (SCV+, GND1)

a. Reconnect the I7 or I27 connector to the outer rear view mirror assembly (passenger side).

b. Reconnect the F36 and F37 connectors to the parking assist ECU.




c. Check the waveform of the side television camera assembly using an oscilloscope.

**HINT:**

A waterproof connector is used for the side television camera assembly. Therefore, inspect the waveform at the parking assist ECU with the connector connected.

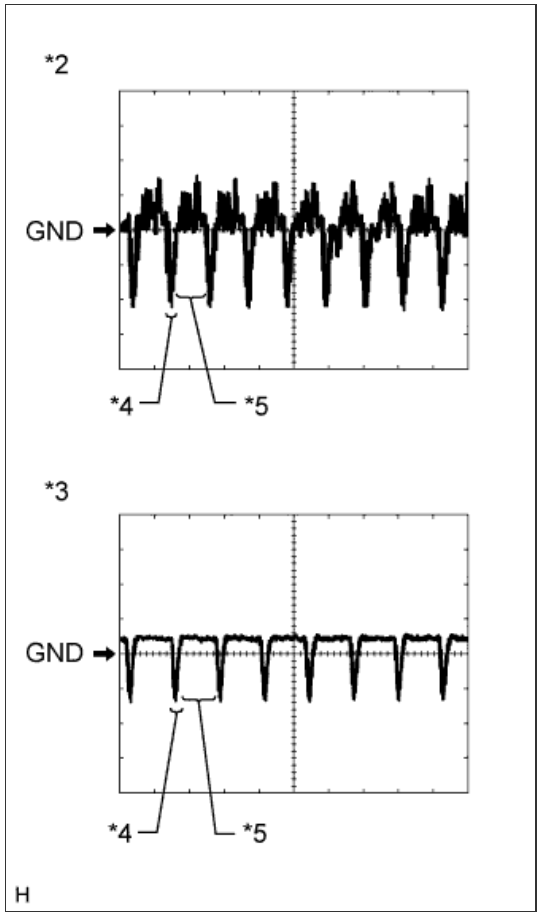
**OK:**

**Waveform is as shown in the illustration.**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F37-12 (SCV+) - F36-4 (GND1) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), front and side monitor main switch on |

**HINT:**

The video waveform changes according to the image sent by the side television camera assembly.




**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Parking Assist ECU) |
| *2 | Waveform 1 (under normal conditions) |
| *3 | Waveform 2 (camera lens is covered, blacking out the screen) |
| *4 | Synchronized Signal |
| *5 | Video Waveform |

NG → Go to step 5

OK

REPLACE PARKING ASSIST ECU (Click here)

## 5.REPLACE SIDE TELEVISION CAMERA ASSEMBLY

a. Replace the side television camera assembly with a new or normally functioning one ( Click here).

NEXT

## 6.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1683 is output | A |
| No DTC is output | B |

B → END

A

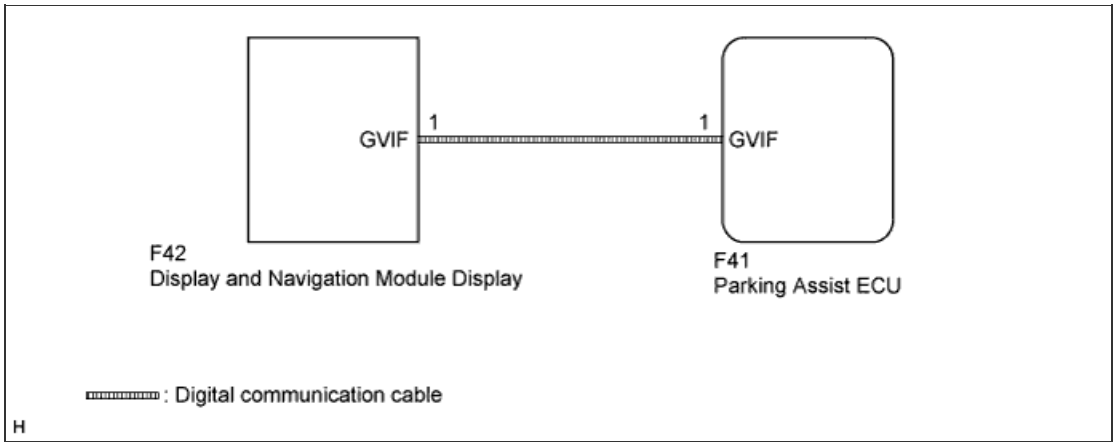
## REPLACE OUTER REAR VIEW MIRROR ASSEMBLY (Click here)

**for Preparation** Click here

## DESCRIPTION

The parking assist ECU displays images for the parking assist monitor and side monitor screens. The image signals are sent from the parking assist ECU to the display and navigation module display through the digital communication cable.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the display and navigation module display after the cable is disconnected from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the side monitor system may be needed (Click here).**

**HINT:**

Images are difficult to discern even in normal conditions if:

- **Noise may occur in the image while adjusting or retracting the outer rear view mirror assembly (passenger side).**
- **Noise may occur in the image depending on electrical devices used in the cabin.**
- **Noise may occur in the image if accessories that generate radio waves have been installed.**
- **The camera screen is frosted over (the image immediately after turning the engine switch on (IG) may be blurred or darker than normal).**
- **The camera lens is dirty with snow, mud, etc.**
- **A strong beam of light, such as a sunbeam or headlight, hits the camera.**
- **It is too dark around the camera (at night etc.).**
- **The ambient temperature around the camera is either too high or too low.**
- **The vehicle is tilted at a steep angle.**
- **The ambience of the camera is too bright. (When a strong light, such as a sunbeam reflected off the vehicle body, hits the camera, the image may be blurred. This is called the "SMEAR" phenomenon, peculiar to the CCD camera.)**

### 1.READ VALUE USING INTELLIGENT TESTER

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Chassis / Parking Assist Monitor System / Data List.

e. Check the Data List for proper functioning of the following items.

**Parking Assist Monitor System**

| Tester Display | Measurement Item/Range | Normal Condition | Diagnostic Note |
|---|---|---|---|
| AISIC Output Status | Output condition of camera display/OK or NG | OK: Output condition of camera display is normal<br>NG: Output condition of camera display is abnormal | - |

NG → REPLACE PARKING ASSIST ECU (Click here)

OK

## 2.CHECK DIGITAL COMMUNICATION CABLE CONNECTOR

a. Check the digital communication cable connector.

   i. Check the digital communication cable connectors between the parking assist ECU and display and navigation module display for any connection problems (Click here).

b. Check if the same malfunction recurs when the parking assist monitor, front monitor and side monitor screens are displayed.

**Result**

| Result | Proceed to |
|---|---|
| Malfunction does not reoccur (returns to normal) | A |
| Malfunction reoccurs | B |

B → Go to step 3

A

END

## 3.REPLACE WIRE HARNESS (DIGITAL COMMUNICATION CABLE)

a. Replace the digital communication cable between the parking assist ECU and display and navigation module display with a new one.

b. Check if the same malfunction recurs when the parking assist monitor, front monitor and side monitor screens are displayed.

**Result**

| Result | Proceed to |
|---|---|
| Malfunction does not reoccur (returns to normal) | A |
| Malfunction reoccurs | B |

B → Go to step 4

A

END

## 4.REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY

a. Replace the display and navigation module display with a new or normally functioning one ( Click here).

b. Check if the same malfunction recurs when the parking assist monitor, front monitor and side monitor screens are displayed.

**Result**

| Result | Proceed to |
|---|---|
| Malfunction does not reoccur (returns to normal) | A |
| Malfunction reoccurs | B |

B → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

A

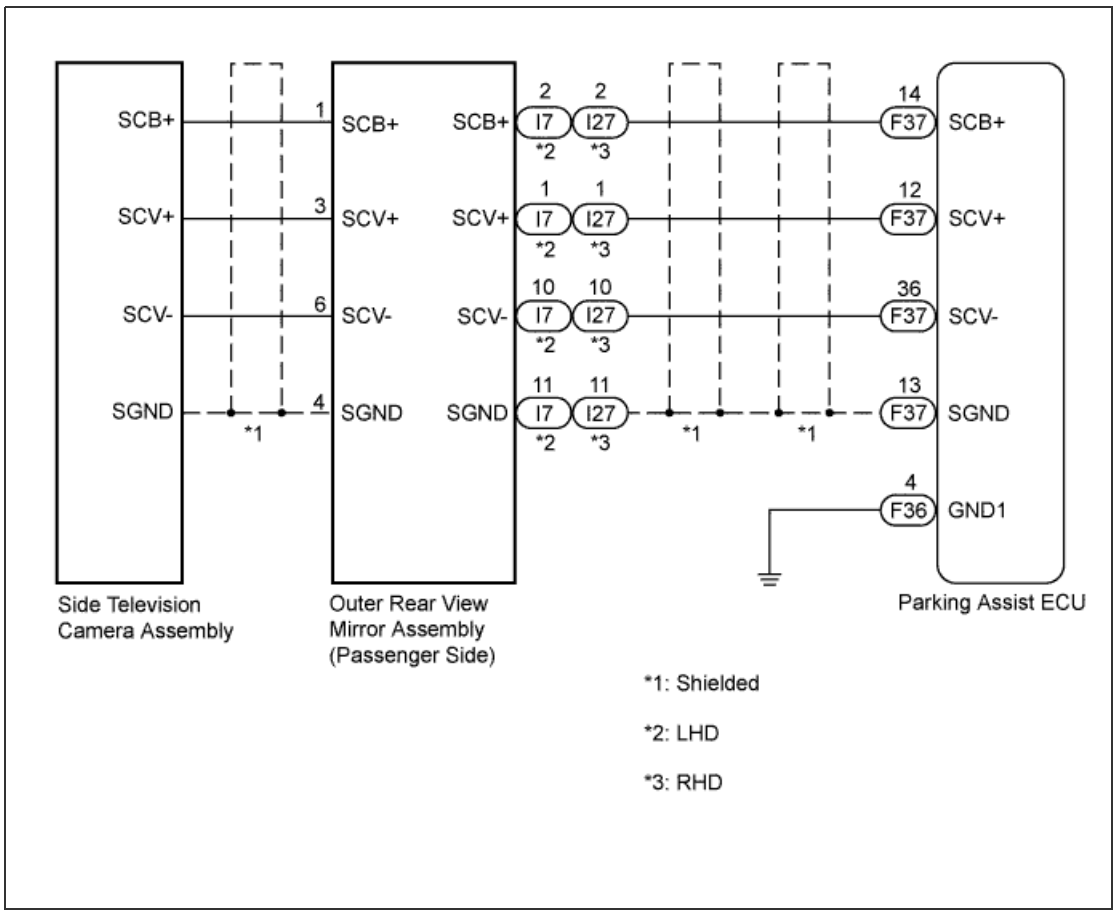
END

**for Preparation** Click here

## DESCRIPTION

The display signal from the side television camera assembly is transmitted to the display and navigation module display via the parking assist ECU.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the display and navigation module display after the cable is disconnected from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the side monitor system may be needed (Click here).**

**HINT:**

Images are difficult to discern even in normal conditions if:

- **Noise may occur in the image while adjusting or retracting the outer rear view mirror assembly (passenger side).**
- **Noise may occur in the image depending on electrical devices used in the cabin.**
- **Noise may occur in the image if accessories that generate radio waves have been installed.**
- **The camera screen is frosted over (the image immediately after turning the engine switch on (IG) may be blurred or darker than normal).**
- **The camera lens is dirty with snow, mud, etc.**
- **A strong beam of light, such as a sunbeam or headlight, hits the camera.**
- **It is too dark around the camera (at night etc.).**
- **The ambient temperature around the camera is either too high or too low.**
- **The vehicle is tilted at a steep angle.**
- **The ambience of the camera is too bright. (When a strong light, such as a sunbeam reflected off the vehicle body, hits the camera, the image may be blurred. This is called the "SMEAR" phenomenon, peculiar to the CCD camera.)**

### 1.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - OUTER REAR VIEW MIRROR ASSEMBLY)

a. Disconnect the F37 connector from the parking assist ECU.

b. for LHD:

i. Disconnect the I7 connector from the outer rear view mirror assembly RH.

ii. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F37-36 (SCV-) - I7-10 (SCV-) | Always | Below 1 Ω |
| F37-12 (SCV+) - I7-1 (SCV+) | Always | Below 1 Ω |
| F37-13 (SGND) - I7-11 (SGND) | Always | Below 1 Ω |
| F37-14 (SCB+) - I7-2 (SCB+) | Always | Below 1 Ω |
| F37-36 (SCV-) - Body ground | Always | 10 kΩ or higher |
| F37-12 (SCV+) - Body ground | Always | 10 kΩ or higher |
| F37-13 (SGND) - Body ground | Always | 10 kΩ or higher |
| F37-14 (SCB+) - Body ground | Always | 10 kΩ or higher |

c. for RHD:

i. Disconnect the I27 connector from the outer rear view mirror assembly LH.

ii. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F37-36 (SCV-) - I27-10 (SCV-) | Always | Below 1 Ω |
| F37-12 (SCV+) - I27-1 (SCV+) | Always | Below 1 Ω |
| F37-13 (SGND) - I27-11 (SGND) | Always | Below 1 Ω |
| F37-14 (SCB+) - I27-2 (SCB+) | Always | Below 1 Ω |
| F37-36 (SCV-) - Body ground | Always | 10 kΩ or higher |
| F37-12 (SCV+) - Body ground | Always | 10 kΩ or higher |
| F37-13 (SGND) - Body ground | Always | 10 kΩ or higher |
| F37-14 (SCB+) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**2.INSPECT PARKING ASSIST ECU (SCV-, SGND)**

a. Reconnect the F37 connector to the parking assist ECU.

b. Measure the resistance according to the value(s) in the table below.

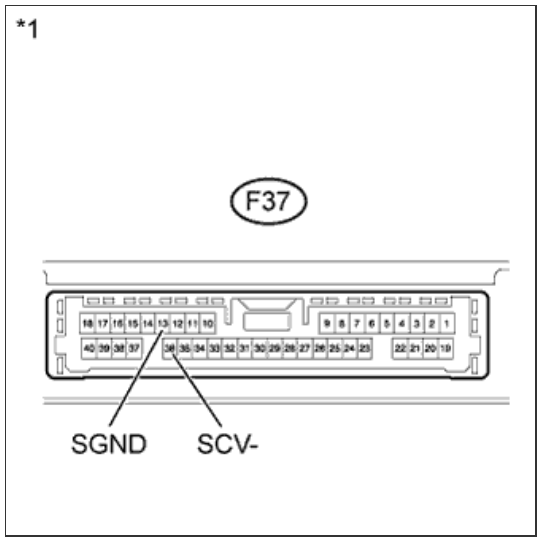
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| F37-36 (SCV-) - Body ground | Always | Below 1 Ω |
| F37-13 (SGND) - Body ground | Always | Below 1 Ω |

**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Parking Assist ECU) |




NG → REPLACE PARKING ASSIST ECU (Click here)

OK

**3.INSPECT OUTER REAR VIEW MIRROR ASSEMBLY (SCB+, SGND)**

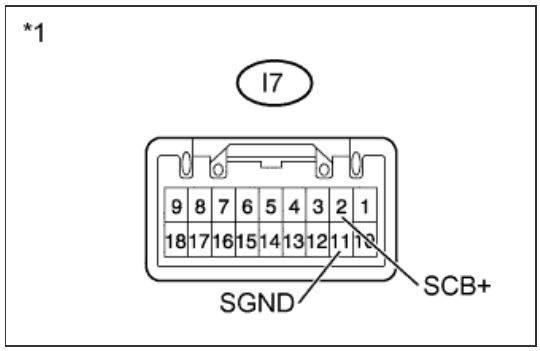
a. for LHD:

i. Disconnect the I7 connector from the outer rear view mirror assembly RH.

ii. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| I7-11 (SGND) - I7-2 (SCB+) | Engine switch on (IG) Front and side monitor main switch on | 5.8 to 7.0 V |



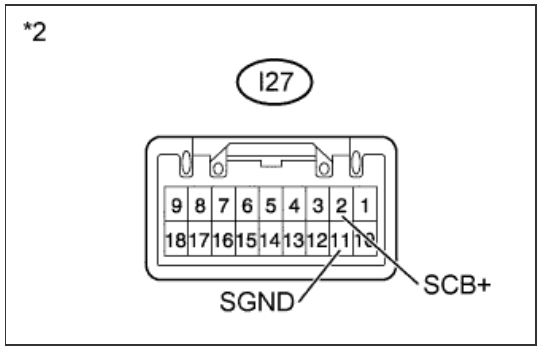

b. for RHD:

i. Disconnect the I27 connector from the outer rear view mirror assembly LH.

ii. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| I27-11 (SGND) - I27-2 (SCB+) | Engine switch on (IG) Front and side monitor main switch on | 5.8 to 7.0 V |




**Text in Illustration**

| | |
|---|---|
| *1 | Front view of wire harness connector (to Outer Rear View Mirror Assembly RH) |
| *2 | Front view of wire harness connector (to Outer Rear View Mirror Assembly LH) |

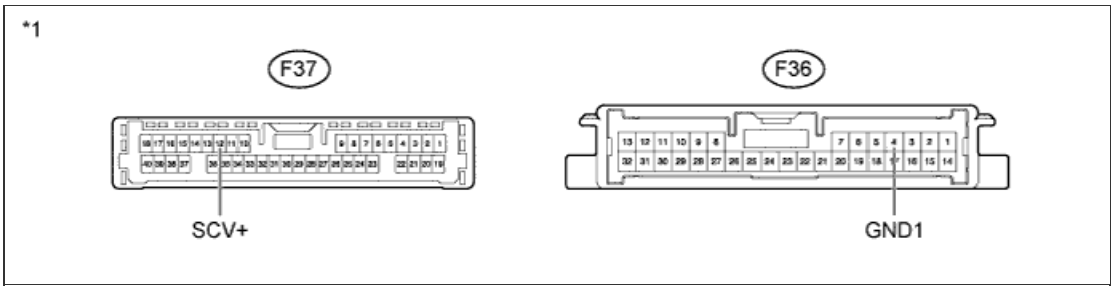
NG → REPLACE PARKING ASSIST ECU (Click here)

OK

**4.INSPECT PARKING ASSIST ECU (SCV+, GND1)**

a. Reconnect the I7 or I27 connector to the outer rear view mirror assembly (passenger side).

b. Reconnect the F36 and F37 connectors to the parking assist ECU.




c. Check the waveform of the side television camera assembly using an oscilloscope.

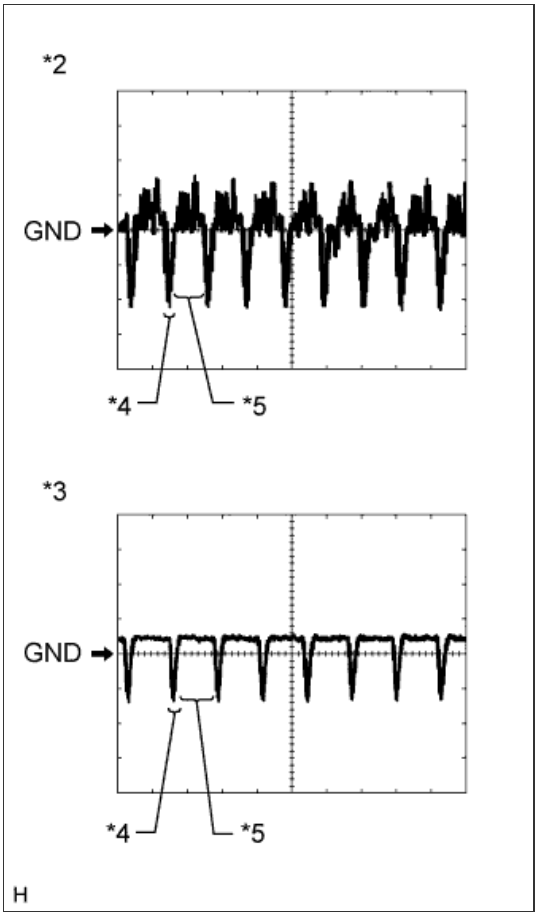
**HINT:**

A waterproof connector is used for the side television camera assembly. Therefore, inspect the waveform at the parking assist ECU with the connector connected.

**OK:**

**Waveform is as shown in the illustration.**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F37-12 (SCV+) - F36-4 (GND1) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), front and side monitor main switch on |




**HINT:**

The video waveform changes according to the image sent by the side television camera assembly.

**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (Parking Assist ECU) |
| *2 | Waveform 1 (under normal conditions) |
| *3 | Waveform 2 (camera lens is covered, blacking out the screen) |
| *4 | Synchronized Signal |
| *5 | Video Waveform |

NG → Go to step 5

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

## 5.REPLACE SIDE TELEVISION CAMERA ASSEMBLY

a. Replace the side television camera assembly with the new or normally functioning one ( Click here).

NEXT

## 6.CONFIRM SYMPTOMS

a. Check if the same malfunction recurs when the side monitor screen is displayed.

**Result**

| Result | Proceed to |
|---|---|
| Malfunction does not reoccur (returns to normal) | A |
| Malfunction reoccurs | B |

B → REPLACE OUTER REAR VIEW MIRROR ASSEMBLY (**Click here**)

A

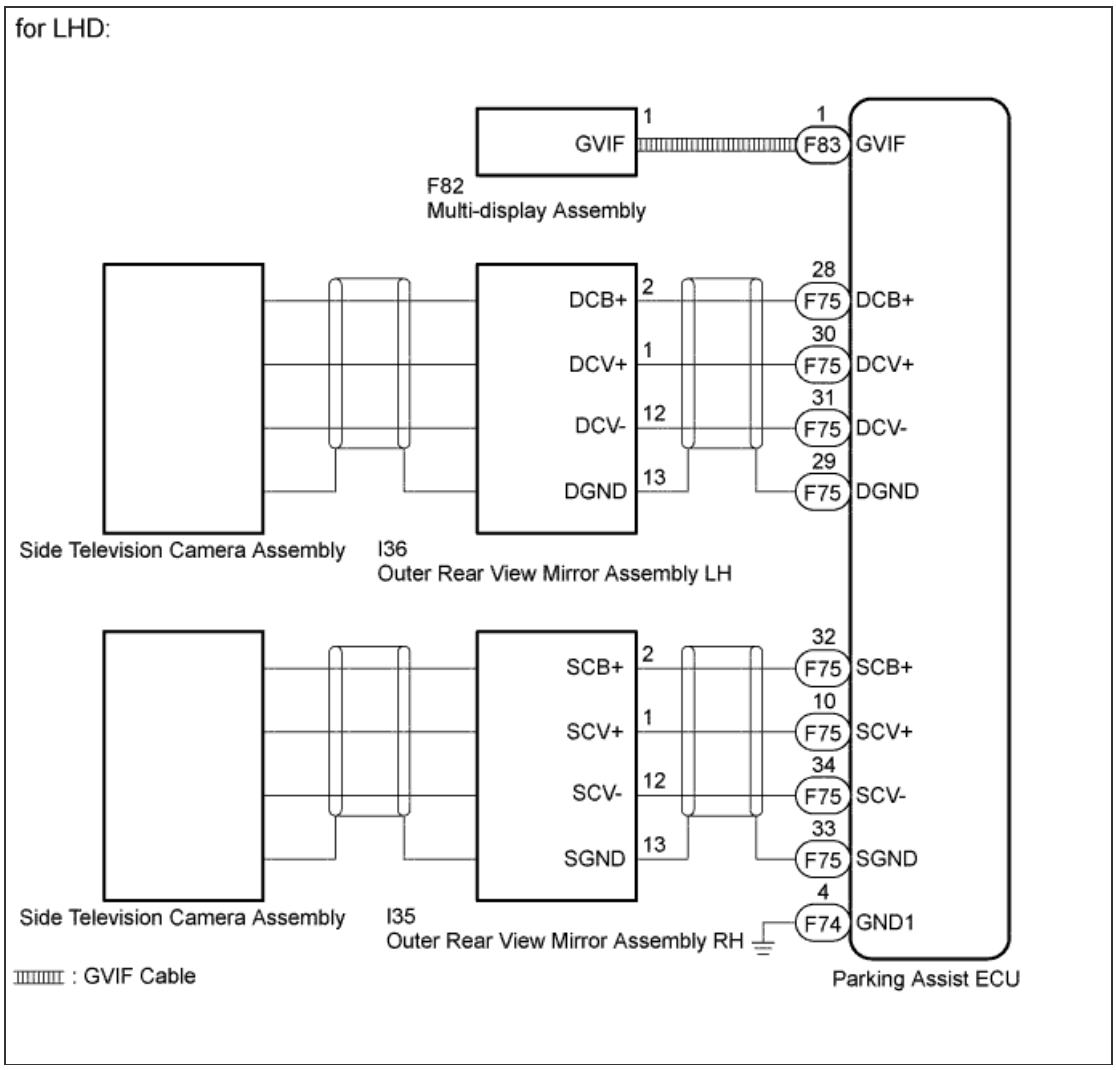
## END

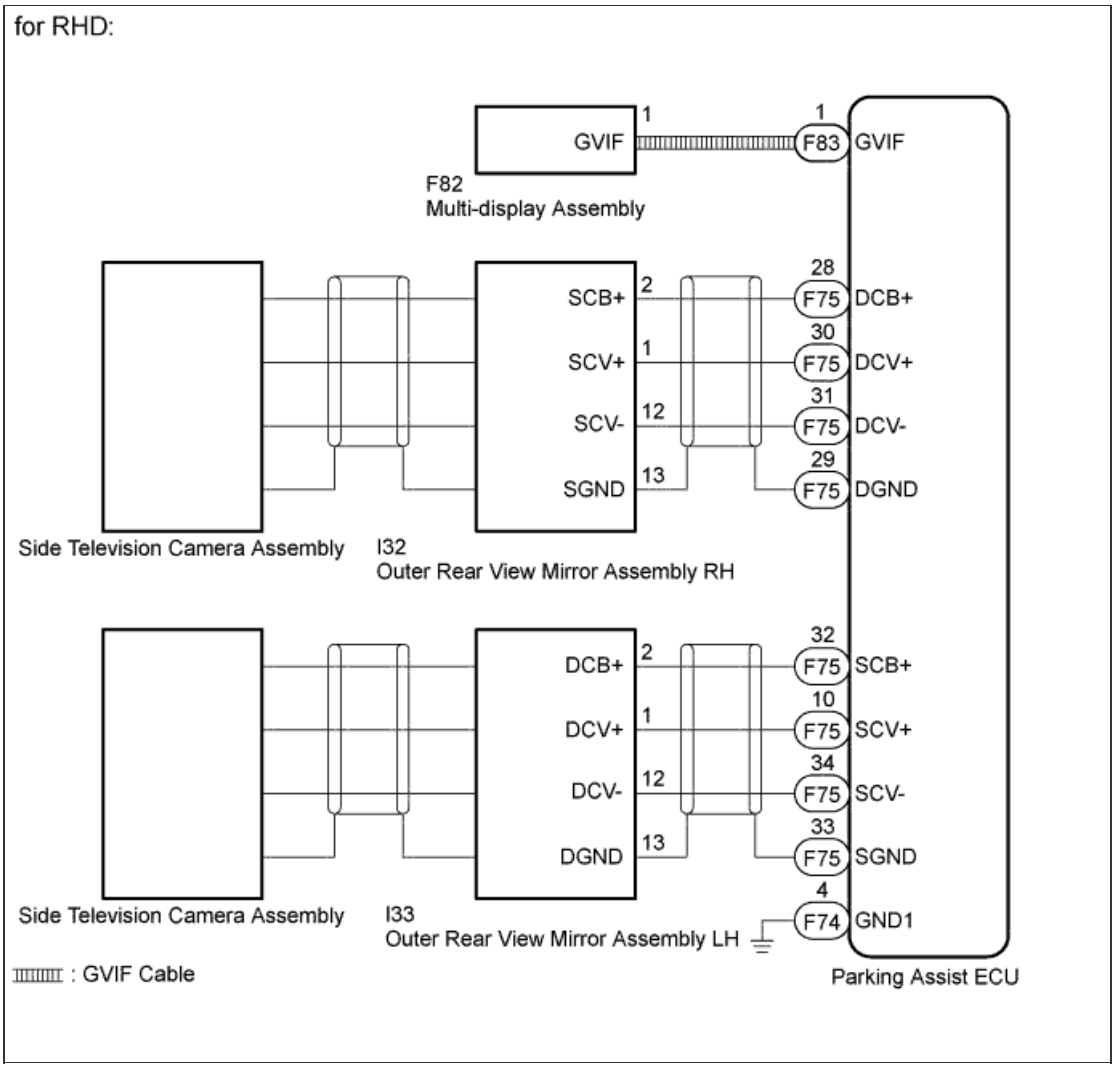
**for Preparation** Click here

## DESCRIPTION

The display signal from the side television camera assembly is transmitted to the multi-display assembly via the parking assist ECU.

## WIRING DIAGRAM






## INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the parking assist ECU after the cable is disconnected from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the side monitor system may be needed (Click here).**

**HINT:**

Images are difficult to discern even in normal conditions if:

- **Noise may occur in the image while adjusting or retracting the outer rear view mirror assembly.**
- **Noise may occur in the image depending on electrical devices used in the cabin.**
- **Noise may occur in the image if accessories that generate radio waves have been installed.**
- **The camera screen is frosted over (the image immediately after turning the engine switch on (IG) may be blurred or darker than normal).**
- **The camera lens is dirty with snow, mud, etc.**
- **A strong beam of light, such as a sunbeam or headlight, hits the camera.**
- **It is too dark around the camera (at night etc.).**
- **The ambient temperature around the camera is either too high or too low.**
- **The vehicle is tilted at a steep angle.**
- **The ambience of the camera is too bright. (When a strong light, such as a sunbeam reflected off the vehicle body, hits the camera, the image may be blurred. This is called the "SMEAR" phenomenon, peculiar to the CCD camera.)**

### 1.CHECK SIDE MONITOR SYSTEM

a. Check if the same malfunction occurs when the parking assist monitor screen is displayed.

**Result**

| Result | Proceed to |
|---|---|
| Malfunction occurs when side monitor screen (for Driver Side) is displayed (parking assist monitor screen is normal). | A |

| | |
|---|---|
| Malfunction occurs when side monitor screen (for Front Passenger Side) is displayed (parking assist monitor screen is normal). | B |
| Malfunction occurs when parking assist monitor screen and side monitor screen are displayed | C |

| | |
|---|---|
| B | Go to step 7 |
| C | Go to step 12 |

A

**2.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - OUTER REAR VIEW MIRROR ASSEMBLY AND BODY GROUND)**

a. Disconnect the F74 and F75 parking assist ECU connectors.

b. Disconnect the I36*1 or I32*2 outer rear view mirror assembly (for Driver Side) connector.

*1: for LHD
*2: for RHD

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LHD:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-31 (DCV-) - I36-12 (DCV-) | Always | Below 1 Ω |
| F75-30 (DCV+) - I36-1 (DCV+) | Always | Below 1 Ω |
| F75-29 (DGND) - I36-13 (DGND) | Always | Below 1 Ω |
| F75-28 (DCB+) - I36-2 (DCB+) | Always | Below 1 Ω |
| F74-4 (GND1) - Body ground | Always | Below 1 Ω |
| F75-31 (DCV-) - Body ground | Always | 10 kΩ or higher |
| F75-30 (DCV+) - Body ground | Always | 10 kΩ or higher |
| F75-29 (DGND) - Body ground | Always | 10 kΩ or higher |
| F75-28 (DCB+) - Body ground | Always | 10 kΩ or higher |

**for RHD:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-31 (DCV-) - I32-12 (SCV-) | Always | Below 1 Ω |
| F75-30 (DCV+) - I32-1 (SCV+) | Always | Below 1 Ω |
| F75-29 (DGND) - I32-13 (SGND) | Always | Below 1 Ω |
| F75-28 (DCB+) - I32-2 (SCB+) | Always | Below 1 Ω |
| F74-4 (GND1) - Body ground | Always | Below 1 Ω |
| F75-31 (DCV-) - Body ground | Always | 10 kΩ or higher |
| F75-30 (DCV+) - Body ground | Always | 10 kΩ or higher |
| F75-29 (DGND) - Body ground | Always | 10 kΩ or higher |
| F75-28 (DCB+) - | | |

| | | |
|---|---|---|
| Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 3.CHECK PARKING ASSIST ECU (DCB+, DGND)

a. Reconnect the F74 and F75 parking assist ECU connectors.

b. Measure the resistance according to the value(s) in the table below.

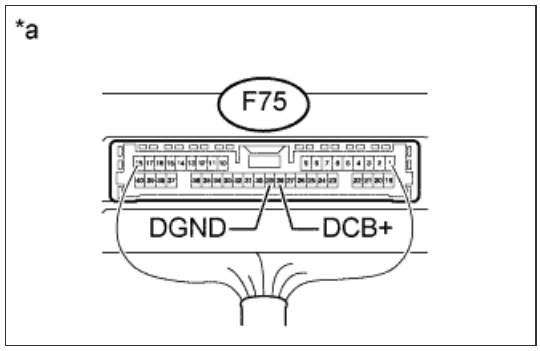
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-29 (DGND) - Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-28 (DCB+) - F75-29 (DGND) | Engine switch on (IG), front and side monitor main switch assembly on | 5.5 to 7.05 V |




**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Parking Assist ECU) |

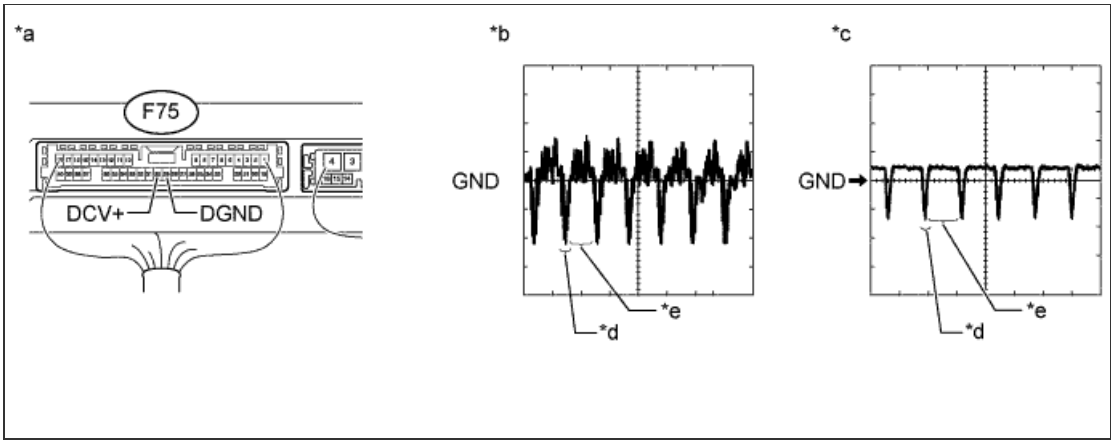
NG → REPLACE PARKING ASSIST ECU (Click here)

OK

## 4.CHECK OUTER REAR VIEW MIRROR ASSEMBLY (DCV+, DGND OR SCV+, SGND)

a. Reconnect the I36*1 or I32*2 outer rear view mirror assembly (for Front Passenger Side) connector.

*1: for LHD
*2: for RHD




**Text in Illustration**

| | | | |
|---|---|---|---|
| | | | |

| | | | |
|---|---|---|---|
| *a | Component with harness connected (Parking Assist ECU) | *b | Waveform A |
| *c | Waveform B | *d | Synchronization Signal |
| *e | Video Waveform | - | - |

**HINT:**

- **A waterproof connector is used for the side television camera assembly (for Driver Side). Therefore, inspect the waveform at the parking assist ECU with the connector connected.**
- **The video waveform changes according to the image sent by the side television camera assembly (for Driver Side).**

b. Measure the resistance according to the value(s) in the table below.

**OK:**
**Waveform is as shown in the illustration.**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F75-30 (DCV+) - F75-29 (DGND) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| Condition | • Waveform A: Engine switch on (IG), front and side monitor main switch assembly on and camera lens is not covered, displaying an image<br>• Waveform B: Engine switch on (IG), front and side monitor main switch assembly on and camera lens is covered, blacking out the screen |

NG → Go to step 5

OK

REPLACE PARKING ASSIST ECU (Click here)

## 5.REPLACE SIDE TELEVISION CAMERA ASSEMBLY

a. Replace the side television camera assembly (for Driver Side) with a new or normally functioning one ( Click here).

NEXT

## 6.CONFIRM SYMPTOMS

a. Check if the same malfunction recurs when the side monitor screen is displayed.

**Result**

| Result | Proceed to |
|---|---|
| Malfunction does not reoccur (returns to normal) | A |
| Malfunction reoccurs | B |

B → REPLACE OUTER REAR VIEW MIRROR ASSEMBLY (Click here)

A

END (SIDE TELEVISION CAMERA ASSEMBLY IS DEFECTIVE)

## 7.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - OUTER REAR VIEW MIRROR ASSEMBLY AND BODY GROUND)

a. Disconnect the F74 and F75 parking assist ECU connectors.

b. Disconnect the I35*1 or I33*2 outer rear view mirror assembly (for Front Passenger Side) connector.

*1: for LHD

*2: for RHD

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

**for LHD:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-34 (SCV-) - I35-12 (SCV-) | Always | Below 1 Ω |
| F75-10 (SCV+) - I35-1 (SCV+) | Always | Below 1 Ω |
| F75-33 (SGND) - I35-13 (SGND) | Always | Below 1 Ω |
| F75-32 (SCB+) - I35-2 (SCB+) | Always | Below 1 Ω |
| F74-4 (GND1) - Body ground | Always | Below 1 Ω |
| F75-34 (SCV-) - Body ground | Always | 10 kΩ or higher |
| F75-10 (SCV+) - Body ground | Always | 10 kΩ or higher |
| F75-33 (SGND) - Body ground | Always | 10 kΩ or higher |
| F75-32 (SCB+) - Body ground | Always | 10 kΩ or higher |

**for RHD:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-34 (SCV-) - I33-12 (DCV-) | Always | Below 1 Ω |
| F75-10 (SCV+) - I33-1 (DCV+) | Always | Below 1 Ω |
| F75-33 (SGND) - I33-13 (DGND) | Always | Below 1 Ω |
| F75-32 (SCB+) - I33-2 (DCB+) | Always | Below 1 Ω |
| F74-4 (GND1) - Body ground | Always | Below 1 Ω |
| F75-34 (SCV-) - Body ground | Always | 10 kΩ or higher |
| F75-10 (SCV+) - Body ground | Always | 10 kΩ or higher |
| F75-33 (SGND) - Body ground | Always | 10 kΩ or higher |
| F75-32 (SCB+) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**8.CHECK PARKING ASSIST ECU (SCB+, SGND)**

a. Reconnect the F74 and F75 parking assist ECU connectors.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

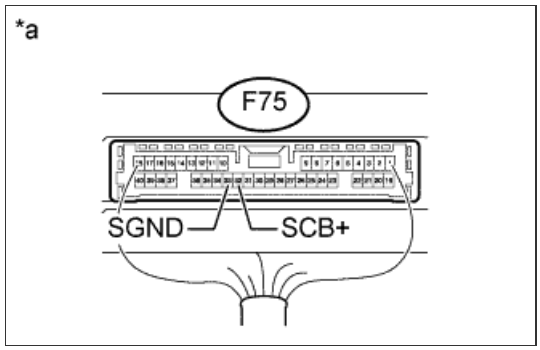
| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F75-33 (SGND) - | | |

| | | |
|---|---|---|
| Body ground | Always | Below 1 Ω |

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F75-32 (SCB+) - F75-33 (SGND) | Engine switch on (IG), front and side monitor main switch assembly on | 5.5 to 7.05 V |




**Text in Illustration**

| | |
|---|---|
| *a | Component with harness connected (Parking Assist ECU) |

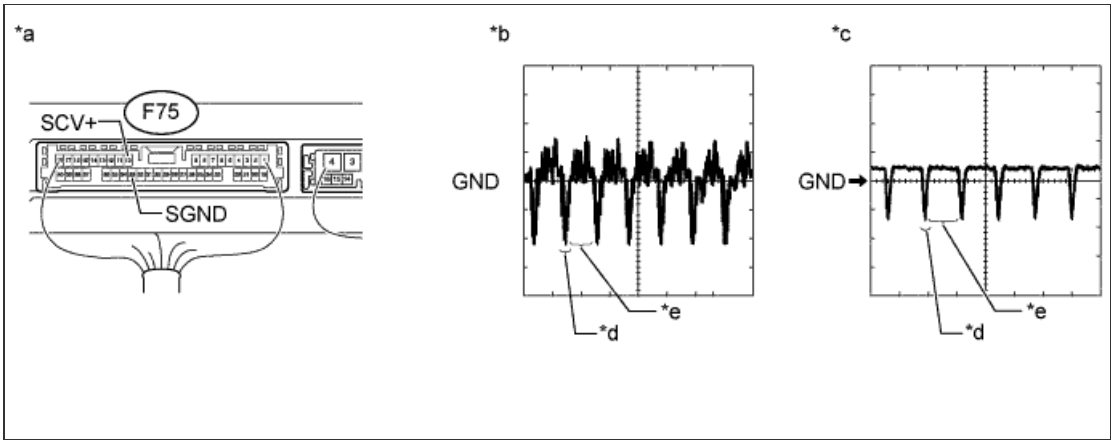
NG → REPLACE PARKING ASSIST ECU (Click here)

OK

## 9.CHECK OUTER REAR VIEW MIRROR ASSEMBLY (SCV+, SGND OR DCV+, DGND)

a. Reconnect the I35*1 or I33*2 outer rear view mirror assembly (for Front Passenger Side) connector.

*1: for LHD
*2: for RHD




**Text in Illustration**

| | | | |
|---|---|---|---|
| *a | Component with harness connected (Parking Assist ECU) | *b | Waveform A |
| *c | Waveform B | *d | Synchronization Signal |
| *e | Video Waveform | - | - |

**HINT:**

- **A waterproof connector is used for the side television camera assembly (for Front Passenger Side). Therefore, inspect the waveform at the parking assist ECU with the connector connected.**
- **The video waveform changes according to the image sent by the side television camera assembly (for Front Passenger Side).**

b. Measure the resistance according to the value(s) in the table below.

**OK:**
**Waveform is as shown in the illustration.**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | F75-10 (SCV+) - F75-33 (SGND) |
| Tool Setting | 200 mV/DIV., 50 µsec./DIV. |
| | • Waveform A: Engine switch |

| | |
|---|---|
| Condition | on (IG), front and side monitor main switch assembly on and camera lens is not covered, displaying an image<br>• Waveform B: Engine switch on (IG), front and side monitor main switch assembly on and camera lens is covered, blacking out the screen |

NG → Go to step 10

OK

REPLACE PARKING ASSIST ECU (Click here)

10.REPLACE SIDE TELEVISION CAMERA ASSEMBLY

a. Replace the side television camera assembly (for Front Passenger Side) with a new or normally functioning one ( Click here).

NEXT

11.CONFIRM SYMPTOMS

a. Check if the same malfunction recurs when the side monitor screen is displayed.

Result

| Result | Proceed to |
|---|---|
| Malfunction does not reoccur (returns to normal) | A |
| Malfunction reoccurs | B |

B → REPLACE OUTER REAR VIEW MIRROR ASSEMBLY (Click here)

A

END (SIDE TELEVISION CAMERA ASSEMBLY IS DEFECTIVE)

12.REPLACE HARNESS AND CONNECTOR (GVIF CABLE)

a. Replace the GVIF cable.

NEXT

13.CONFIRM SYMPTOMS

a. Check if the same malfunction recurs when the side monitor screen is displayed.

Result

| Result | Proceed to |
|---|---|
| Malfunction does not reoccur (returns to normal) | A |
| Malfunction reoccurs | B |

B → REPLACE PARKING ASSIST ECU (Click here)

A

END (GVIF CABLE IS DEFECTIVE)

**for Preparation** Click here

## DESCRIPTION

On the SIGNAL CHECK screen, it is possible to check if the state of signals sent to the parking assist ECU is normal ( Click here).

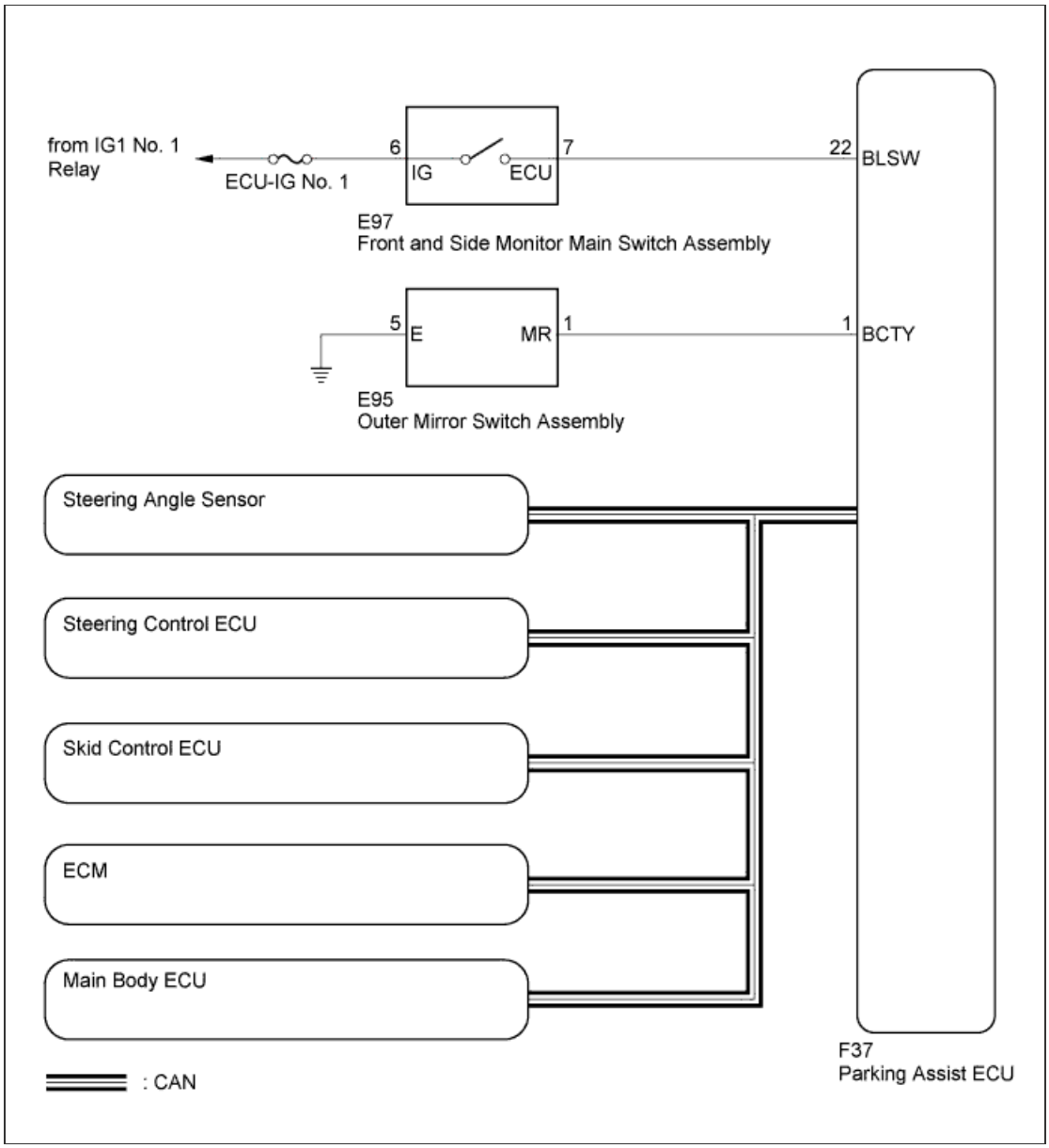
**HINT:**

- **On the SIGNAL CHECK screen, "OK" (blue) is displayed for items with a normal inspection result and input state.**
- **On the SIGNAL CHECK screen, "CHK" (red) is displayed for items with an abnormal inspection result and input state.**
- **Displayed items may differ depending on the specifications.**

| Item | Signal Input Method | Detail | DTC Output when Abnormal Result is Displayed | Signal Receiver |
|---|---|---|---|---|
| SPEED | CAN communication | Speed signal input | DTC is output | Skid control ECU |
| CAMERA SW | Vehicle wire harness | Front and side monitor main switch signal input | DTC is not output | Parking assist ECU |
| BCTY | CAN communication | CAN communication condition with main body ECU | DTC is output | Main body ECU |
| MIRROR SW | Vehicle wire harness | Outer rear view mirror retract signal input | DTC is not output | Parking assist ECU |
| SHIFT | CAN communication | Shift signal input | DTC is output | ECM |
| STR SIG | CAN communication | Steering angle sensor signal input | DTC is output | Spiral with sensor cable sub-assembly |
| WFS SET | Vehicle wire harness | Front monitor signal input<br>Side monitor signal input<br>Front and side monitor main switch signal input | DTC is not output | Parking assist ECU |
| VGRS *1 | CAN communication | VGRS signal input | DTC is output | Steering control ECU |
| DEST | CAN communication | Destination information signal input | DTC is output | Main body ECU |
| BRAND | CAN communication | Brand information signal input | DTC is output | Main body ECU |

*1: w/ VGRS

## WIRING DIAGRAM




## INSPECTION PROCEDURE

**NOTICE:**

- **When "System initializing" is displayed on the display and navigation module display after the cable is disconnected from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the side monitor system may be needed (Click here).**
- **When replacing the display and navigation module display, perform vehicle contract setting (w/ G-BOOK system) ( Click here).**
- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**

### 1.CHECK DISPLAY CHECK MODE

a. Check which items display "CHK" (red) on the SIGNAL CHECK screen.

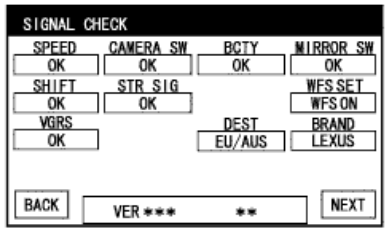
**Text in Illustration**

| | |
|---|---|
| *1 | Example |

**Result**

| Result | Proceed to |
|---|---|
| "MIRROR SW" displays "CHK" (red). | A |
| "CAMERA SW" and "WFS SET" displays "CHK" (red). | B |
| Any of "SPEED", "BCTY", "SHIFT", "STR SIG", "DEST", "VGRS" and "BRAND" display "CHK" (red). | C |

*1



B → Go to step 5

C → CHECK DTC OUTPUT (Click here)

A

## 2.INSPECT OUTER MIRROR SWITCH

a. Inspection outer mirror switch (Click here).

NG → REPLACE OUTER MIRROR SWITCH (Click here)

OK

## 3.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - OUTER MIRROR SWITCH)

a. Disconnect the E37 connector from the parking assist ECU.

b. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| E37-1 (BCTY) - E95-1 (MR) | Always | Below 1 Ω |
| E37-1 (BCTY) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

## 4.CHECK POWER MIRROR CONTROL SYSTEM (POWER RETRACT FUNCTION)

a. Operate the mirror retract switch to check if the power retract mirror function of the outer rear view mirror assembly (passenger side) operates normally (Click here).

NG → GO TO POWER MIRROR CONTROL SYSTEM (Click here)

OK

REPLACE PARKING ASSIST ECU (Click here)

## 5.INSPECT FRONT AND SIDE MONITOR MAIN SWITCH ASSEMBLY

a. Inspection front and side monitor main switch assembly ( Click here).

NG → REPLACE FRONT AND SIDE MONITOR MAIN SWITCH ASSEMBLY (Click here)

OK

## 6.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - MAIN SWITCH ASSEMBLY)

a. Disconnect the F37 connector from the parking assist ECU.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|

| | | |
|---|---|---|
| E97-6 (IG) - Body ground | Engine switch on (IG) | 11 to 14 V |

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F37-22 (BLSW) - Body ground | Always | 10 kΩ or higher |
| E97-7 (ECU) - Body ground | Always | 10 kΩ or higher |
| F37-22 (BLSW) - E97-7 (ECU) | Always | Below 1 Ω |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE PARKING ASSIST ECU (Click here)

**for Preparation** Click here

## DESCRIPTION

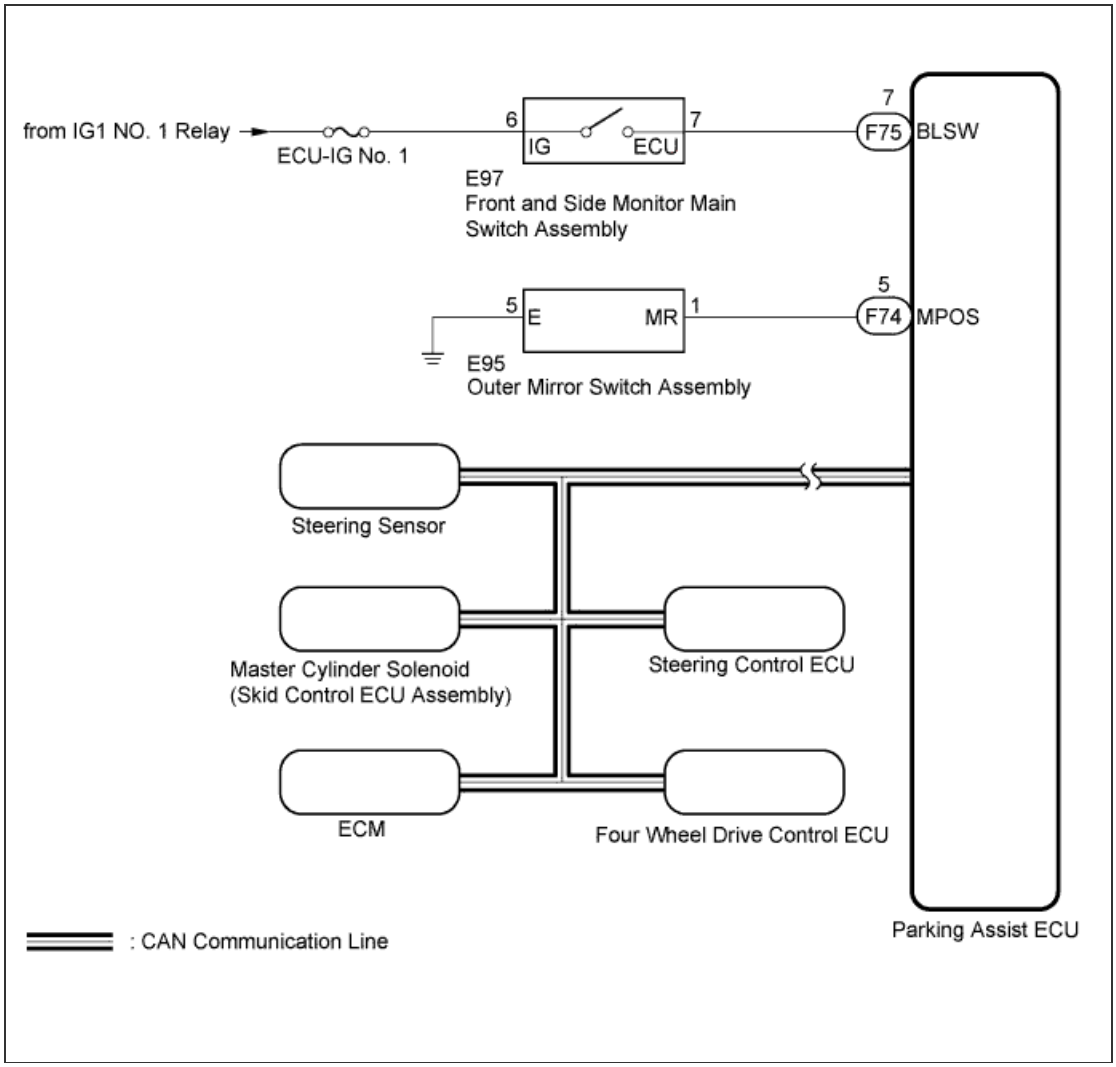
On the [Signal Check] screen, it is possible to check if the state of signals sent to the parking assist ECU is normal ( Click here).

**HINT:**

- **On the [Signal Check] screen, "OK" (blue) is displayed for items with a normal inspection result and input state.**
- **On the [Signal Check] screen, "CHK" (red) is displayed for items with an abnormal inspection result and input state.**
- **Displayed items may differ depending on the specifications.**

| Item | Signal Input Method | Detail | DTC Output when Abnormal Result is Displayed |
|---|---|---|---|
| CAN | CAN communication | Speed signal input | DTC is output |
| CAMERA SW | Vehicle wire harness | Front and side monitor main switch signal input | DTC is not output |
| MIRROR SW | Vehicle wire harness | Outer rear view mirror retract signal input | DTC is not output |
| VGRS | CAN communication | VGRS signal input | DTC is output |
| D-CAM SET | Vehicle wire harness | Driver side camera information signal input | DTC is not output |
| OTA | Vehicle wire harness | Off-road turn assist function information signal input | DTC is not output |
| DEST | Vehicle wire harness | Destination code signal input | DTC is not output |

## WIRING DIAGRAM



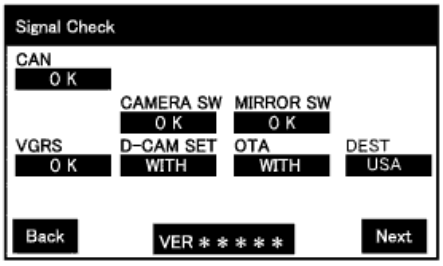

## INSPECTION PROCEDURE

**NOTICE:**

- **Since the side monitor system has functions that use CAN communication system, first confirm that there is no malfunction in the communication system by inspecting the CAN communication functions in accordance with the "How to Proceed with Troubleshooting" procedures. Then, conduct the following inspection procedure.**
- **When "System initializing" is displayed on the display and navigation module display after the cable is disconnected from the negative (-) battery terminal, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the side monitor system may be needed (Click here).**
- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**

## 1.CHECK DISPLAY CHECK MODE

a. Check which items display "CHK" (red) on the [Signal Check] screen.




**Result**

| Result | Proceed to |
|---|---|
| "CAMERA SW" and "WFS SET" displays "CHK" (red). | A |
| "MIRROR SW" displays "CHK" (red). | B |
| "VGRS" displays "CHK" (red). | C |
| "CAN" displays "CHK" (red). | C |

**B** → Go to step 5

**C** → CHECK DTC OUTPUT (Click here)

**A**

## 2.INSPECT FRONT AND SIDE MONITOR MAIN SWITCH ASSEMBLY

a. Remove the front and side monitor main switch assembly ( Click here).

b. Inspect the front and side monitor main switch assembly ( Click here).

**NG** → REPLACE FRONT AND SIDE MONITOR MAIN SWITCH ASSEMBLY (Click here)

**OK**

## 3.CHECK HARNESS AND CONNECTOR (FRONT AND SIDE MONITOR MAIN SWITCH ASSEMBLY - PARKING ASSIST ECU AND BODY GROUND)

a. Disconnect the E97 front and side monitor main switch assembly connector.

b. Disconnect the F75 parking assist ECU assembly connector.

c. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| E97-6 (IG) - Body ground | Engine switch on (IG) | 11 to 14 V |
| E97-6 (IG) - Body ground | Engine switch off | Below 1 V |

d. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F75-7 (BLSW) - E97-7 (ECU) | Always | Below 1 Ω |

| | | |
|---|---|---|
| E97-7 (ECU) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

REPLACE PARKING ASSIST ECU (**Click here**)

## 4.INSPECT OUTER MIRROR SWITCH ASSEMBLY

a. Remove the outer mirror switch assembly ( Click here).

b. Inspect the outer mirror switch assembly ( Click here).

NG → REPLACE OUTER MIRROR SWITCH ASSEMBLY (**Click here**)

OK ↓

## 5.CHECK HARNESS AND CONNECTOR (OUTER MIRROR SWITCH ASSEMBLY - PARKING ASSIST ECU)

a. Disconnect the F74 parking assist ECU connector.

b. Disconnect the E95 outer mirror switch assembly connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| F74-5 (MPOS) - E95-1 (MR) | Always | Below 1 Ω |
| F74-5 (MPOS) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

## 6.CHECK POWER MIRROR CONTROL SYSTEM (POWER RETRACT FUNCTION)

a. Check the power mirror control system (power retract function) ( Click here).

**OK:**

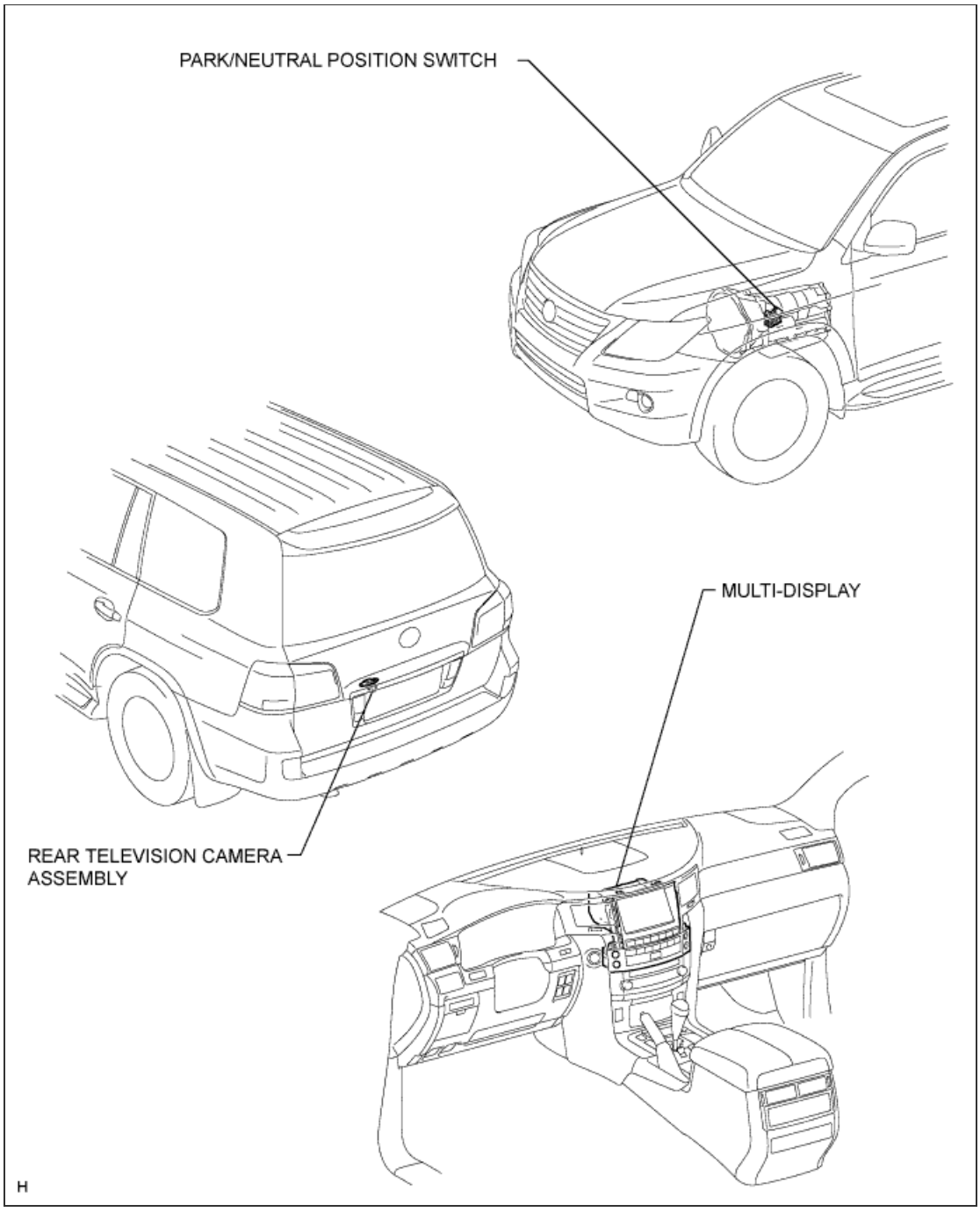
**Power mirror control system (power retract function) is normal.**

NG → Go to POWER MIRROR CONTROL SYSTEM (**Click here**)

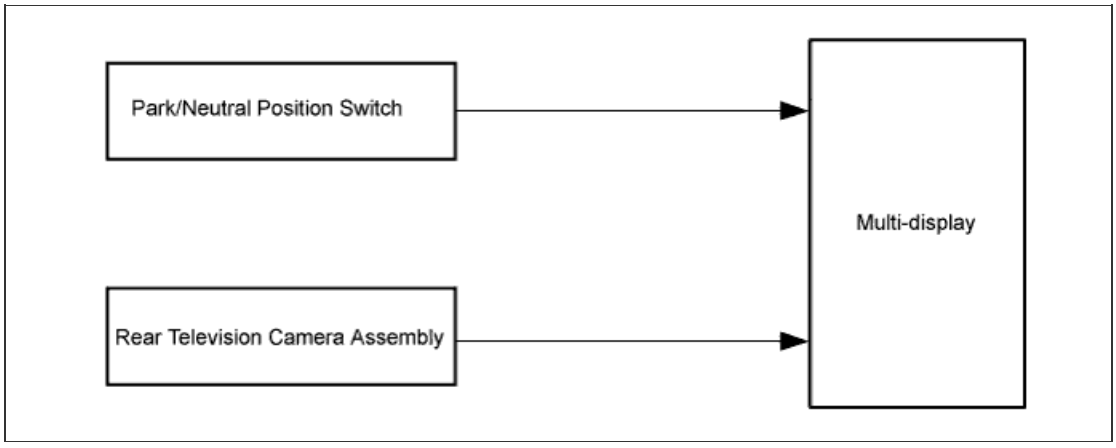
OK ↓

REPLACE PARKING ASSIST ECU (**Click here**)

**for Preparation** Click here



**for Preparation** Click here



**for Preparation** Click here

## GENERAL

a. This system has a rear television camera mounted on the back door to assist the driver in parking the vehicle by displaying an image of the area behind the vehicle. The system displays the image on the multi-display.

b. This system consists of the following components:

i. Multi-display

ii. Rear television camera assembly

iii. Park/neutral position switch

## FUNCTION OF COMPONENTS

a. The multi-display controls the system by using information from the following components:

| Components | Function |
|---|---|
| Rear television camera assembly | • Mounted on the back door to transmit an image of the area behind the vehicle to the multi-display.<br>• Has a color video camera that uses a CCD (Charge Coupled Device) and a wide-angle lens. |
| Multi-display | • Receives the video signals which contain an image of the area behind the vehicle taken with the rear television camera.<br>• Performs control of the system by receiving a shift position signal from the park/neutral position switch.<br>• Displays the rear view monitor image on the display panel. |
| Park/neutral position switch | Transmits a reverse shift position signal to the multi-display. |

## OPERATION EXPLANATION

a. The park/neutral position switch outputs the R position signal to the multi-display when the shift lever is moved to R. After receiving the R position signal, the multi-display switches to the rear view monitor system.

## NOTES FOR REAR VIEW MONITOR

a. Notes for the rear view monitor.

i. The rear view monitor may not function properly if subjected to a severe blow by any hard object.

ii. Do not "scrub" the camera because it is made of resin. Scrubbing it may scratch the cover and affect the image. Prevent organic solvents, waxes, bond removing solvents, or glass coating from adhering to the cover. Clean it off immediately, and wash with water.

iii. Exposing the camera to a sudden temperature change may affect proper functioning of the camera.

iv. A clear image may not appear if the camera is dirty with snow, mud, etc. In this case, wash it with water and wipe off the lens. Use a detergent to remove dirt if necessary.

b. Images are difficult to discern even in normal conditions if:

i. The camera lens is frosted over (the image immediately after turning the engine switch on (IG) may be blurred or darker than normal).

ii. A strong beam of light, such as a sunbeam or headlight, hits the camera.

**HINT:**

When a strong light, such as a sunbeam reflected off the vehicle body, hits the camera, the image may be blurred. This is called the "SMEAR" phenomenon, peculiar to the CCD camera.

iii. It is too dark around the camera (at night, etc.).

iv. The ambient temperature around the camera is either too high or too low.

**for Preparation** Click here

**HINT:**

Use the following procedures to troubleshoot the rear view monitor system.

## 1.VEHICLE BROUGHT TO WORKSHOP

NEXT

## 2.INSPECT BATTERY VOLTAGE

**Standard voltage:**
**11 to 14 V**

a. If the voltage is below 11V, replace or recharge the battery before proceeding.

NEXT

## 3.CUSTOMER PROBLEM ANALYSIS

NEXT

## 4.CHECK FOR DTC (5C-40)

a. Refer to the DTC Check / Clear procedures of the navigation system ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC 5C-40 is not output | A |
| DTC 5C-40 is output | B |

B. Go to 5C-40 (**Click here**)

A

## 5.PROBLEM SYMPTOM CONFIRMATION

**Result**

| Result | Proceed to |
|---|---|
| Symptom does not occur | A |
| Symptom occurs | B |

B. Go to step 6

A

## 6.SYMPTOM SIMULATION

NEXT

## 7.CHECK IF SAME SYMPTOM APPEARS IN NAVIGATION SYSTEM

a. Refer to the navigation system.

**Result**

| Result | Proceed to |
|---|---|
| Symptom does not appear | A |
| Symptom appears | B |

B. → Go to NAVIGATION SYSTEM (**Click here**)

A

## 8.PROBLEM SYMPTOMS TABLE

a. Refer to the Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in problem symptoms table | A |
| Fault is listed in problem symptoms table | B |

B. → Go to step 10

A

## 9.BASED ON MALFUNCTION SYMPTOM, PERFORM TROUBLESHOOTING BELOW

a. Terminals of ECU (Click here).

NEXT

## 10.ADJUST, REPAIR OR REPLACE

NEXT

## 11.CONFIRMATION TEST

NEXT

END

**for Preparation** Click here

**HINT:**

Use the following procedures to troubleshoot the rear view monitor system.

## 1.VEHICLE BROUGHT TO WORKSHOP

NEXT

## 2.INSPECT BATTERY VOLTAGE

**Standard voltage:**
**11 to 14 V**

a. If the voltage is below 11V, replace or recharge the battery before proceeding.

NEXT

## 3.CUSTOMER PROBLEM ANALYSIS

NEXT

## 4.CHECK FOR DTC (C1622)

a. Refer to the DTC Check / Clear procedures of the parking assist monitor system ( Click here).

**Result**

| Result | Proceed to |
|---|---|
| DTC C1622 is not output | A |
| DTC C1622 is output | B |

B. Go to C1622 (Click here)

A

## 5.PROBLEM SYMPTOM CONFIRMATION

**Result**

| Result | Proceed to |
|---|---|
| Symptom does not occur | A |
| Symptom occurs | B |

B. Go to step 6

A

## 6.SYMPTOM SIMULATION

NEXT

## 7.CHECK IF SAME SYMPTOM APPEARS IN NAVIGATION SYSTEM

a. Refer to the navigation system.

**Result**

| Result | Proceed to |
|---|---|
| Symptom does not appear | A |
| Symptom appears (for HDD navigation system) | B |
| Symptom appears (for DVD navigation system) | C |

B. → Go to NAVIGATION SYSTEM (Click here)

C. → Go to NAVIGATION SYSTEM (Click here)

A

## 8.PROBLEM SYMPTOMS TABLE

a. Refer to the Problem Symptoms Table (Click here).

**Result**

| Result | Proceed to |
|---|---|
| Fault is not listed in problem symptoms table | A |
| Fault is listed in problem symptoms table | B |

B. → Go to step 10

A

## 9.BASED ON MALFUNCTION SYMPTOM, PERFORM TROUBLESHOOTING BELOW

a. Terminals of ECU (Click here).

NEXT

## 10.ADJUST, REPAIR OR REPLACE

NEXT

## 11.CONFIRMATION TEST

NEXT

END

**for Preparation** Click here

**HINT:**

Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

**NOTICE:**

The following inspection procedures of the rear view monitor system are described on the assumption that the navigation system is normal. If any navigation system DTC is output, first proceed with troubleshooting of the navigation system.

**Rear View Monitor System**

| Symptom | Suspected Area | See page |
|---|---|---|
| When shift lever is in R, rear view monitor image is not displayed (screen is not black) | Proceed to "Reverse Signal Circuit"*1 | Click here |
| | Proceed to "Reverse Signal Circuit"*2 | Click here |
| | Display signal circuit between multi-display and television camera assembly*1 | Click here |
| | Proceed to "Display Signal Circuit between Multi-display and Television Camera Assembly"*2 | Click here |
| | Multi-display*1 | Click here |
| | Multi-display*2 | Click here |
| When shift lever is in R, rear view monitor image is not displayed (screen is black) | Proceed to "Multi-display Power Source Circuit"*1 | Click here |
| | Proceed to "Multi-display Power Source Circuit"*2 | Click here |
| | Display signal circuit between multi-display and television camera assembly*1 | Click here |
| | Proceed to "Display Signal Circuit between Multi-display and Television Camera Assembly"*2 | Click here |
| | Rear television camera assembly | Click here |
| | Multi-display*1 | Click here |
| | Multi-display*2 | Click here |
| When shift lever is not in R, rear view monitor image is displayed | Display signal circuit between multi-display and television camera assembly*1 | Click here |
| | Proceed to "Display Signal Circuit between Multi-display and Television Camera Assembly"*2 | Click here |
| | Multi-display*1 | Click here |
| | Multi-display*2 | Click here |
| Problem with the rear view monitor image (color, distortion of picture) | Display signal circuit between multi-display and television camera assembly*1 | Click here |
| | Proceed to "Display Signal Circuit between Multi-display and Television Camera Assembly"*2 | Click here |
| | Rear television camera assembly | Click here |
| | Multi-display*1 | Click here |
| | Multi-display*2 | Click here |

*1: w/ Navigation System

*2: w/o Navigation System

**for Preparation** Click here

**HINT:**

Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

**NOTICE:**

The following inspection procedures of the rear view monitor system are described on the assumption that the navigation system is normal. If any navigation system DTC is output, first proceed with troubleshooting of the navigation system.

**Rear View Monitor System**

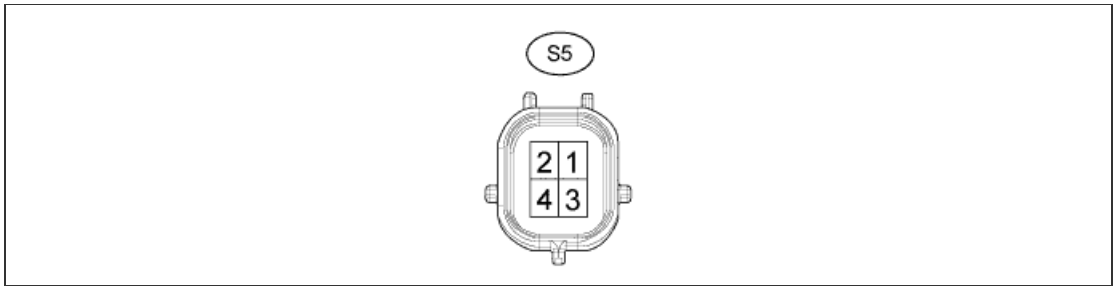
| Symptom | Suspected Area | See page |
|---|---|---|
| When shift lever is in R, rear view monitor image is not displayed (screen is not black) | Proceed to "Reverse Signal Circuit"*1 | Click here |
| | Proceed to "Reverse Signal Circuit"*2 | Click here |
| | Proceed to "Reverse Signal Circuit"*3 | Click here |
| | Proceed to "Open or Short Circuit in Back Camera Signal"*1*2 | Click here |
| | Proceed to "Display Signal Circuit between Display and Navigation Module Display and Television Camera Assembly"*3 | Click here |
| | Display and navigation module display*1*2 | Click here |
| | Display and navigation module display*3 | Click here |
| When shift lever is in R, rear view monitor image is not displayed (screen is black) | Proceed to "Navigation ECU Power Source Circuit"*1 | Click here |
| | Proceed to "Navigation ECU Power Source Circuit"*2 | Click here |
| | Proceed to "Multi-media Interface ECU Power Source Circuit"*3 | Click here |
| | Display signal circuit between display and navigation module display and television camera assembly*1 | Click here |
| | Display signal circuit between display and navigation module display and television camera assembly*2 | Click here |
| | Proceed to "Display Signal Circuit between Display and Navigation Module Display and Television Camera Assembly"*3 | Click here |
| | Rear television camera assembly | Click here |
| | Display and navigation module display*1*2 | Click here |
| | Display and navigation module display*3 | Click here |
| When shift lever is not in R, rear view monitor image is displayed | Proceed to "Open or Short Circuit in Back Camera Signal"*1*2 | Click here |
| | Proceed to "Display Signal Circuit between Display and Navigation Module Display and Television Camera Assembly"*3 | Click here |
| | Display and navigation module display*1*2 | Click here |
| | Display and navigation module display*3 | Click here |
| Problem with the rear view monitor image (color, distortion of picture) | Proceed to "Open or Short Circuit in Back Camera Signal"*1*2 | Click here |
| | Proceed to "Display Signal Circuit between Display and Navigation Module Display and Television Camera Assembly"*3 | Click here |
| | Rear television camera assembly | Click here |

| | | |
|---|---|---|
| | Display and navigation module display*1*2 | Click here |
| | Display and navigation module display*3 | Click here |

*1: w/ Navigation System for HDD
*2: w/ Navigation System for DVD
*3: w/o Navigation System

**for Preparation** Click here

## CHECK REAR TELEVISION CAMERA ASSEMBLY




a. Disconnect the S5 camera connector.

b. Measure the voltage and resistance according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| S5-3 (CGND) - Body ground | W - Body ground | Ground | Always | Below 1 Ω |
| S5-4 (CB+) - S5-3 (CGND) | B - W | Power source | Engine switch on (IG), shift lever in R | 5.8 to 6.5 V |

If the result is not as specified, there may be a malfunction on the wire harness side.

c. Reconnect the S5 camera connector.

d. Measure the voltage according to the value(s) in the table below.

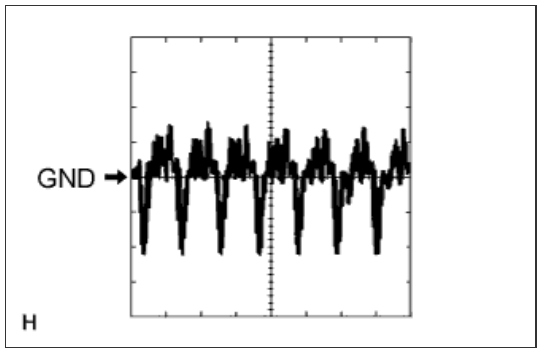
| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| S5-2 (CV+) - S5-1 (CV-) | R - BR | Display signal | Engine switch on (IG), shift lever in R | Waveform 1 |

If the result is not as specified, the camera may have a malfunction.

e. Using an oscilloscope, check waveform 1.

**Waveform 1 (Reference)**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | S5-2 (CV+) - S5-1 (CV-) |
| Tool Setting | 0.2 V/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), shift lever in R |

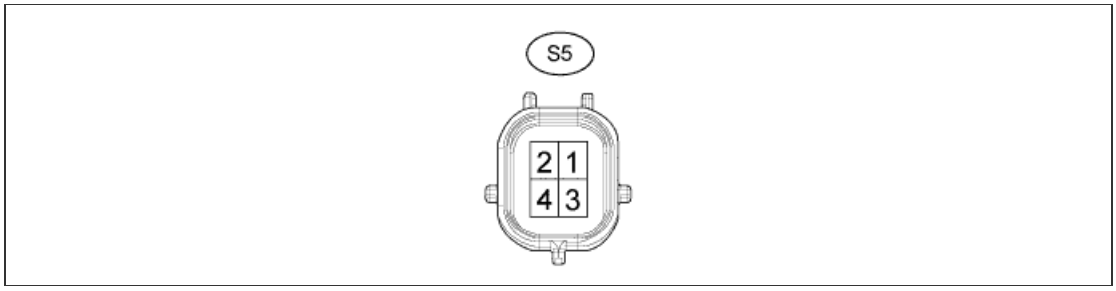



## CHECK MULTI-DISPLAY (w/ Navigation System) (Click here)

## CHECK MULTI-DISPLAY (w/o Navigation System) (Click here)

**for Preparation** Click here

## CHECK REAR TELEVISION CAMERA ASSEMBLY




a. Disconnect the S5 camera connector.

b. Measure the voltage and resistance according to the value(s) in the table below.

| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| S5-3 (CGND) - Body ground | BR - Body ground | Ground | Always | Below 1 Ω |
| S5-4 (CB+) - S5-3 (CGND) | B - BR | Power source | Engine switch on (IG), shift lever in R | 5.8 to 6.5 V |

If the result is not as specified, there may be a malfunction on the wire harness side.

c. Reconnect the S5 camera connector.

d. Measure the voltage according to the value(s) in the table below.

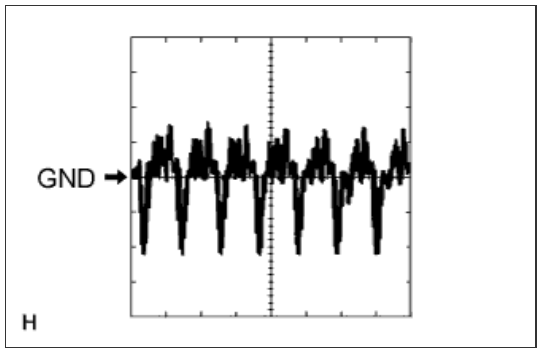
| Terminal No. (Symbol) | Wiring Color | Terminal Description | Condition | Specified Condition |
|---|---|---|---|---|
| S5-2 (CV+) - S5-1 (CV-) | R - W | Display signal | Engine switch on (IG), shift lever in R | Waveform 1 |

If the result is not as specified, the camera may have a malfunction.

e. Using an oscilloscope, check waveform 1.

**Waveform 1 (Reference)**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | S5-2 (CV+) - S5-1 (CV-) |
| Tool Setting | 0.2 V/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), shift lever in R |




## CHECK DISPLAY AND NAVIGATION MODULE DISPLAY (w/ Navigation System)

for HDD (Click here).
for DVD (Click here).

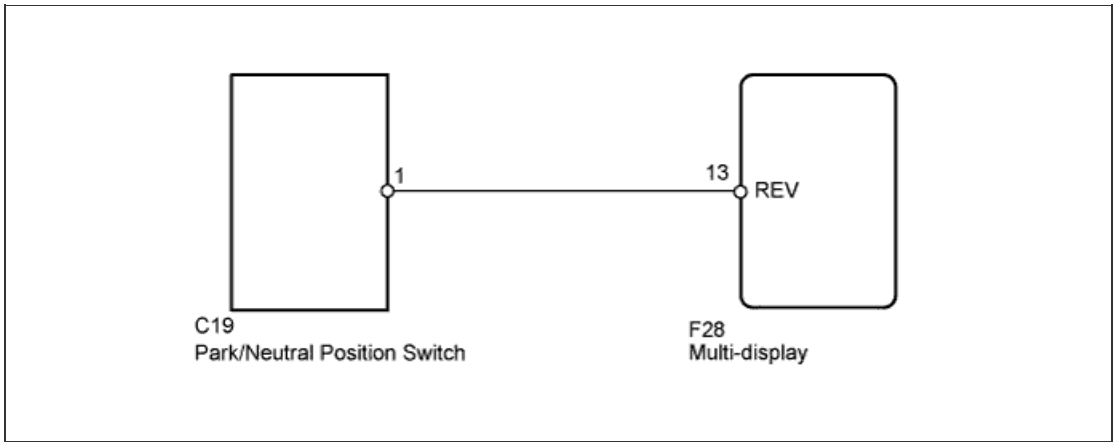
## CHECK DISPLAY AND NAVIGATION MODULE DISPLAY (w/o Navigation System) ( Click here)

**for Preparation** Click here

## DESCRIPTION

The multi-display receives a reverse signal from the park/neutral position switch.
This inspection procedure is for vehicles that are not equipped with a navigation system.

## WIRING DIAGRAM

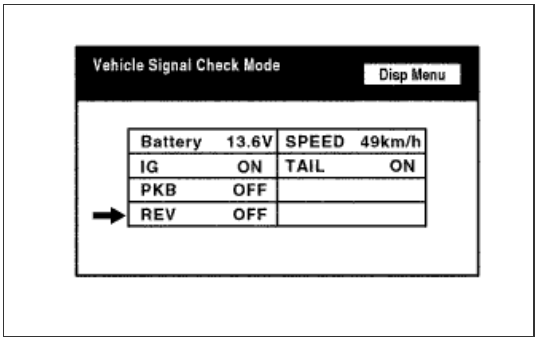



## INSPECTION PROCEDURE

### 1.CHECK REVERSE SIGNAL (DISPLAY CHECK MODE)

a. Enter the "Display Check" mode and select "Vehicle Signal Check Mode" ( Click here).

b. Check that the display changes between ON and OFF according to the shift lever operation.




**OK:**

| Shift Lever Position | Display |
|---|---|
| R | ON |
| Except R | OFF |

**HINT:**

This display is updated once per second. As a result, it is normal for the display to lag behind the actual change in the switch.

NG → Go to step 2

OK

PROCEED TO NEXT CIRCUIT INSPECTION PROCEDURE IN PROBLEM SYMPTOMS TABLE ( Click here)

### 2.CHECK PARK/NEUTRAL POSITION SWITCH

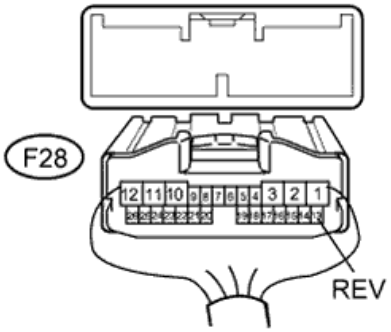
a. Disconnect the F28 display connector.

b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F28-13 (REV) - Body ground | Engine switch on (IG), shift lever in R | 11 to 14 V |
| F28-13 (REV) - Body ground | Engine switch on (IG), shift lever not in R | Below 1 V |

Rear view of wire harness connector:
(to Multi-display)




NG → Go to step 3

OK

REPLACE MULTI-DISPLAY (Click here)

3.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - PARK/NEUTRAL POSITION SWITCH)

a. Disconnect the F28 display connector.

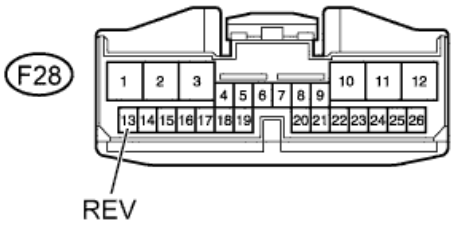
b. Disconnect the C19 position switch connector.

c. Measure the resistance according to the value(s) in the table below.

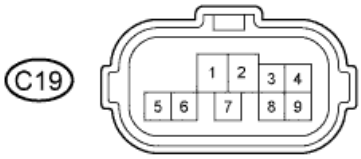
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F28-13 (REV) - C19-1 | Always | Below 1 Ω |
| F28-13 (REV) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to Multi-display)




Front view of wire harness connector:
(to Park/Neutral Position Switch)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

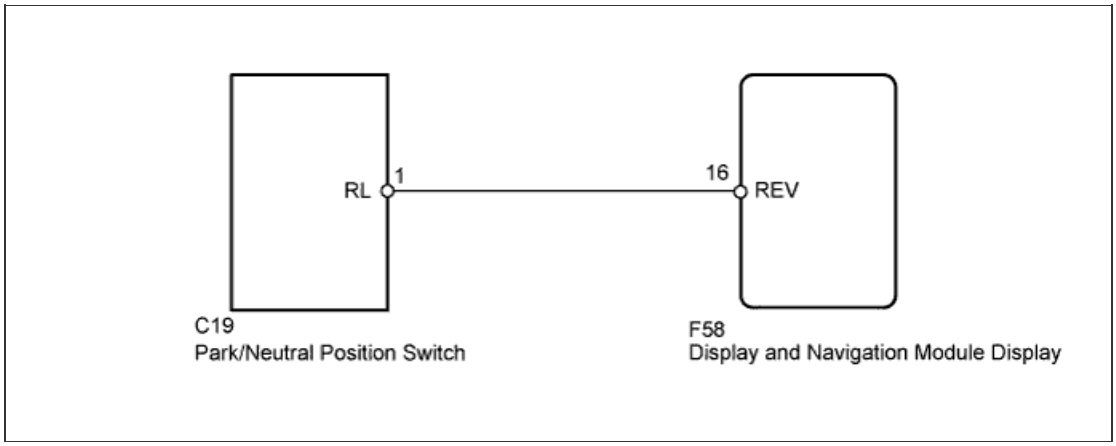
REPLACE PARK/NEUTRAL POSITION SWITCH (Click here)

**for Preparation** Click here

## DESCRIPTION

The display and navigation module display receives a reverse signal from the park/neutral position switch.
This inspection procedure is for vehicles that are not equipped with a navigation system.

## WIRING DIAGRAM

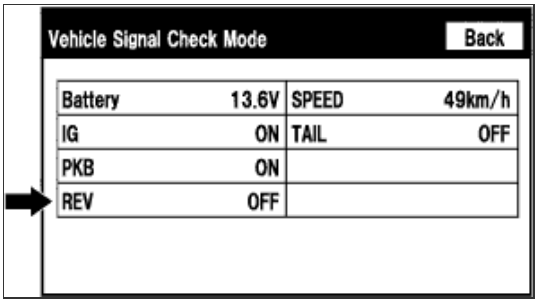



## INSPECTION PROCEDURE

### 1.CHECK REVERSE SIGNAL (DISPLAY CHECK MODE)

a. Enter the "Display Check" mode and select "Vehicle Signal Check Mode".

for HDD (Click here).
for DVD (Click here).




b. Check that the display changes between ON and OFF according to the shift lever operation.

**OK:**

| Shift Lever Position | Display |
|---|---|
| R | ON |
| Except R | OFF |

**HINT:**

This display is updated once per second. As a result, it is normal for the display to lag behind the actual change in the switch.

**NG** → Go to step 2

**OK**

PROCEED TO NEXT CIRCUIT INSPECTION PROCEDURE IN PROBLEM SYMPTOMS TABLE ( Click here)

### 2.CHECK PARK/NEUTRAL POSITION SWITCH

a. Disconnect the F58 display connector.

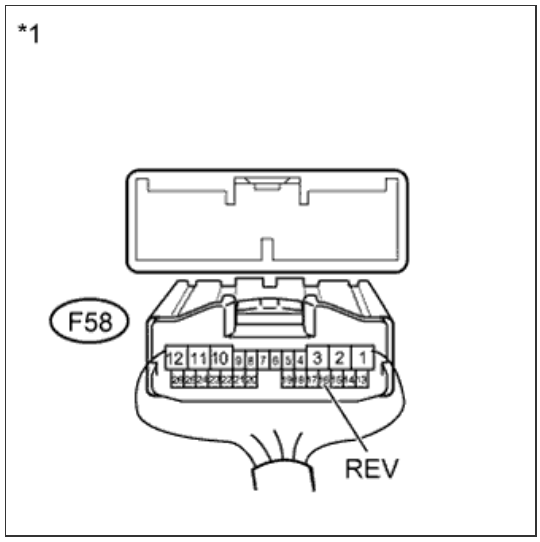
b. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-16 (REV) - Body ground | Engine switch on (IG), shift lever in R | 11 to 14 V |
| F58-16 (REV) - Body ground | Engine switch on (IG), shift lever not in R | Below 1 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Rear view of wire harness connector<br>(to Display and Navigation Module Display) |




NG → Go to step 3

OK →

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

3.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - PARK/NEUTRAL POSITION SWITCH)

a. Disconnect the F58 display connector.

b. Disconnect the C19 position switch connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F58-16 (REV) - C19-1 | Always | Below 1 Ω |
| F58-16 (REV) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK →

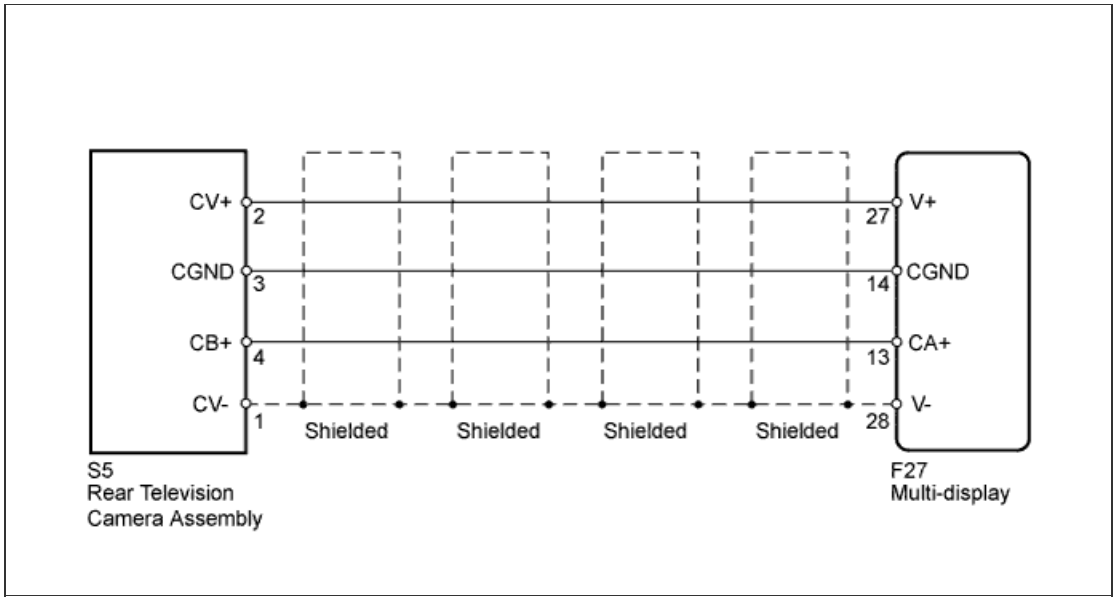
REPLACE PARK/NEUTRAL POSITION SWITCH (Click here)

**for Preparation** Click here

## DESCRIPTION

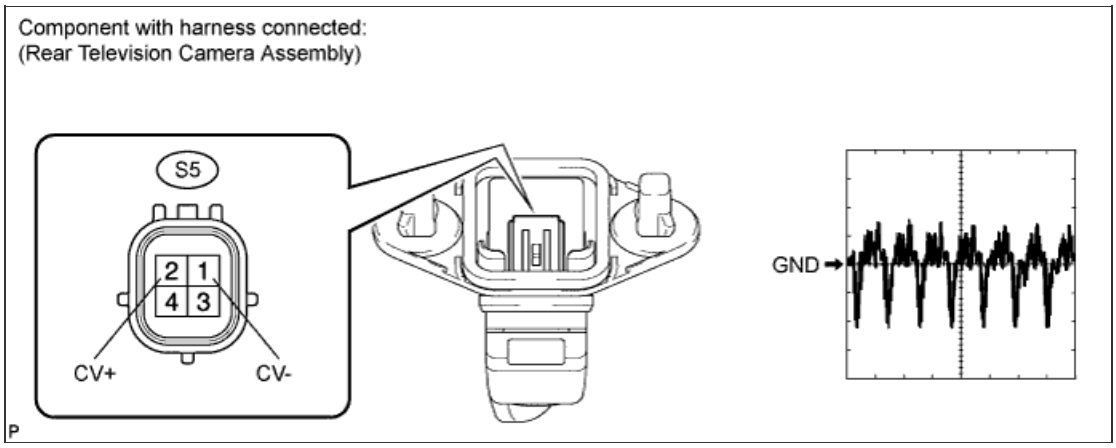
This is the display signal circuit of the rear television camera.
This inspection procedure is for vehicles that are not equipped with a navigation system.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK REAR TELEVISION CAMERA ASSEMBLY




a. Using an oscilloscope, check the waveform.

**Measurement Condition**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | S5-2 (CV+) - S5-1 (CV-) |
| Tool Setting | 0.2 V/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), shift lever in R |

**OK:**

**Waveform is as shown in illustration.**

NG → REPLACE REAR TELEVISION CAMERA ASSEMBLY (Click here)

OK

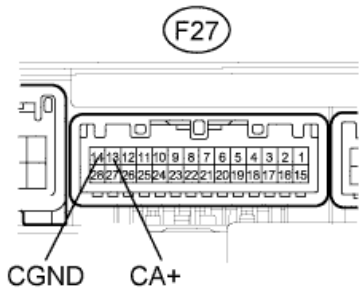
## 2.CHECK MULTI-DISPLAY

a. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F27-13 (CA+) - F27-14 (CGND) | Engine switch on (IG), shift lever in R | 5.8 to 6.5 V |

Component with harness connected:
(Multi-display)




NG → REPLACE MULTI-DISPLAY (Click here)

OK

## 3.CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - REAR TELEVISION CAMERA)

a. Disconnect the F27 multi-display connector.

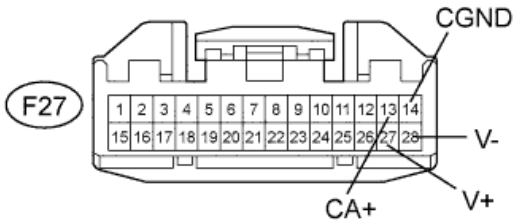
b. Disconnect the S5 camera connector.

c. Measure the resistance according to the value(s) in the table below.

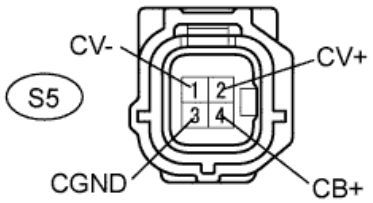
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F27-13 (CA+) - S5-4 (CB+) | Always | Below 1 Ω |
| F27-14 (CGND) - S5-3 (CGND) | Always | Below 1 Ω |
| F27-27 (V+) - S5-2 (CV+) | Always | Below 1 Ω |
| F27-28 (V-) - S5-1 (CV-) | Always | Below 1 Ω |
| F27-13 (CA+) - Body ground | Always | 10 kΩ or higher |
| F27-14 (CGND) - Body ground | Always | 10 kΩ or higher |
| F27-27 (V+) - Body ground | Always | 10 kΩ or higher |
| F27-28 (V-) - Body ground | Always | 10 kΩ or higher |

Front view of wire harness connector:
(to Multi-display)




Front view of wire harness connector:
(to Rear Television Camera Assembly)




NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

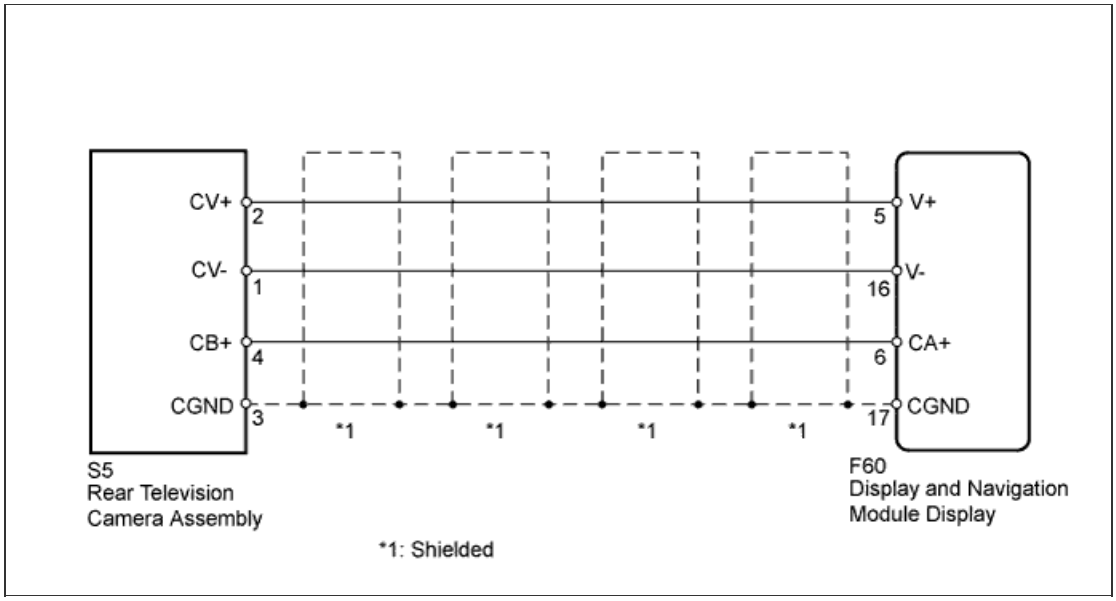
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here

## DESCRIPTION

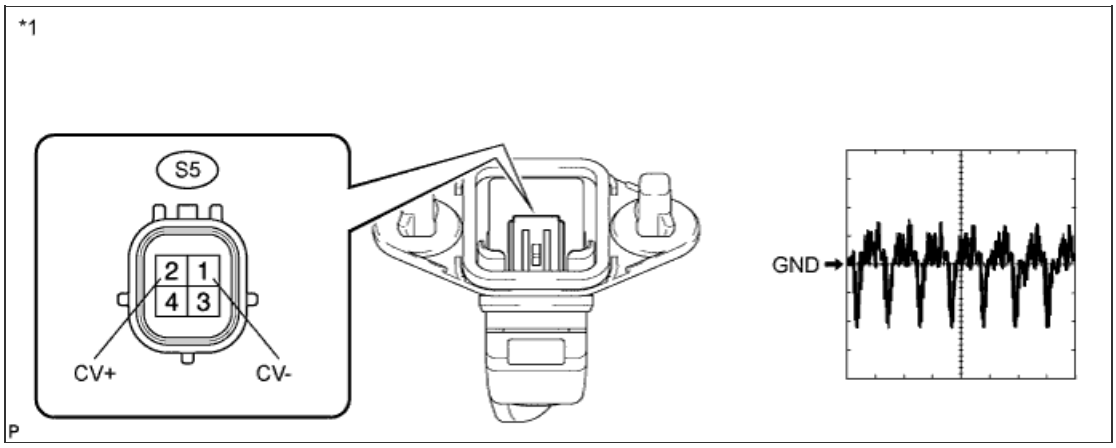
This is the display signal circuit of the rear television camera.
This inspection procedure is for vehicles that are not equipped with a navigation system.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

### 1.CHECK REAR TELEVISION CAMERA ASSEMBLY




**Text in Illustration**

| | | | |
|---|---|---|---|
| *1 | Component with harness connected<br>(Rear Television Camera Assembly) | - | - |

a. Using an oscilloscope, check the waveform.

**Measurement Condition**

| Item | Content |
|---|---|
| Terminal No. (Symbol) | S5-2 (CV+) - S5-1 (CV-) |
| Tool Setting | 0.2 V/DIV., 50 µsec./DIV. |
| Condition | Engine switch on (IG), shift lever in R |

**OK:**

**Waveform is as shown in illustration.**

NG → REPLACE REAR TELEVISION CAMERA ASSEMBLY (Click here)

OK

## 2.CHECK DISPLAY AND NAVIGATION MODULE DISPLAY

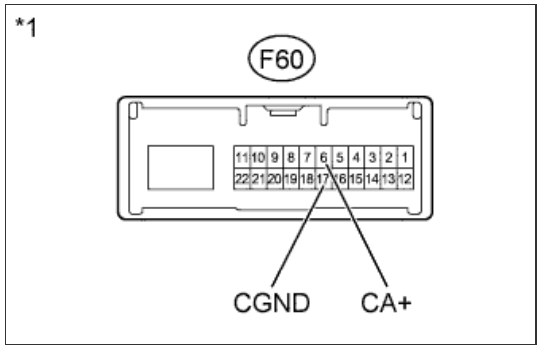
a. Measure the voltage according to the value(s) in the table below.

**Standard Voltage:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F60-6 (CA+) - F60-17 (CGND) | Engine switch on (IG), shift lever in R | 5.8 to 6.5 V |

**Text in Illustration**

| | |
|---|---|
| *1 | Component with harness connected (to Display and Navigation Module Display) |




NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

## 3.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - REAR TELEVISION CAMERA)

a. Disconnect the F60 display and navigation module display connector.

b. Disconnect the S5 camera connector.

c. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

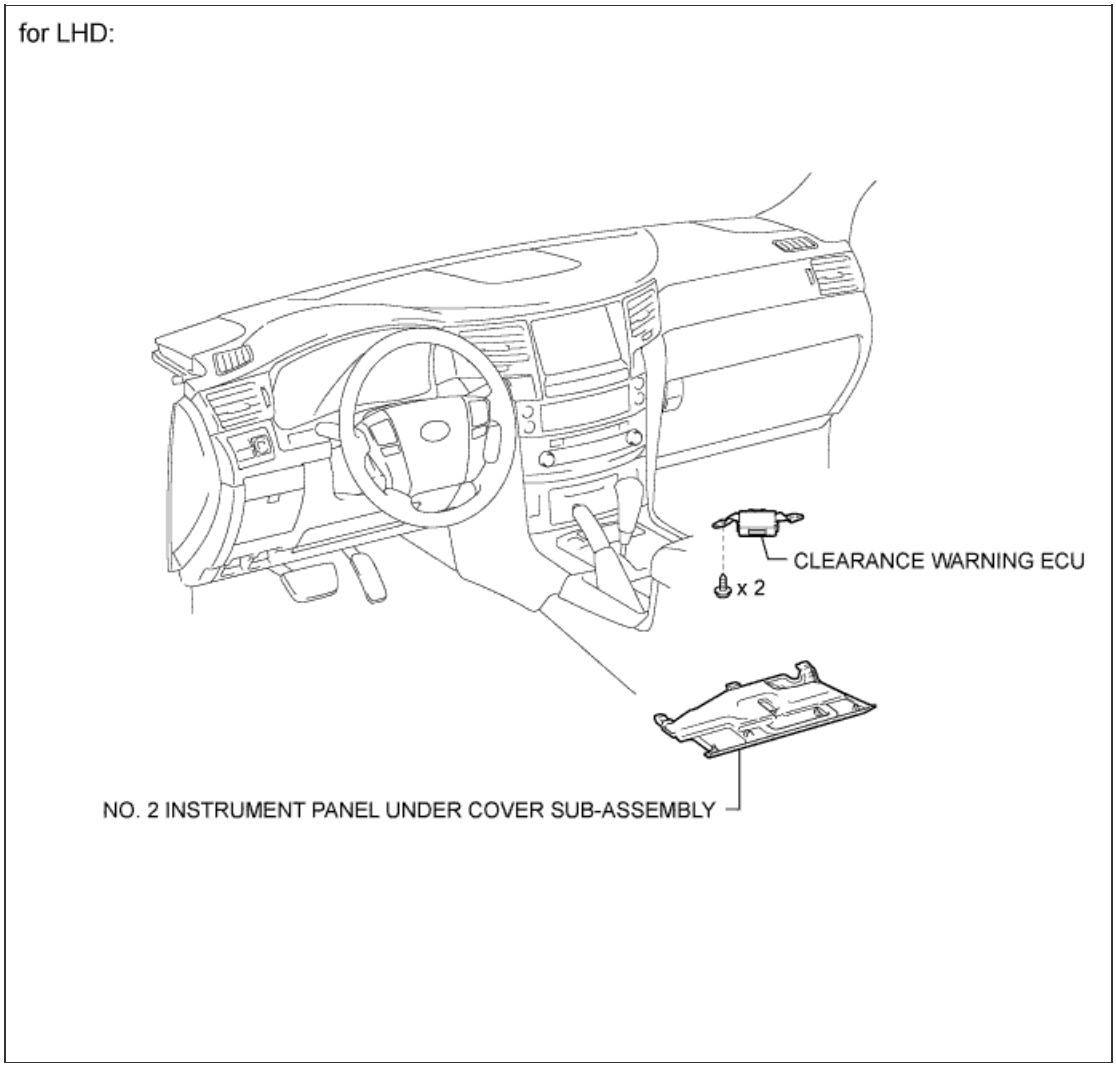
| Tester Connection | Condition | Specified Condition |
|---|---|---|
| F60-6 (CA+) - S5-4 (CB+) | Always | Below 1 Ω |
| F60-17 (CGND) - S5-3 (CGND) | Always | Below 1 Ω |
| F60-5 (V+) - S5-2 (CV+) | Always | Below 1 Ω |
| F60-16 (V-) - S5-1 (CV-) | Always | Below 1 Ω |
| F60-6 (CA+) - Body ground | Always | 10 kΩ or higher |
| F60-17 (CGND) - Body ground | Always | 10 kΩ or higher |
| F60-5 (V+) - Body ground | Always | 10 kΩ or higher |
| F60-16 (V-) - Body ground | Always | 10 kΩ or higher |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

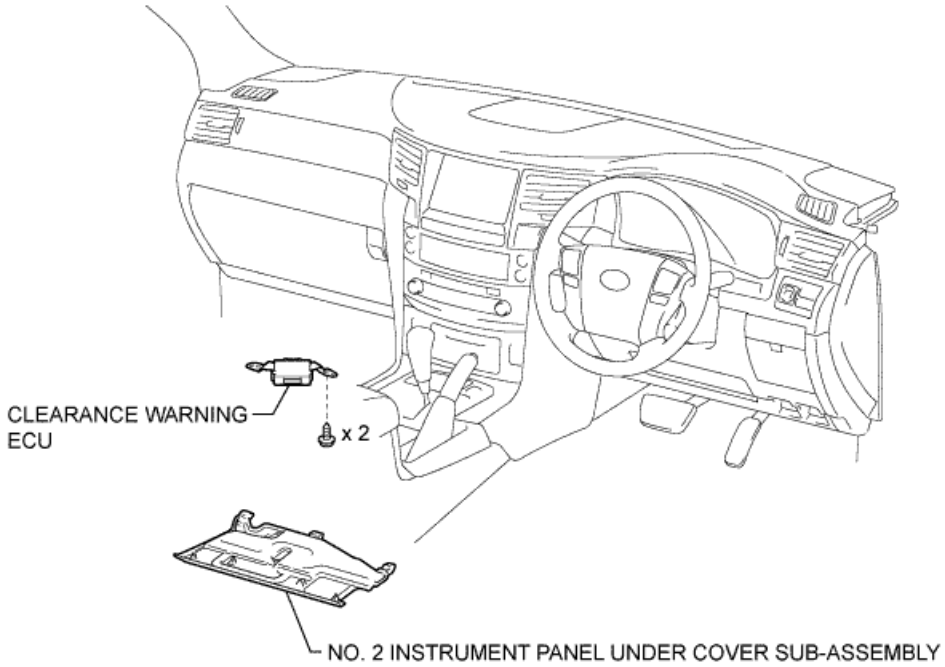
OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE ( Click here)

**for Preparation** Click here



for RHD:


CLEARANCE WARNING ECU
x 2
NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

# CLEARANCE WARNING ECU (w/o Parking Assist Monitor System) > REMOVAL

**for Preparation** Click here

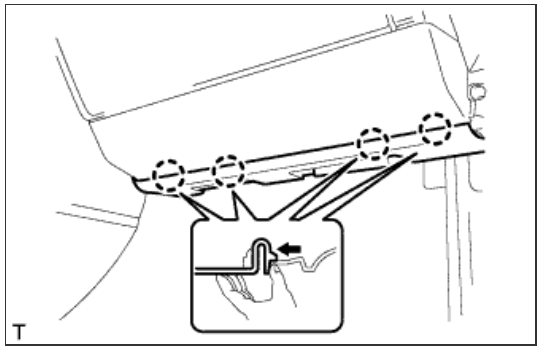
**HINT:**

- **Use the same procedures for LHD and RHD vehicles.**
- **The procedures listed below are for LHD vehicles.**

## 1. REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Detach the 4 claws.

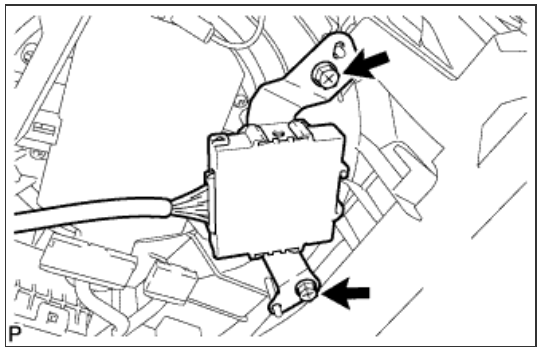
b. Remove the under cover and disconnect the connector.




## 2. REMOVE CLEARANCE WARNING ECU

a. Disconnect the connector.

b. Remove the 2 screws and clearance warning ECU.



**for Preparation** Click here

**HINT:**

- **Use the same procedures for LHD and RHD vehicles.**
- **The procedures listed below are for LHD vehicles.**

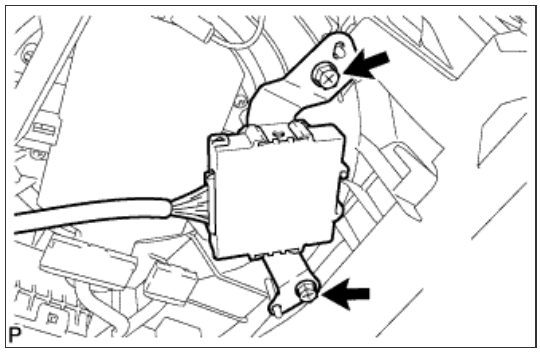
## 1. INSTALL CLEARANCE WARNING ECU

a. Install the clearance warning ECU to the blower unit with the 2 screws.

**NOTICE:**

- **Avoid any impact to the clearance warning ECU.**
- **Do not drop the ECU. If it is dropped, replace it with a new one.**

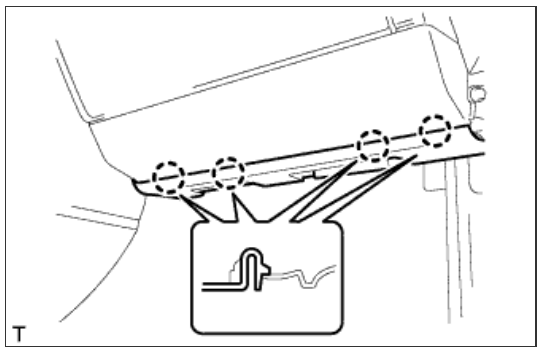
b. Connect the connector.



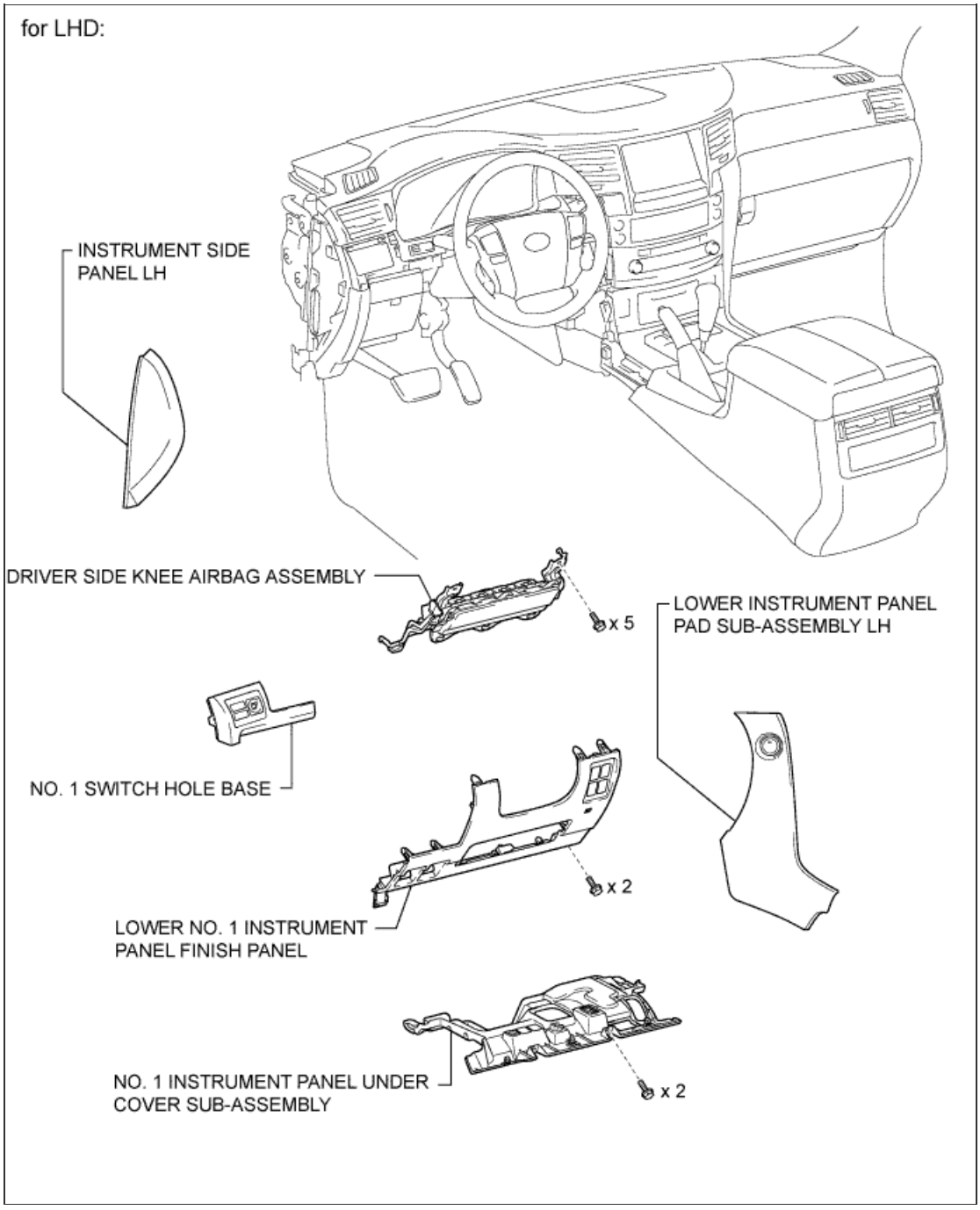

## 2. INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Connect the connector.

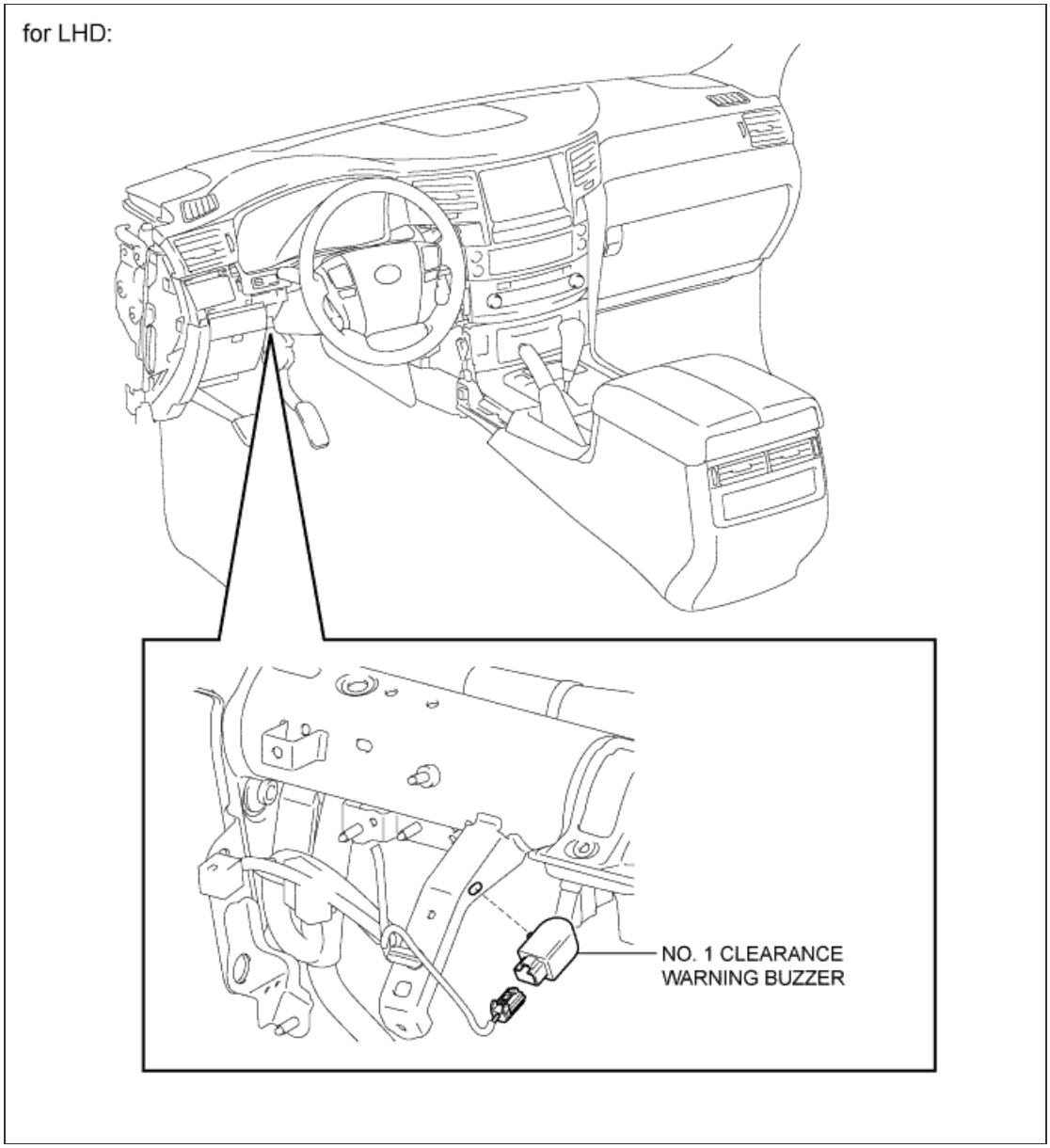
b. Attach the 4 claws to install the under cover.



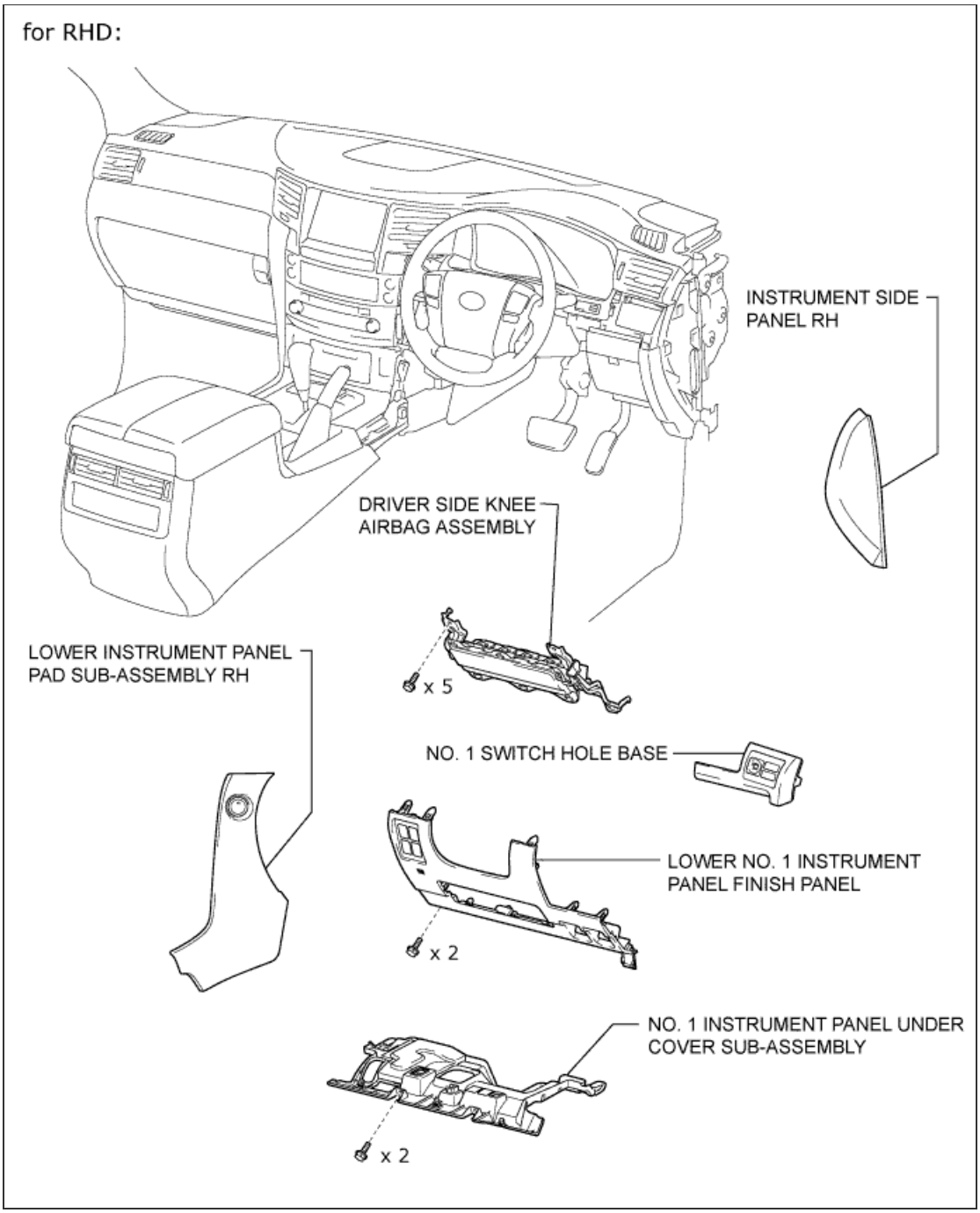
**for Preparation** Click here

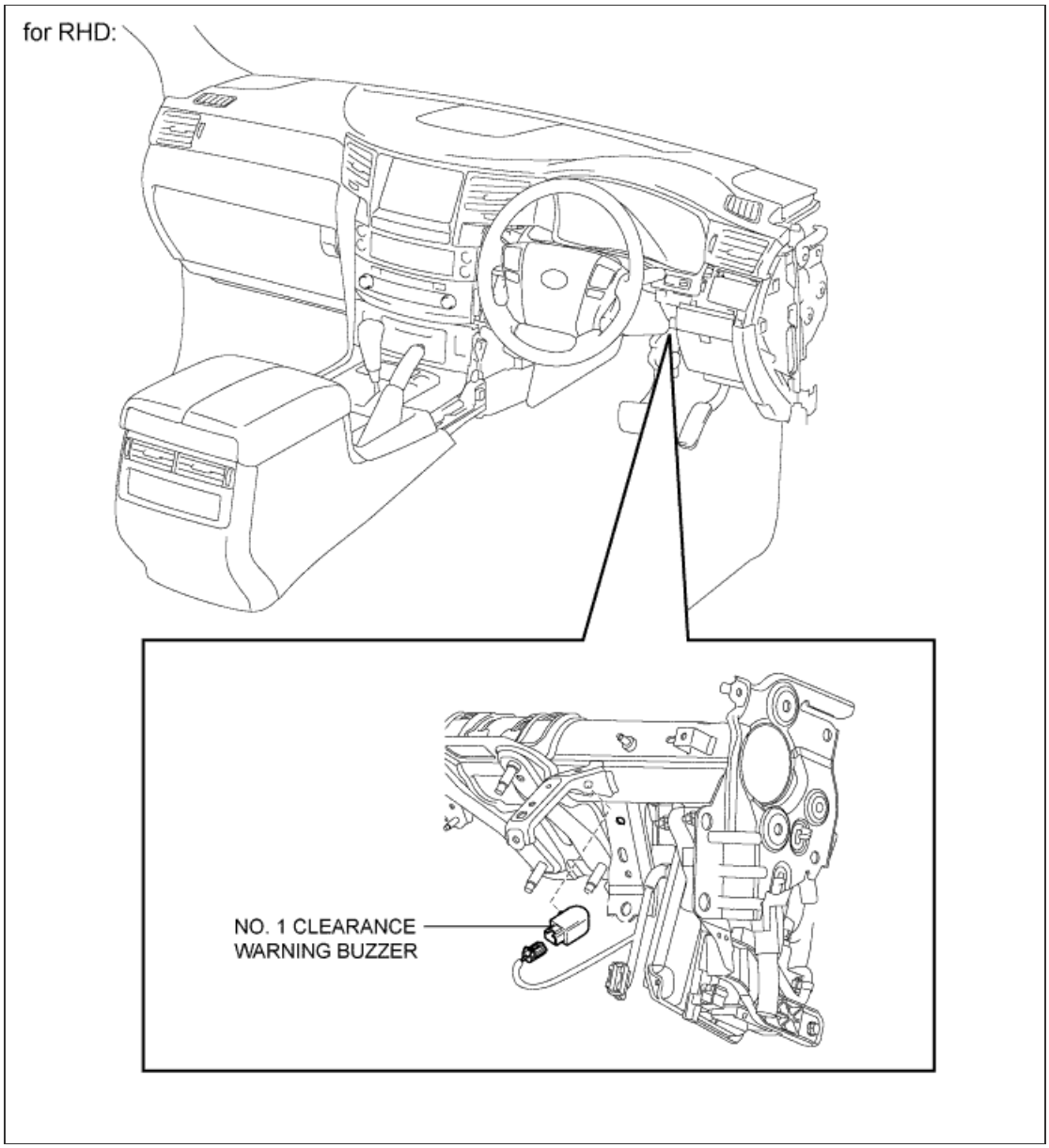


for LHD:



for RHD:


INSTRUMENT SIDE PANEL RH
DRIVER SIDE KNEE AIRBAG ASSEMBLY
x 5
LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY RH
NO. 1 SWITCH HOLE BASE
LOWER NO. 1 INSTRUMENT PANEL FINISH PANEL
x 2
NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY
x 2


for RHD:
NO. 1 CLEARANCE
WARNING BUZZER

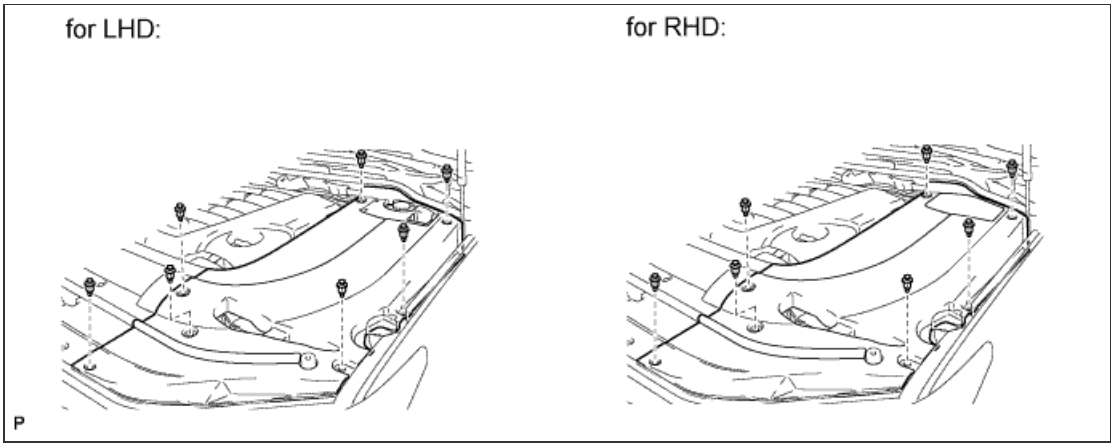
**for Preparation** Click here

**HINT:**

- **Use the same procedures for LHD and RHD vehicles.**
- **The procedures listed below are for LHD vehicles.**

## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover.




## 2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

**CAUTION:**

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

**NOTICE:**
**w/ Navigation System:**

After the engine switch is turned off, the HDD navigation system requires approximately 6 minutes to record various types of memory and settings. As a result, after turning the engine switch off, wait 6 minutes or more before disconnecting the cable from the negative (-) battery terminal.

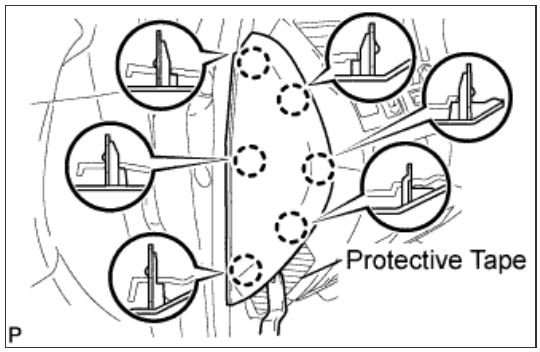
**NOTICE:**

When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

## 3. REMOVE INSTRUMENT SIDE PANEL LH

a. Place protective tape as shown in the illustration.

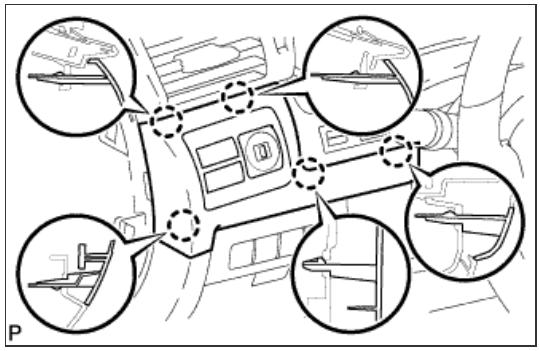
b. Using a moulding remover, detach the 6 claws and remove the side panel.




## 4. REMOVE NO. 1 SWITCH HOLE BASE

a. Detach the 5 claws.

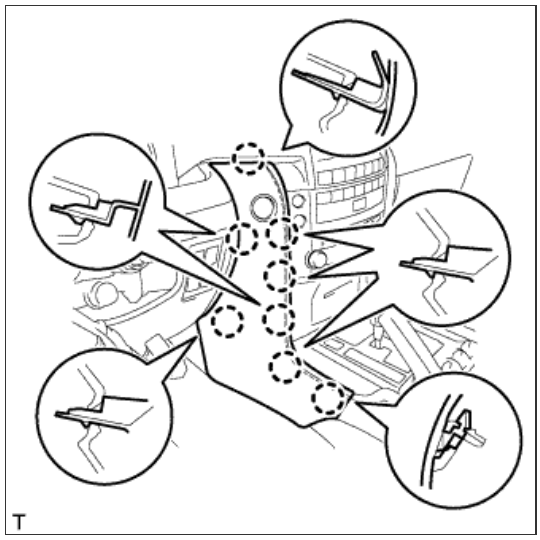
b. Disconnect the connectors and remove the switch hole base.




## 5. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Detach the 8 claws.

b. Disconnect the connector and remove the panel pad.

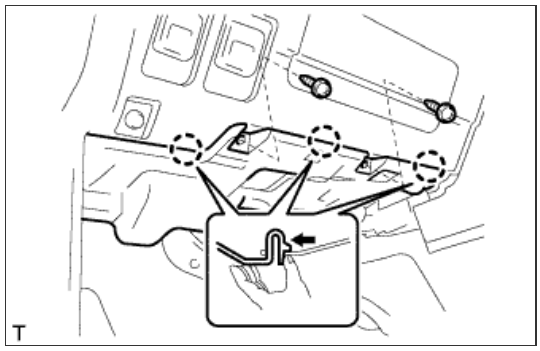



## 6. REMOVE NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Remove the 2 screws.

b. Detach the 3 claws.

c. Remove the under cover and disconnect the connectors.

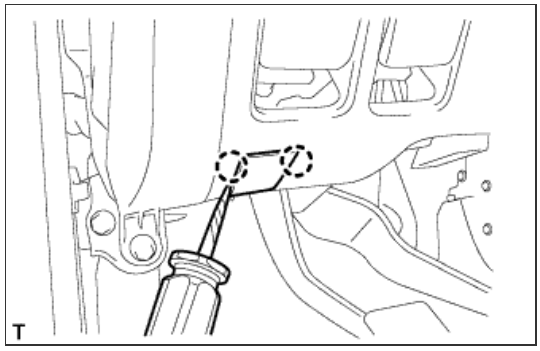



## 7. REMOVE LOWER NO. 1 INSTRUMENT PANEL FINISH PANEL

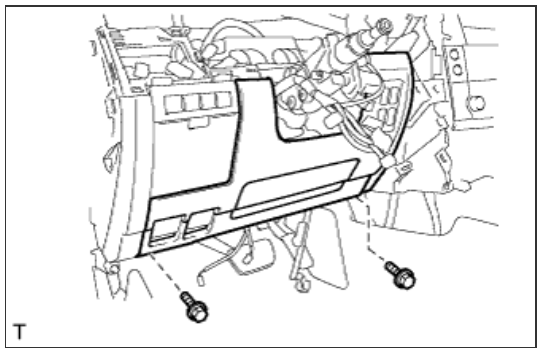
a. Using a screwdriver, detach the 2 claws and open the hole cover.

**HINT:**

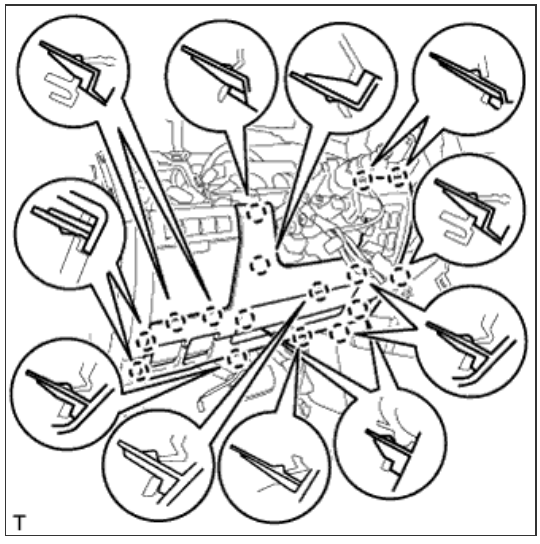
Tape the screwdriver tip before use.



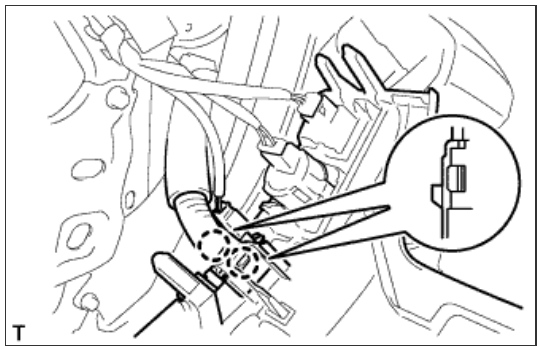

b. Remove the 2 bolts.




c. Detach the 16 claws.

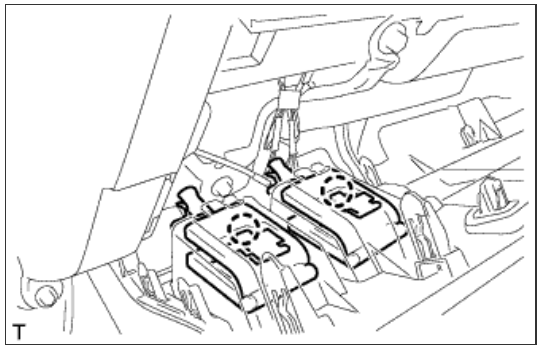



d. Detach the 2 claws and remove the sensor.




e. Detach the 2 claws and disconnect the 2 control cables.

f. Remove the finish panel and then disconnect the connectors.



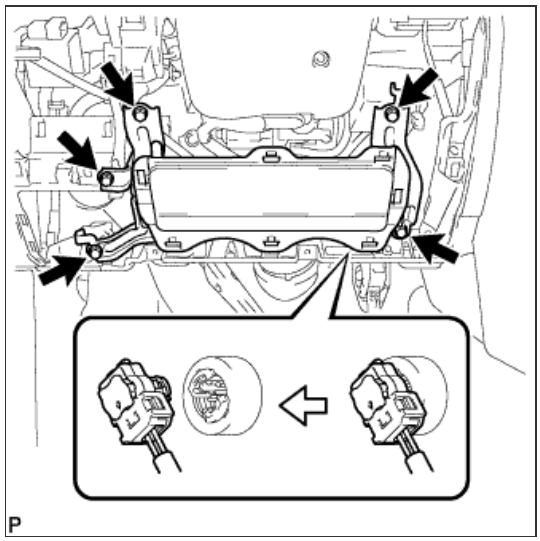

## 8. REMOVE DRIVER SIDE KNEE AIRBAG ASSEMBLY

a. Remove the 5 bolts and driver side knee airbag.

b. Disconnect the connector.

**NOTICE:**

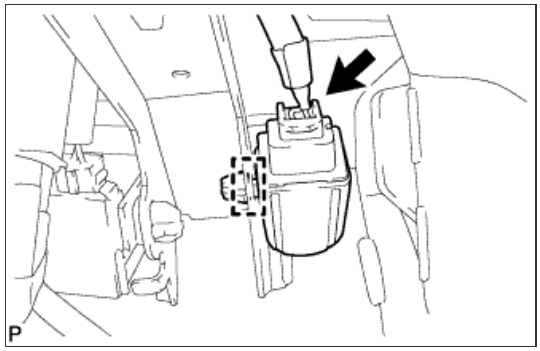
When handling the airbag connector, take care not to damage the airbag wire harness.




## 9. REMOVE NO. 1 CLEARANCE WARNING BUZZER

a. Disconnect the connector.

b. Using a clip remover, detach the clamp and remove the No. 1 clearance warning buzzer.



**for Preparation** Click here

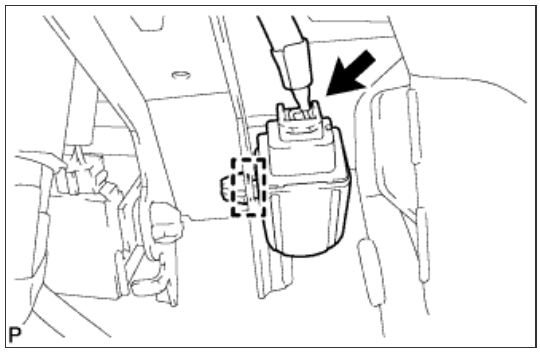
**HINT:**

- **Use the same procedures for LHD and RHD vehicles.**
- **The procedures listed below are for LHD vehicles.**

## 1. INSTALL NO. 1 CLEARANCE WARNING BUZZER

a. Attach the clamp to install the No. 1 clearance warning buzzer.

b. Connect the connector.




## 2. INSTALL DRIVER SIDE KNEE AIRBAG ASSEMBLY

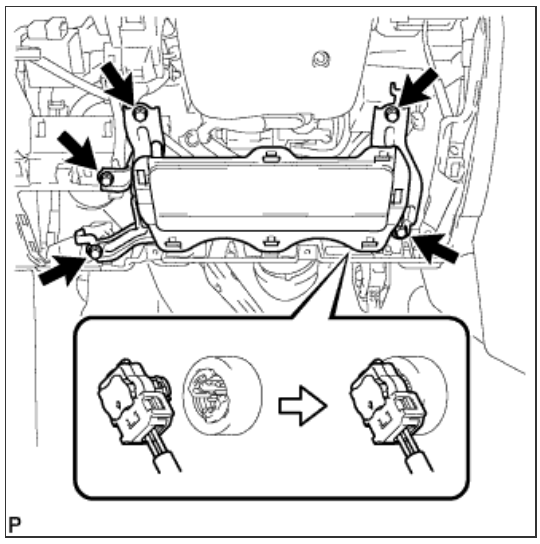
a. Connect the connector.

**NOTICE:**

When handling the airbag connector, take care not to damage the airbag wire harness.

b. Install the driver side knee airbag with the 5 bolts.

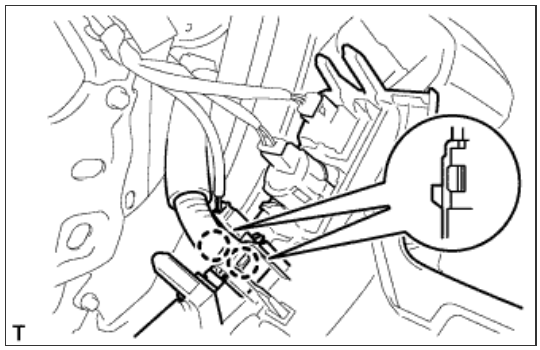
**Torque:**
**10 N*m{ 102 kgf*cm , 7 ft.*lbf }**



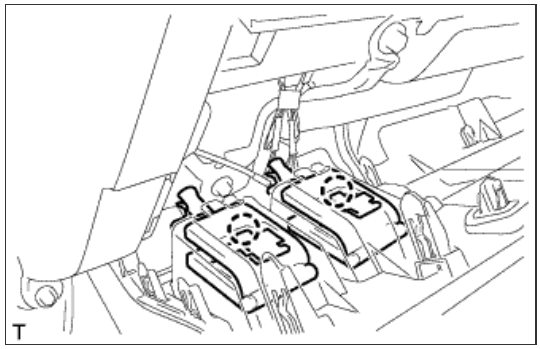

## 3. INSTALL LOWER NO. 1 INSTRUMENT PANEL FINISH PANEL

a. Connect the connectors.

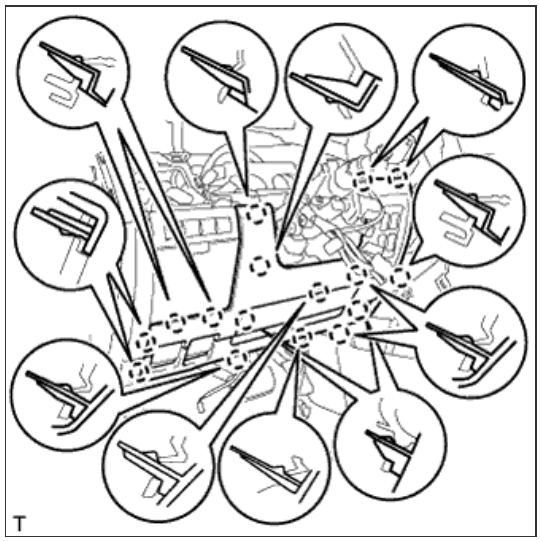
b. Attach the 2 claws to install the sensor.



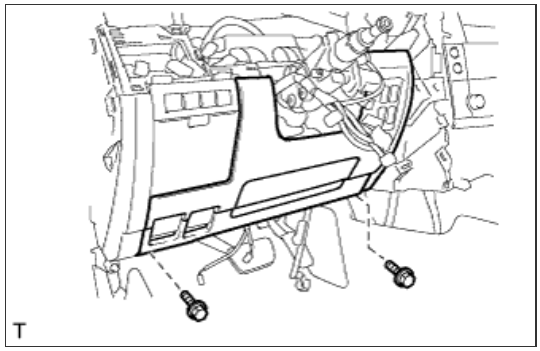

c. Attach the 2 claws to connect the 2 control cables.



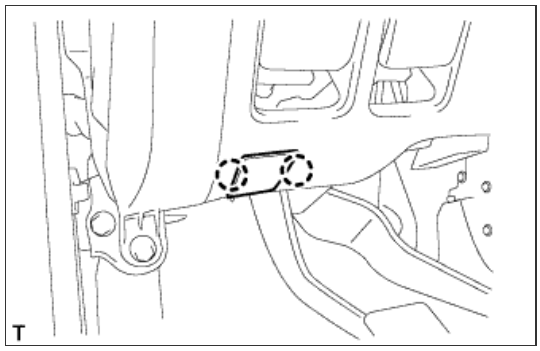

d. Attach the 16 claws to install the finish panel.




e. Install the 2 bolts.




f. Attach the 2 claws to close the hole cover.

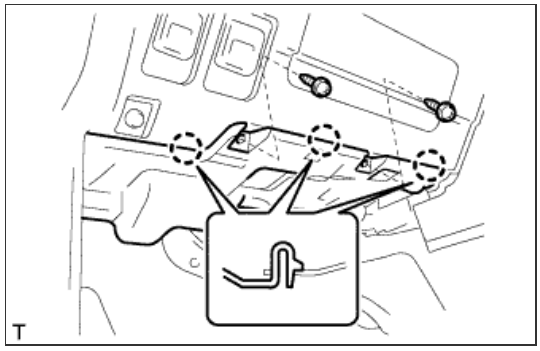



## 4. INSTALL NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Connect the connectors.

b. Attach the 3 claws to install the under cover.

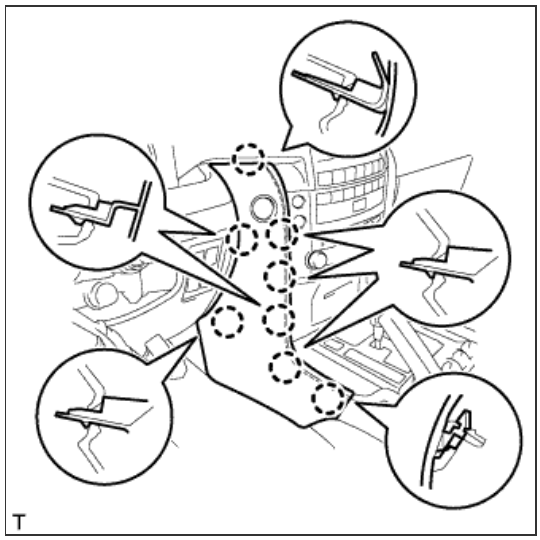
c. Install the 2 screws.




## 5. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Connect the connector.

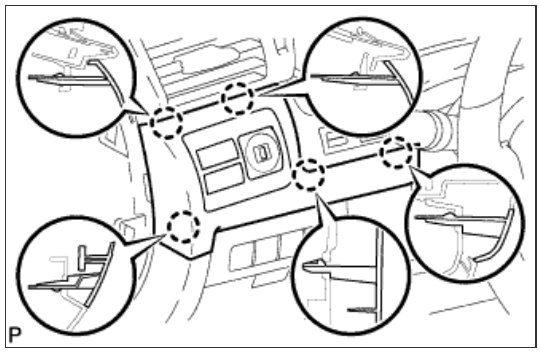
b. Attach the 8 claws to install the panel pad.




## 6. INSTALL NO. 1 SWITCH HOLE BASE

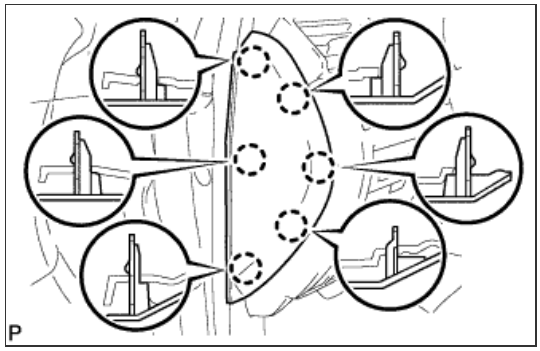
a. Connect the connectors.

b. Attach the 5 claws to install the switch hole base.




## 7. INSTALL INSTRUMENT SIDE PANEL LH

a. Attach the 6 claws to install the side panel.



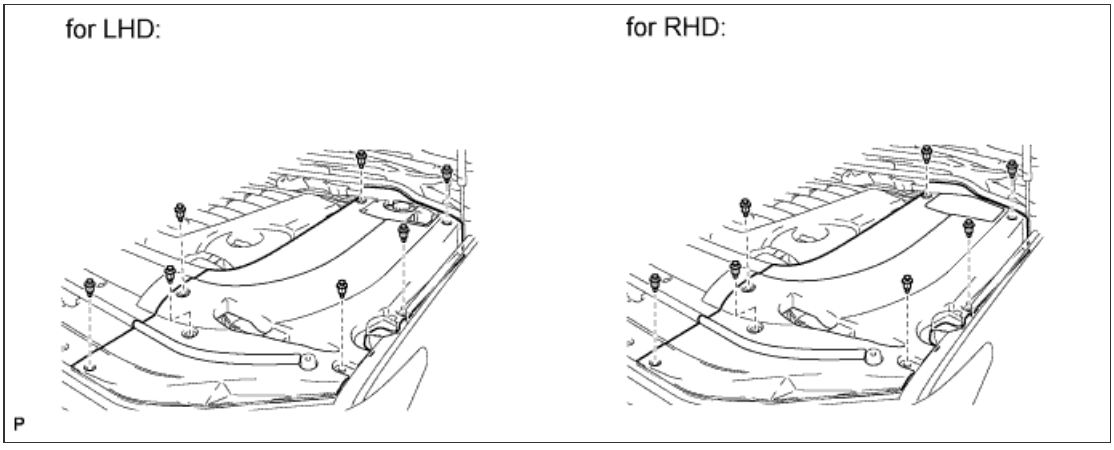

## 8. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**NOTICE:**

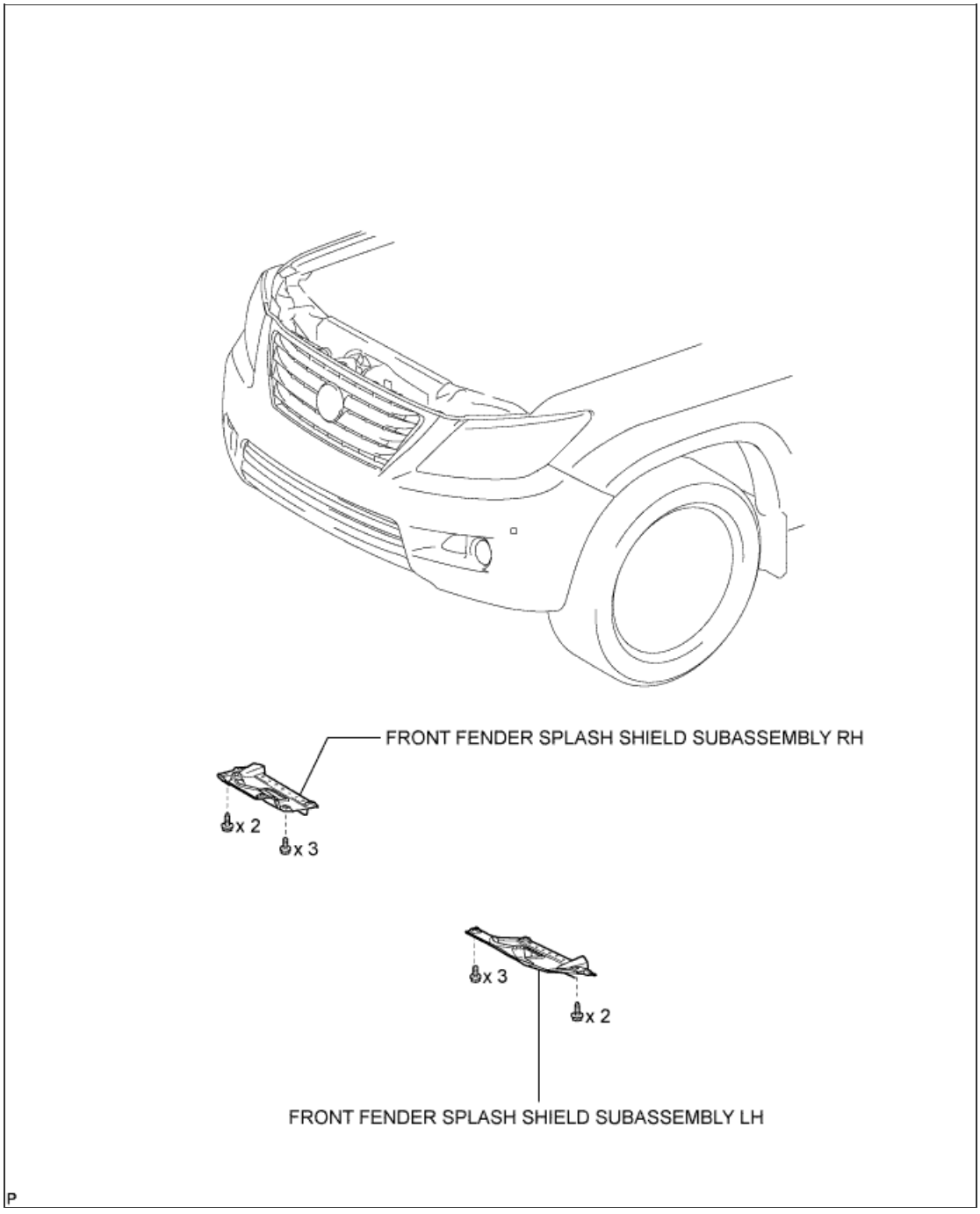
When disconnecting the cable, some systems need to be initialized after the cable is reconnected ( Click here).

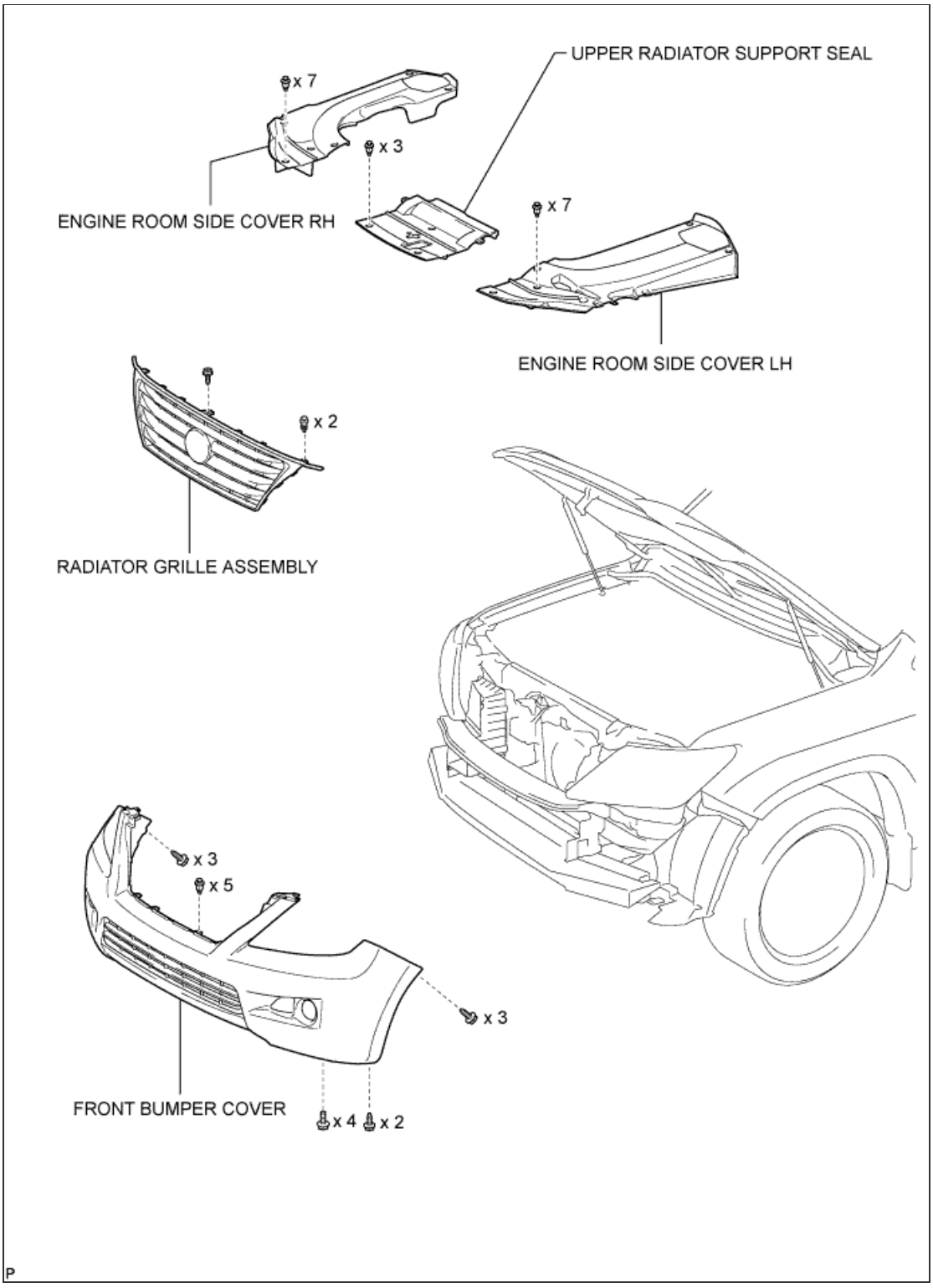
## 9. INSTALL ENGINE ROOM SIDE COVER LH

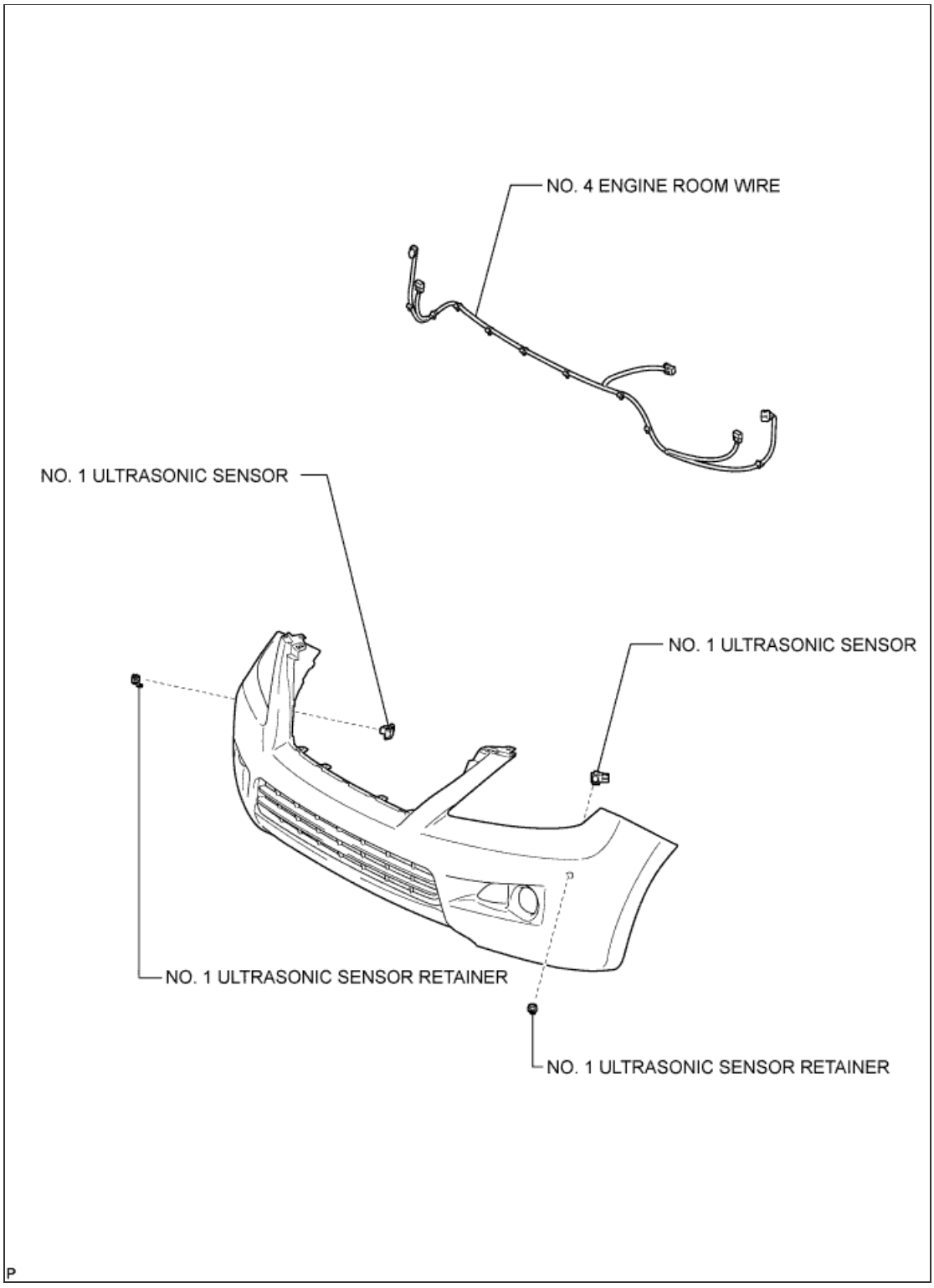
a. Install the engine room side cover with the 7 clips.



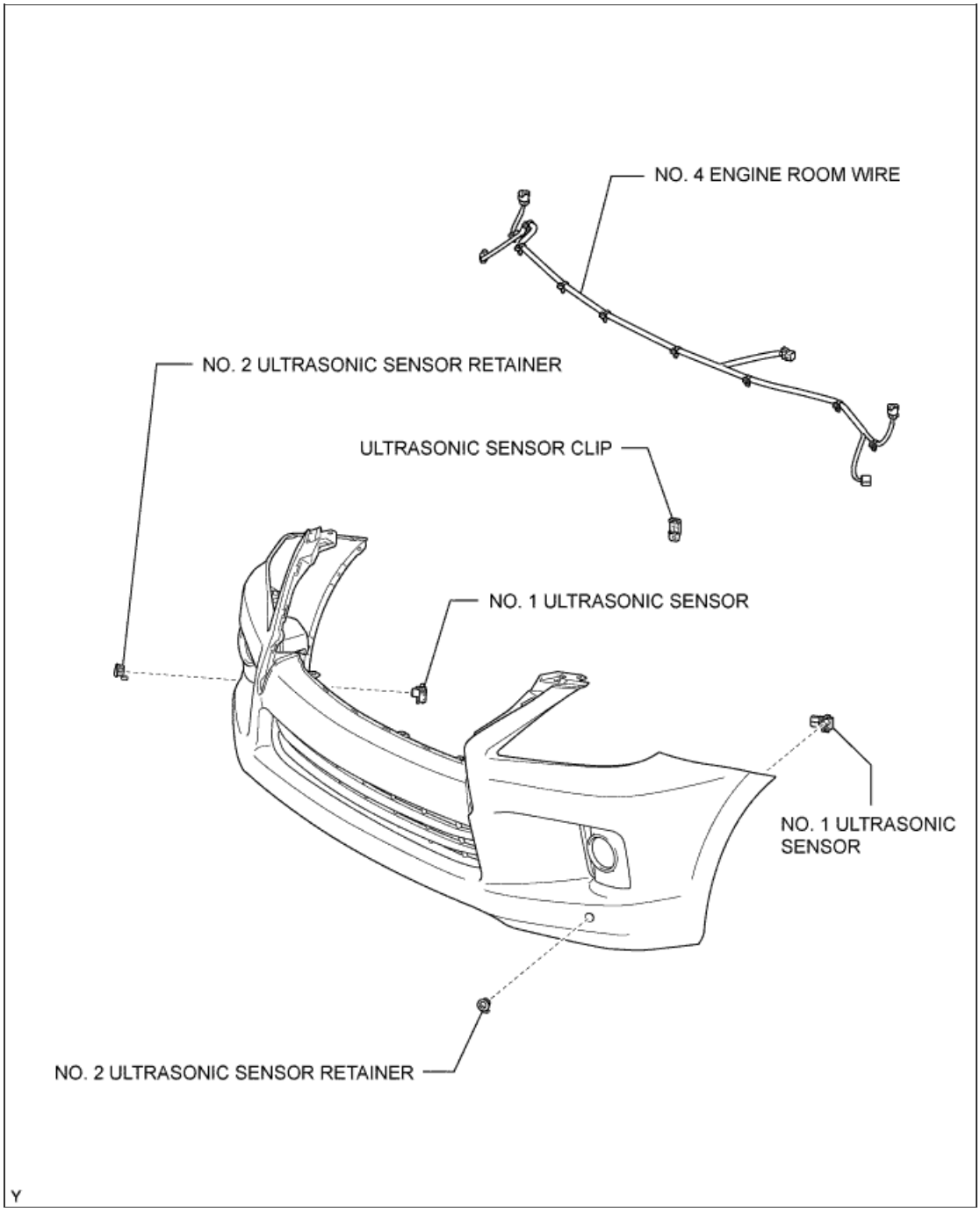
**for Preparation** Click here




UPPER RADIATOR SUPPORT SEAL
x 7
x 3
ENGINE ROOM SIDE COVER RH
x 7
ENGINE ROOM SIDE COVER LH
x 2
RADIATOR GRILLE ASSEMBLY
x 3
x 5
x 3
FRONT BUMPER COVER
x 4
x 2
P


NO. 4 ENGINE ROOM WIRE
NO. 1 ULTRASONIC SENSOR
NO. 1 ULTRASONIC SENSOR
NO. 1 ULTRASONIC SENSOR RETAINER
NO. 1 ULTRASONIC SENSOR RETAINER
P

**for Preparation** Click here

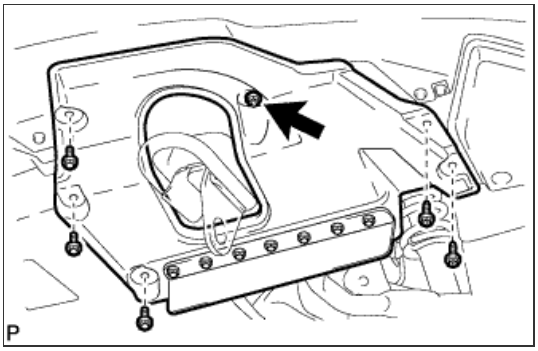


**for Preparation** Click here

## 1. REMOVE FRONT FENDER SPLASH SHIELD SUBASSEMBLY LH

a. Remove the 3 bolts and 2 screws.

b. Turn the clip indicated by the arrow in the illustration to remove the fender splash shield.



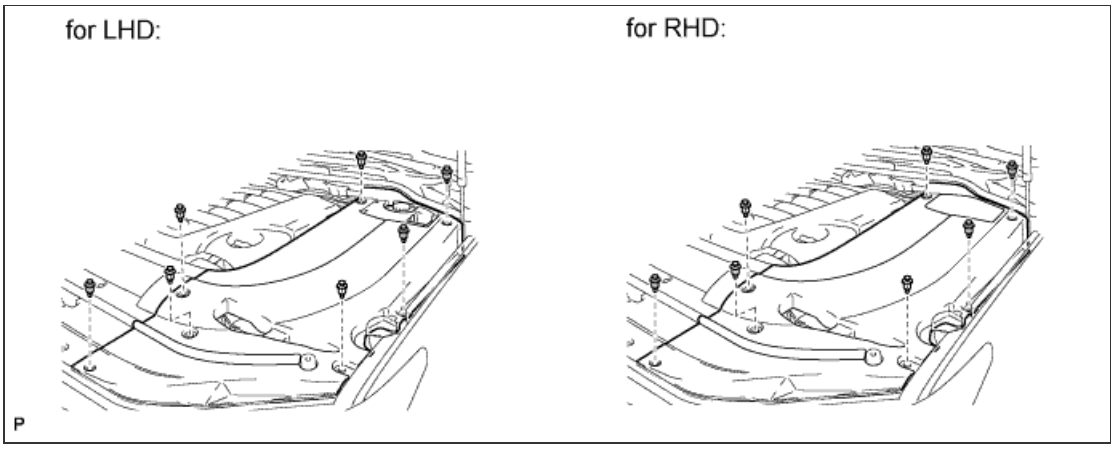

## 2. REMOVE FRONT FENDER SPLASH SHIELD SUBASSEMBLY RH

**HINT:**

Use the same procedures described for the LH side.

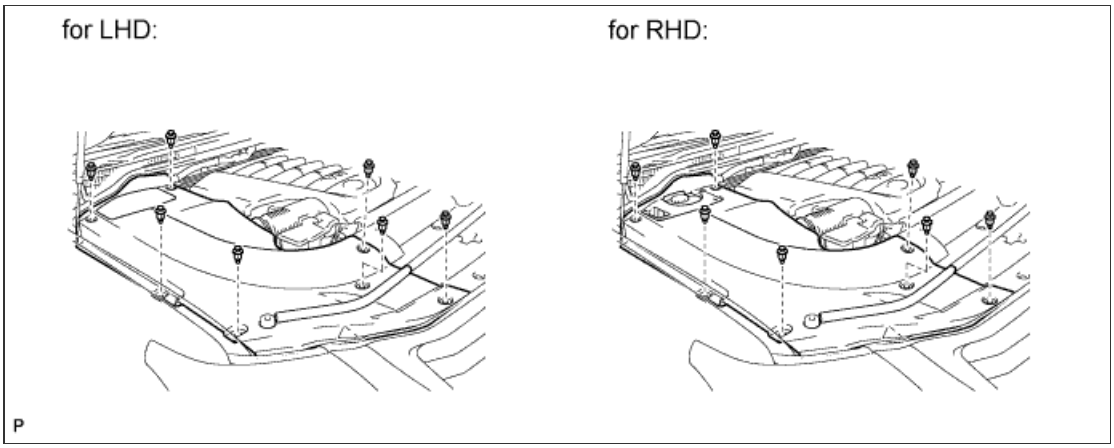
## 3. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover.



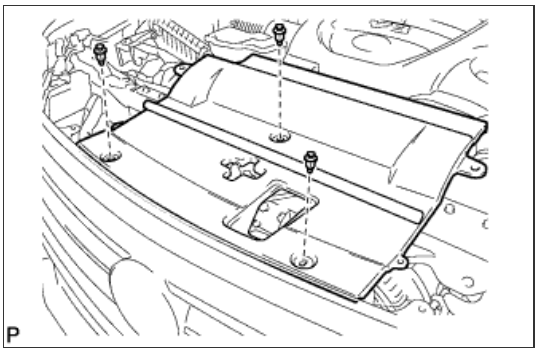

## 4. REMOVE ENGINE ROOM SIDE COVER RH

a. Remove the 7 clips and engine room side cover.




## 5. REMOVE UPPER RADIATOR SUPPORT SEAL

a. Remove the 3 clips and upper radiator support seal.




## 6. REMOVE RADIATOR GRILLE ASSEMBLY

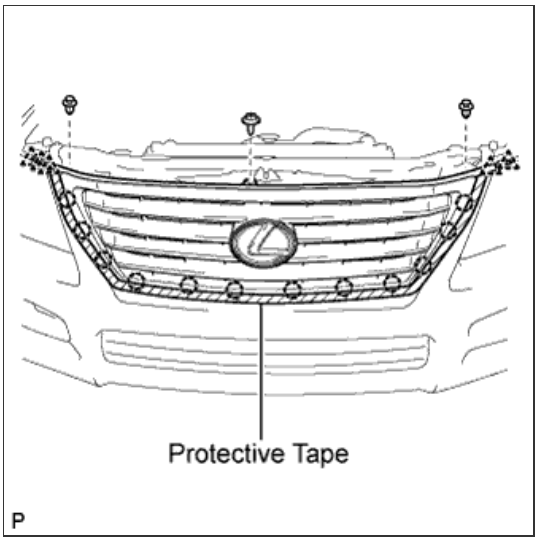
a. Put protective tape around the radiator grille.

b. Remove the screw and 2 clips.

c. Detach the 5 clips and partially remove the upper radiator seal.

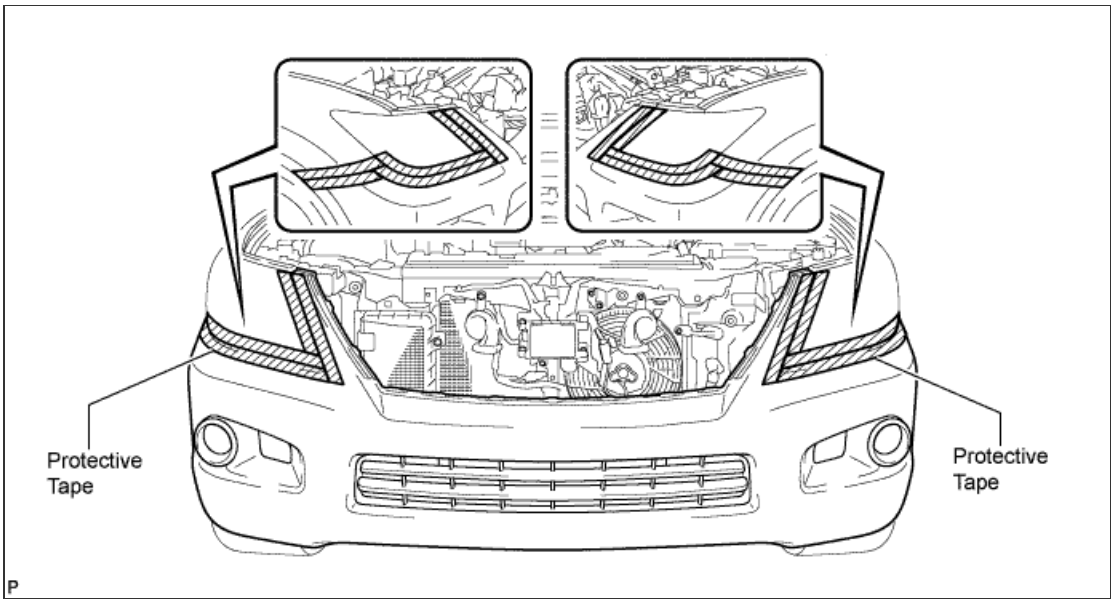
d. w/o Wide View Front Monitor System:
Detach the 12 claws and remove the radiator grille.

e. w/ Wide View Front Monitor System:
Detach the 12 claws, disconnect the connector and remove the radiator grille.

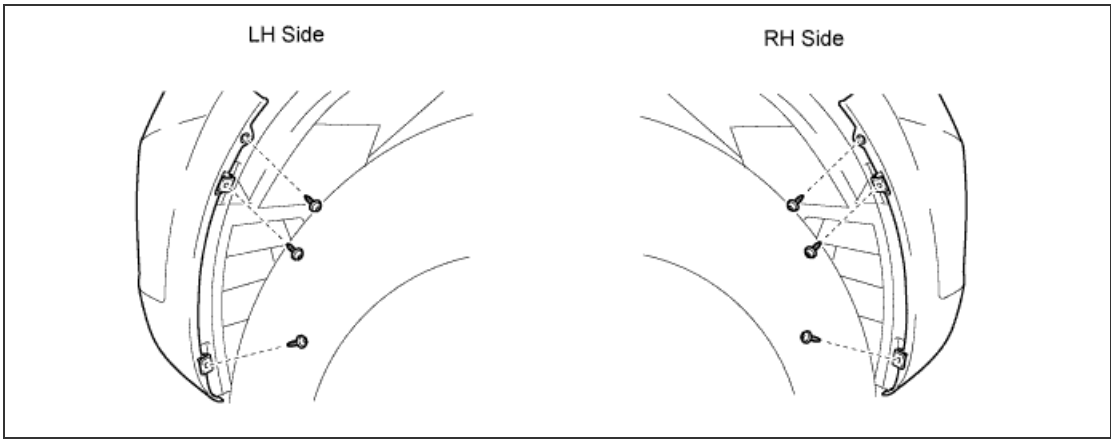



## 7. REMOVE FRONT BUMPER COVER

a. Put protective tape around the bumper cover.

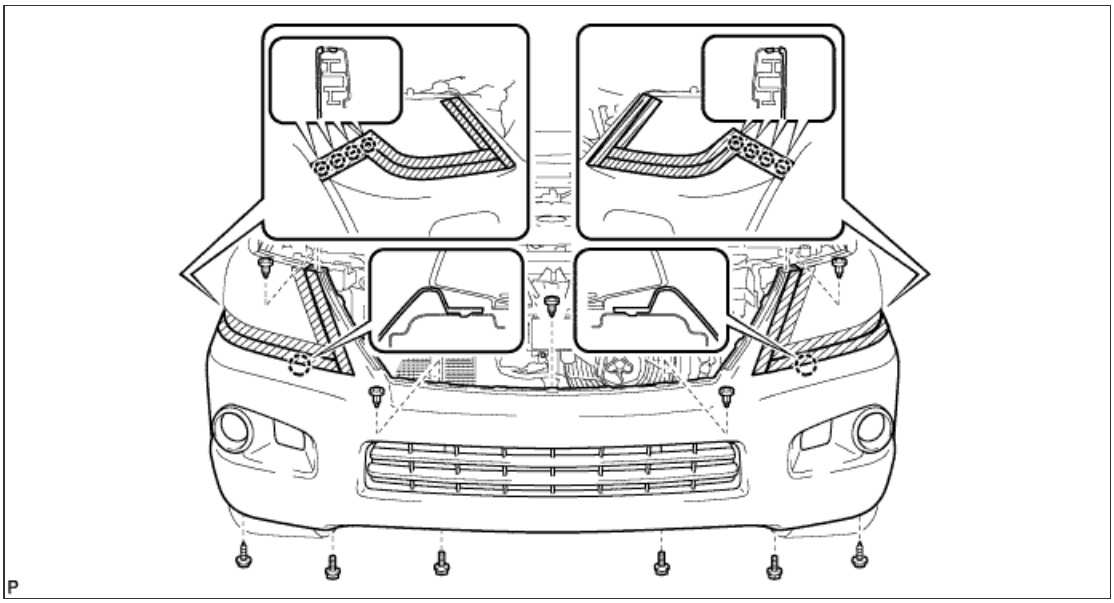



b. Using a T30 "TORX" socket, remove the 6 screws.

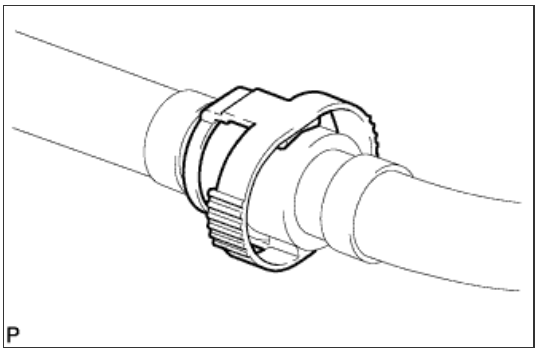



c. Remove the 5 clips, 2 screws and 4 bolts.

d. Detach the 10 claws, disconnect the No. 4 engine room wire connector and remove the bumper cover.




e. w/ Headlight Cleaner System:
Disconnect the headlight cleaner hose and remove the bumper cover.

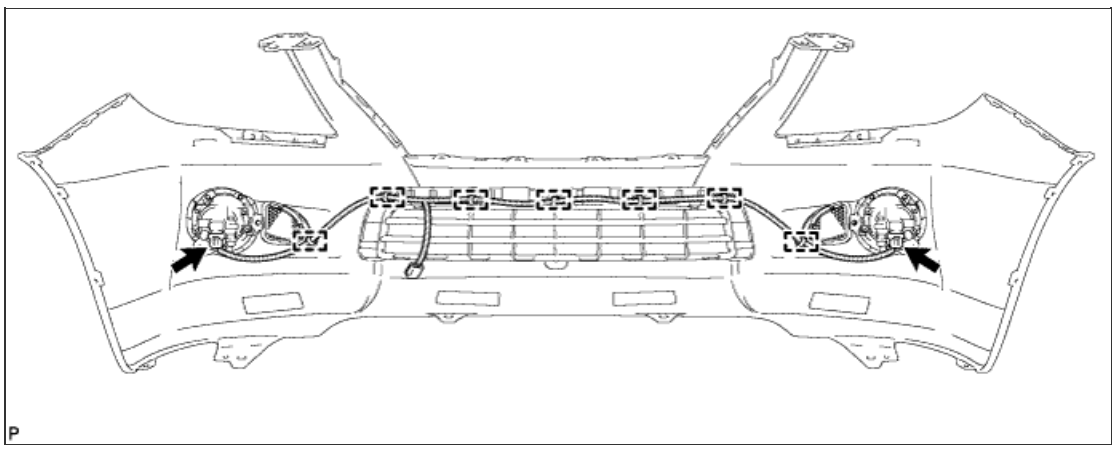



## 8. REMOVE NO. 4 ENGINE ROOM WIRE

a. w/o LEXUS Parking Assist-sensor System
Remove the No. 4 engine room wire.

i. Disconnect the 2 connectors.

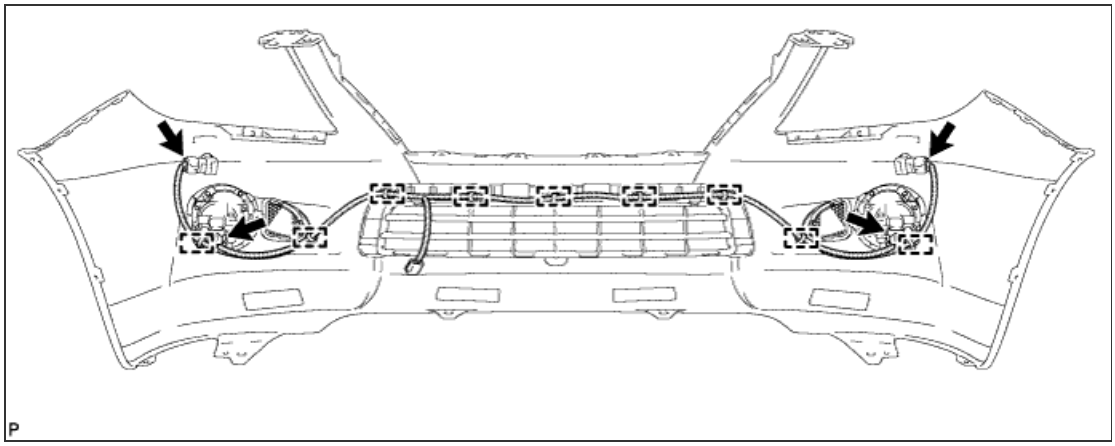
ii. Detach the 7 clamps and remove the engine room wire.



b. w/ LEXUS Parking Assist-sensor System:
Remove the No. 4 engine room wire.

i. Disconnect the 4 connectors.

ii. Detach the 9 clamps and remove the engine room wire.




## 9. REMOVE NO. 1 ULTRASONIC SENSOR

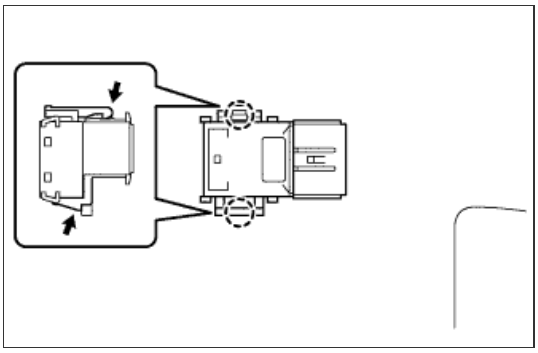
**HINT:**

Use the same procedure to remove the No. 1 ultrasonic sensor on the other side.

a. While pushing down on the lever with a finger to release the one claw, detach the claw on the other side to remove the ultrasonic sensor.

**HINT:**

The type of claw on the top and the type of claw on the bottom of the sensor are different. Observe the claws carefully before removing the sensor.

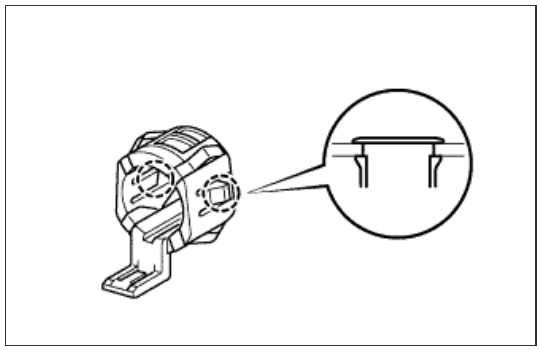


## 10. REMOVE NO. 1 ULTRASONIC SENSOR RETAINER

**HINT:**

Use the same procedure to remove the No. 1 ultrasonic sensor retainer on the other side.

a. Detach the 2 claws and remove the ultrasonic sensor retainer from the front bumper cover.



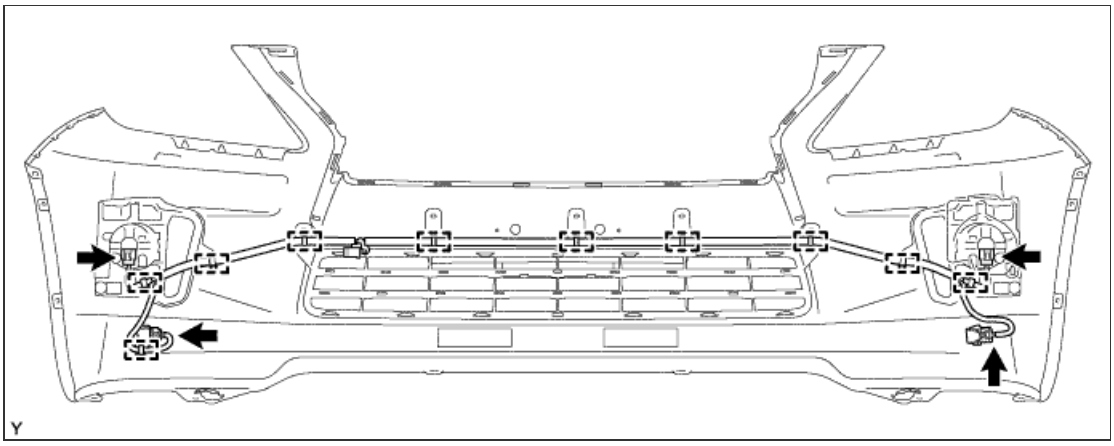
**for Preparation** Click here

## 1. REMOVE FRONT BUMPER COVER

(Click here)

## 2. REMOVE NO. 4 ENGINE ROOM WIRE

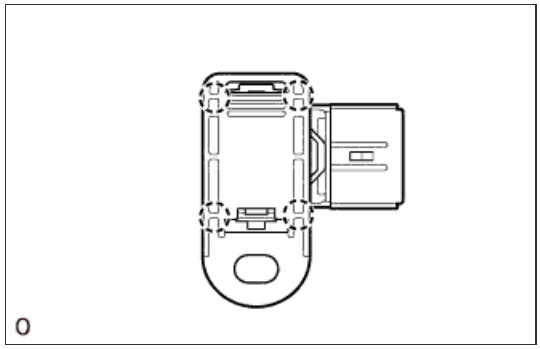
a. Disconnect the 4 connectors.




b. Detach the 10 clamps and remove the No. 4 engine room wire.

## 3. REMOVE ULTRASONIC SENSOR CLIP

a. Detach the 4 claws and remove the ultrasonic sensor clip.




## 4. REMOVE NO. 1 ULTRASONIC SENSOR

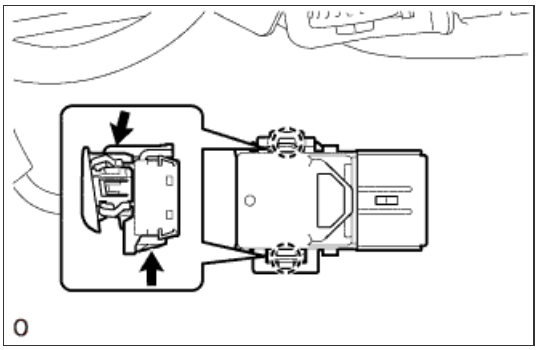
**HINT:**

Use the same procedure to remove the No. 1 ultrasonic sensor on the other side.

a. While pushing down on the lever with a finger to release the one claw, detach the claw on the other side to remove the No. 1 ultrasonic sensor.

**HINT:**

The type of claw on the top and bottom of the sensor are different. Observe the claws carefully before removing the No. 1 ultrasonic sensor.

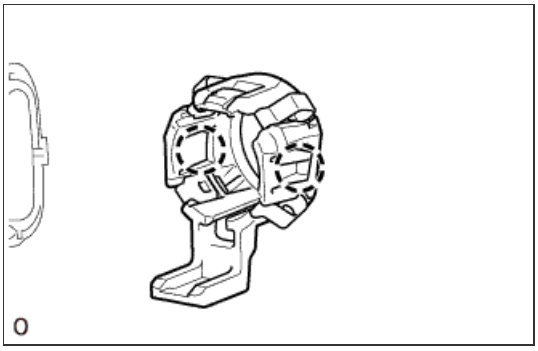


## 5. REMOVE NO. 2 ULTRASONIC SENSOR RETAINER

a. Detach the 2 claws and remove the No. 2 ultrasonic sensor retainer from the front bumper cover.

**HINT:**

Use the same procedure to remove the No. 2 ultrasonic sensor retainer on the other side.



**for Preparation** Click here

## 1. INSPECT NO. 1 ULTRASONIC SENSOR

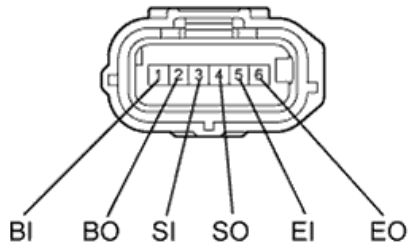
a. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 (BI) - 5 (EI) | Always | 10 kΩ or higher |
| 1 (BI) - 2 (BO) | Always | 10 kΩ or higher |
| 3 (SI) - 4 (SO) | Always | 10 kΩ or higher |
| 5 (EI) - 6 (EO) | Always | 10 kΩ or higher |

If the result is not as specified, replace the sensor.

Component without harness connected:
(No. 1 Ultrasonic Sensor)



**for Preparation** Click here

## 1. INSPECT NO. 1 ULTRASONIC SENSOR

a. Measure the resistance according to the value(s) in the table below.

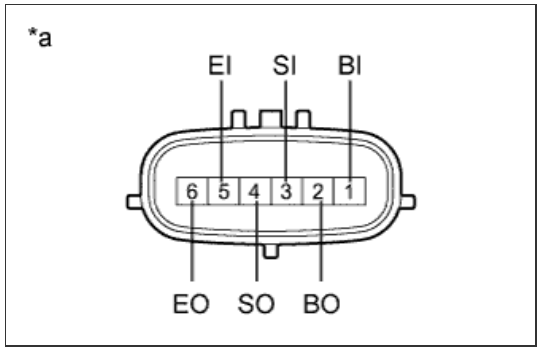
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 (BI) - 5 (EI) | Always | 10 kΩ or higher |
| 1 (BI) - 2 (BO) | Always | 10 kΩ or higher |
| 3 (SI) - 4 (SO) | Always | 10 kΩ or higher |
| 5 (EI) - 6 (EO) | Always | 10 kΩ or higher |

If the result is not as specified, replace the No. 1 ultrasonic sensor.

**Test in Illustration**

| | |
|---|---|
| *a | Component without harness connected (No. 1 Ultrasonic Sensor) |



**for Preparation** Click here

## 1. INSTALL NO. 1 ULTRASONIC SENSOR RETAINER

**HINT:**

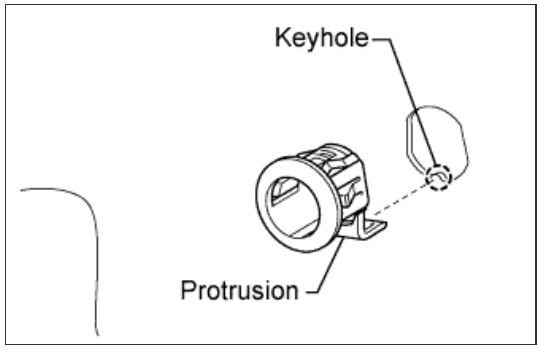
Use the same procedure to install the No. 1 ultrasonic sensor retainer on the other side.

a. Align the keyhole and protrusion as shown in the illustration.

b. Install the ultrasonic sensor retainer to the front bumper cover.

**NOTICE:**

Do not damage the bumper with the protrusion when installing the retainer.



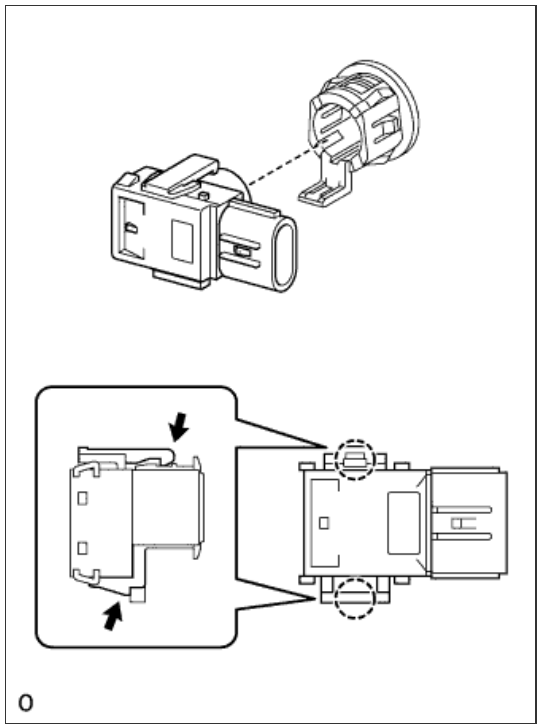

## 2. INSTALL NO. 1 ULTRASONIC SENSOR

**HINT:**

Use the same procedure to install the No. 1 ultrasonic sensor on the other side.

a. Attach the 2 claws to install the ultrasonic sensor.

b. Connect the connector.

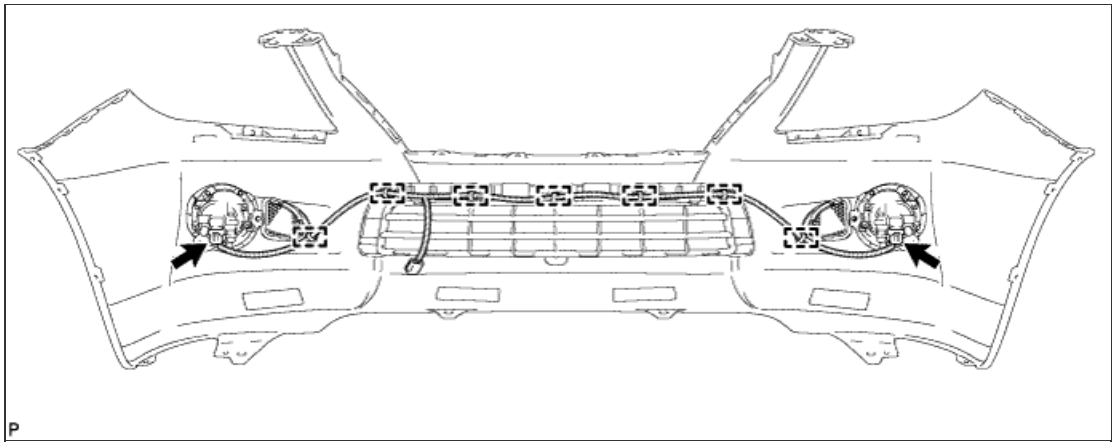


## 3. INSTALL NO. 4 ENGINE ROOM WIRE

a. w/o LEXUS Parking Assist-sensor System:
Install the No. 4 engine room wire.

i. Attach the 7 clamps to install the engine room wire.

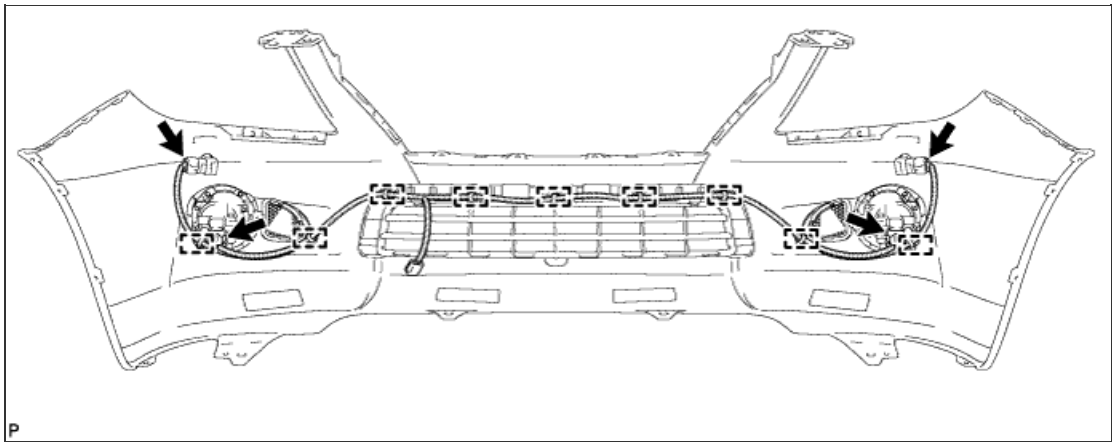
ii. Connect the 2 connectors.




b. w/ LEXUS Parking Assist-sensor System:
Install the No. 4 engine room wire.

i. Attach the 9 clamps to install the engine room wire.

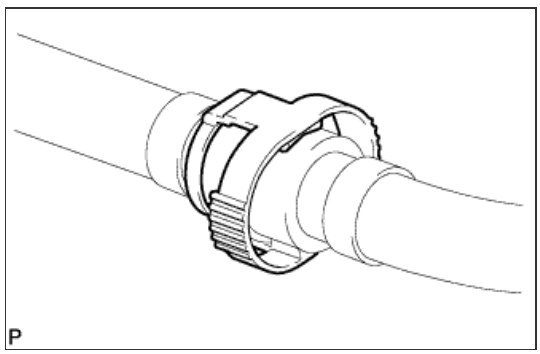
ii. Connect the 4 connectors.



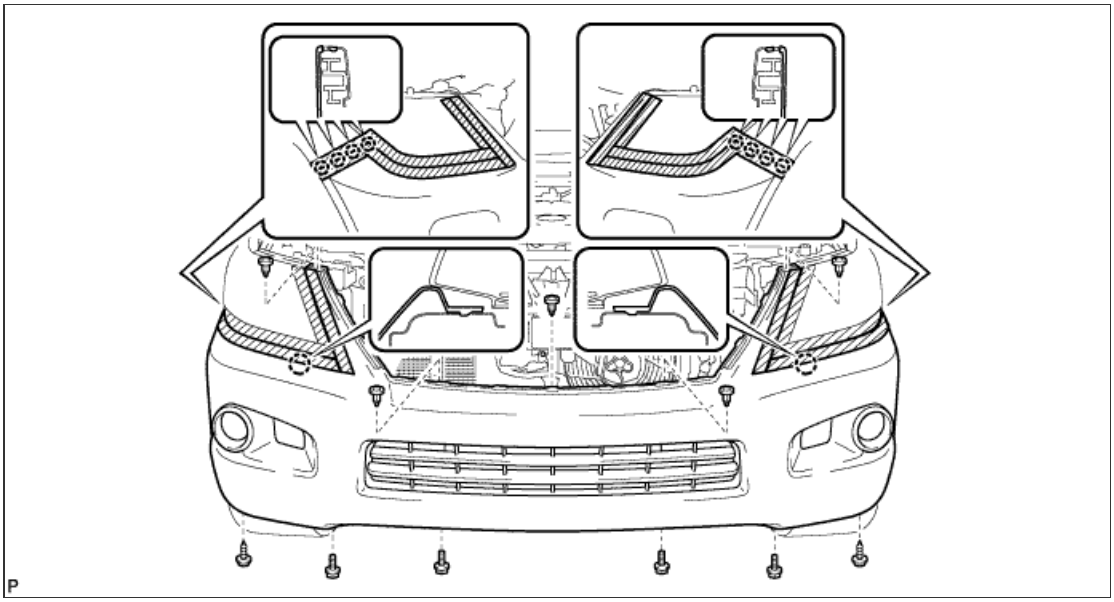

## 4. INSTALL FRONT BUMPER COVER

a. w/ Headlight Cleaner System:
Connect the headlight cleaner hose.

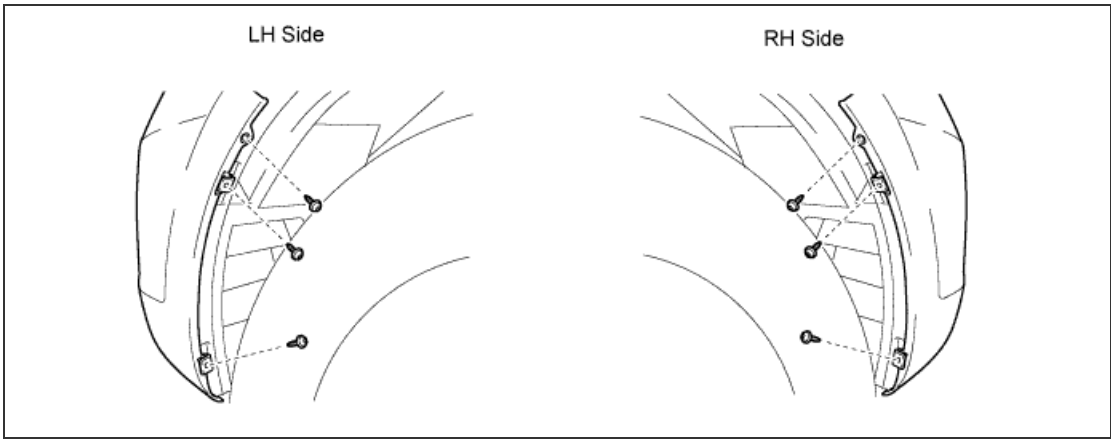
b. Connect the No. 4 engine room wire connector and attach the 10 claws to install the bumper cover.




c. Install the 5 clips, 2 screws and 4 bolts.




d. Using a T30 "TORX" socket, install the 6 screws.



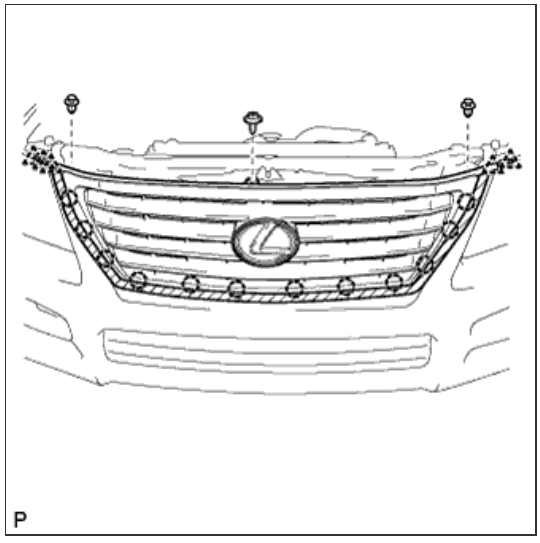

## 5. INSTALL RADIATOR GRILLE ASSEMBLY

a. w/ Wide View Front Monitor System:
Connect the connector.

b. Attach the 12 claws to install the radiator grille.

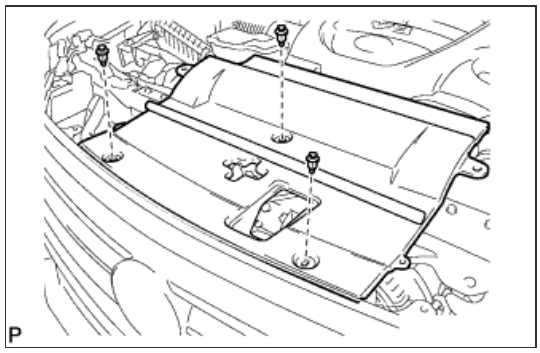
c. Attach the 5 clips to install the detached part of the upper radiator seal.

d. Install the screw and 2 clips.



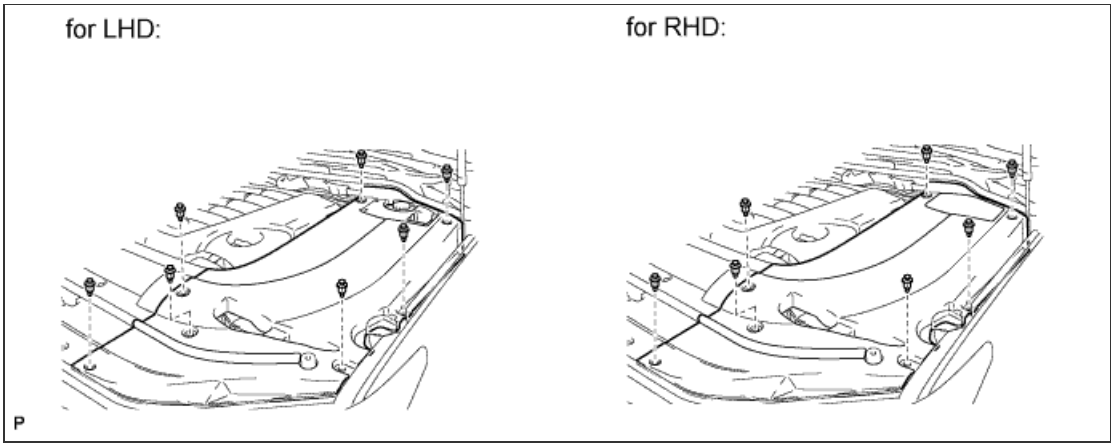
## 6. INSTALL UPPER RADIATOR SUPPORT SEAL

a. Install the upper radiator support seal with the 3 clips.



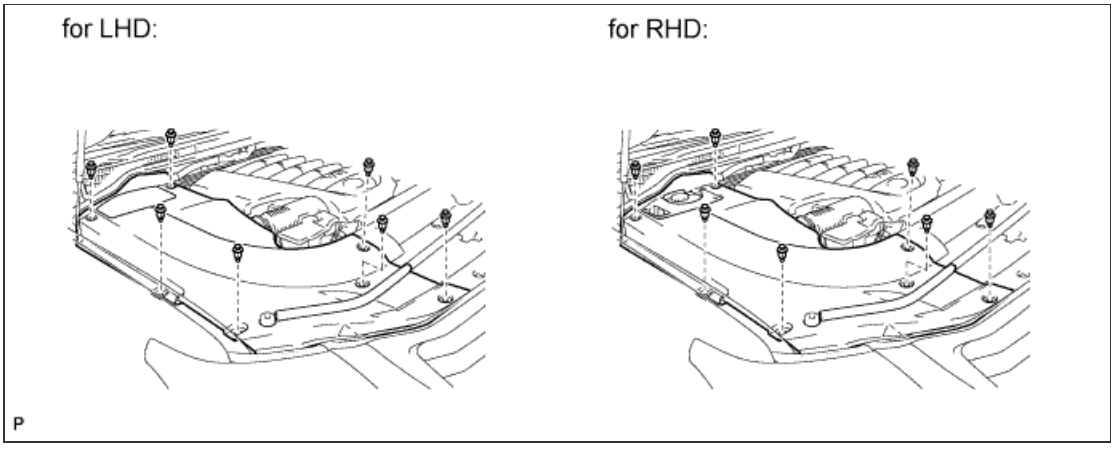

## 7. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover with the 7 clips.




## 8. INSTALL ENGINE ROOM SIDE COVER RH

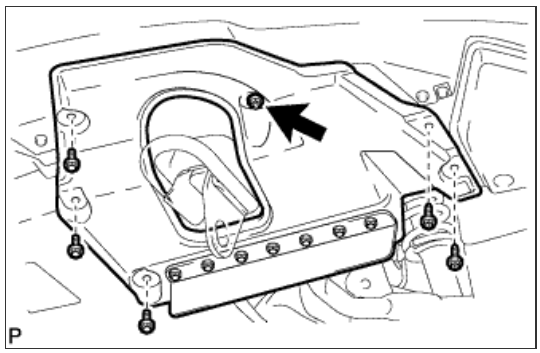
a. Install the engine room side cover with the 7 clips.



## 9. INSTALL FRONT FENDER SPLASH SHIELD SUBASSEMBLY LH

a. Push in the clip indicated by the arrow in the illustration to install the fender splash shield.

b. Install the 3 bolts and 2 screws.




## 10. INSTALL FRONT FENDER SPLASH SHIELD SUBASSEMBLY RH

**HINT:**

Use the same procedures described for the LH side.

**for Preparation** Click here

## 1. INSTALL NO. 2 ULTRASONIC SENSOR RETAINER

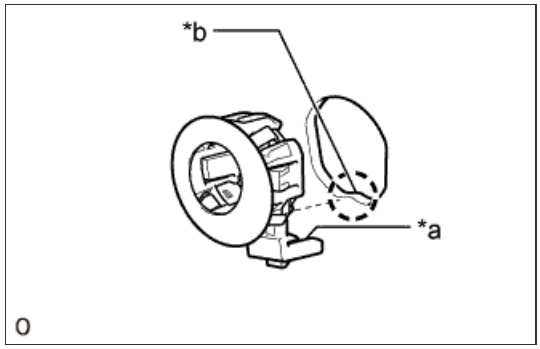
**HINT:**

Use the same procedure to install the No. 2 ultrasonic sensor retainer on the other side.

a. Temporarily install the No. 2 ultrasonic sensor retainer to the front bumper.

**Text in Illustration**

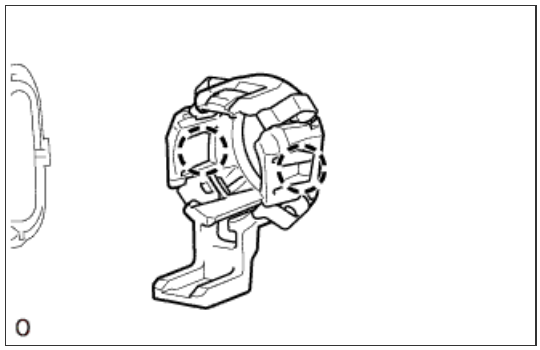
| | |
|---|---|
| *a | Protrusion |
| *b | Keyhole |




**NOTICE:**

- **Do not damage the bumper with the protrusion when installing the retainer.**
- **Securely install the No. 2 ultrasonic sensor retainer so that there are no gaps between the retainer and surface of the front bumper.**

b. Attach the 2 claws to install the No. 2 ultra sonic sensor retainer.



## 2. INSTALL NO. 1 ULTRASONIC SENSOR

**HINT:**

Use the same procedure to install the No. 1 ultrasonic sensor on the other side.

a. Attach the 2 claws to install the ultrasonic sensor.

**NOTICE:**

Push the No. 2 ultrasonic sensor retainer from the outside of the bumper when there is a gap between the retainer and the bumper surface. In this case, do not push on the No. 1 ultrasonic sensor.

## 3. INSTALL ULTRASONIC SENSOR CLIP

a. Attach the 4 claws to install the ultrasonic sensor clip.

**NOTICE:**

Hold the No. 1 ultrasonic sensor in place so that the No. 2 ultrasonic sensor retainer does not come out when installing the ultrasonic sensor clip.

## 4. INSTALL NO. 4 ENGINE ROOM WIRE

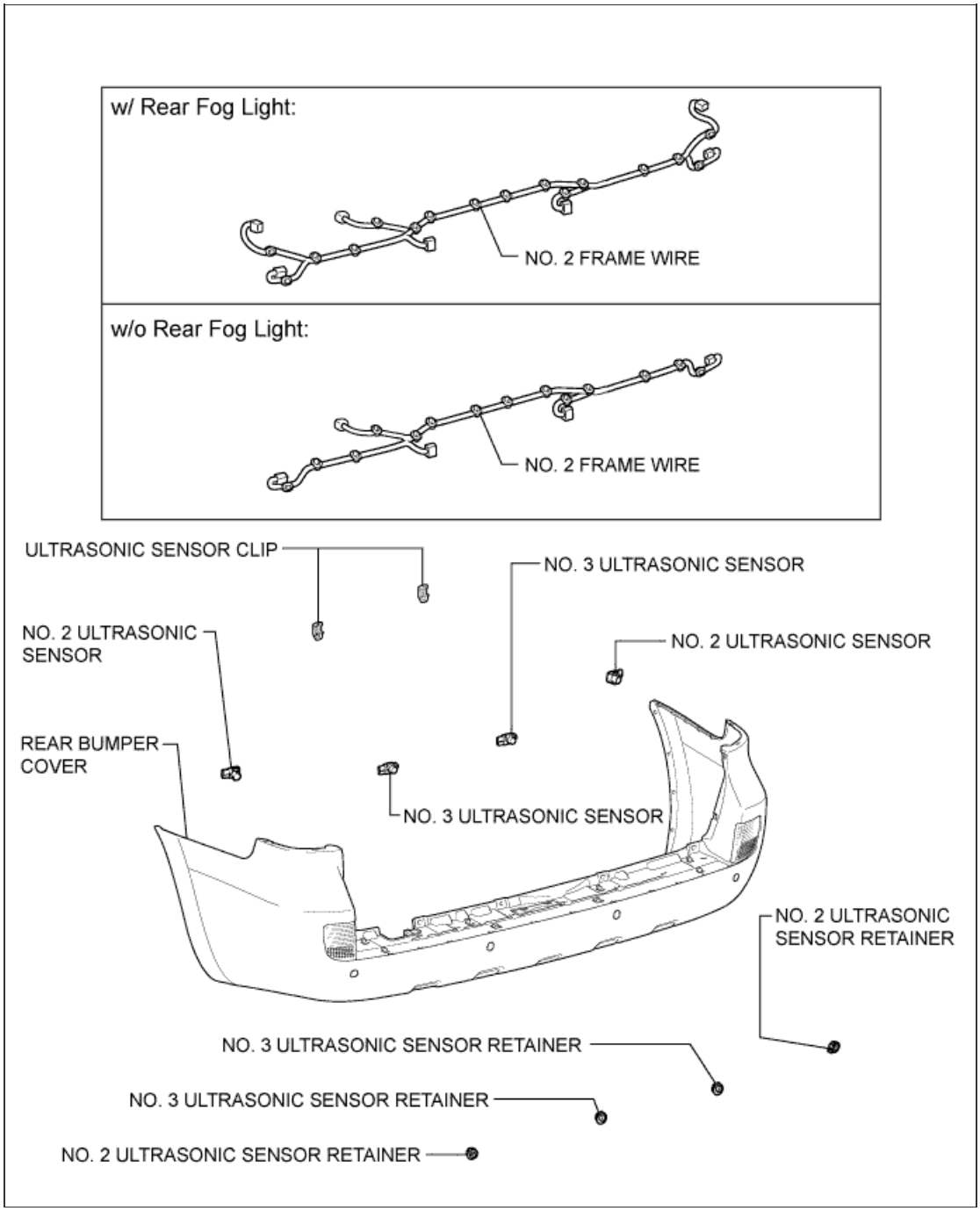
a. Attach the 10 clamps to install the No. 4 engine room wire.

b. Connect the 4 connectors.

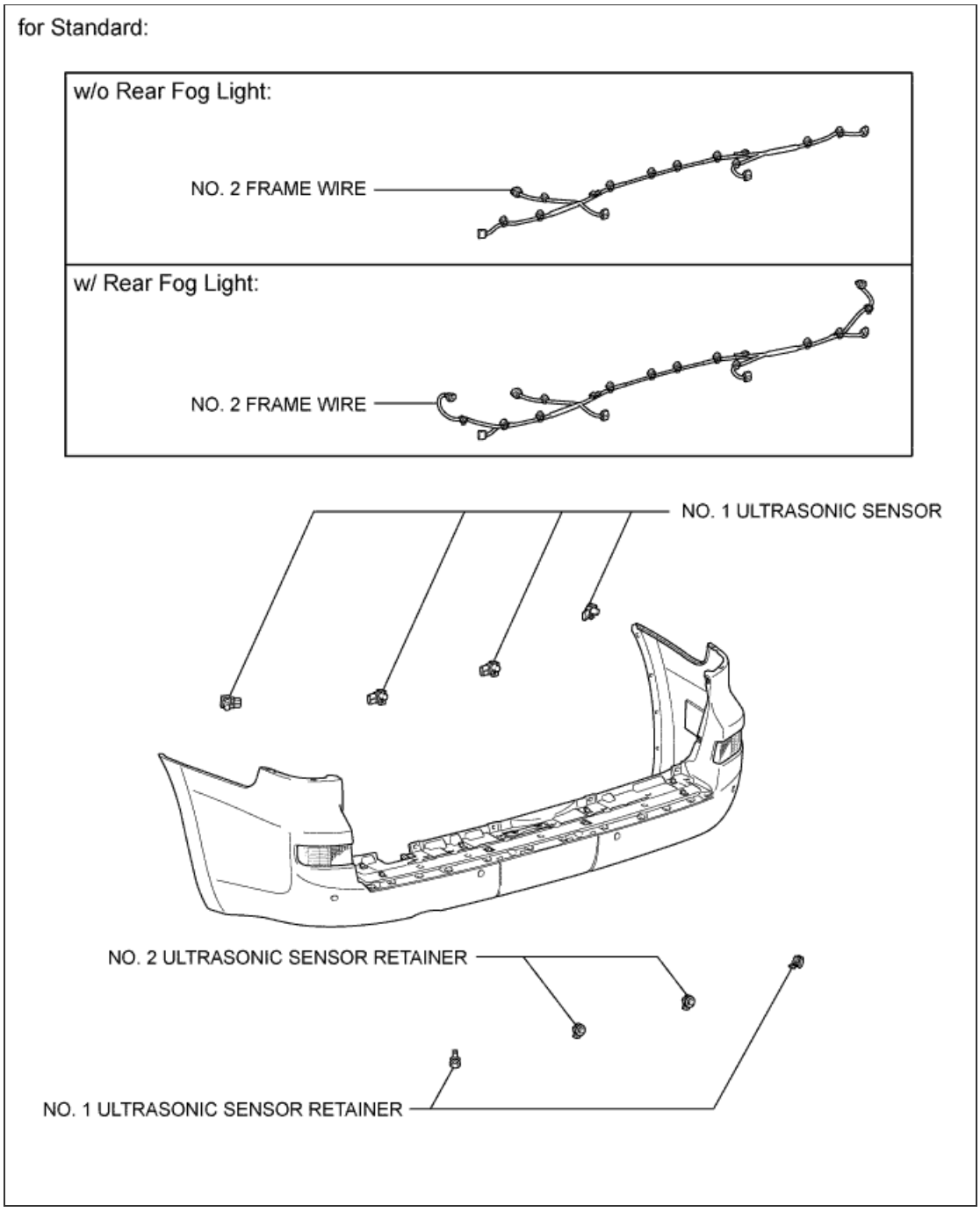
### 5. INSTALL FRONT BUMPER COVER

(Click here)

**for Preparation** Click here

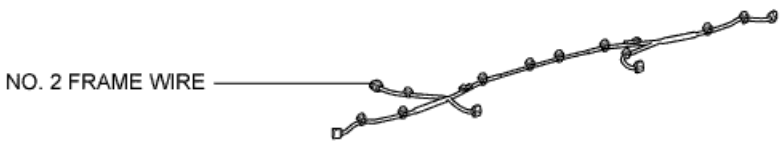


**for Preparation** Click here

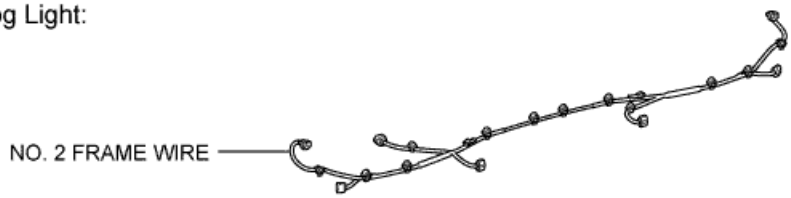


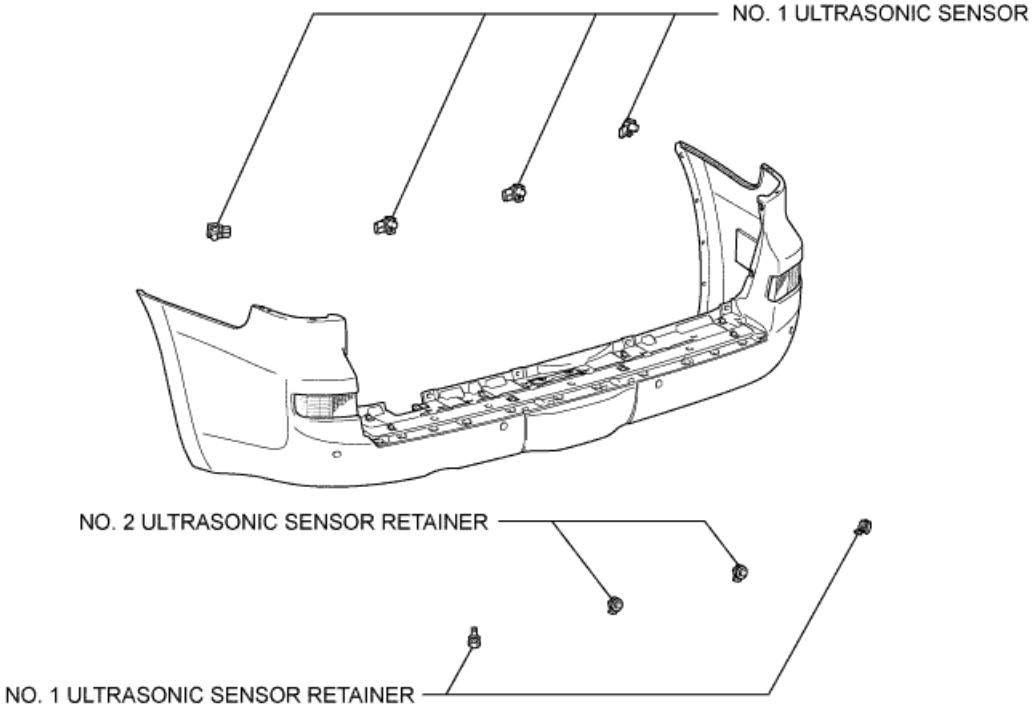
w/ Towing Hitch:

w/o Rear Fog Light:

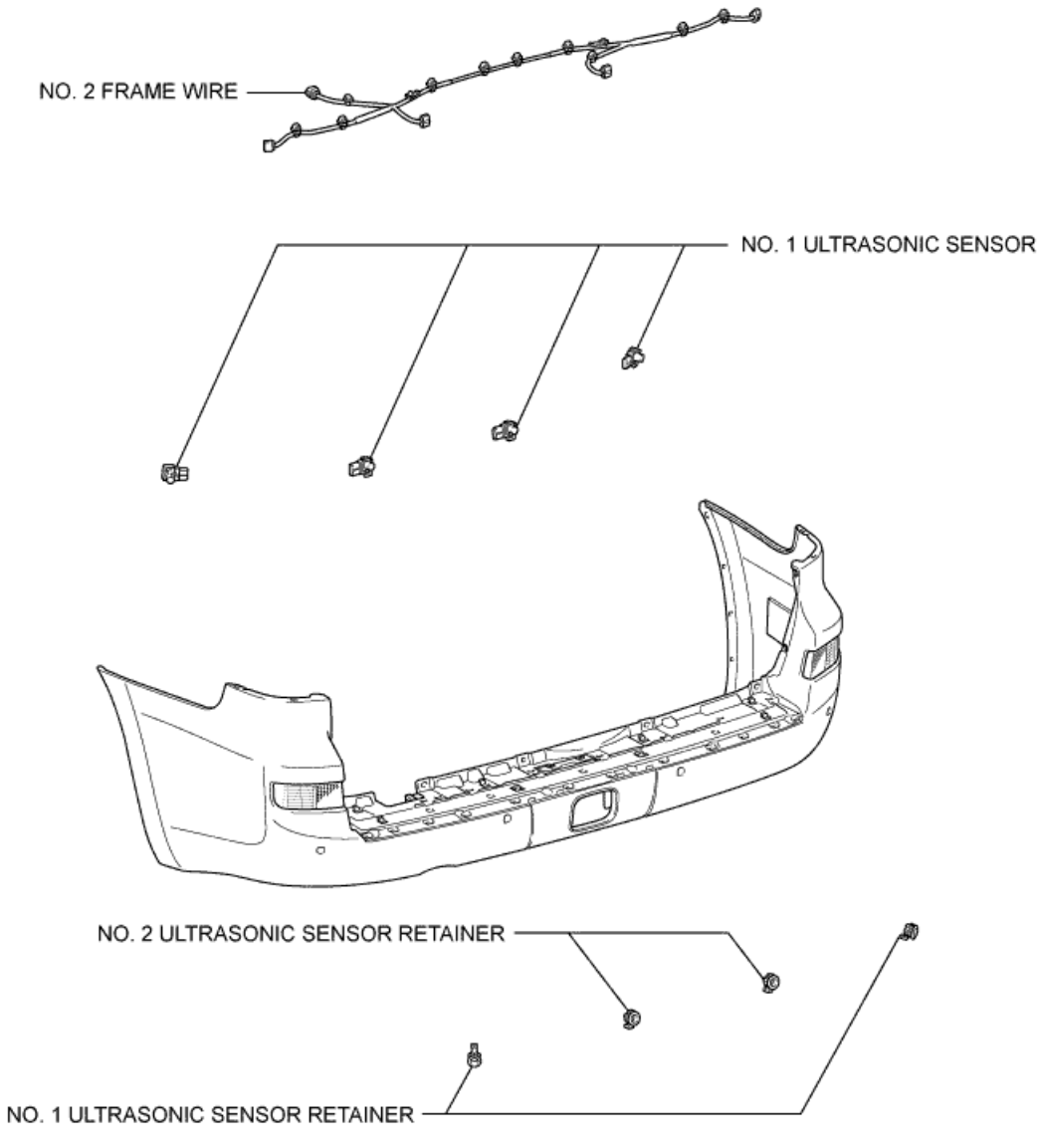



w/ Rear Fog Light:



w/ Pintle Hook:



**for Preparation** Click here

## 1. REMOVE REAR BUMPER COVER

a. for Standard:
Remove the rear bumper cover (Click here).

b. w/ Towing Hitch:
Remove the rear bumper cover (Click here).

c. w/ Pintle Hook:
Remove the rear bumper cover (Click here).

## 2. REMOVE NO. 2 FRAME WIRE

a. for Standard:
Remove the No. 2 frame wire (Click here).

b. w/ Towing Hitch:
Remove the No. 2 frame wire (Click here).

c. w/ Pintle Hook:
Remove the No. 2 frame wire (Click here).

## 3. REMOVE NO. 2 ULTRASONIC SENSOR

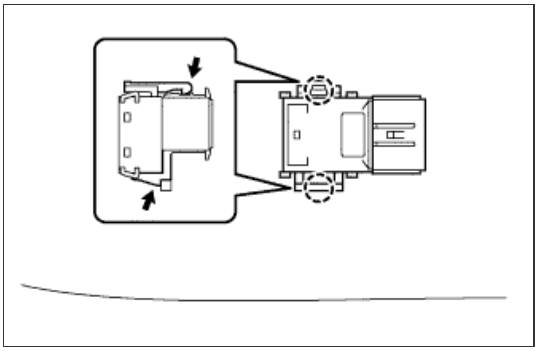
**HINT:**

Use the same procedure to remove the No. 2 ultrasonic sensor on the other side.

a. While pushing down on the lever with a finger to release the one claw, detach the claw on the other side to remove the ultrasonic sensor.

**HINT:**

The type of claw on the top and the type of claw on the bottom of the sensor are different. Observe the claws carefully before removing the sensor.



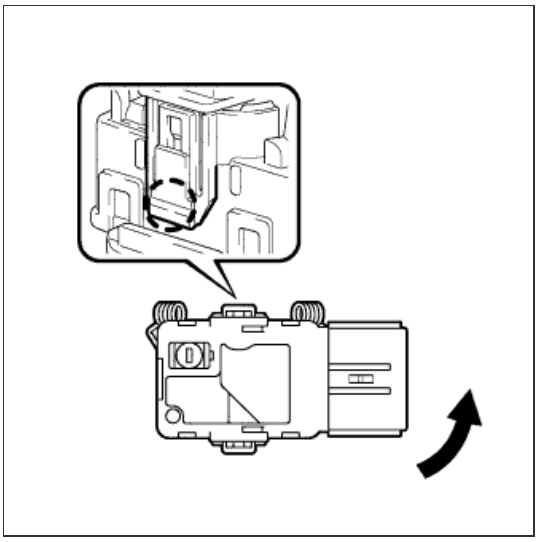
## 4. REMOVE NO. 3 ULTRASONIC SENSOR

**HINT:**

Use the same procedure to remove the No. 3 ultrasonic sensor on the other side.

a. Remove the ultrasonic sensor clip.

b. Detach the claw and remove the ultrasonic sensor as shown in the illustration.

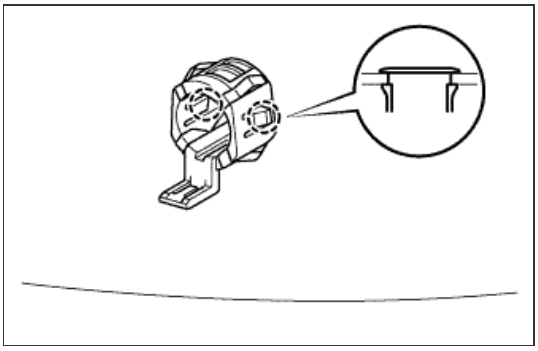


## 5. REMOVE NO. 2 ULTRASONIC SENSOR RETAINER

**HINT:**

Use the same procedure to remove the No. 2 ultrasonic sensor retainer on the other side.

a. Detach the 2 claws and remove the ultrasonic sensor retainer from the rear bumper cover.

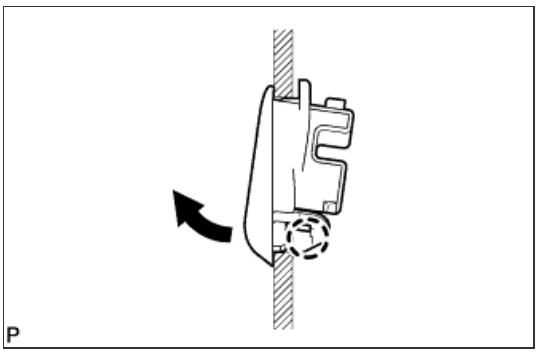


## 6. REMOVE NO. 3 ULTRASONIC SENSOR RETAINER

**HINT:**

Use the same procedure to remove the No. 3 ultrasonic sensor retainer on the other side.

a. Detach the claw and remove the ultrasonic sensor retainer from the rear bumper cover.



**for Preparation** Click here

## 1. REMOVE REAR BUMPER COVER

a. for Standard:
(Click here)

b. w/ Towing Hitch:
(Click here)

c. w/ Pintle Hook:
(Click here)

## 2. REMOVE NO. 2 FRAME WIRE

a. for Standard:
(Click here).

b. w/ Towing Hitch:
(Click here).

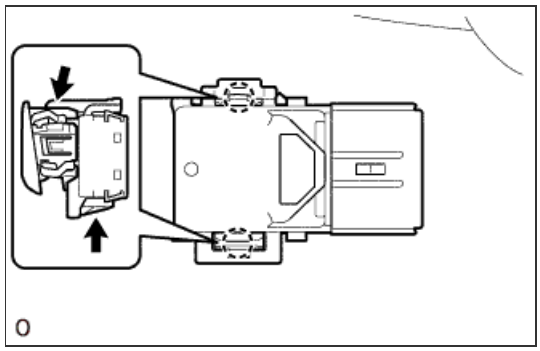
c. w/ Pintle Hook:
(Click here).

## 3. REMOVE NO. 1 ULTRASONIC SENSOR

a. Detach the 2 claws and remove the No. 1 ultrasonic sensor.

**HINT:**

- **Use the same procedure for all No. 1 ultrasonic sensors.**
- **The illustration shows the No. 1 ultrasonic sensor for the RH corner and back sensor LH and RH. The installation position of the No. 1 ultrasonic sensor for the LH corner is on the opposite side.**

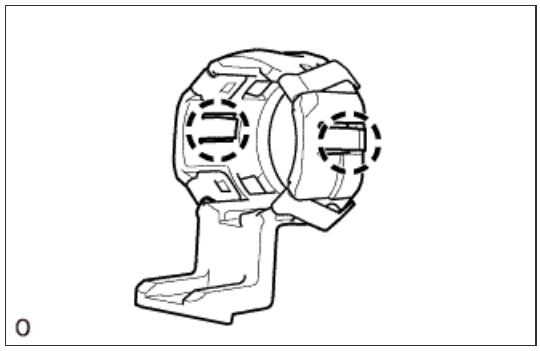


## 4. REMOVE NO. 1 ULTRASONIC SENSOR RETAINER

a. Detach the 2 claws and remove the No. 1 ultrasonic sensor retainer from the rear bumper cover.

**HINT:**

Use the same procedure to remove the No. 1 ultrasonic sensor retainer on the other side.

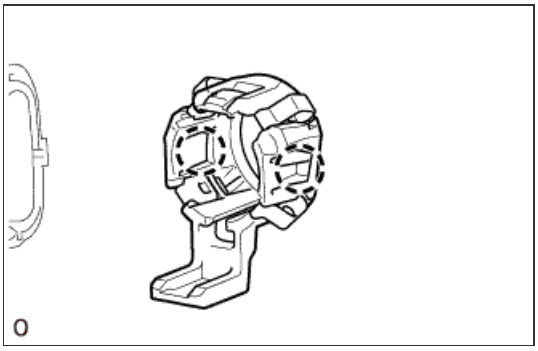


## 5. REMOVE NO. 2 ULTRASONIC SENSOR RETAINER

a. Detach the 2 claws and remove the No. 2 ultrasonic sensor retainer from the rear bumper cover.

**HINT:**

Use the same procedure to remove the No. 2 ultrasonic sensor retainer on the other side.



**for Preparation** Click here

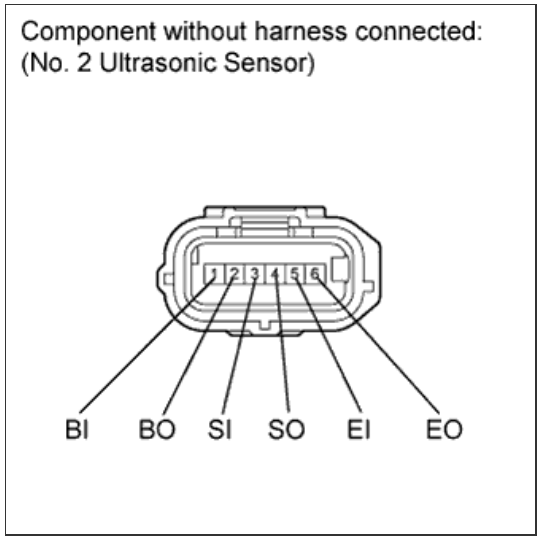
## 1. INSPECT NO. 2 ULTRASONIC SENSOR

a. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 (BI) - 5 (EI) | Always | 10 kΩ or higher |
| 1 (BI) - 2 (BO) | Always | 10 kΩ or higher |
| 3 (SI) - 4 (SO) | Always | 10 kΩ or higher |
| 5 (EI) - 6 (EO) | Always | 10 kΩ or higher |

If the result is not as specified, replace the sensor.



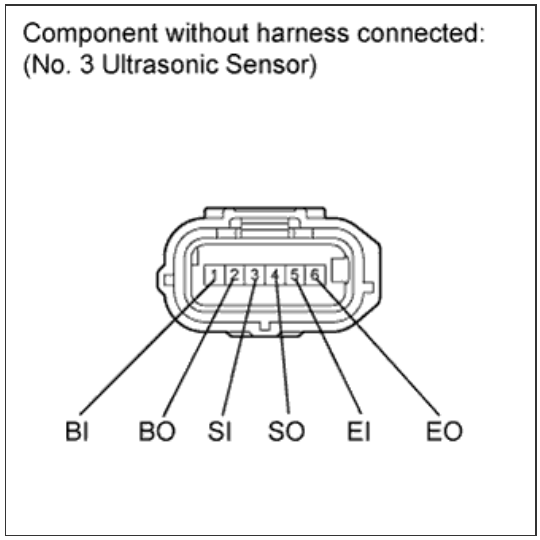

## 2. INSPECT NO. 3 ULTRASONIC SENSOR

a. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 (BI) - 5 (EI) | Always | 10 kΩ or higher |
| 1 (BI) - 2 (BO) | Always | 10 kΩ or higher |
| 3 (SI) - 4 (SO) | Always | 10 kΩ or higher |
| 5 (EI) - 6 (EO) | Always | 10 kΩ or higher |

If the result is not as specified, replace the sensor.



**for Preparation** Click here

## 1. INSPECT NO. 1 ULTRASONIC SENSOR

a. Measure the resistance according to the value(s) in the table below.

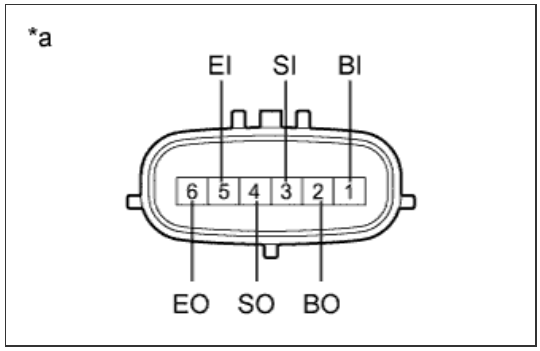
**Standard Resistance:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 (BI) - 5 (EI) | Always | 10 kΩ or higher |
| 1 (BI) - 2 (BO) | Always | 10 kΩ or higher |
| 3 (SI) - 4 (SO) | Always | 10 kΩ or higher |
| 5 (EI) - 6 (EO) | Always | 10 kΩ or higher |

If the result is not as specified, replace the No. 1 ultrasonic sensor.

**Test in Illustration**

| | |
|---|---|
| *a | Component without harness connected (No. 1 Ultrasonic Sensor) |



**for Preparation** Click here

## 1. INSTALL NO. 2 ULTRASONIC SENSOR RETAINER

**HINT:**

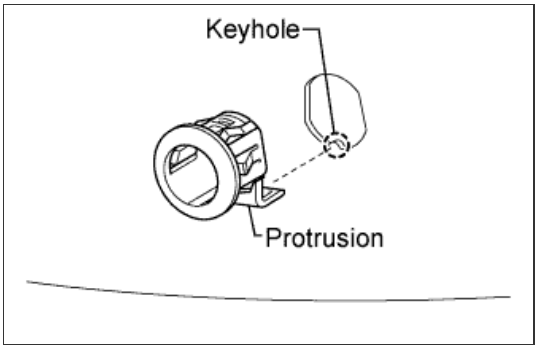
Use the same procedure to install the No. 2 ultrasonic sensor retainer on the other side.

a. Align the keyhole and protrusion as shown in the illustration.

b. Install the ultrasonic sensor retainer to the rear bumper.

**NOTICE:**

Do not damage the bumper with the protrusion when installing the retainer.

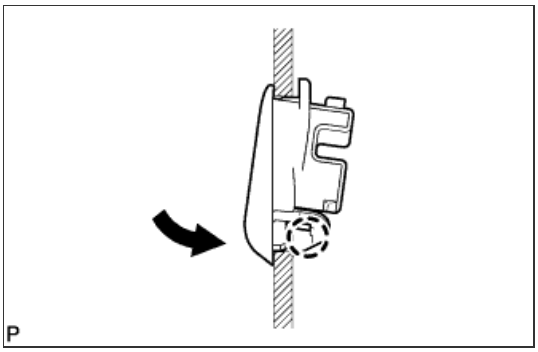



## 2. INSTALL NO. 3 ULTRASONIC SENSOR RETAINER

**HINT:**

Use the same procedure to install the No. 3 ultrasonic sensor retainer on the other side.

a. Attach the claw to install the ultrasonic sensor retainer as shown in the illustration.




## 3. INSTALL NO. 2 ULTRASONIC SENSOR

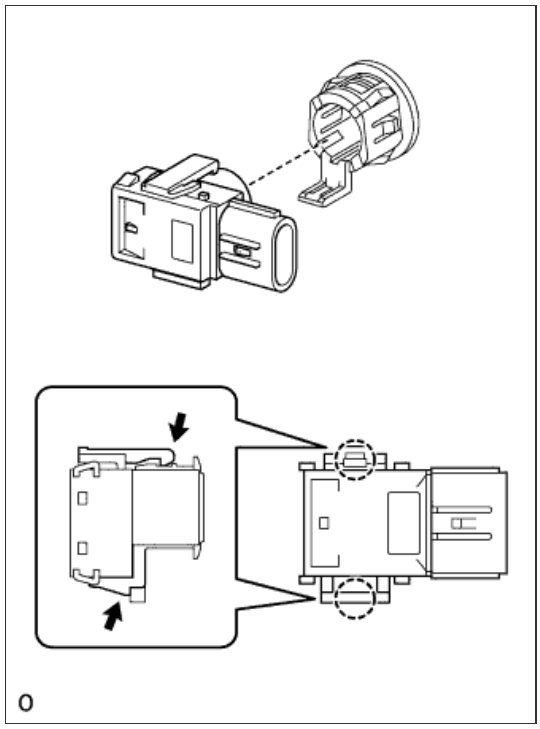
**HINT:**

Use the same procedure to install the No. 2 ultrasonic sensor on the other side.

a. Attach the 2 claws to install the ultrasonic sensor.

b. Connect the connector.

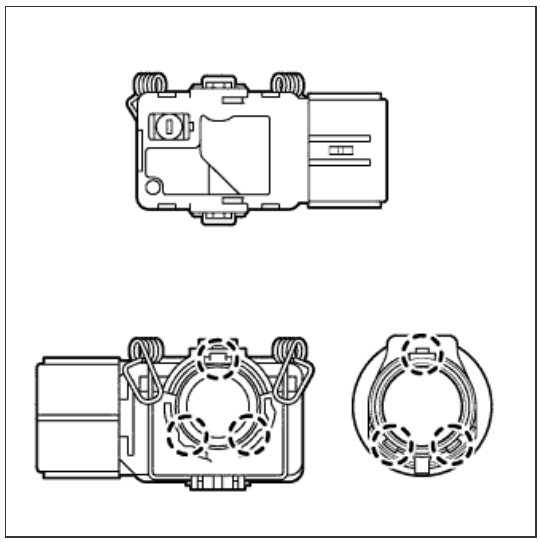
c. Install the ultrasonic sensor clip.



## 4. INSTALL NO. 3 ULTRASONIC SENSOR

**HINT:**

Use the same procedure to install the No. 3 ultrasonic sensor on the other side.



a. Attach the 3 claws to install the ultrasonic sensor.

b. Connect the connector.

## 5. INSTALL NO. 2 FRAME WIRE

a. for Standard:
Install the No. 2 frame wire (Click here).

b. w/ Towing Hitch:
Install the No. 2 frame wire (Click here).

c. w/ Pintle Hook:
Install the No. 2 frame wire (Click here).

## 6. INSTALL REAR BUMPER COVER

a. for Standard:
Install the rear bumper cover (Click here).

b. w/ Towing Hitch:
Install the rear bumper cover (Click here).

c. w/ Pintle Hook:

Install the rear bumper cover (Click here).

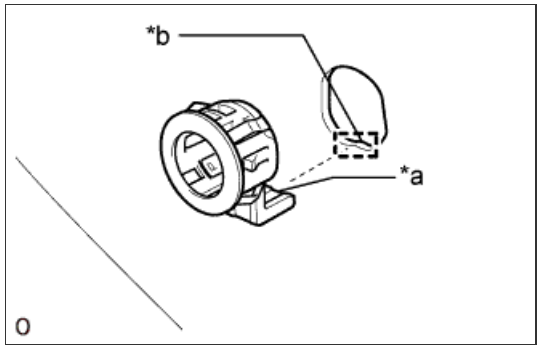
**for Preparation** Click here

## 1. INSTALL NO. 1 ULTRASONIC SENSOR RETAINER

**HINT:**

Use the same procedure to install the No. 1 ultrasonic sensor retainer on the other side.

a. Align the keyhole and protrusion as shown in the illustration.




Text in Illustration

| | |
|---|---|
| *a | Protrusion |
| *b | Keyhole |

**NOTICE:**

- **Do not damage the bumper with the protrusion when installing the No. 1 ultrasonic sensor retainer.**
- **Securely install the No. 1 ultrasonic sensor retainer so that there are no gaps between the retainer and surface of the rear bumper.**

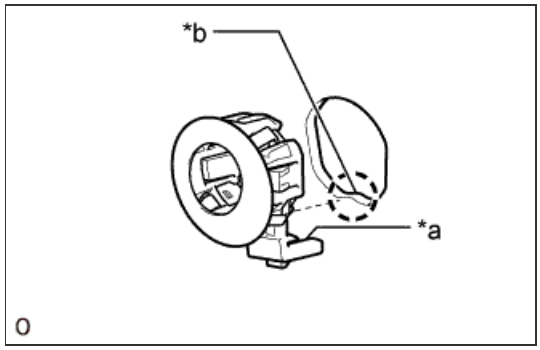
b. Attach the 2 claws to install the No. 1 ultrasonic sensor retainer.

## 2. INSTALL NO. 2 ULTRASONIC SENSOR RETAINER

**HINT:**

Use the same procedure to install the No. 2 ultrasonic sensor retainer on the other side.

a. Align the keyhole and protrusion as shown in the illustration.




Text in Illustration

| | |
|---|---|
| *a | Protrusion |
| *b | Keyhole |

**NOTICE:**

- **Do not damage the bumper with the protrusion when installing the No. 1 ultrasonic sensor retainer.**
- **Securely install the No. 2 ultrasonic sensor retainer so that there are no gaps between the retainer and surface of the rear bumper.**

b. Attach the 2 claws to install the No. 2 ultrasonic sensor retainer.

## 3. INSTALL NO. 1 ULTRASONIC SENSOR

**HINT:**

Use the same procedure for all No. 1 ultrasonic sensors.

a. Attach the 2 claws to install the No. 1 ultrasonic sensor.

**NOTICE:**

Push the ultrasonic sensor retainer from the outside of the bumper when there is a gap between the retainer and the bumper surface. In this case, do not push on the ultrasonic sensor.

## 4. INSTALL NO. 2 FRAME WIRE

a. for Standard:
(Click here)

b. w/ Towing Hitch:
(Click here)

c. w/ Pintle Hook:
(Click here)

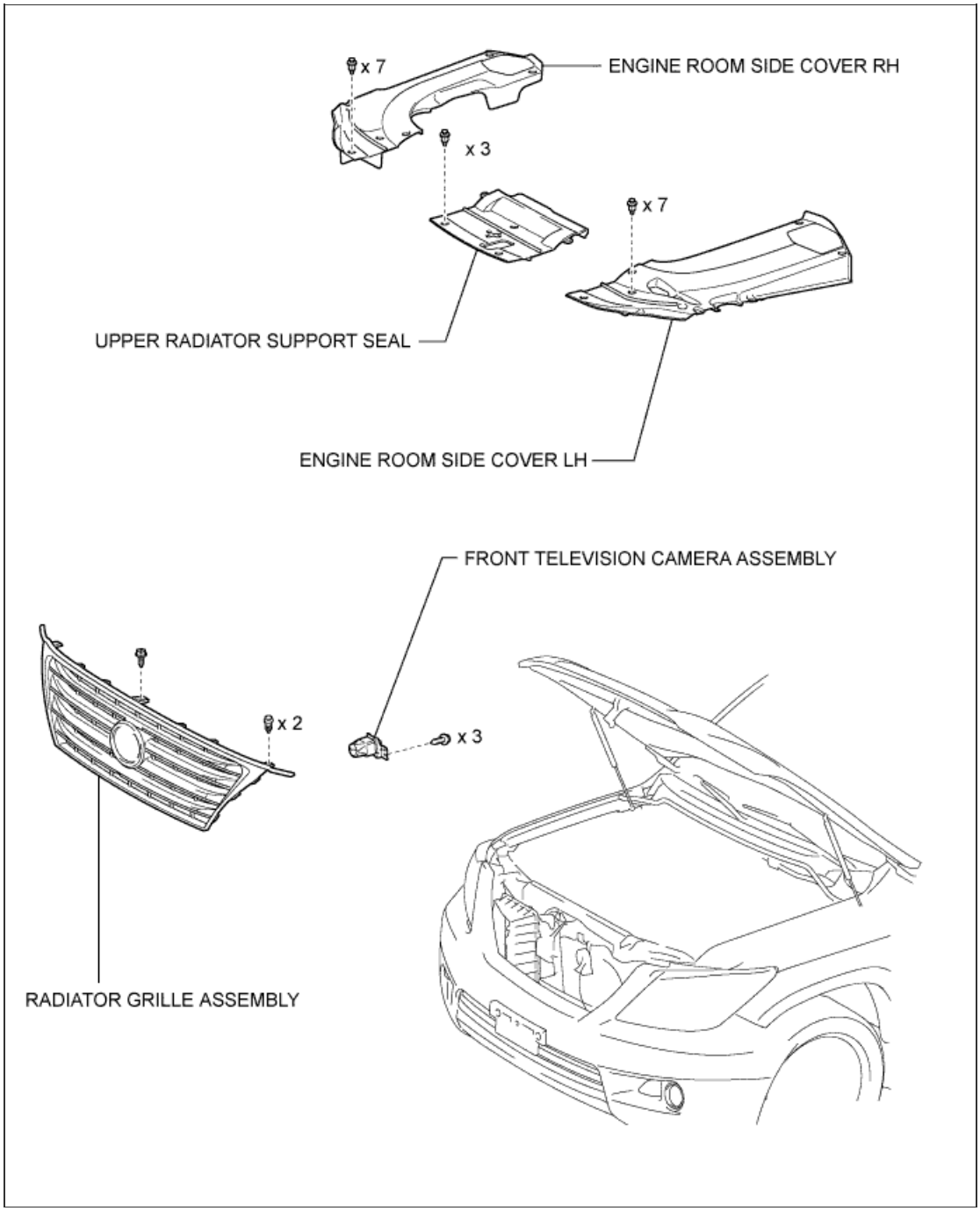
## 5. INSTALL REAR BUMPER COVER

a. for Standard:
(Click here)

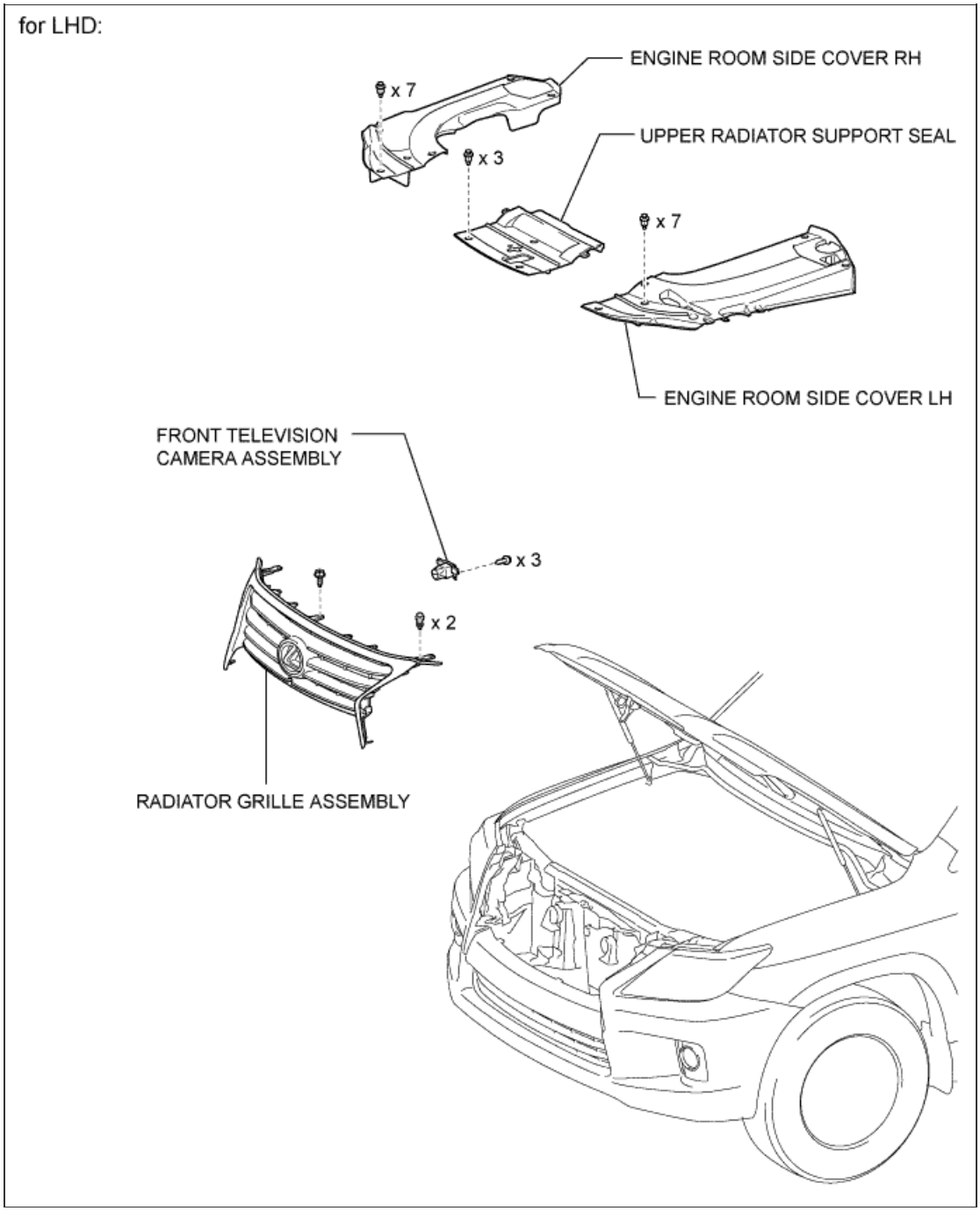
b. w/ Towing Hitch:
(Click here)

c. w/ Pintle Hook:
(Click here)

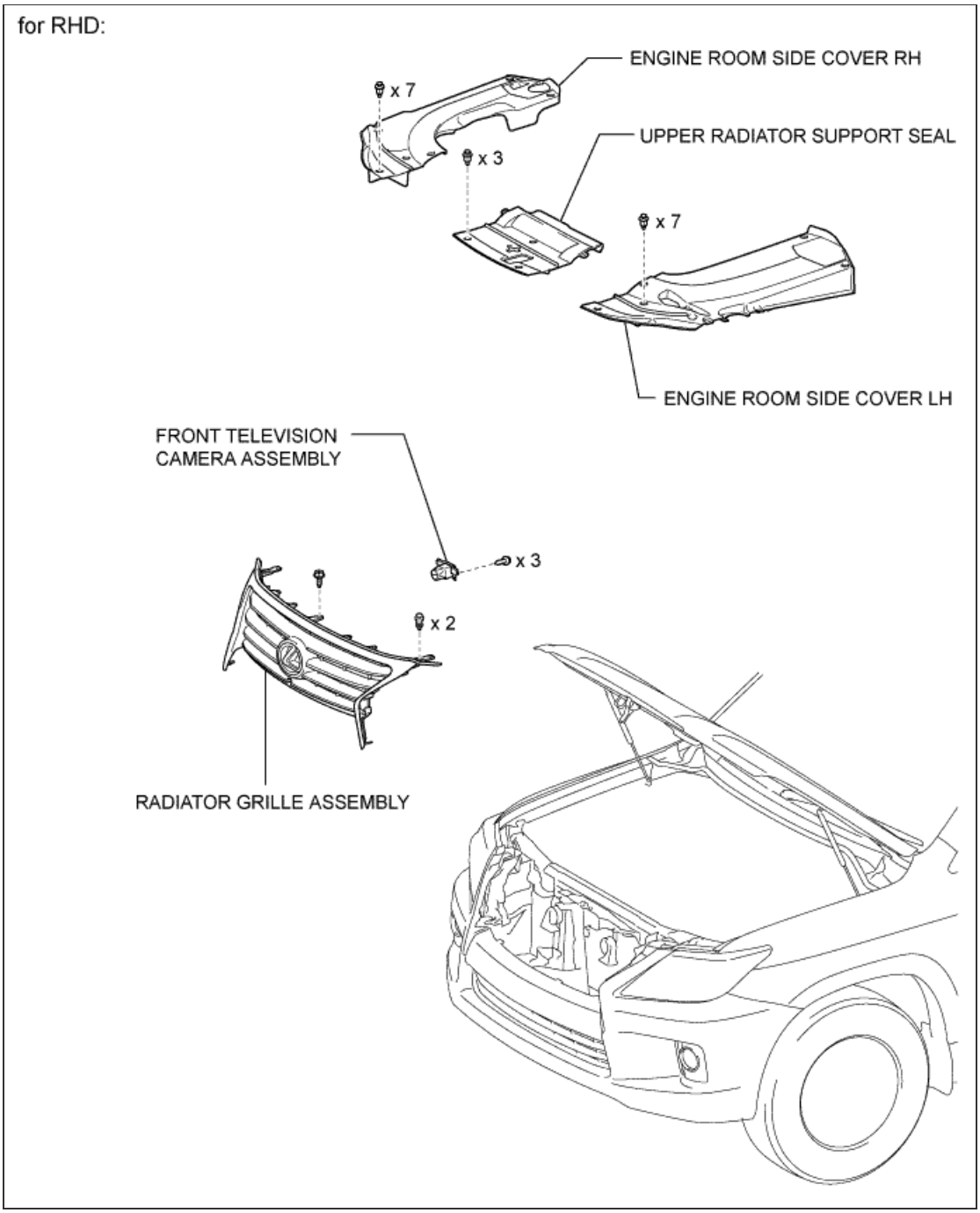
**for Preparation** Click here



**for Preparation** Click here



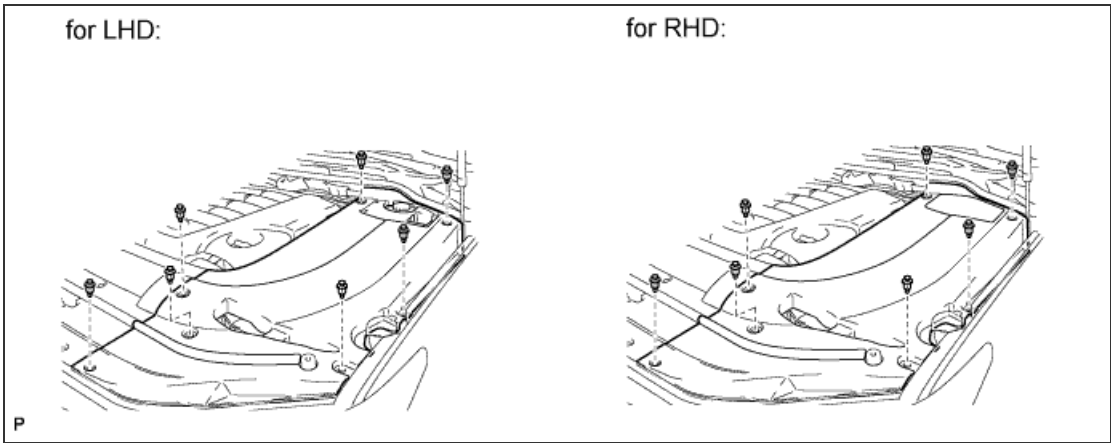
for RHD:


ENGINE ROOM SIDE COVER RH
x 7
UPPER RADIATOR SUPPORT SEAL
x 3
x 7
ENGINE ROOM SIDE COVER LH
FRONT TELEVISION CAMERA ASSEMBLY
x 3
x 2
RADIATOR GRILLE ASSEMBLY

**for Preparation** Click here

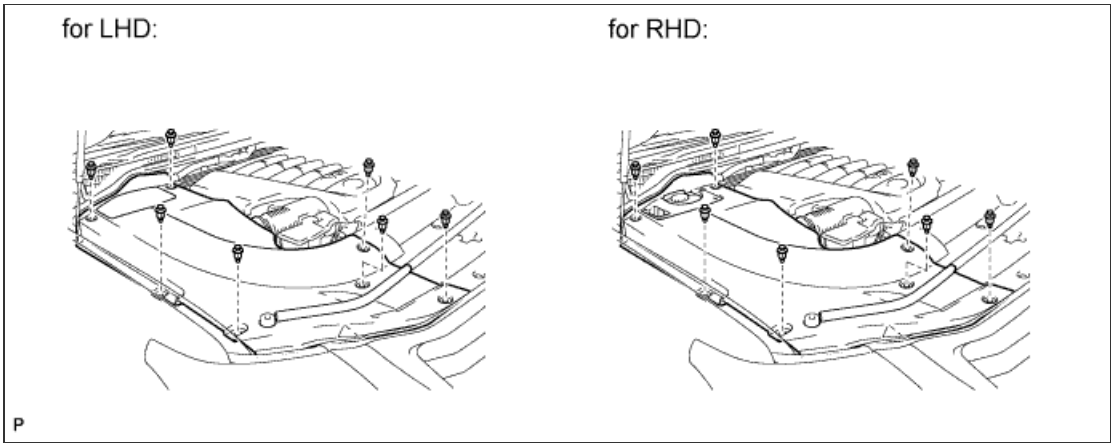
## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover.



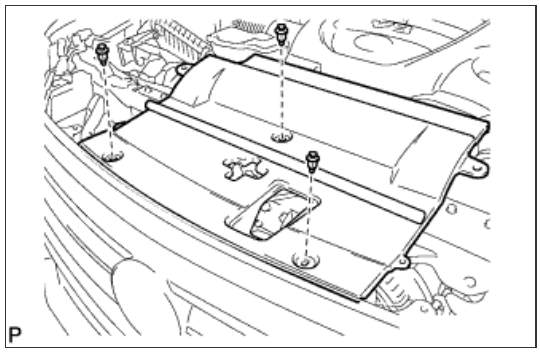

## 2. REMOVE ENGINE ROOM SIDE COVER RH

a. Remove the 7 clips and engine room side cover.




## 3. REMOVE UPPER RADIATOR SUPPORT SEAL

a. Remove the 3 clips and upper radiator support seal.




## 4. REMOVE RADIATOR GRILLE ASSEMBLY

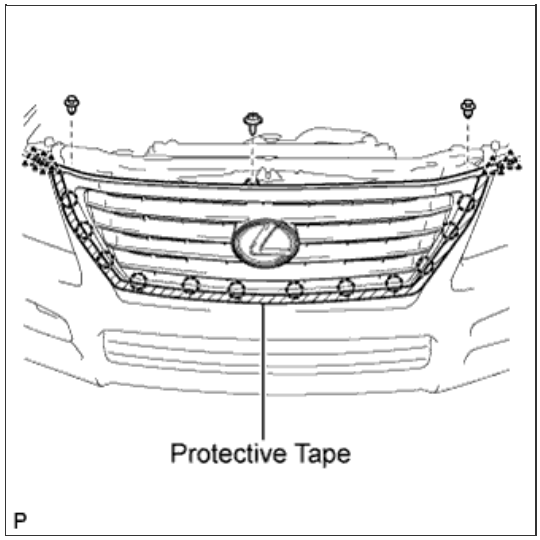
a. Put protective tape around the radiator grille.

b. Remove the screw and 2 clips.

c. Detach the 5 clips and partially remove the upper radiator seal.

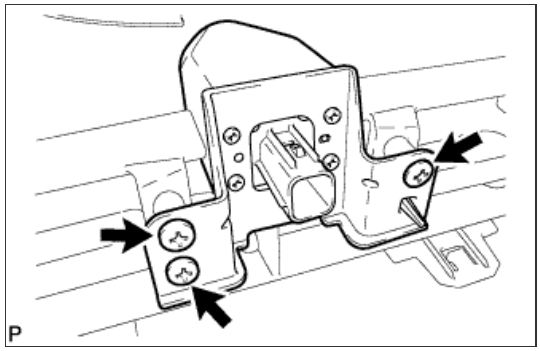
d. w/o Wide View Front Monitor System:
Detach the 12 claws and remove the radiator grille.

e. w/ Wide View Front Monitor System:
Detach the 12 claws, disconnect the connector and remove the radiator grille.




## 5. REMOVE FRONT TELEVISION CAMERA ASSEMBLY

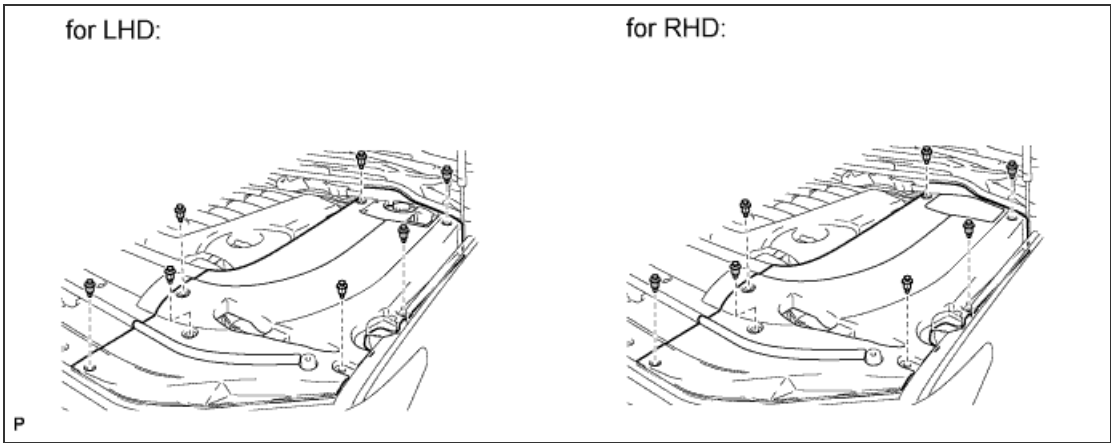
a. Remove the 3 screws and front television camera.



**for Preparation** Click here

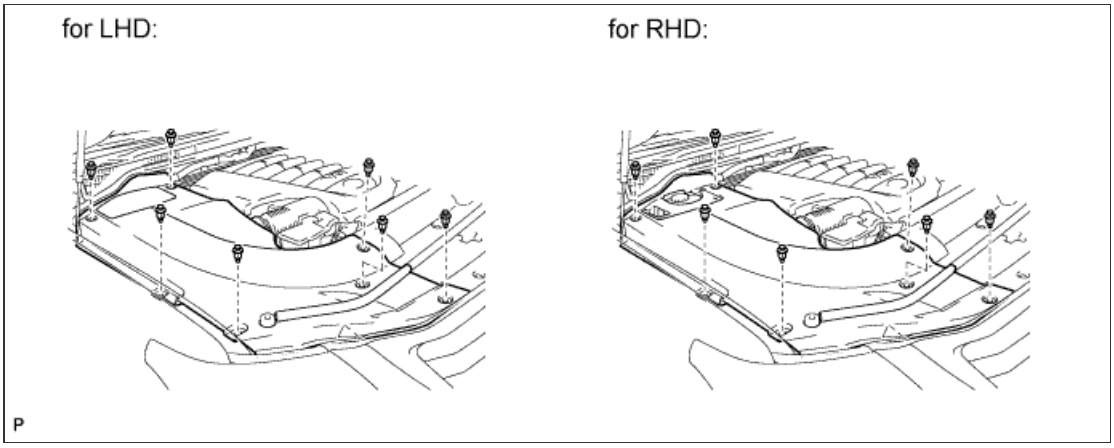
## 1. REMOVE ENGINE ROOM SIDE COVER LH

a. Remove the 7 clips and engine room side cover LH.



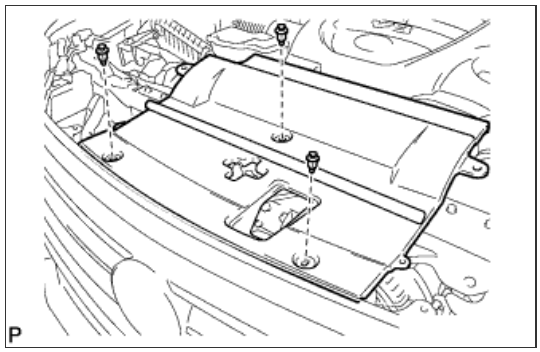

## 2. REMOVE ENGINE ROOM SIDE COVER RH

a. Remove the 7 clips and engine room side cover RH.




## 3. REMOVE UPPER RADIATOR SUPPORT SEAL

a. Remove the 3 clips and upper radiator support seal.




## 4. REMOVE RADIATOR GRILLE ASSEMBLY

a. Put protective tape around the radiator grille assembly.

**Text in Illustration**

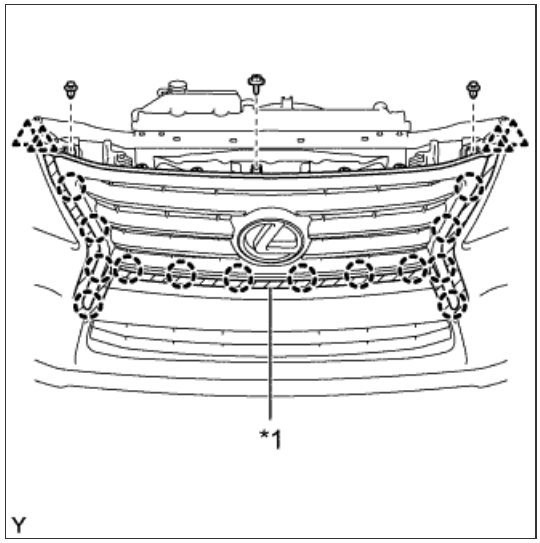
| | |
|---|---|
| *1 | Protective Tape |

b. Remove the screw and 2 clips.

c. Detach the 4 clips and partially remove the upper radiator seal.

d. Detach the 14 claws and remove the radiator grille assembly.

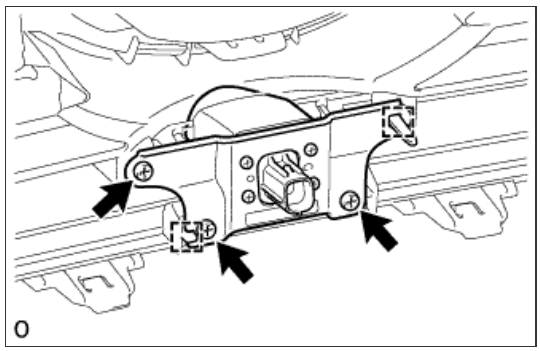
e. w/ Wide View Front Monitor System:
Disconnect the connector.




## 5. REMOVE FRONT TELEVISION CAMERA ASSEMBLY

a. Remove the 3 screws.

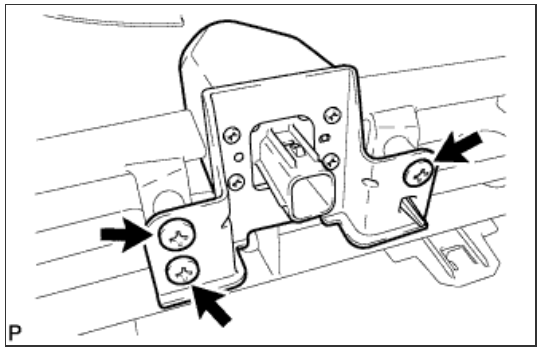
b. Detach the 2 guides and remove the front television camera assembly.



**for Preparation** Click here

## 1. INSTALL FRONT TELEVISION CAMERA ASSEMBLY

a. Install the front television camera with the 3 screws.



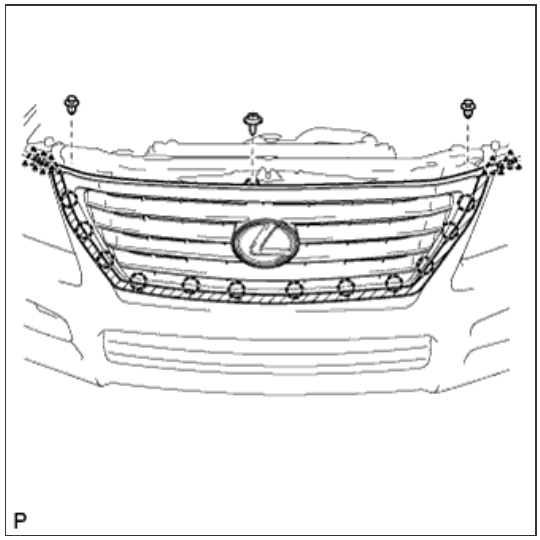

## 2. INSTALL RADIATOR GRILLE ASSEMBLY

a. w/ Wide View Front Monitor System:
Connect the connector.

b. Attach the 12 claws to install the radiator grille.

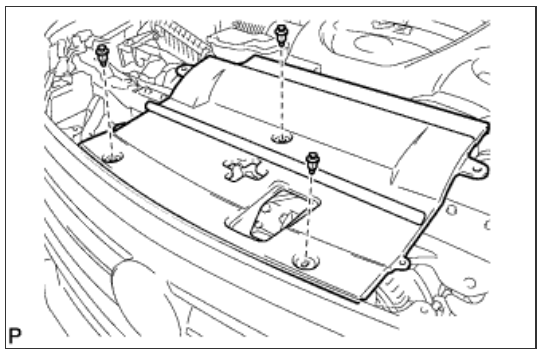
c. Attach the 5 clips to install the detached part of the upper radiator seal.

d. Install the screw and 2 clips.



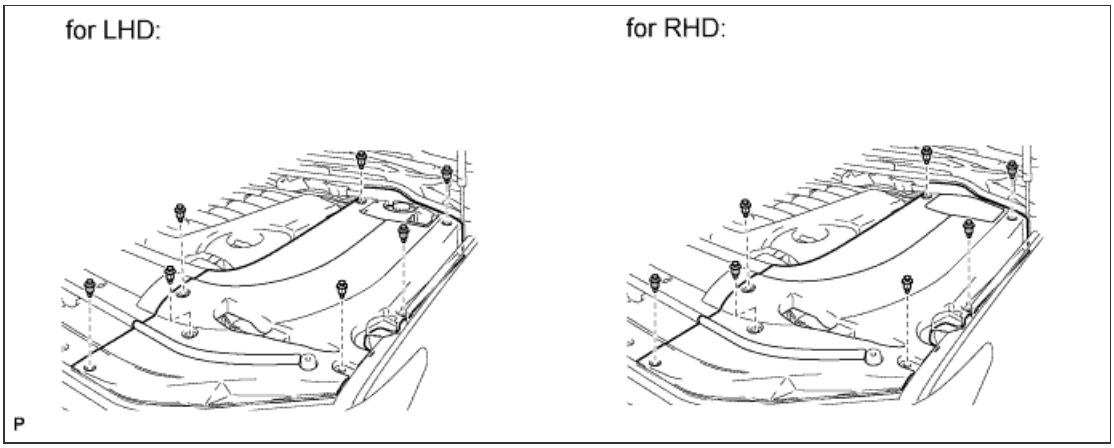

## 3. INSTALL UPPER RADIATOR SUPPORT SEAL

a. Install the upper radiator support seal with the 3 clips.



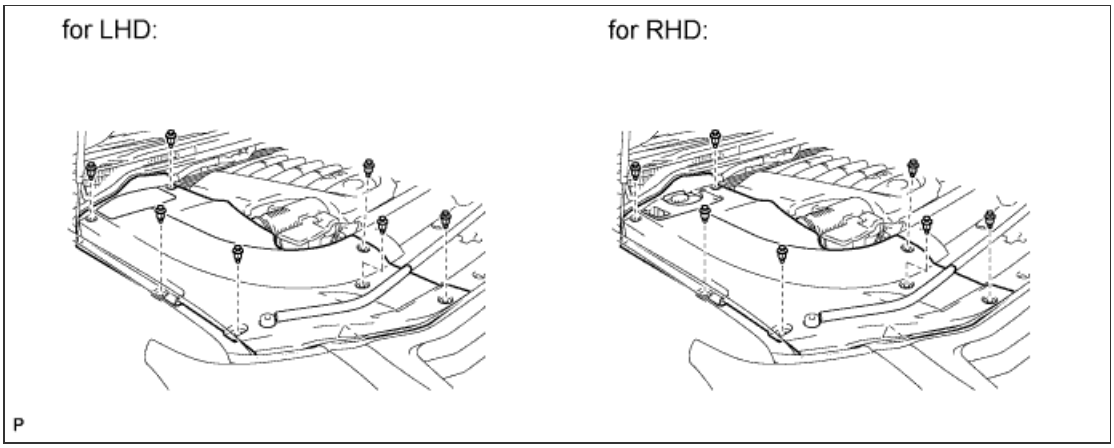

## 4. INSTALL ENGINE ROOM SIDE COVER LH

a. Install the engine room side cover with the 7 clips.




## 5. INSTALL ENGINE ROOM SIDE COVER RH

a. Install the engine room side cover with the 7 clips.



**for Preparation** Click here

## 1. INSTALL FRONT TELEVISION CAMERA ASSEMBLY

a. Attach the 2 guides and 3 screws to install the front television camera assembly.

## 2. INSTALL RADIATOR GRILLE ASSEMBLY

a. w/ Wide View Front Monitor System:
Connect the connector.

b. Attach the 14 claws to install the radiator grille assembly.

c. Attach the 4 clips to install the detached part of the upper radiator seal.

d. Install the screw and 2 clips.

## 3. INSTALL UPPER RADIATOR SUPPORT SEAL

a. Install the upper radiator support seal with the 3 clips.

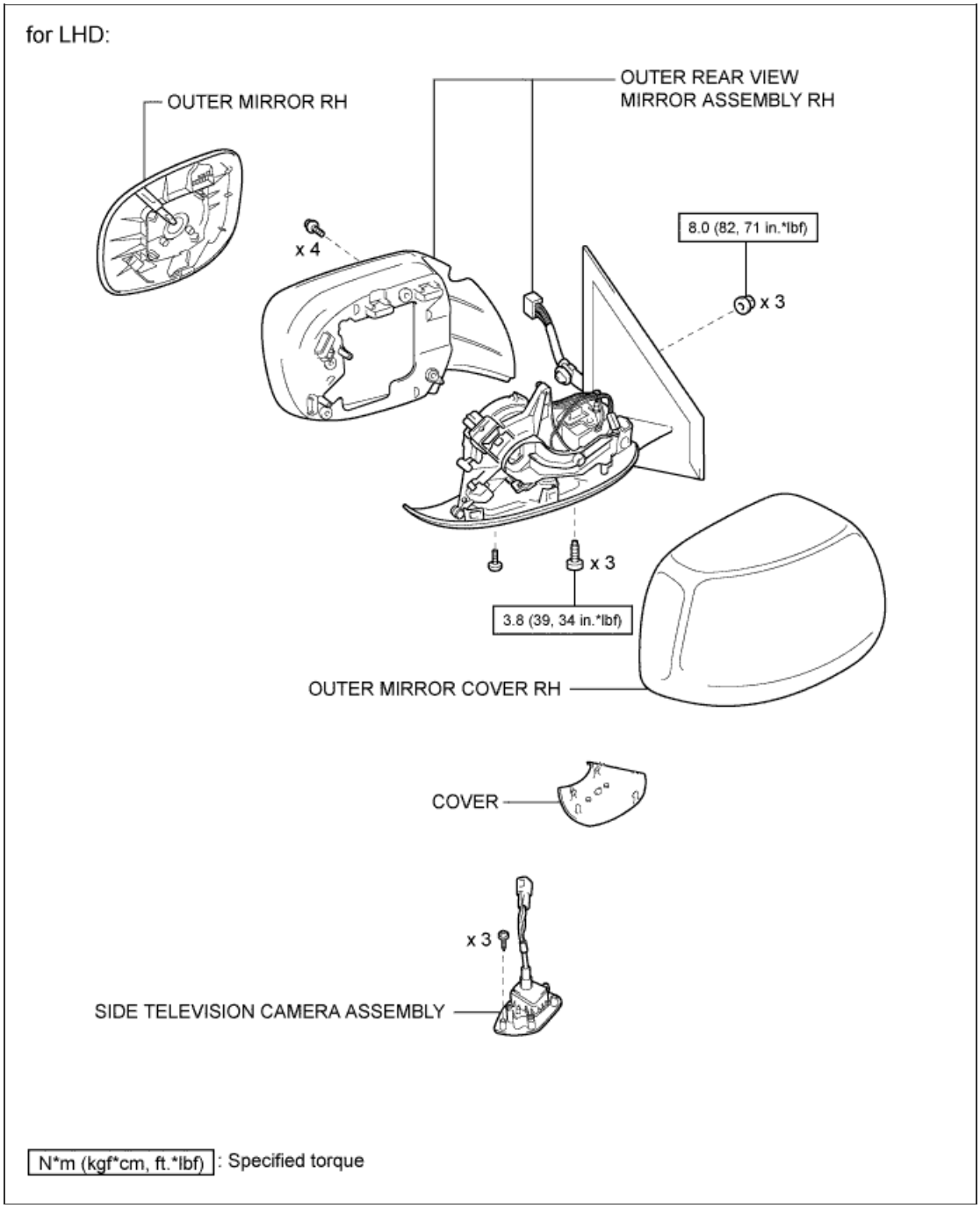
## 4. INSTALL ENGINE ROOM SIDE COVER LH

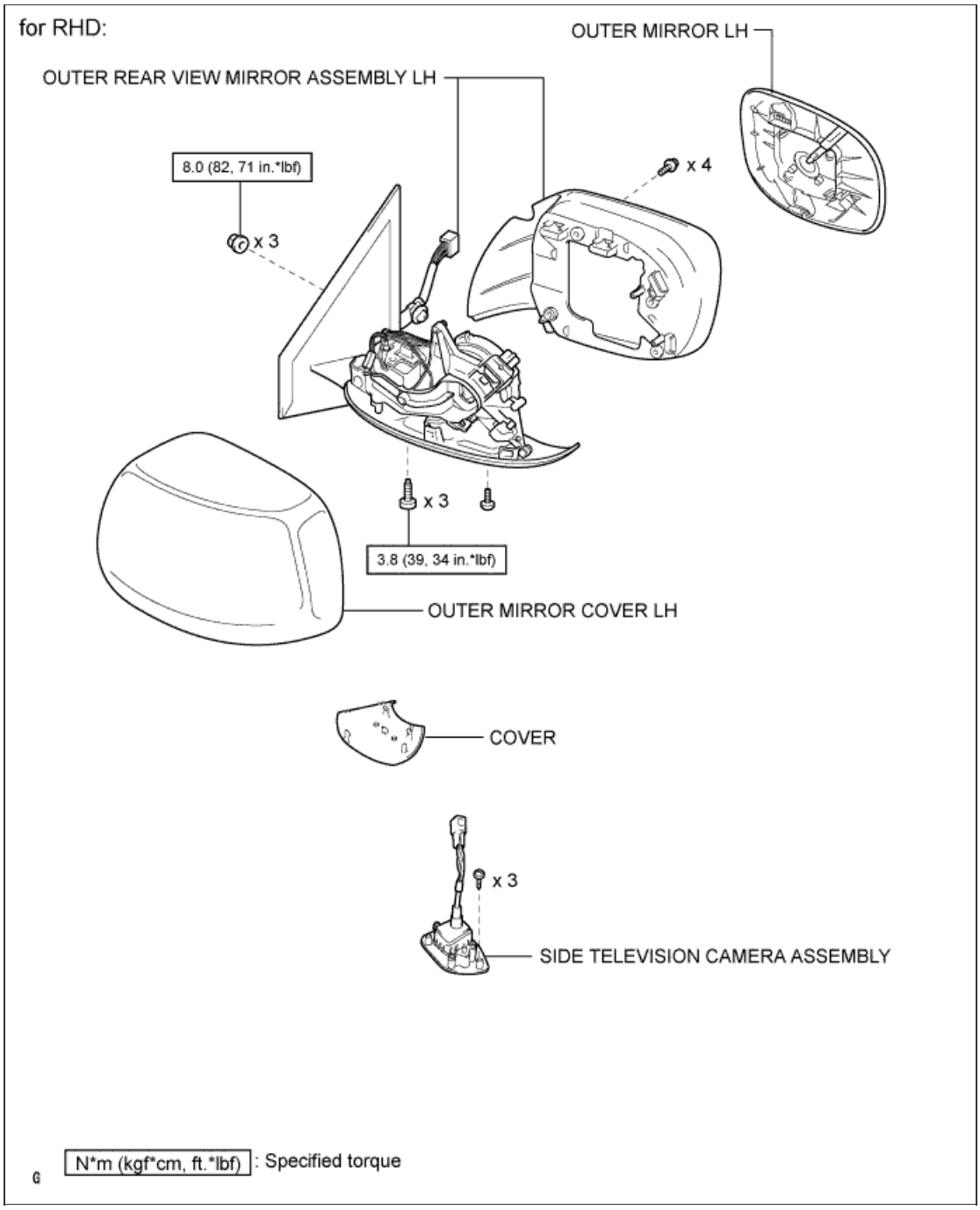
a. Install the engine room side cover LH with the 7 clips.

## 5. INSTALL ENGINE ROOM SIDE COVER RH

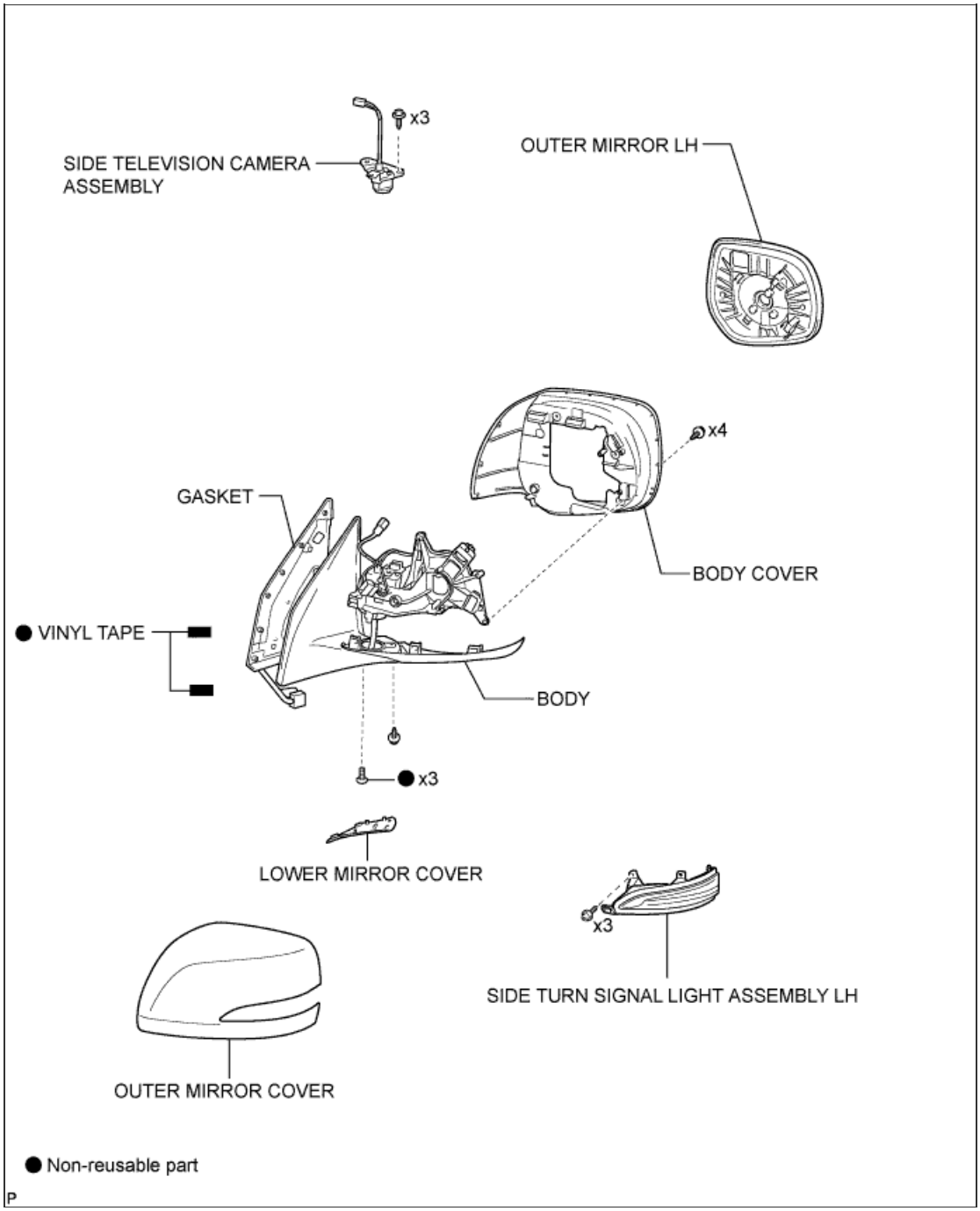
a. Install the engine room side cover RH with the 7 clips.

**for Preparation** Click here




for RHD:
OUTER MIRROR LH
OUTER REAR VIEW MIRROR ASSEMBLY LH
8.0 (82, 71 in.*lbf)
x 3
x 4
x 3
3.8 (39, 34 in.*lbf)
OUTER MIRROR COVER LH
COVER
x 3
SIDE TELEVISION CAMERA ASSEMBLY
N*m (kgf*cm, ft.*lbf) : Specified torque
G

**for Preparation** Click here



**for Preparation** Click here

**HINT:**

- **Use the same procedures for LHD and RHD vehicles.**
- **The procedures listed below are for LHD vehicles.**

## 1. REMOVE OUTER REAR VIEW MIRROR ASSEMBLY RH

a. Remove the outer rear view mirror RH ( Click here).

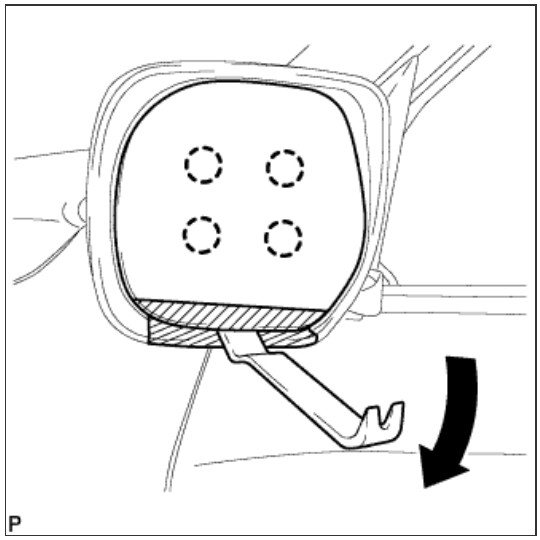
## 2. REMOVE OUTER MIRROR RH

a. Push the upper part of the mirror surface and tilt it.

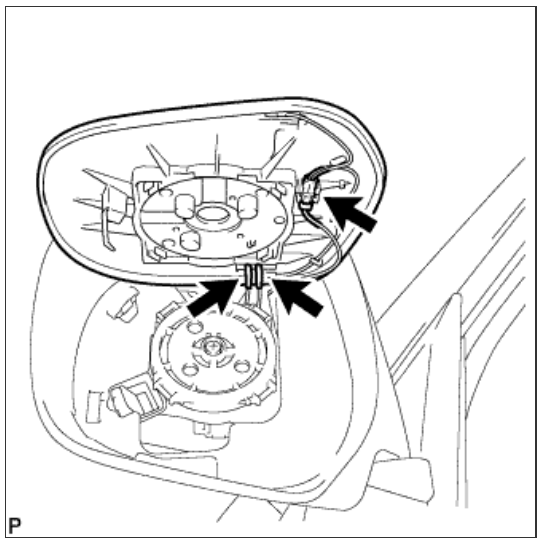
b. Using a moulding remover, detach the 4 claws and separate the outer rear view mirror glass from the mirror body.

**HINT:**

Apply protective tape to the outer rear view mirror to prevent it from being damaged.

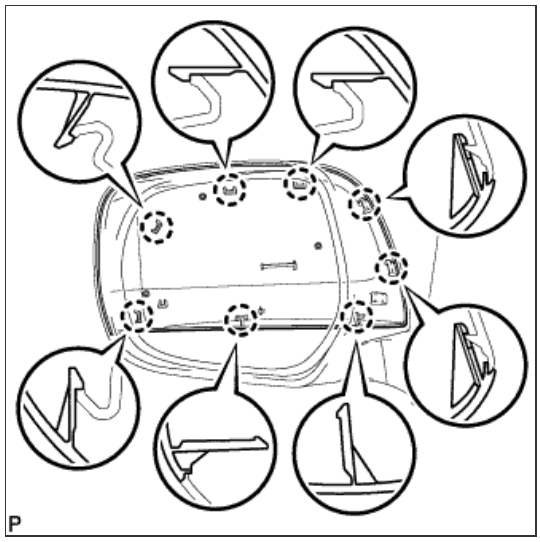



c. Disconnect the 3 connectors and remove the mirror glass.




## 3. REMOVE SIDE TELEVISION CAMERA ASSEMBLY

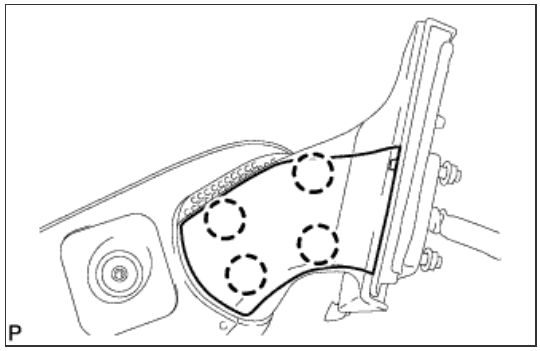
a. Detach the 8 claws and remove the outer mirror cover RH.



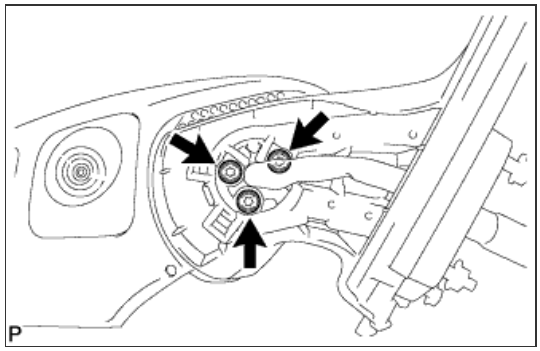

b. Using a screwdriver, detach the 4 claws and open the cover.

**HINT:**

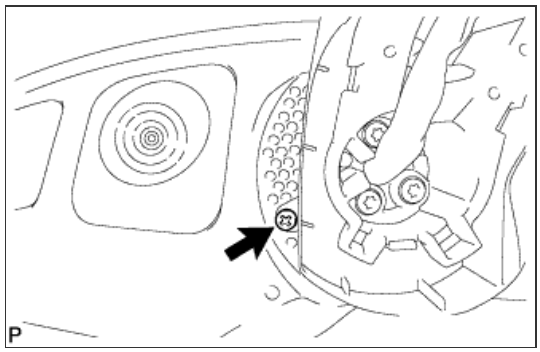
Tape the screwdriver tip before use.



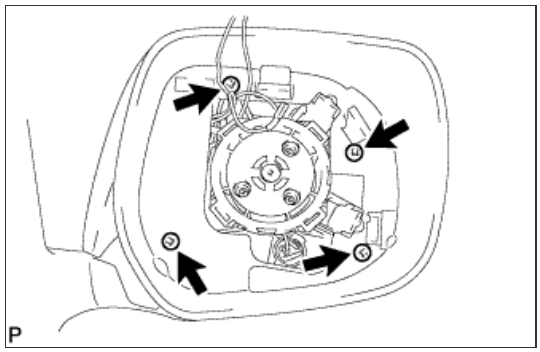

c. Using a T25 "TORX" socket wrench, remove the 3 screws.



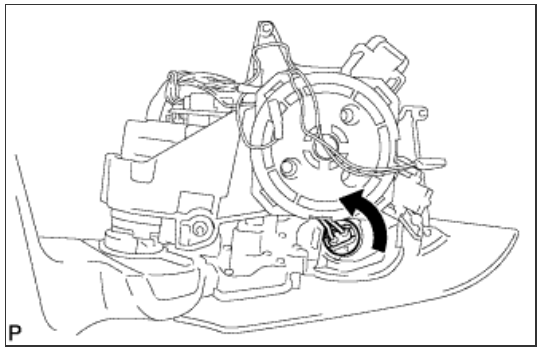

d. Remove the screw.




e. Remove the 4 screws.



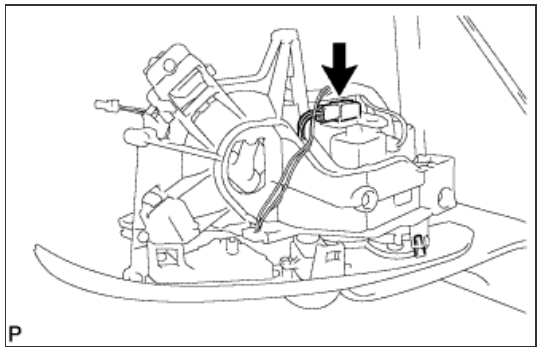

f. Turn the bulb in the direction shown in the illustration to remove it.



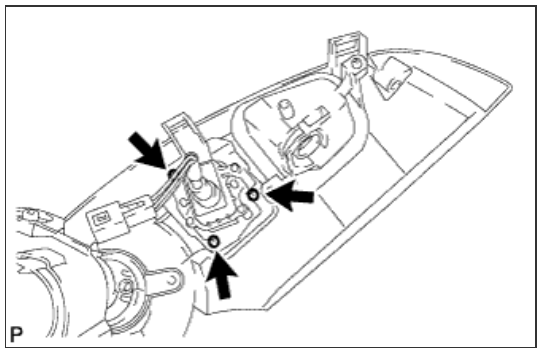

g. Disconnect the connector and detach the claw.

**NOTICE:**

Be careful when detaching the claw as it is easily broken.




h. Remove the 3 screws and side television camera.



**for Preparation** Click here

**HINT:**

- **Use the same procedure for the RH and LH sides.**
- **The procedure listed below is for the LH side.**

## 1. REMOVE OUTER REAR VIEW MIRROR ASSEMBLY LH

(Click here)

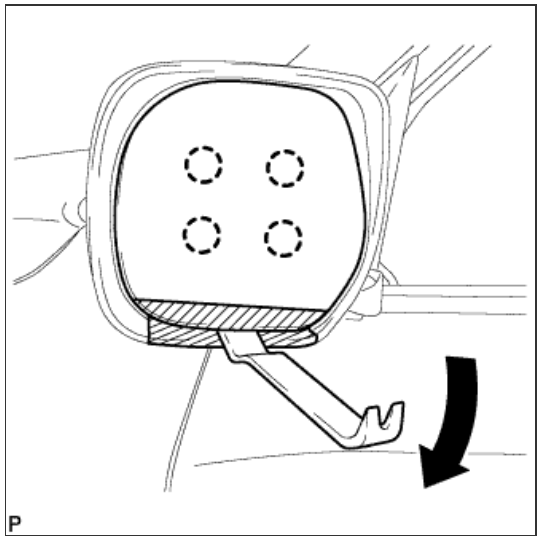
## 2. REMOVE OUTER MIRROR LH

a. Push the upper part of the mirror surface and tilt it.

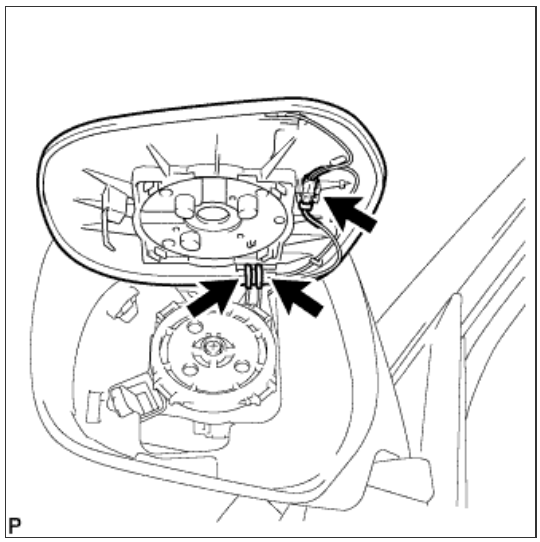
b. Using a moulding remover, detach the 4 claws and separate the outer rear view mirror glass from the mirror body.

**HINT:**

Apply protective tape to the outer rear view mirror to prevent it from being damaged.




c. Disconnect the 3 connectors and remove the mirror glass.

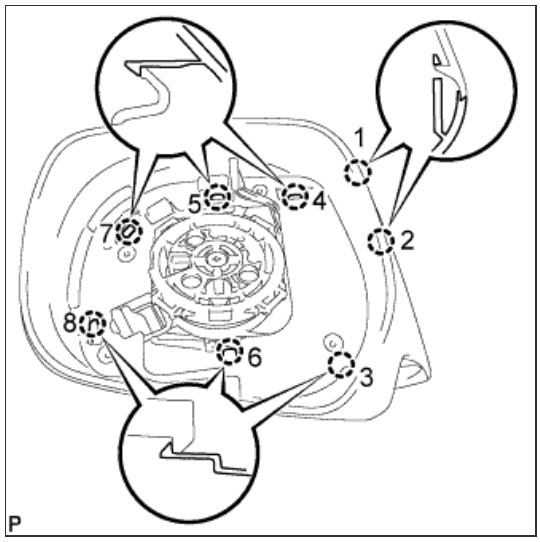



## 3. REMOVE SIDE TURN SIGNAL LIGHT ASSEMBLY LH

a. Remove the outer mirror cover.

**HINT:**

Be sure to detach the claws of the outer mirror cover in the order shown in the illustration.



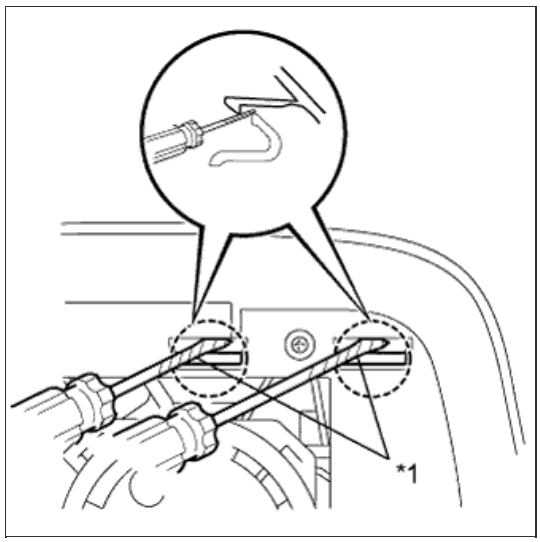

i. Using 2 screwdrivers, detach the 2 claws.

**HINT:**

Tape the screwdriver tip before use.

**Text in Illustration**

| | |
|---|---|
| *1 | Protective Tape |



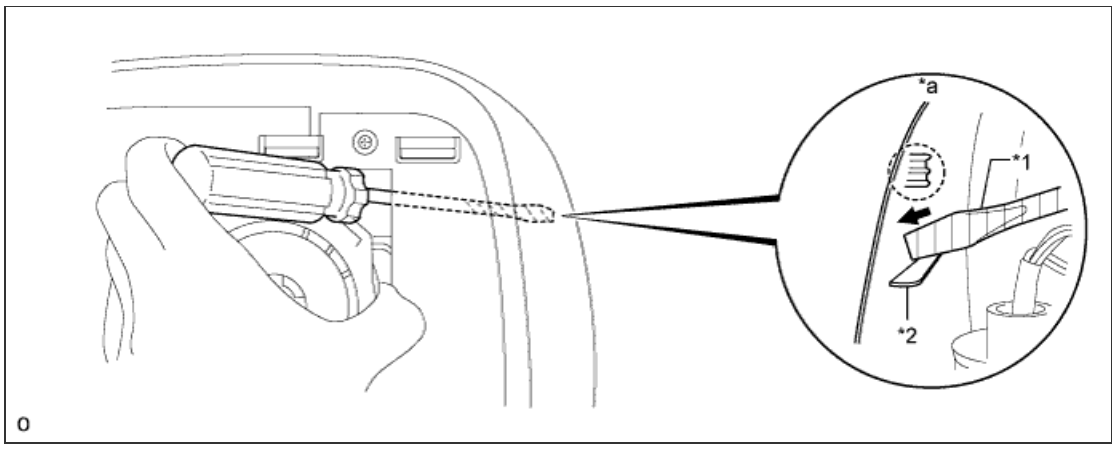

ii. Insert a screwdriver into the slot as shown in the illustration and push on the outer mirror body to create a space between the outer mirror body and outer mirror cover.

**NOTICE:**

Be careful not to break the ribs.

**HINT:**

Tape the screwdriver tip before use.

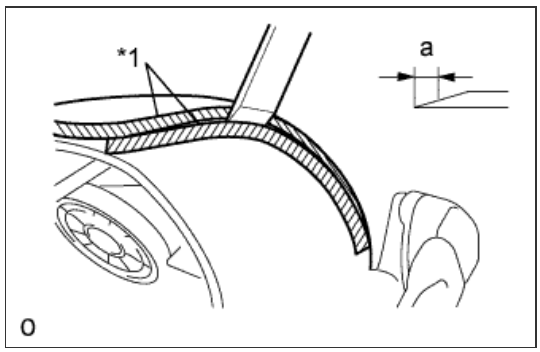



**Text in Illustration**

| | | | |
|---|---|---|---|
| *1 | Protective Tape | *2 | Rib |

| | | | |
|---|---|---|---|
| *a | Inner Side of Outer Mirror Cover | - | - |

iii. Insert a moulding remover into the space made between the outer mirror body and outer mirror cover.




**NOTICE:**

Do not insert the moulding remover more than 4 mm (0.157 in.).

**HINT:**

Tape the moulding remover before use.

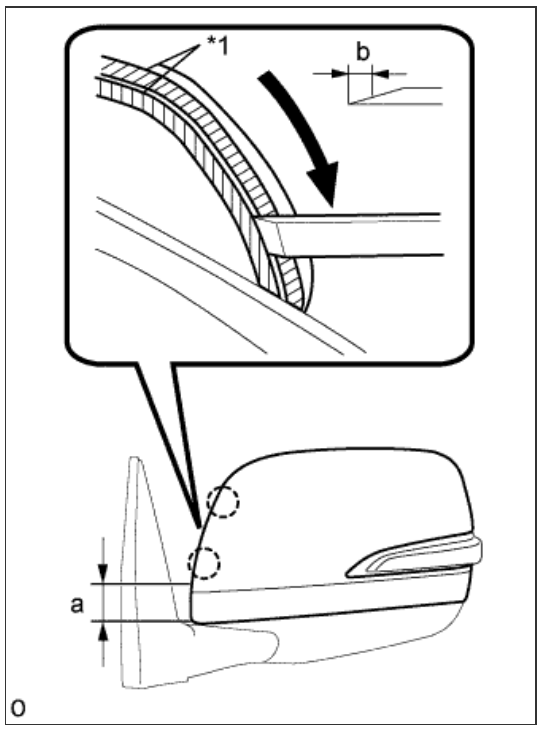
**Standard:**

| Area | Specified Condition |
|---|---|
| a | 4mm |

**Text in Illustration**

| | |
|---|---|
| *1 | Protective Tape |

iv. Slide the moulding remover downwards as shown in the illustration to detach the 2 claws.




**NOTICE:**

- **Do not insert the moulding remover more than 4 mm (0.157 in.).**
- **Do not slide the moulding remover past the point approximately 40 mm (1.57 in.) from the bottom edge of the outer mirror cover as the outer mirror body will become damaged.**

**Standard:**

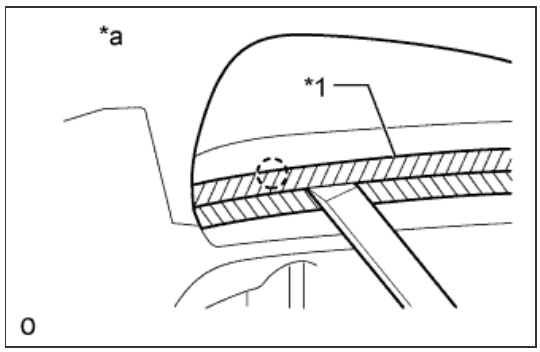
| Area | Specified Condition |
|---|---|
| a | 40mm |
| b | 4mm |

**Text in Illustration**

| | |
|---|---|
| *1 | Protective Tape |

v. Remove the moulding remover B.

vi. Apply protective tape to the areas of the body cover and outer mirror cover as shown in the illustration.




**Text in Illustration**

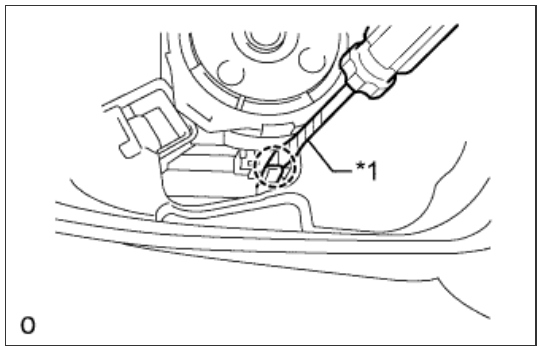
| | |
|---|---|
| *1 | Protective Tape |
| *a | Lower Side |

vii. Insert a moulding remover B between the outer mirror cover and outer mirror body as shown in the illustration and detach the claw.

viii. Using a screwdriver, detach the claw.

**Text in Illustration**

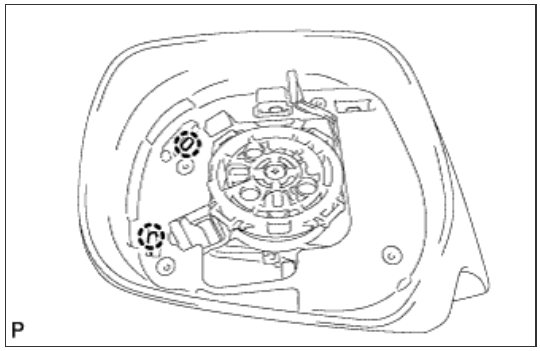
| | |
|---|---|
| *1 | Protective Tape |




ix. Detach the 2 claws and remove the outer mirror cover.

**NOTICE:**

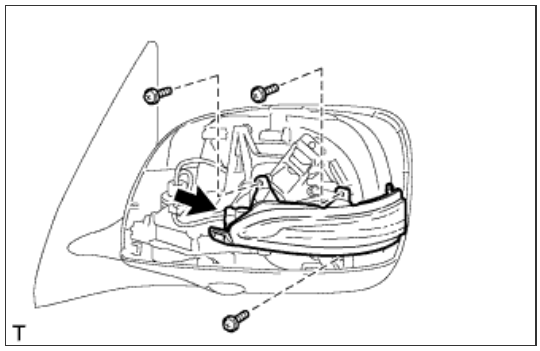
When removing the cover, be careful not to damage the side turn signal light assembly or cover.




b. Remove the side turn signal light assembly LH.

i. Remove the 3 screws and side turn signal light assembly LH.

ii. Disconnect the connector.




## 4. REMOVE SIDE TELEVISION CAMERA ASSEMBLY

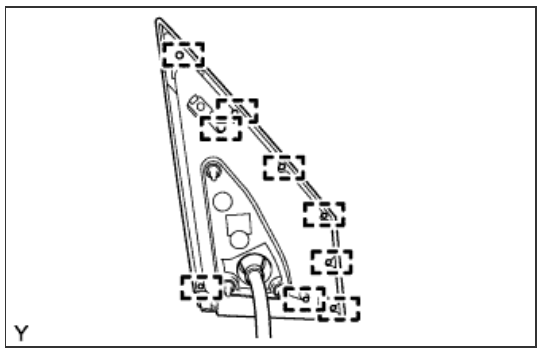
a. Remove the gasket.

i. Remove the tape.

ii. Detach the 9 guides and remove the gasket.

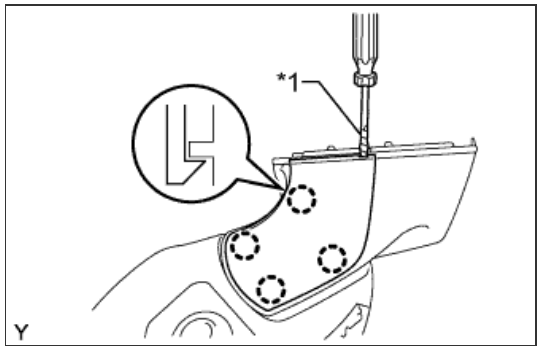
**HINT:**

Slightly lower the gasket so that the television camera assembly can be removed.




b. Remove the lower mirror cover.

i. Using a screwdriver with its tip wrapped in protective tape, disconnect the 4 claws and remove the lower mirror cover.



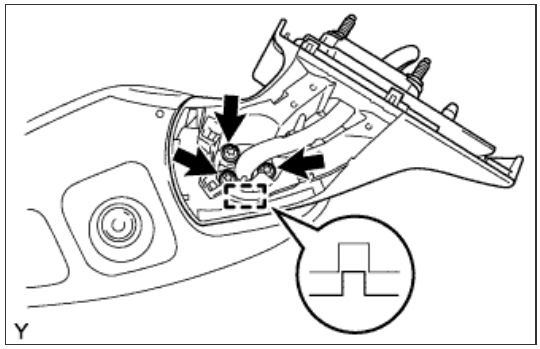

**Text in Illustration**

| | |
|---|---|
| *1 | Protective Tape |

c. Remove the base.

i. Remove the wire harness.

ii. Using "TORX" socket wrench T25, remove the 3 screws.

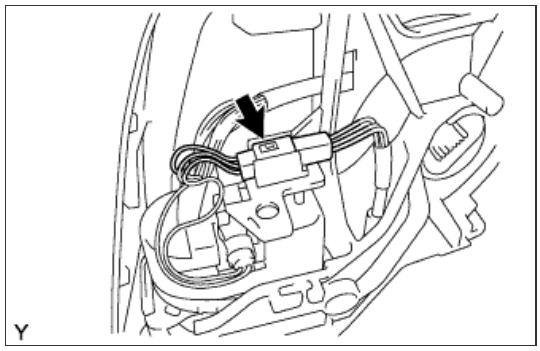



**NOTICE:**

Make sure to replace the "TORX" screws with new ones.

iii. Disconnect the guide and remove the base.

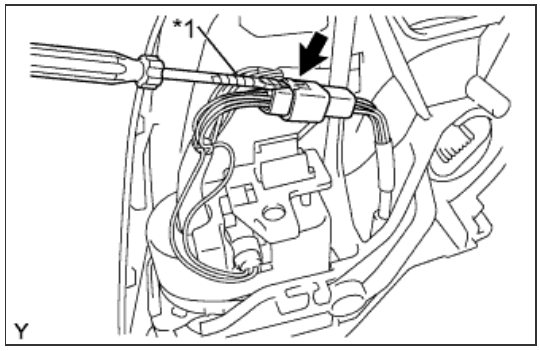
d. Detach the connector from the wire clip.




e. Using a screwdriver, disconnect the connector.

**HINT:**

Tape the moulding remover before use.

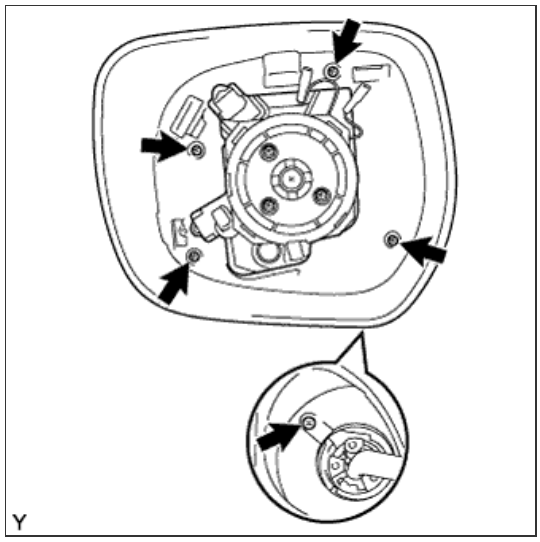



**Text in Illustration**

| | |
|---|---|
| *1 | Protective Tape |

f. Remove the body cover.

i. Remove the 5 screws and body cover.




g. Remove the body.

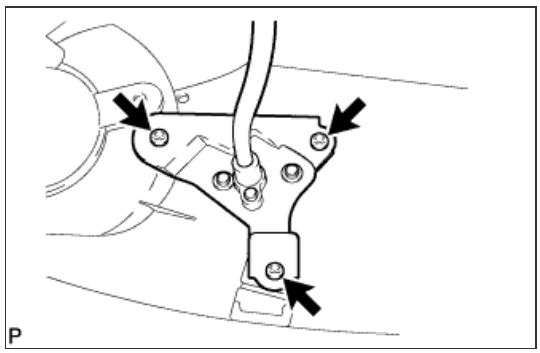
i. Disconnect the 2 guides and remove the body.

**NOTICE:**

Be careful not to break the guide shown in the part of the illustration labeled A.




h. Remove the 3 screws and side television camera assembly.



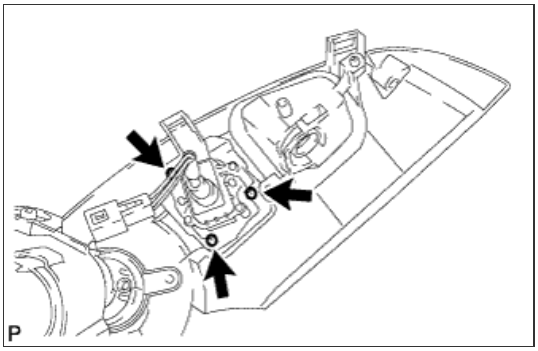
**for Preparation** Click here

**HINT:**

- **Use the same procedures for LHD and RHD vehicles.**
- **The procedures listed below are for LHD vehicles.**

## 1. INSTALL SIDE TELEVISION CAMERA ASSEMBLY

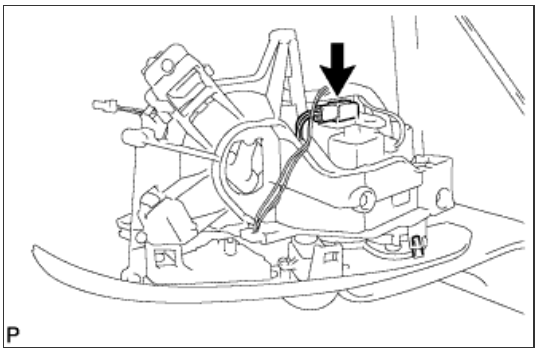
a. Install the side television camera with the 3 screws.



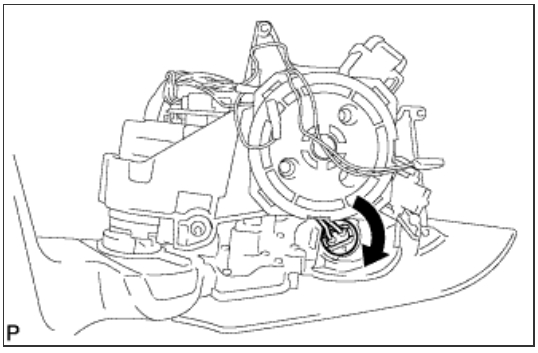

b. Attach the claw to connect the connector.

**NOTICE:**

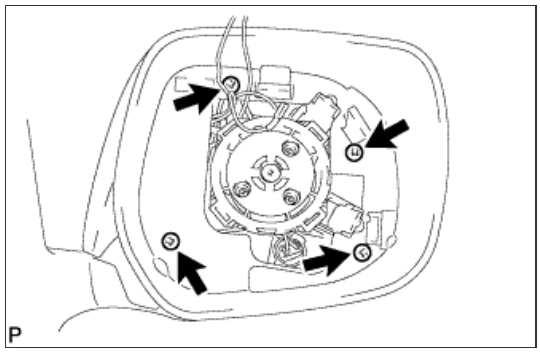
Be careful when attaching the claw as it is easily broken.



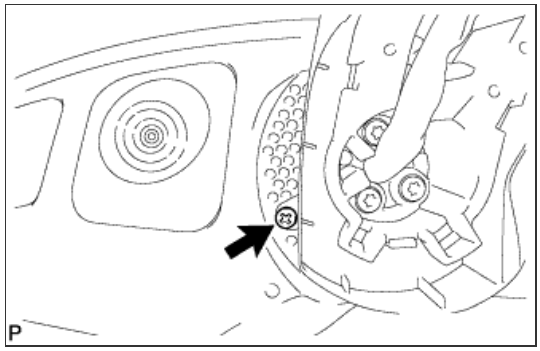

c. Turn the bulb in the direction shown in the illustration to install it.




d. Install the 4 screws and cover.

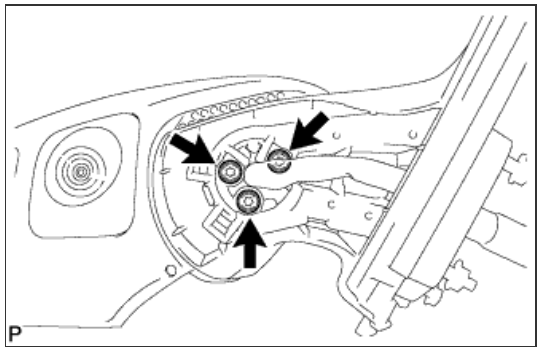



e. Install the screw.

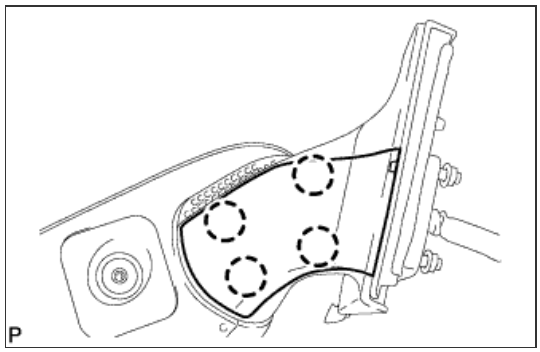



f. Using a T25 "TORX" socket wrench, install the 3 screws.

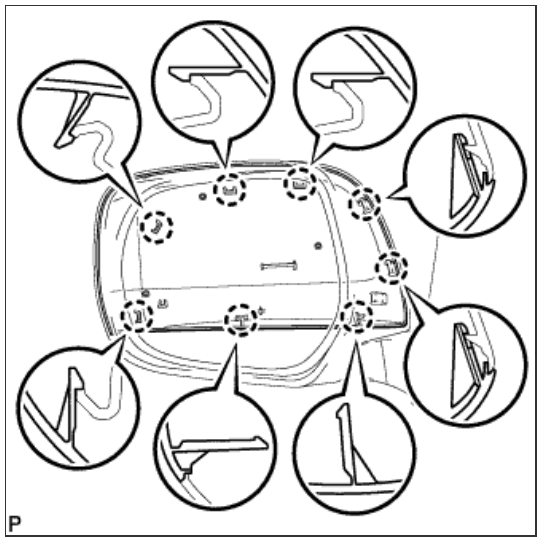
**Torque:**
**3.8 N*m{ 39 kgf*cm , 34 in.*lbf }**




g. Attach the 4 claws to install the cover.

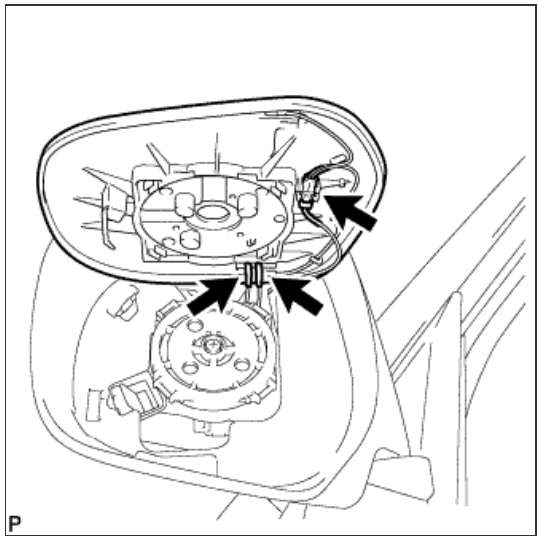



h. Attach the 8 claws to install the outer mirror cover RH.

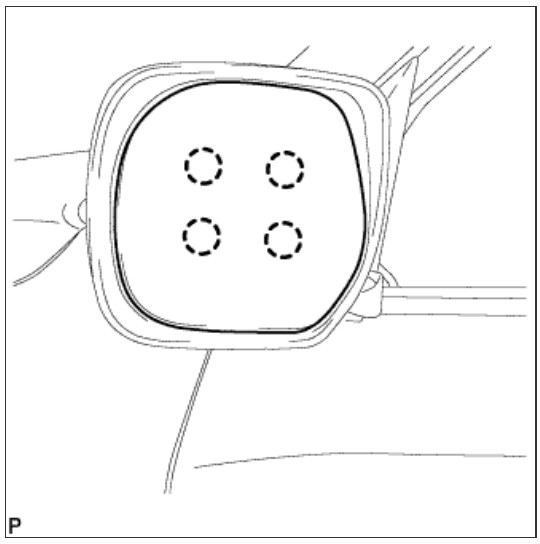



## 2. INSTALL OUTER MIRROR RH

a. Connect the 3 connectors.




b. Attach the 4 claws to install the mirror glass.




## 3. INSTALL OUTER REAR VIEW MIRROR ASSEMBLY RH

a. Install the outer rear view mirror RH ( Click here).

## 4. ADJUST SIDE TELEVISION CAMERA ASSEMBLY

a. Adjust the side television camera assembly (Click here).

**for Preparation** Click here

**HINT:**

- **Use the same procedure for the RH and LH sides.**
- **The procedure listed below is for the LH side.**

## 1. INSTALL SIDE TELEVISION CAMERA ASSEMBLY

a. Install the side television camera assembly with the 3 screws.

b. Install the body.

i. Attach the 2 guides and body.

**NOTICE:**

Be careful not to break the guide.

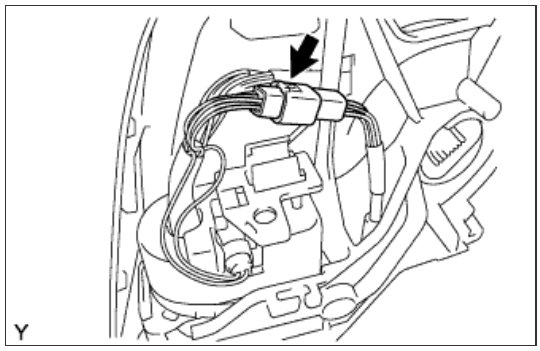
c. Install the body cover.

i. Install the body with the 5 screws.

d. Connect the connector.

e. Attach the connector to the wire clip.

f. Install the base.




i. Attach the guide.

ii. Using "TORX" socket wrench T25, install the base with 3 new screws.

**NOTICE:**

When installing the base, check that the wire harness is not caught between the base and housing. Failure to do so may cause a short circuit.

g. Install the lower mirror cover.

i. Attach the 4 claws and install the new lower mirror cover.

h. Install the gasket.

i. Attach the 9 guides and install the gasket.

ii. Align the marking on the wire harness with the marking on the end of the wire harness insertion hole of the gasket as shown in the illustration, and wrap them with new vinyl tape starting from the gasket marking.

**Standard:**

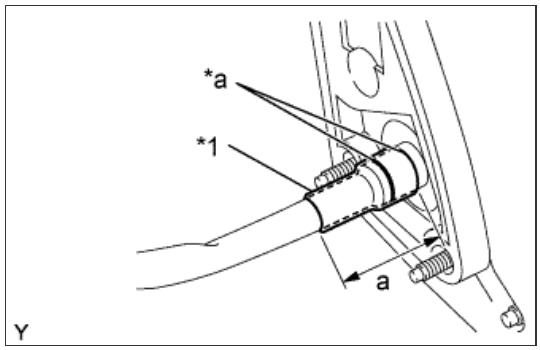
| Area | Specified Condition |
|---|---|
| a | 50.0 mm (1.97 in.) |

**NOTICE:**

If the vinyl tape is wrinkled, water may run down the wire harness and enter the vehicle. Make sure to wind the vinyl tape properly.

**Text in Illustration**

| | |
|---|---|
| *1 | New Vinyl Tape |
| *a | Marking |



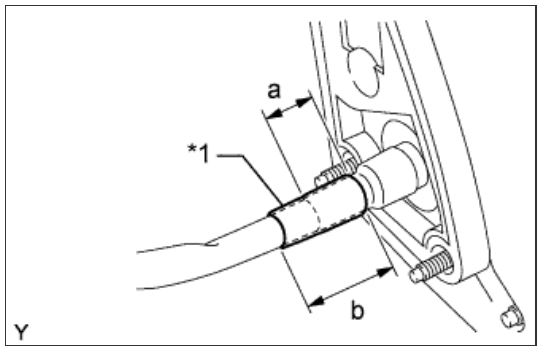

iii. Wrap new vinyl tape as shown in the illustration.

**Standard:**

| Area | Specified Condition |
|---|---|
| a | 30.0 mm (1.18 in.) |
| b | 50.0 mm (1.97 in.) |

**Text in Illustration**

| | |
|---|---|
| *1 | New Vinyl Tape |




## 2. INSTALL SIDE TURN SIGNAL LIGHT ASSEMBLY LH

a. Install the side turn signal light assembly.

i. Connect the connector.

ii. Install the side turn signal light assembly with the 3 screws.

b. Install the outer mirror cover.

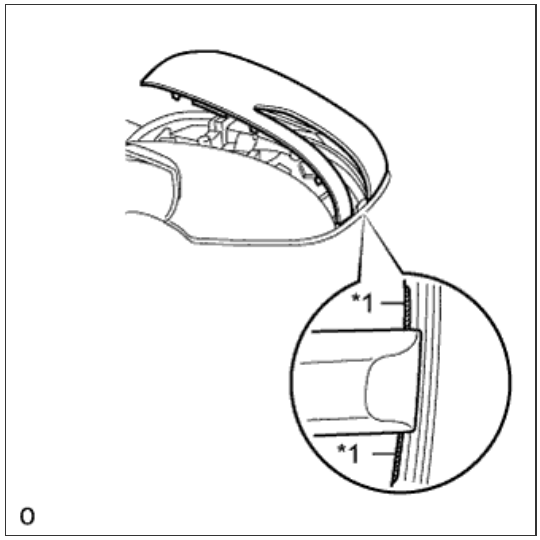
i. Insert the rib on the outer edge of the cover into the groove of the mirror body.

**NOTICE:**

Do not scratch the turn light.

**Text in Illustration**

| | |
|---|---|
| *1 | Rib |




ii. Confirm that the cover and mirror body are aligned properly, and then push the outer end of the cover to attach the outer claws.

**NOTICE:**

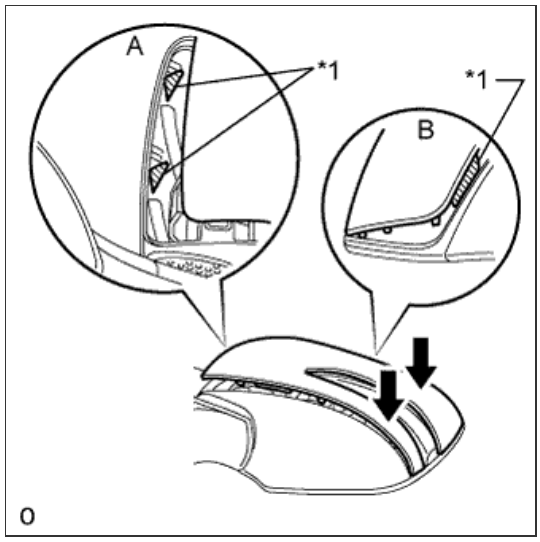
- **Make sure that the upper ribs of the cover shown in part A of the illustration are properly attached to the**

mirror body.

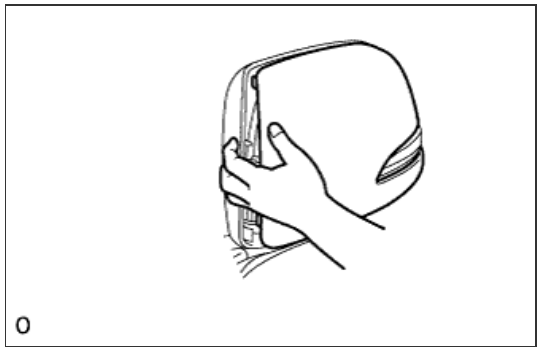
- Make sure that the ribs of the mirror body shown in part B of the illustration are not protruding from the cover.

**Text in Illustration**

| | |
|---|---|
| *1 | Rib |




iii. While making sure that the rib of the cover fits properly into the groove of the mirror body, squeeze the inner end of the cover and the mirror body together to attach the inner claws.

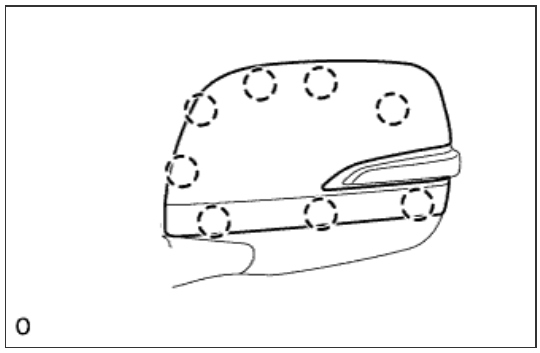


c. Push on the cover at the locations of the 8 claws to confirm that the claws are attached properly.

d. Check that there is no gap between the cover and mirror body.

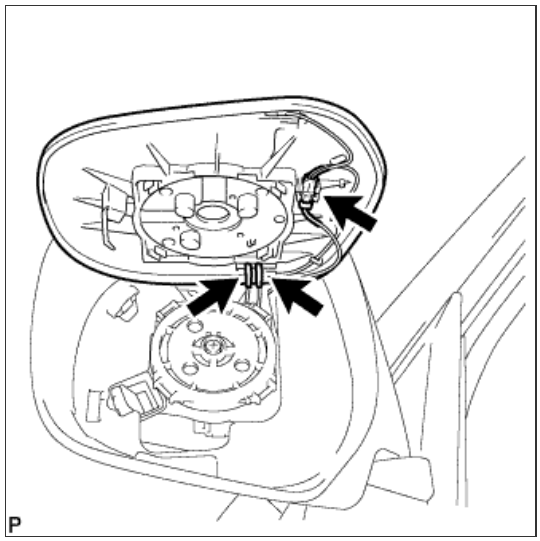
**HINT:**

If there is a gap between the cover and body, noise will occur during driving.

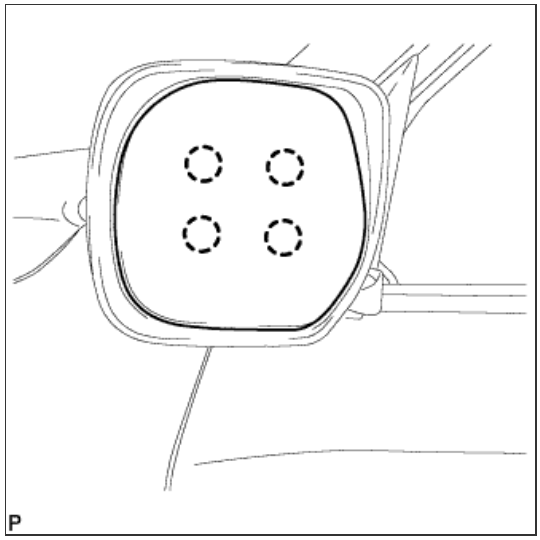


## 3. INSTALL OUTER MIRROR LH

a. Connect the 3 connectors.



b. Attach the 4 claws to install the mirror glass.



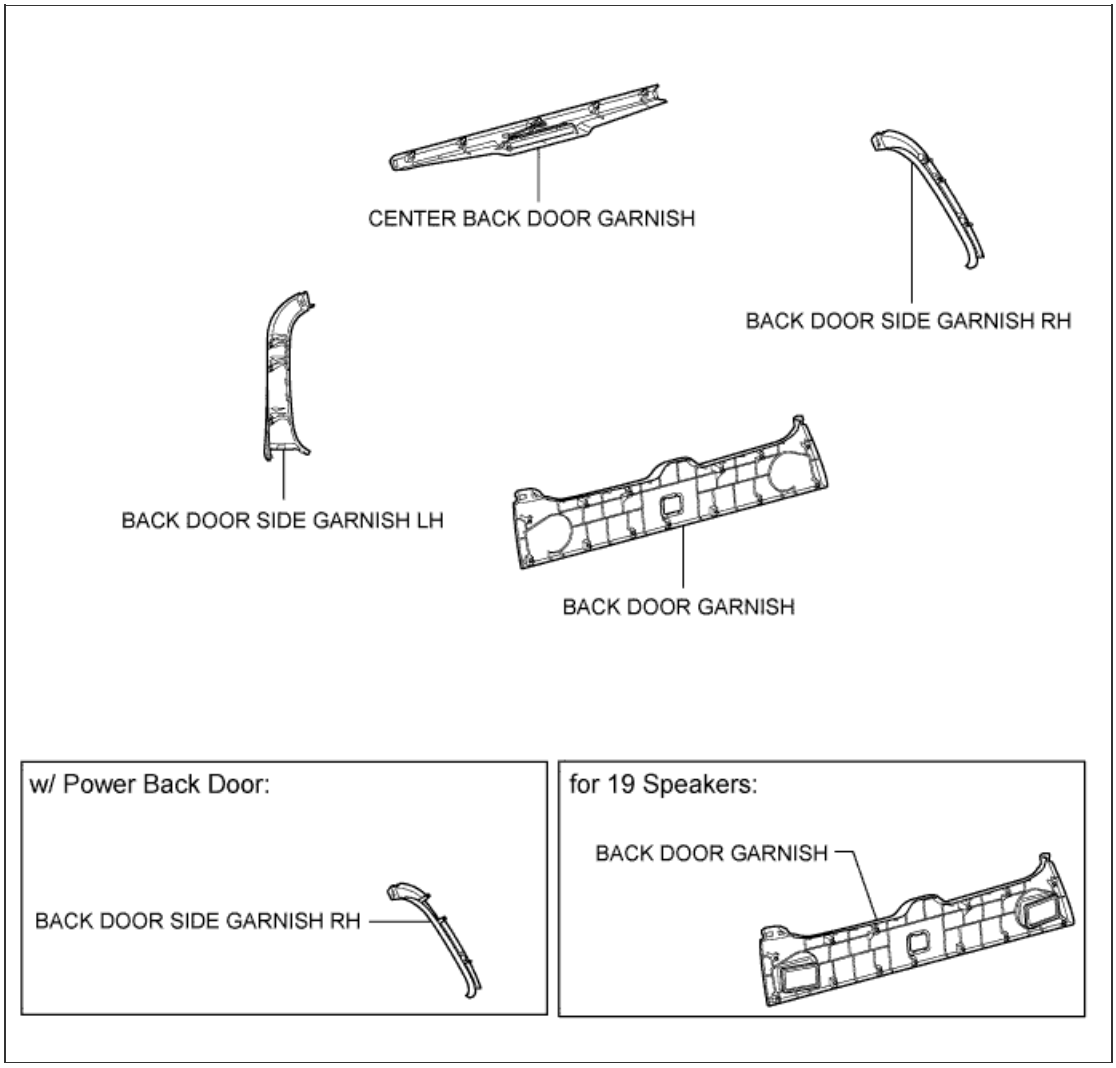

### 4. INSTALL OUTER REAR VIEW MIRROR ASSEMBLY LH

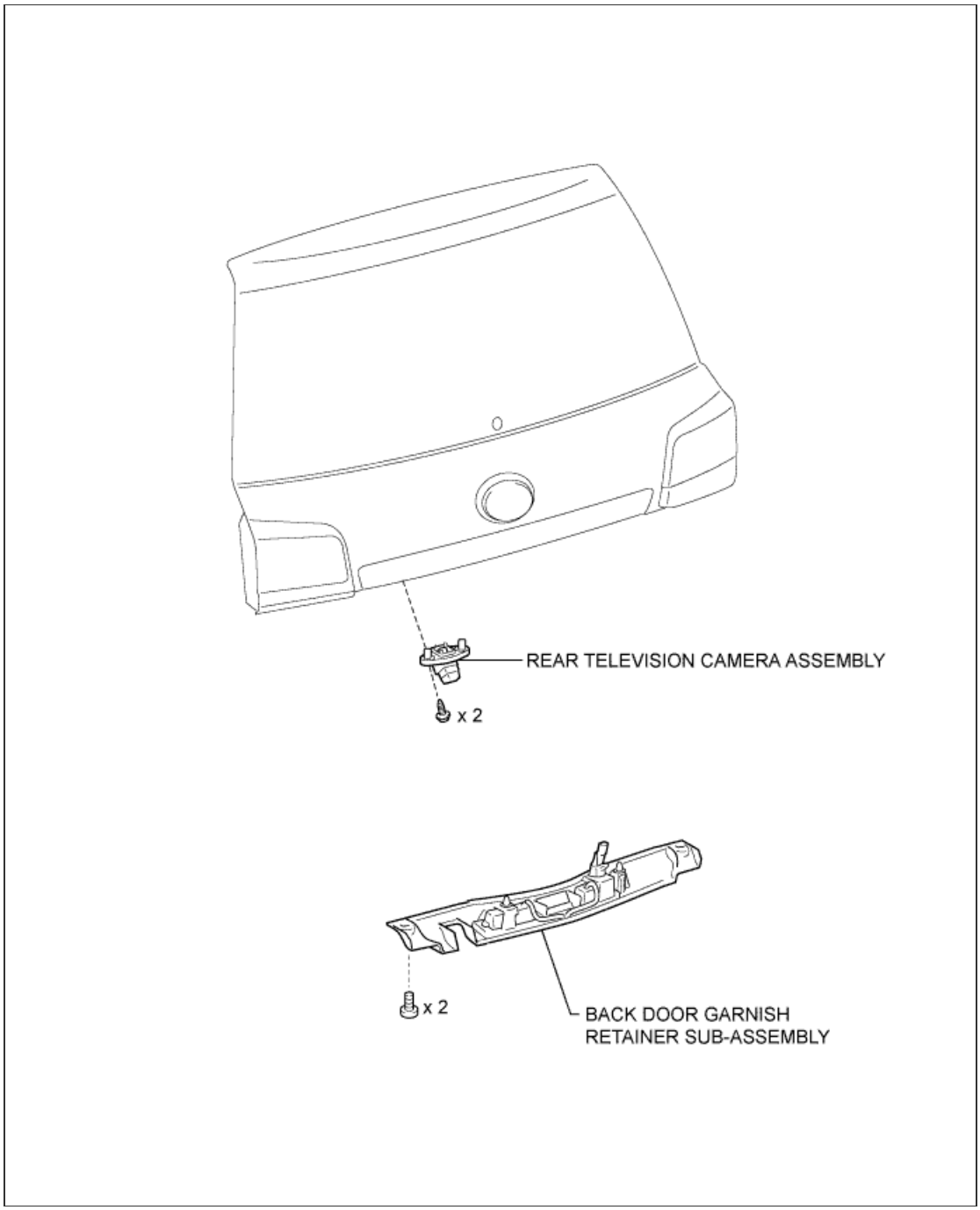
(Click here)

### 5. ADJUST SIDE TELEVISION CAMERA ASSEMBLY

(Click here)

**for Preparation** Click here

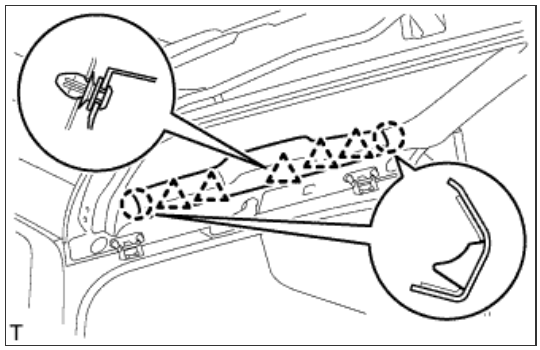



REAR TELEVISION CAMERA ASSEMBLY
x 2
x 2
BACK DOOR GARNISH
RETAINER SUB-ASSEMBLY

**for Preparation** Click here

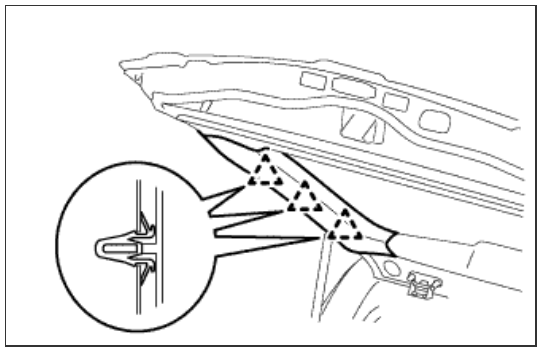
## 1. REMOVE CENTER BACK DOOR GARNISH

a. Detach the 5 clips and 2 claws, and remove the back door garnish.




## 2. REMOVE BACK DOOR SIDE GARNISH LH

a. Detach the 3 clips and remove the back door side garnish.



## 3. REMOVE BACK DOOR SIDE GARNISH RH

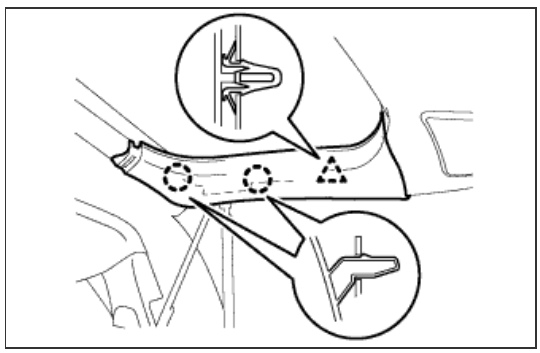
a. w/o Power Back Door:

**HINT:**

Use the same procedures described for the LH side.

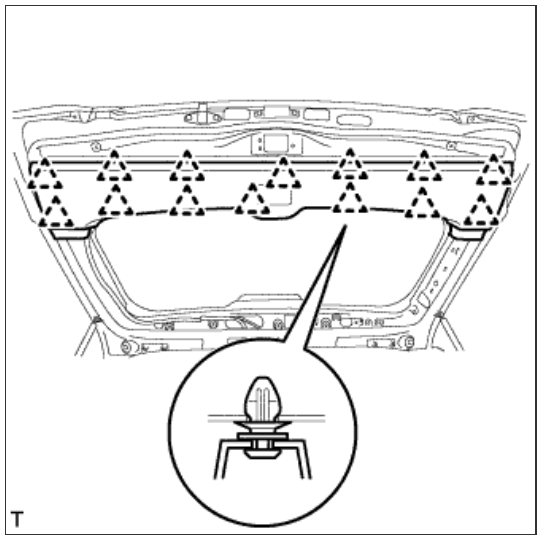
b. w/ Power Back Door:

i. Detach the clip and 2 claws and remove the back door side garnish.



## 4. REMOVE BACK DOOR GARNISH

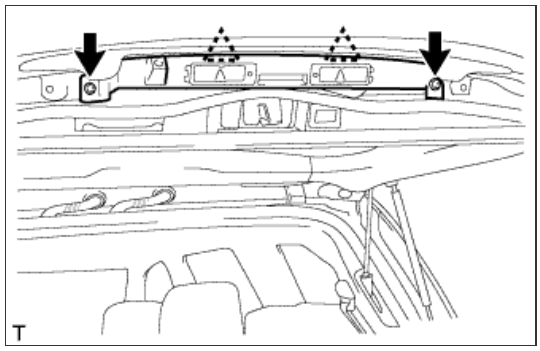
a. Using a screwdriver, detach the 14 clips and remove the back door garnish.




## 5. REMOVE BACK DOOR GARNISH RETAINER SUB-ASSEMBLY

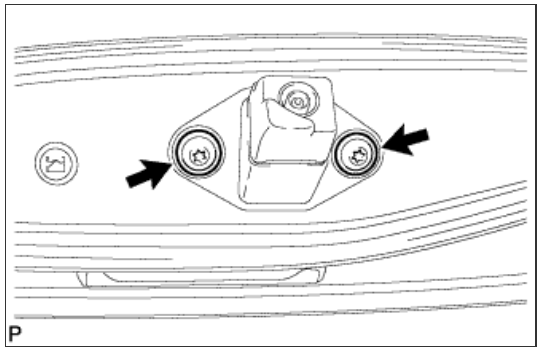
a. Using a T30 "TORX" socket wrench, detach the 2 clips and remove the 2 screws and garnish.

b. Disconnect the connector.



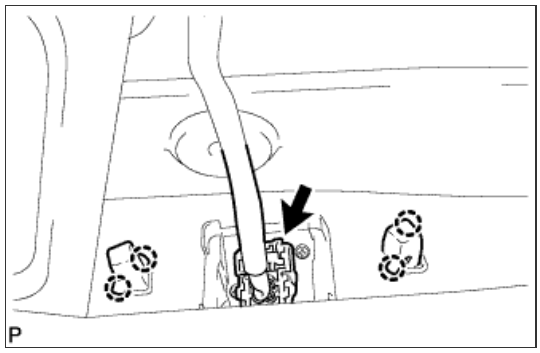

## 6. REMOVE REAR TELEVISION CAMERA ASSEMBLY

a. Using a T30 "TORX" socket wrench, remove the 2 screws.




b. Detach the 2 screws grommet and remove the rear television camera assembly.

c. Disconnect the connector.

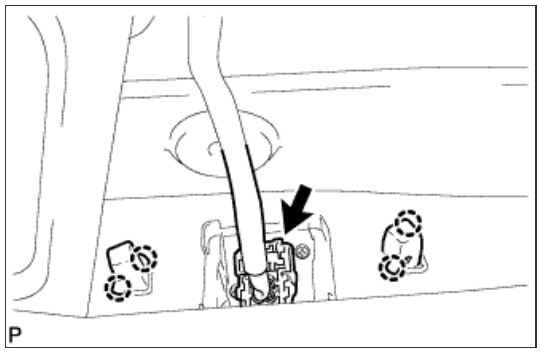

P

**for Preparation** Click here

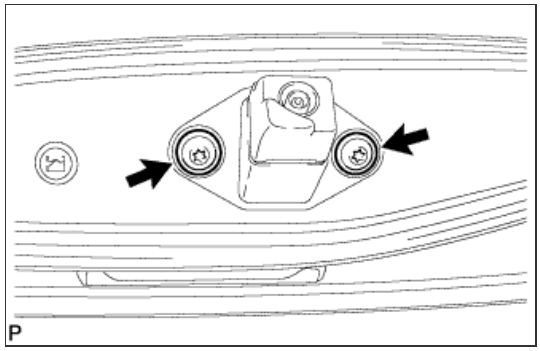
## 1. INSTALL REAR TELEVISION CAMERA ASSEMBLY

a. Connect the connector.

b. Attach the 2 screws grommet to install the rear television camera assembly.



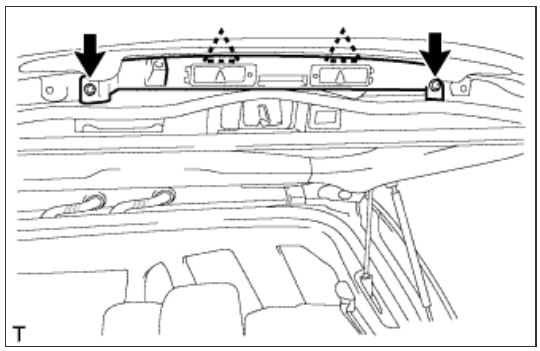

c. Using a T30 "TORX" socket wrench, install the rear television camera with the 2 screws.




## 2. INSTALL BACK DOOR GARNISH RETAINER SUB-ASSEMBLY

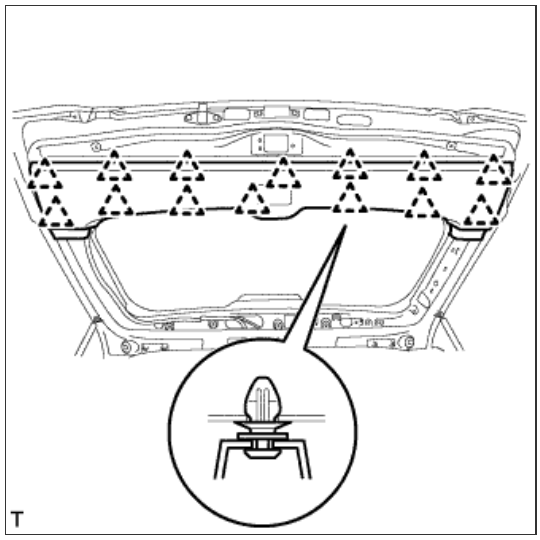
a. Connect the connector.

b. Using a T30 "TORX" socket wrench, attach the 2 clips and install the garnish with the 2 screws.



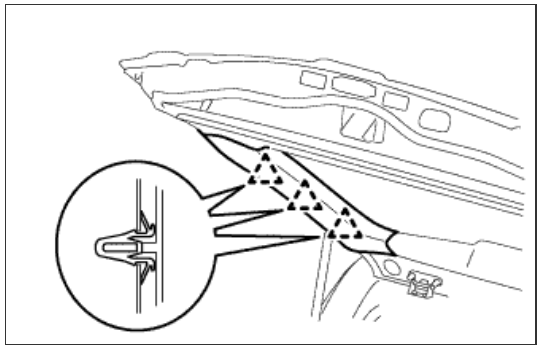

## 3. INSTALL BACK DOOR GARNISH

a. Attach the 14 clips to install the back door garnish.




## 4. INSTALL BACK DOOR SIDE GARNISH LH

a. Attach the 3 clips to install the back door side garnish.



## 5. INSTALL BACK DOOR SIDE GARNISH RH

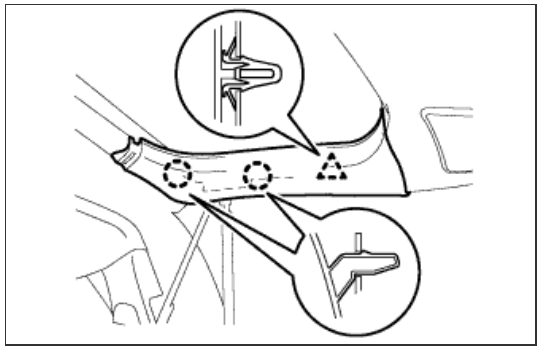
a. w/o Power Back Door:

**HINT:**

Use the same procedures described for the LH side.

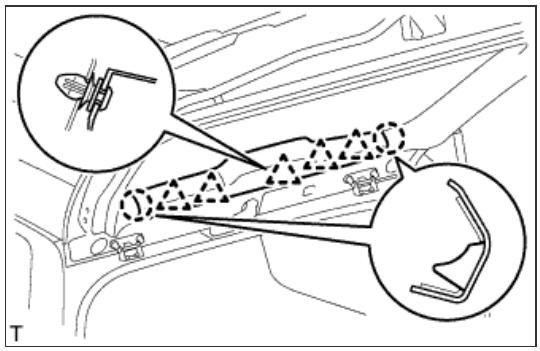
b. w/ Power Back Door:

i. Attach the clip and 2 claws to install the back door side garnish.

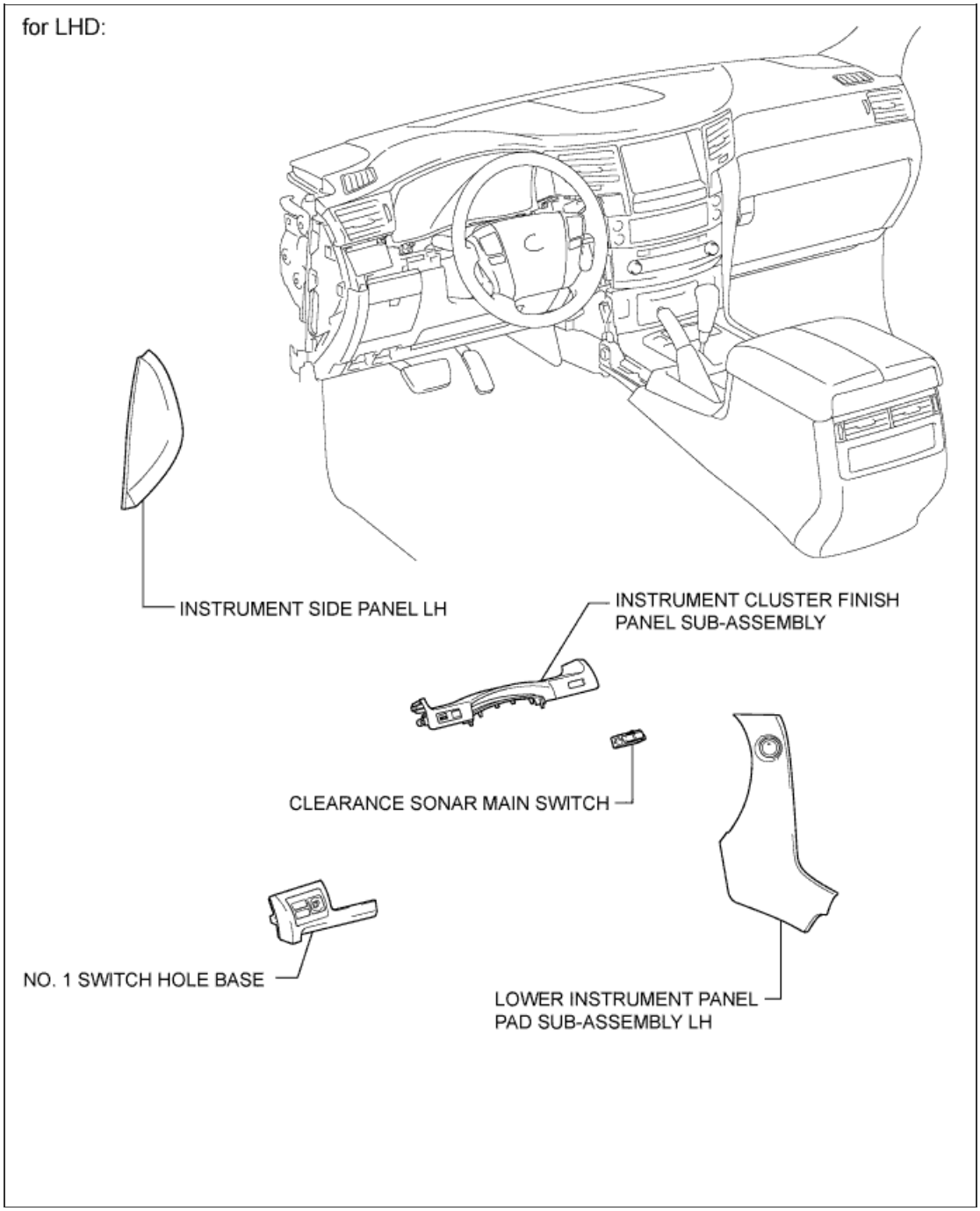


## 6. INSTALL CENTER BACK DOOR GARNISH

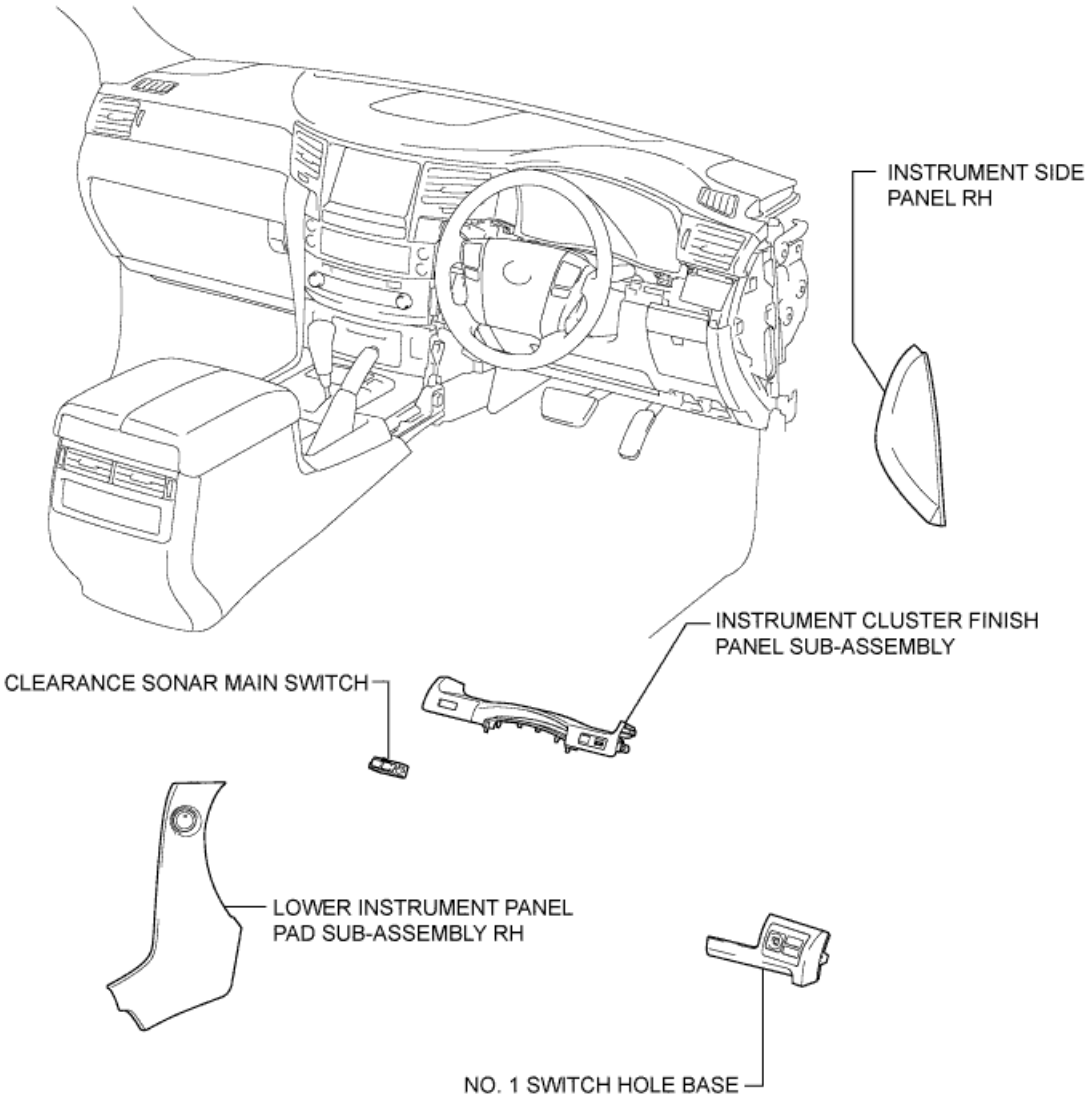
a. Attach the 5 clips and 2 claws to install the back door garnish.



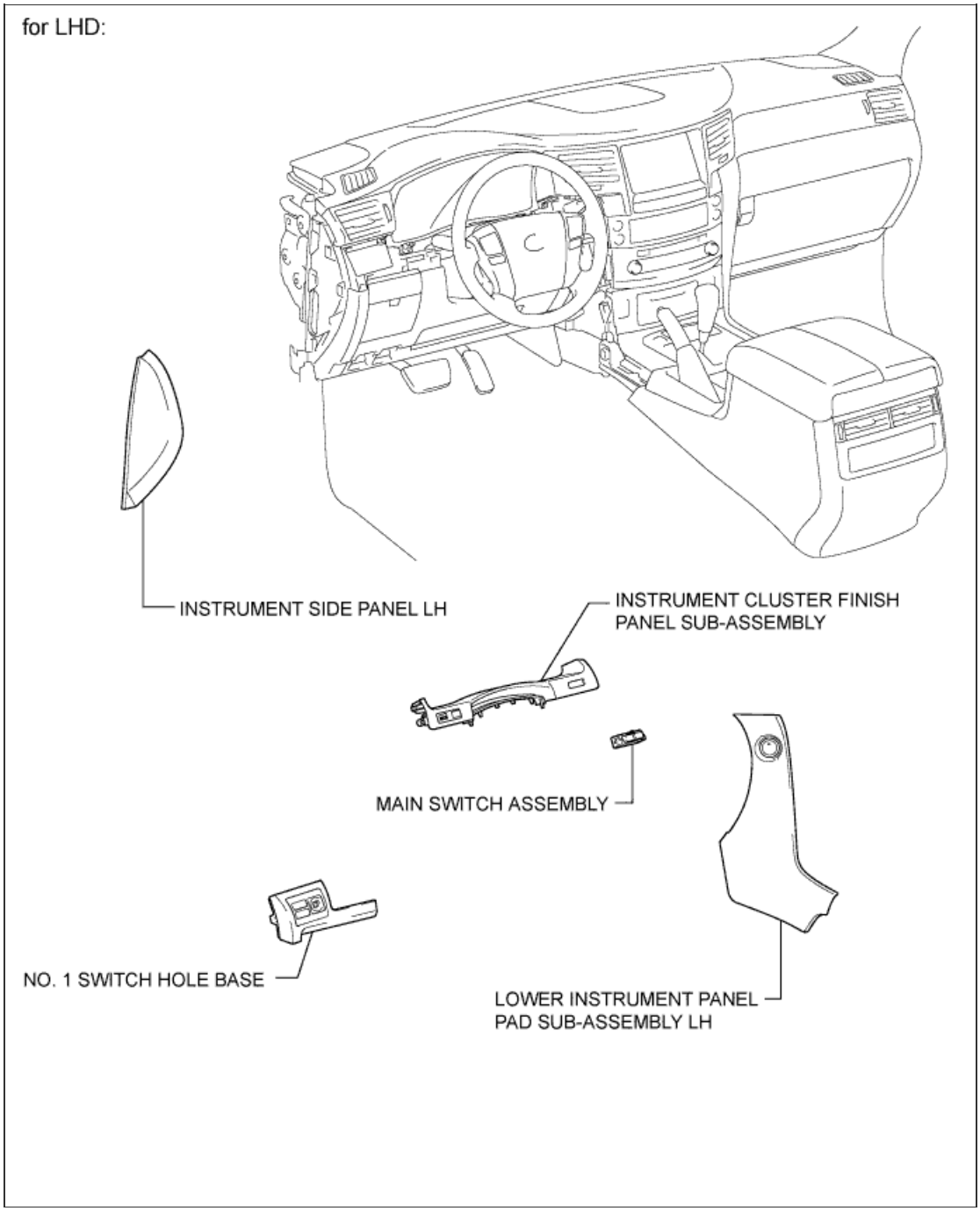
**for Preparation** Click here



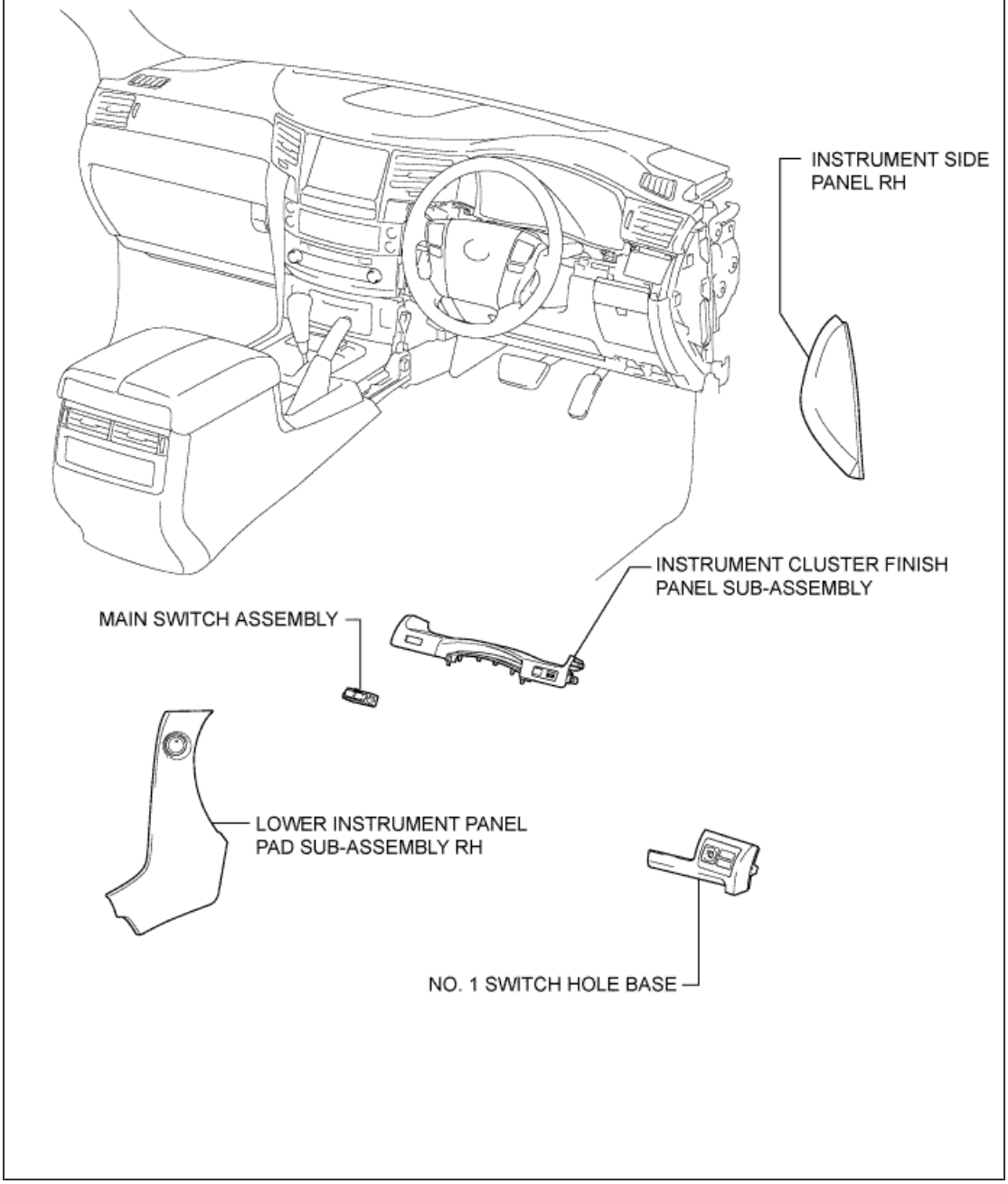
for RHD:


INSTRUMENT SIDE PANEL RH
INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY
CLEARANCE SONAR MAIN SWITCH
LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY RH
NO. 1 SWITCH HOLE BASE

**for Preparation** Click here



for RHD:


INSTRUMENT SIDE PANEL RH
INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY
MAIN SWITCH ASSEMBLY
LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY RH
NO. 1 SWITCH HOLE BASE

**for Preparation** Click here

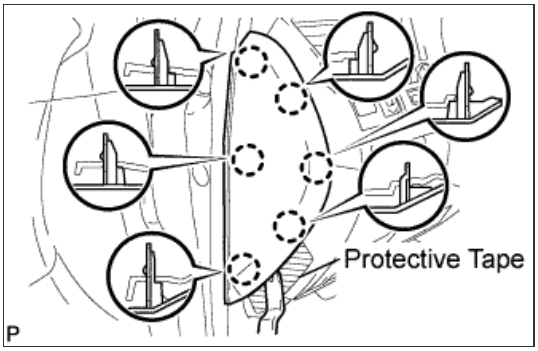
**HINT:**

- **Use the same procedures for LHD and RHD vehicles.**
- **The procedures listed below are for LHD vehicles.**

## 1. REMOVE INSTRUMENT SIDE PANEL LH

a. Place protective tape as shown in the illustration.

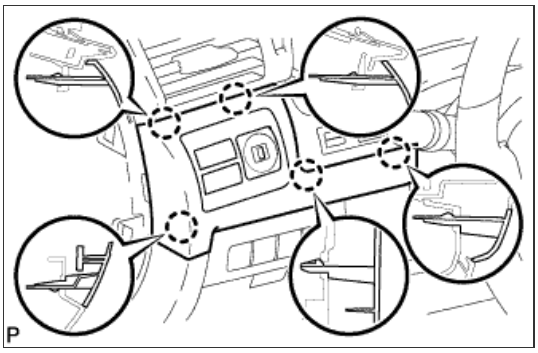
b. Using a moulding remover, detach the 6 claws and remove the side panel.




## 2. REMOVE NO. 1 SWITCH HOLE BASE

a. Detach the 5 claws.

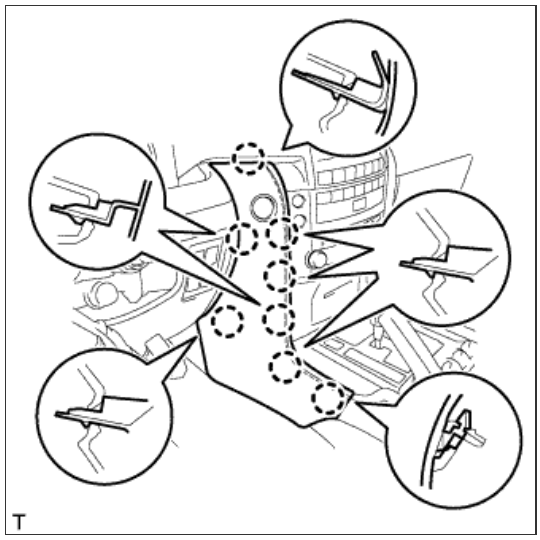
b. Disconnect the connectors and remove the switch hole base.




## 3. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Detach the 8 claws.

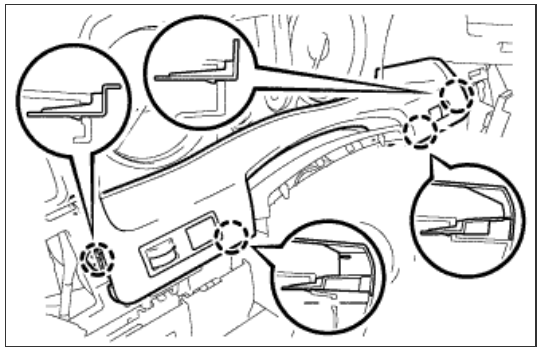
b. Disconnect the connector and remove the panel pad.




### 4. REMOVE INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

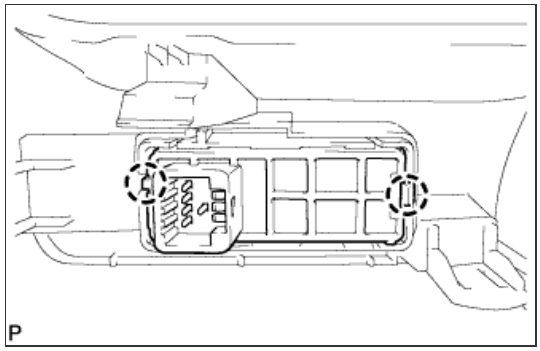
a. Detach the 4 claws.

b. Disconnect the connectors and remove the finish panel.



### 5. REMOVE CLEARANCE SONAR MAIN SWITCH

a. Detach the 2 claws and remove the clearance sonar main switch.



**for Preparation** Click here

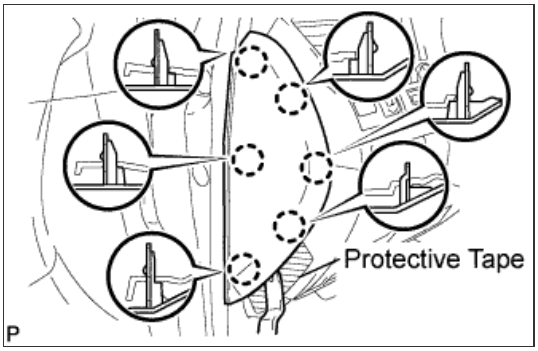
**HINT:**

- **Use the same procedure for LHD and RHD vehicles.**
- **The procedure listed below is for LHD vehicles.**

## 1. REMOVE INSTRUMENT SIDE PANEL LH

a. Place protective tape as shown in the illustration.

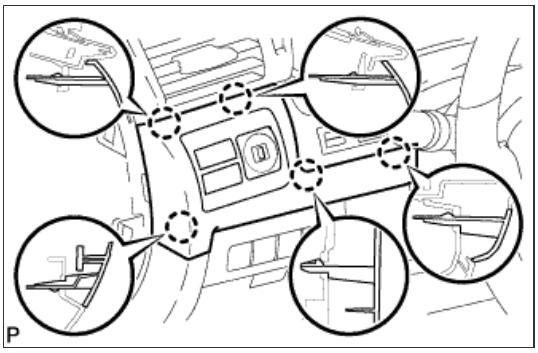
b. Using a moulding remover, detach the 6 claws and remove the side panel.




## 2. REMOVE NO. 1 SWITCH HOLE BASE

a. Detach the 5 claws.

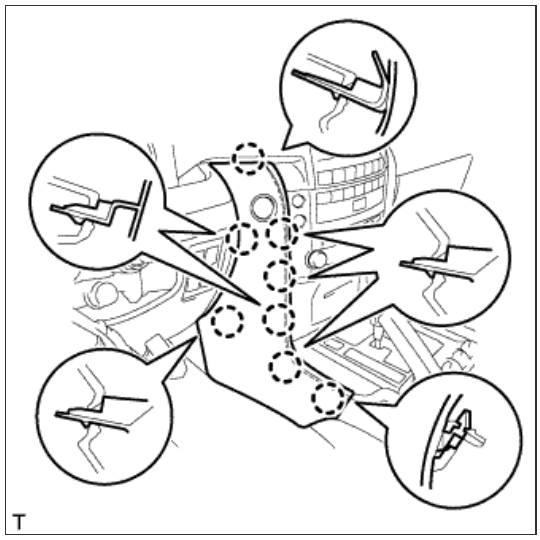
b. Disconnect the connectors and remove the switch hole base.




## 3. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

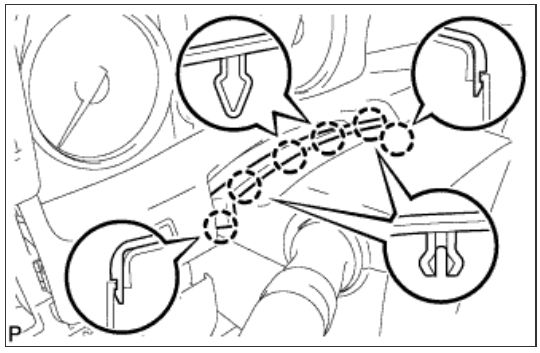
a. Detach the 8 claws.

b. Disconnect the connector and remove the panel pad.



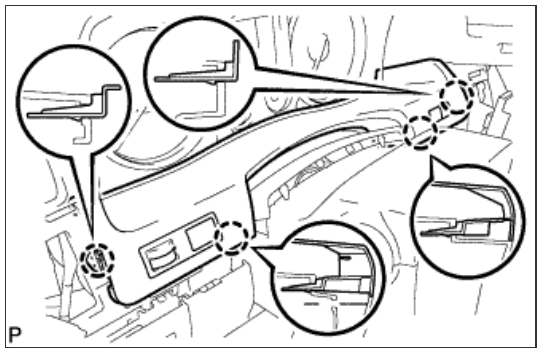

## 4. REMOVE INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

a. Detach the 6 claws.



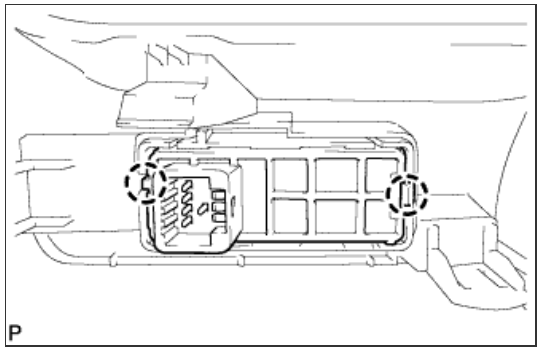

b. Detach the 4 claws.

c. Remove the finish panel and disconnect the connectors.




## 5. REMOVE MAIN SWITCH ASSEMBLY

a. Detach the 2 claws and remove the main switch assembly.



**for Preparation** Click here

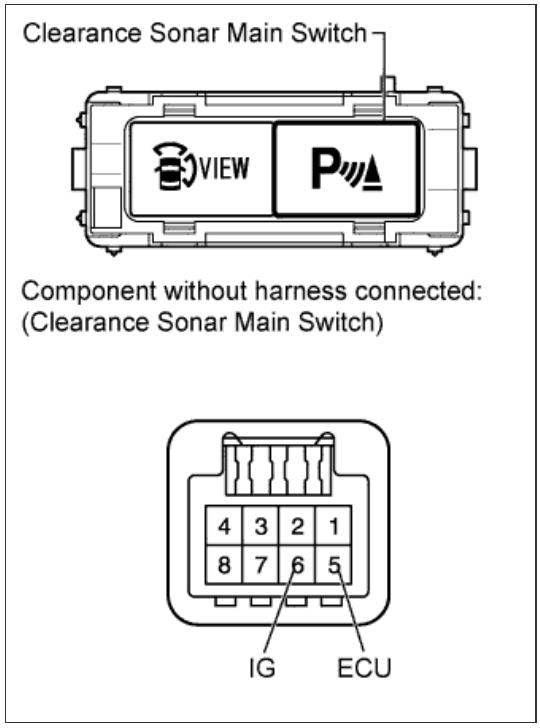
## 1. INSPECT CLEARANCE SONAR MAIN SWITCH

a. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| 5 (ECU) - 6 (IG) | Clearance sonar main switch on | Below 1 Ω |
| 5 (ECU) - 6 (IG) | Clearance sonar main switch off | 10 kΩ or higher |

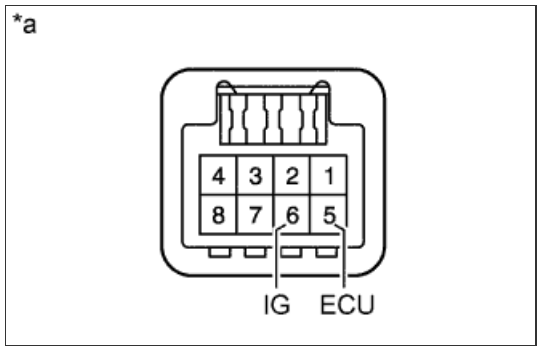
If the result is not as specified, replace the switch.



**for Preparation** Click here

## 1. INSPECT MAIN SWITCH ASSEMBLY (CLEARANCE SONAR MAIN SWITCH)

a. Measure the resistance according to the value(s) in the table below.




**Standard Resistance:**

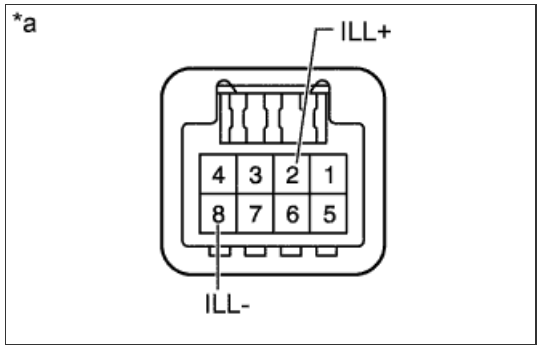
| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| 5 (ECU) - 6 (IG) | Main switch assembly (Clearance sonar main switch) on | Below 1 Ω |
| 5 (ECU) - 6 (IG) | Main switch assembly (Clearance sonar main switch) off | 10 kΩ or higher |

If the result is not as specified, replace the main switch assembly.

**Text in Illustration**

| | |
|---|---|
| *a | Component without harness connected (Main Switch Assembly (Clearance Sonar Main Switch)) |

b. Check the switch illuminates.




i. Apply battery voltage to the main switch assembly (clearance sonar main switch) and check that the switch illuminates.

**OK:**

| Tester Connection | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 2 (ILL+)<br>Battery negative (-) → Terminal 8 (ILL-) | Illuminates |

If the result is not as specified, replace the main switch assembly.

**Text in Illustration**

| | |
|---|---|
| *a | Component without harness connected (Main Switch Assembly (Clearance Sonar Main Switch)) |

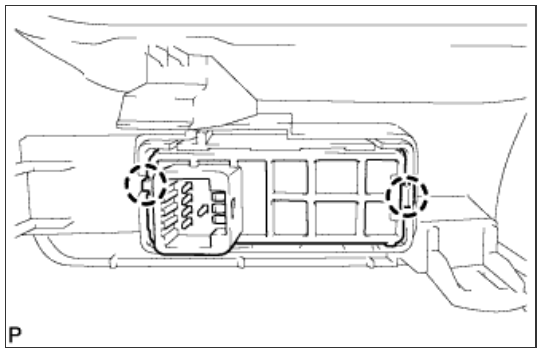
**for Preparation** Click here

**HINT:**

- **Use the same procedures for LHD and RHD vehicles.**
- **The procedures listed below are for LHD vehicles.**

## 1. INSTALL CLEARANCE SONAR MAIN SWITCH

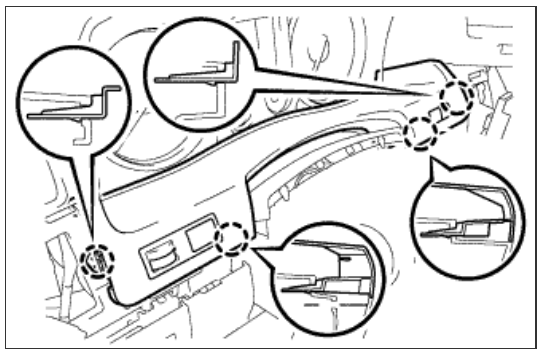
a. Attach the 2 claws to install the clearance sonar main switch.




## 2. INSTALL INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

a. Connect the connectors.

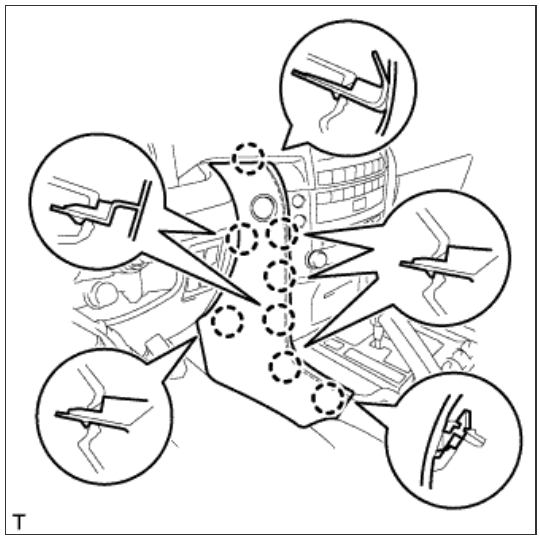
b. Attach the 4 claws to install the finish panel.



## 3. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Connect the connector.

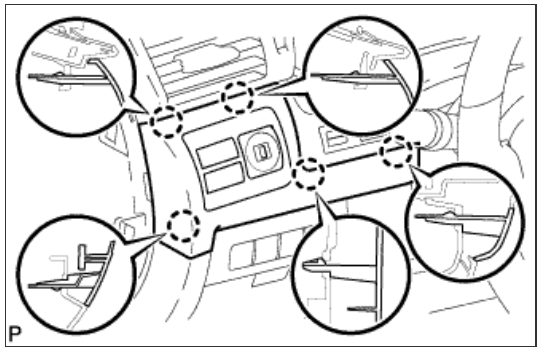
b. Attach the 8 claws to install the panel pad.




### 4. INSTALL NO. 1 SWITCH HOLE BASE

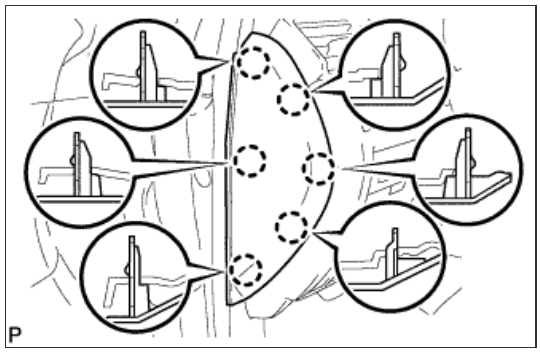
a. Connect the connectors.

b. Attach the 5 claws to install the switch hole base.




### 5. INSTALL INSTRUMENT SIDE PANEL LH

a. Attach the 6 claws to install the side panel.



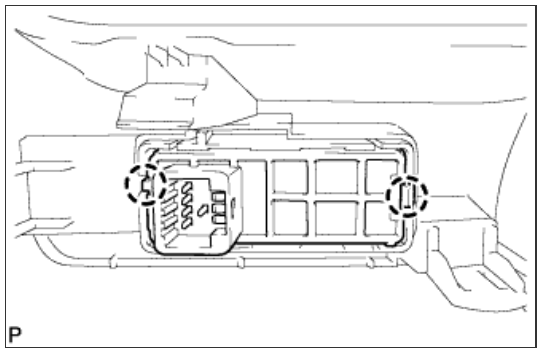
**for Preparation** Click here

**HINT:**

- **Use the same procedure for LHD and RHD vehicles.**
- **The procedure listed below is for LHD vehicles.**

## 1. INSTALL MAIN SWITCH ASSEMBLY

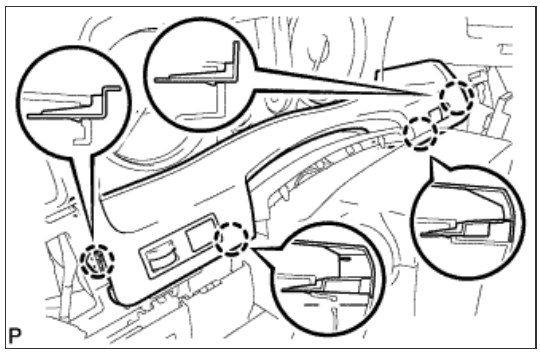
a. Attach the 2 claws to install the main switch assembly.



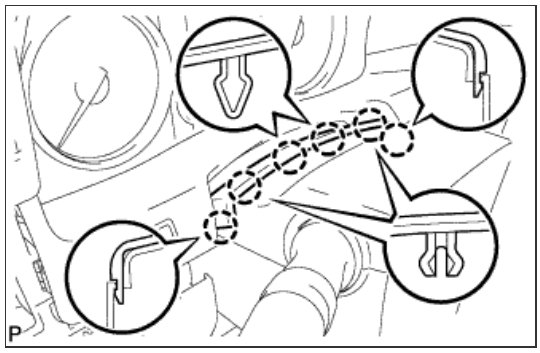

## 2. INSTALL INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

a. Connect the connectors.

b. Attach the 4 claws to install the finish panel.



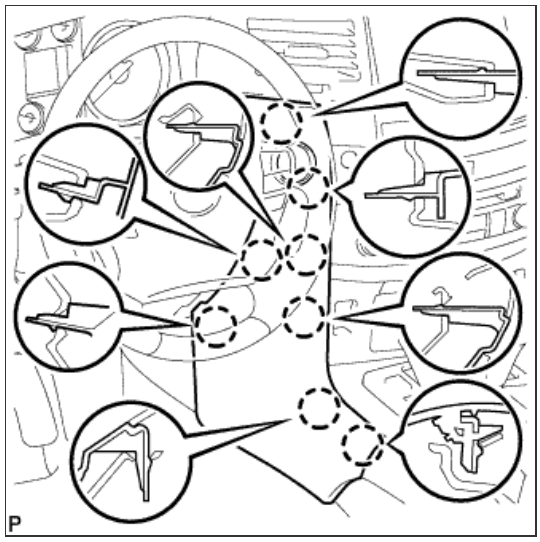

c. Attach the 6 claws.




## 3. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Connect the connector.

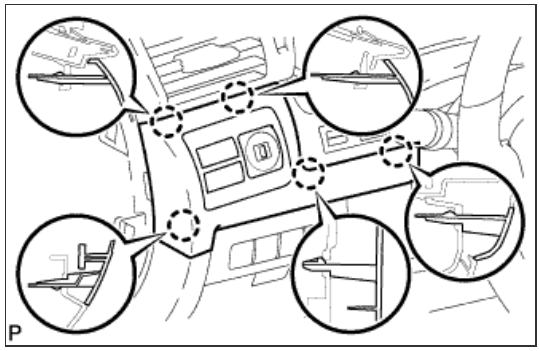
b. Attach the 8 claws to install the instrument panel pad.




### 4. INSTALL NO. 1 SWITCH HOLE BASE

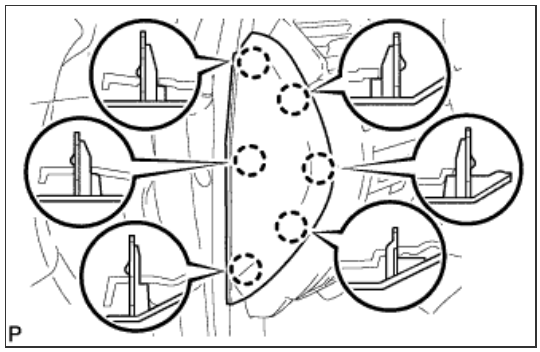
a. Connect the connectors.

b. Attach the 5 claws to install the switch hole base.

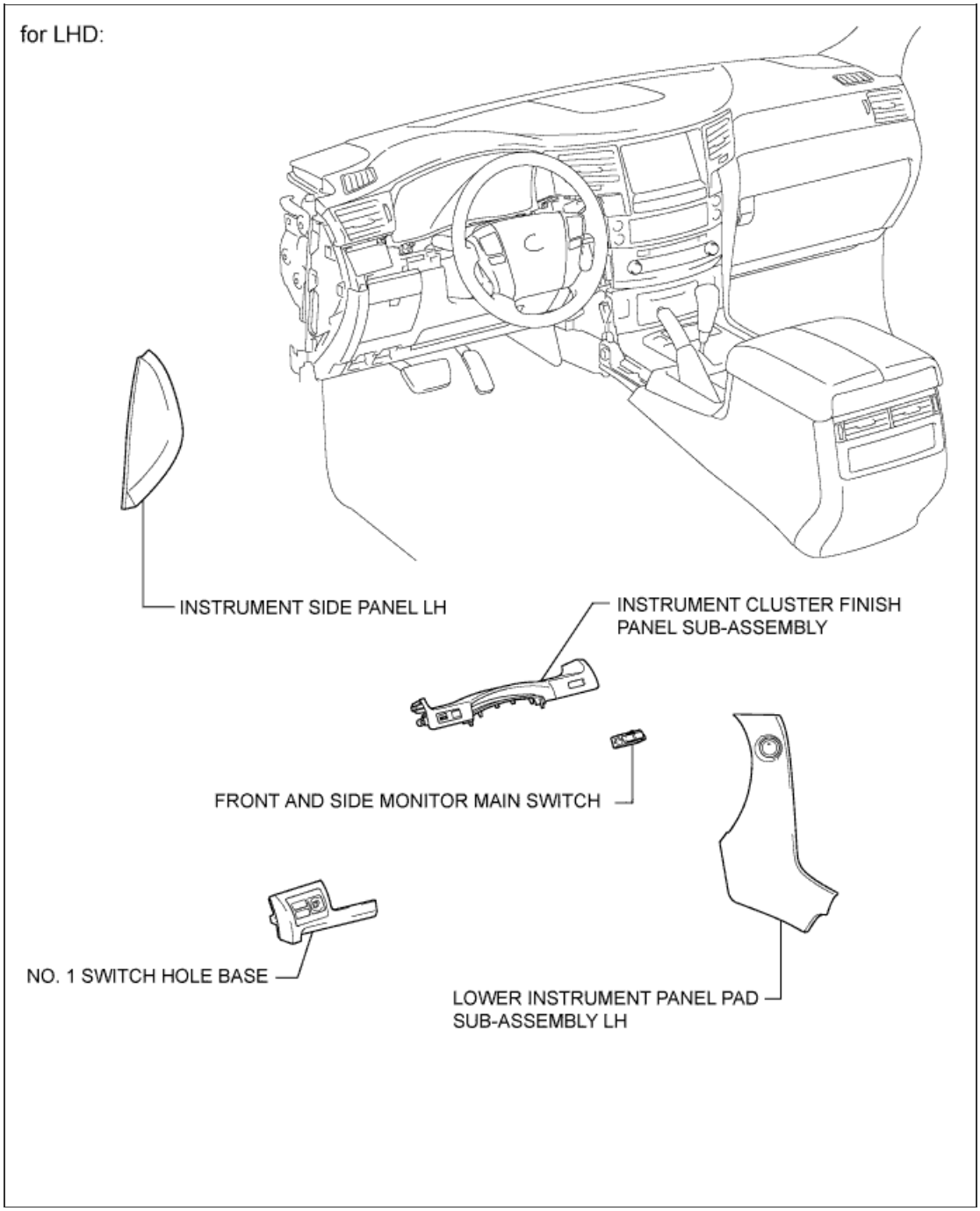



### 5. INSTALL INSTRUMENT SIDE PANEL LH

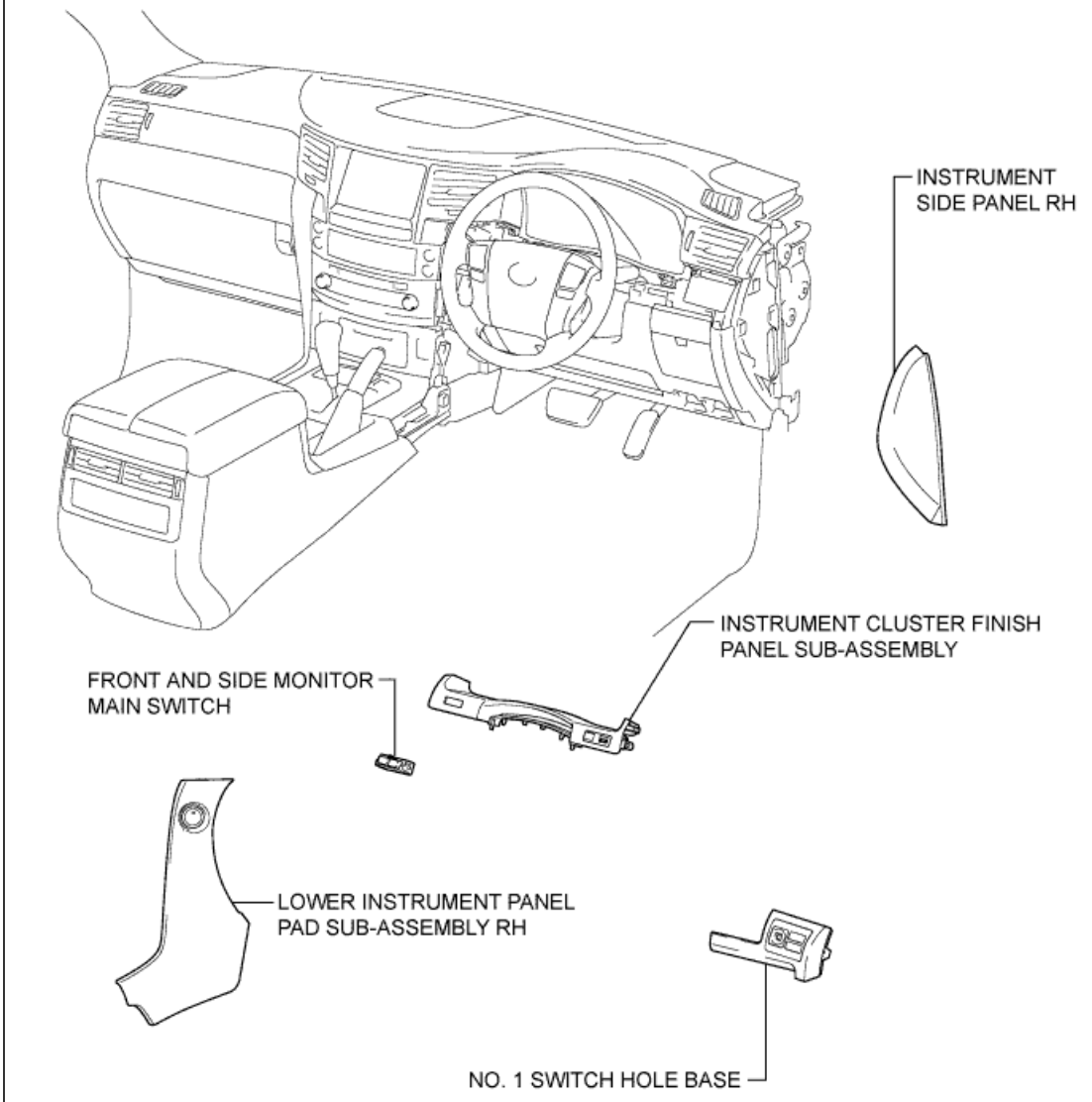
a. Attach the 6 claws to install the side panel.



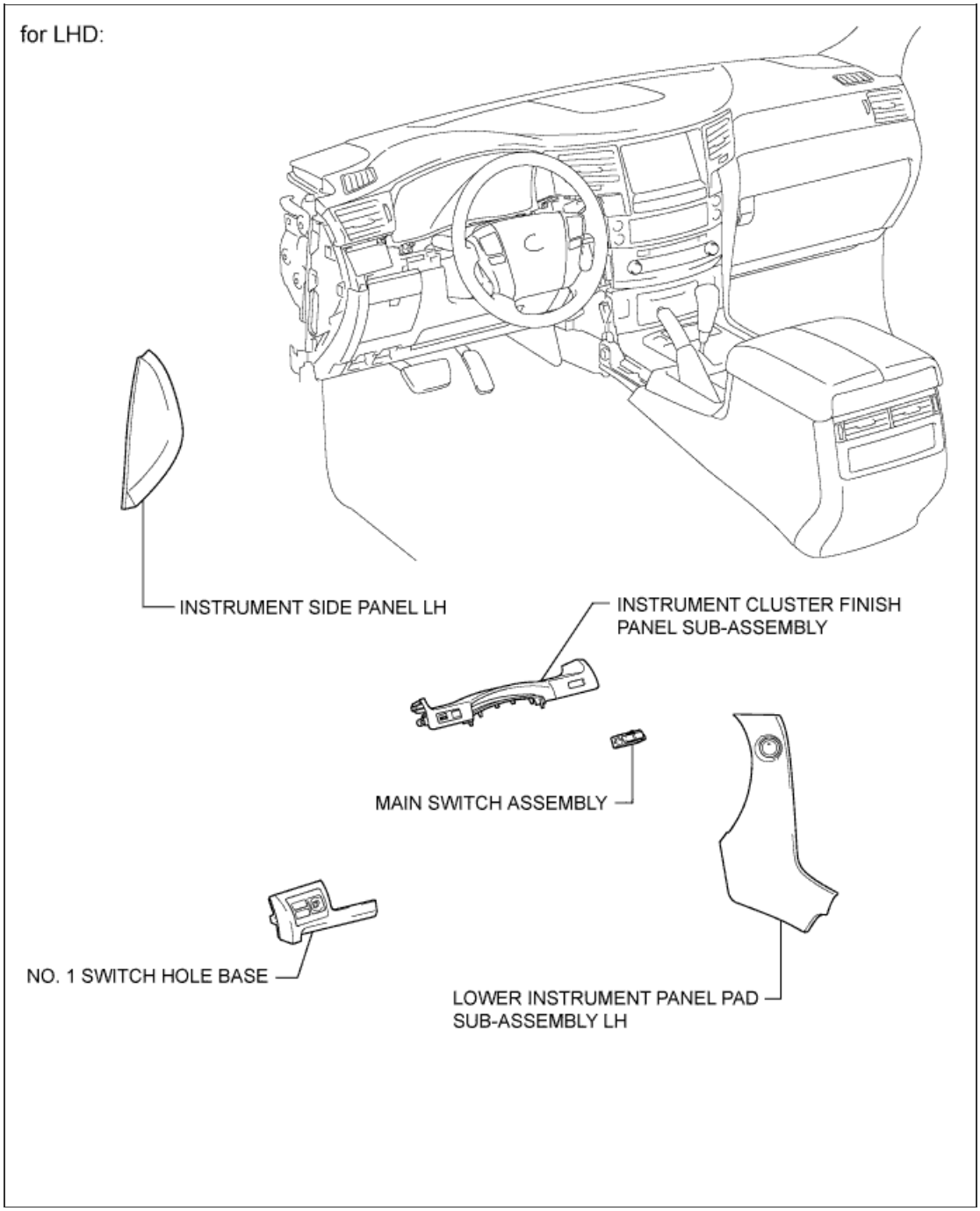
**for Preparation** Click here



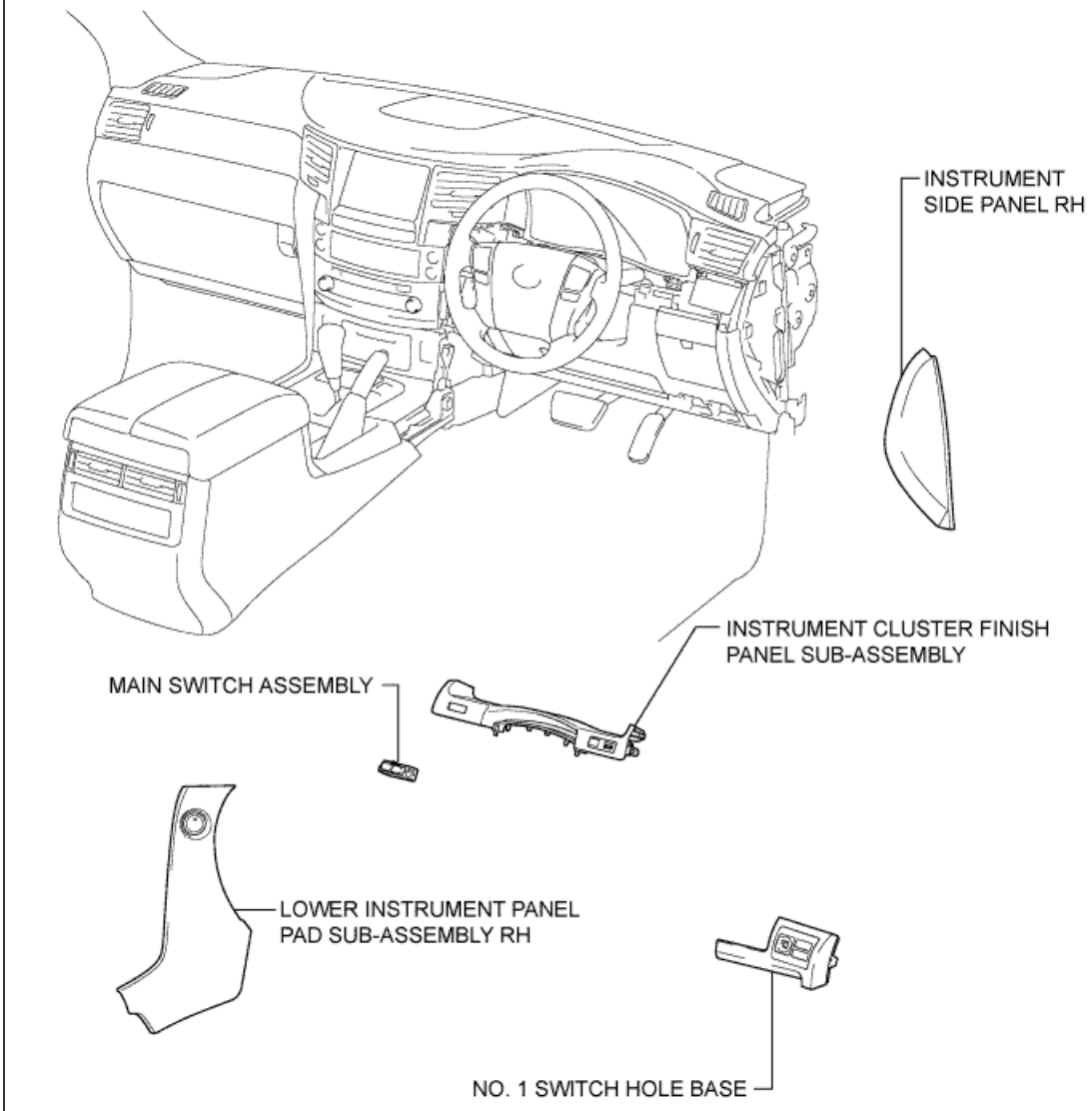
for RHD:


INSTRUMENT
SIDE PANEL RH
INSTRUMENT CLUSTER FINISH
PANEL SUB-ASSEMBLY
FRONT AND SIDE MONITOR
MAIN SWITCH
LOWER INSTRUMENT PANEL
PAD SUB-ASSEMBLY RH
NO. 1 SWITCH HOLE BASE

**for Preparation** Click here



for RHD:


INSTRUMENT
SIDE PANEL RH
INSTRUMENT CLUSTER FINISH
PANEL SUB-ASSEMBLY
MAIN SWITCH ASSEMBLY
LOWER INSTRUMENT PANEL
PAD SUB-ASSEMBLY RH
NO. 1 SWITCH HOLE BASE

**for Preparation** Click here

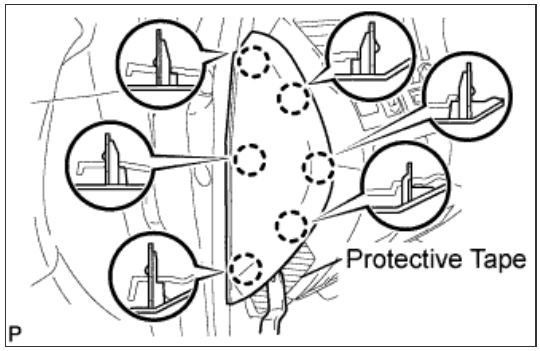
**HINT:**

- **Use the same procedures for LHD and RHD vehicles.**
- **The procedures listed below are for LHD vehicles.**

## 1. REMOVE INSTRUMENT SIDE PANEL LH

a. Place protective tape as shown in the illustration.

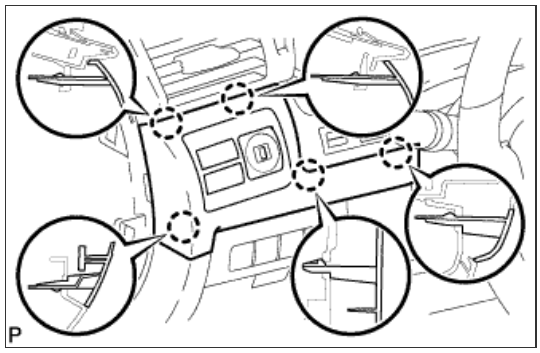
b. Using a moulding remover, detach the 6 claws and remove the side panel.




## 2. REMOVE NO. 1 SWITCH HOLE BASE

a. Detach the 5 claws.

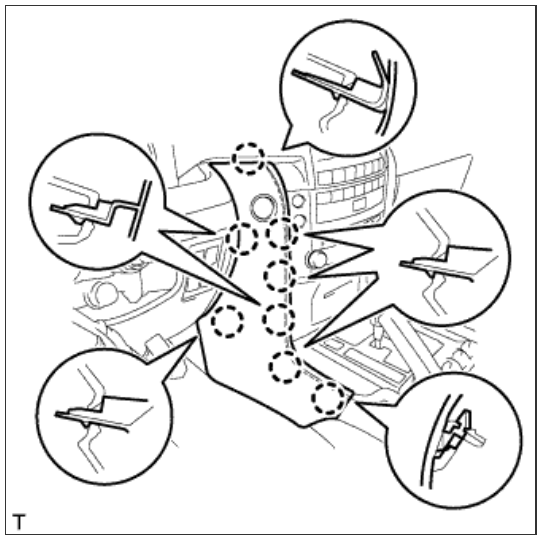
b. Disconnect the connectors and remove the switch hole base.




## 3. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Detach the 8 claws.

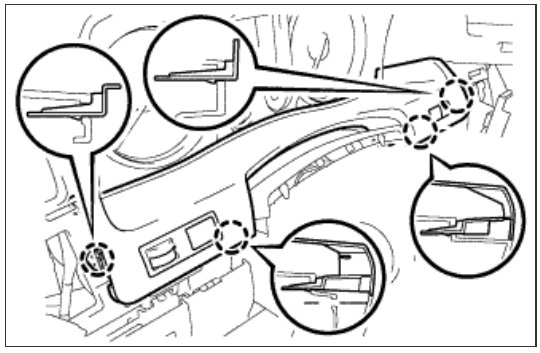
b. Disconnect the connector and remove the panel pad.




### 4. REMOVE INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

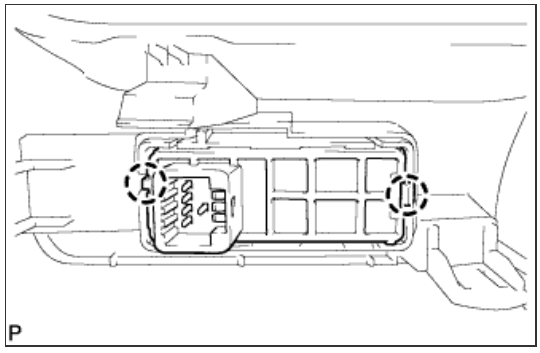
a. Detach the 4 claws.

b. Disconnect the connectors and remove the finish panel.



### 5. REMOVE FRONT AND SIDE MONITOR MAIN SWITCH

a. Detach the 2 claws and remove the front and side monitor main switch.



**for Preparation** Click here

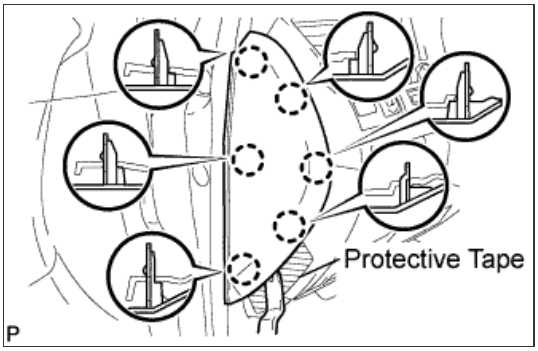
**HINT:**

- **Use the same procedure for LHD and RHD vehicles.**
- **The procedure listed below is for LHD vehicles.**

## 1. REMOVE INSTRUMENT SIDE PANEL LH

a. Place protective tape as shown in the illustration.

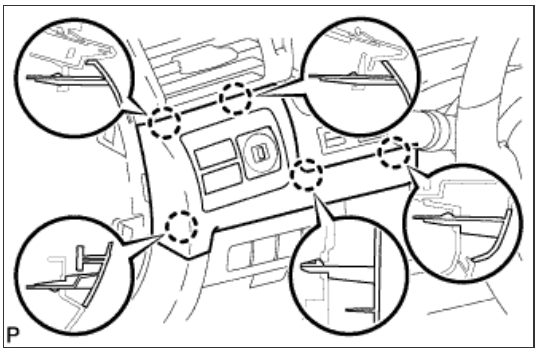
b. Using a moulding remover, detach the 6 claws and remove the side panel.




## 2. REMOVE NO. 1 SWITCH HOLE BASE

a. Detach the 5 claws.

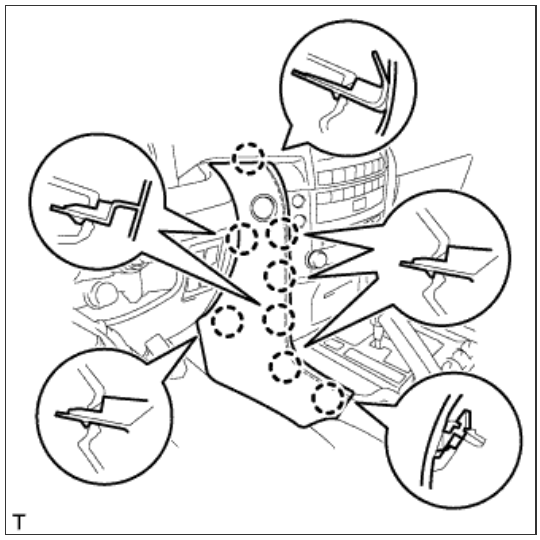
b. Disconnect the connectors and remove the switch hole base.




## 3. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

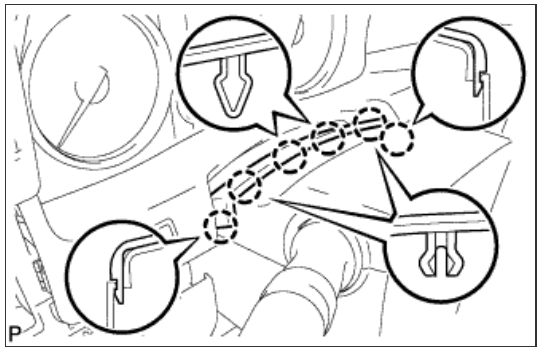
a. Detach the 8 claws.

b. Disconnect the connector and remove the panel pad.



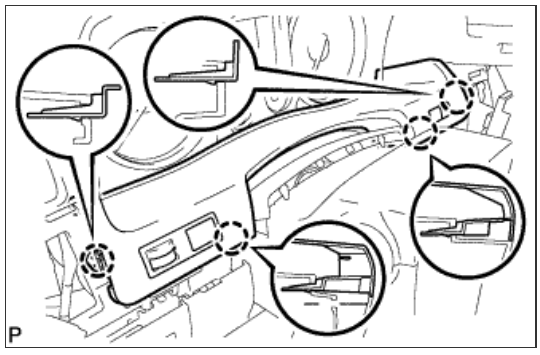

## 4. REMOVE INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

a. Detach the 6 claws.



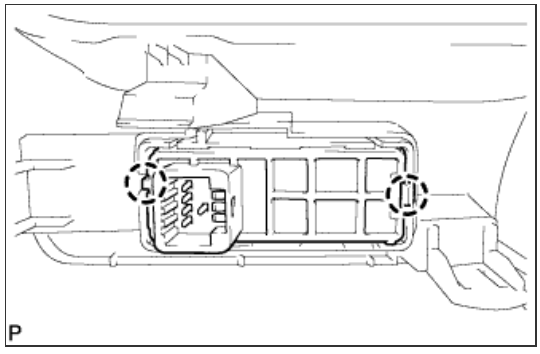

b. Detach the 4 claws.

c. Remove the finish panel and disconnect the connectors.




## 5. REMOVE MAIN SWITCH ASSEMBLY

a. Detach the 2 claws and remove the main switch assembly.



**for Preparation** Click here

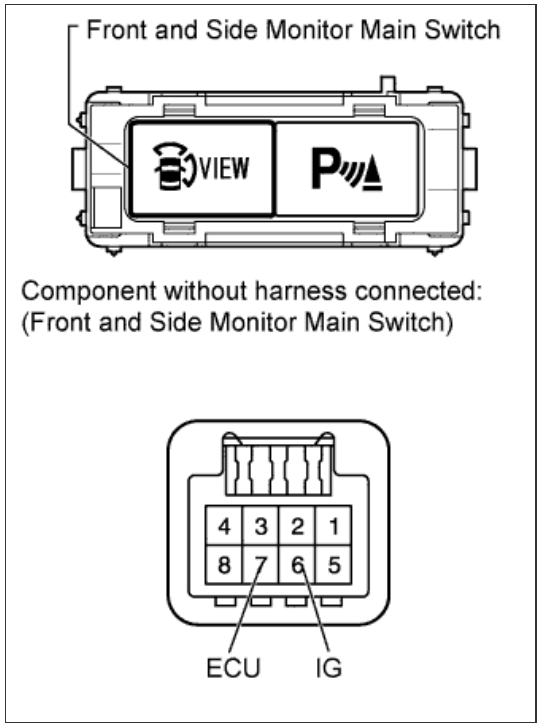
## 1. INSPECT FRONT AND SIDE MONITOR MAIN SWITCH

a. Measure the resistance according to the value(s) in the table below.

**Standard Resistance:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| 7 (ECU) - 6 (IG) | Front and side monitor main switch on | Below 1 Ω |
| 7 (ECU) - 6 (IG) | Front and side monitor main switch off | 10 kΩ or higher |

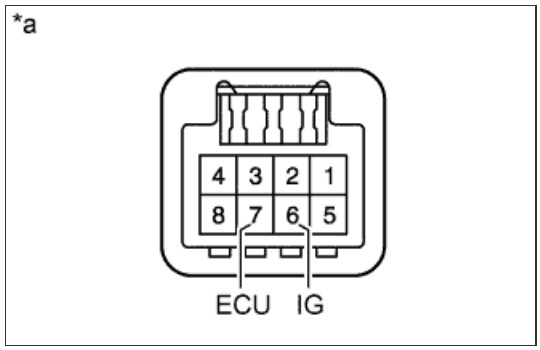
If the result is not as specified, replace the switch.



**for Preparation** Click here

## 1. INSPECT MAIN SWITCH ASSEMBLY (FRONT AND SIDE MONITOR MAIN SWITCH)

a. Measure the resistance according to the value(s) in the table below.




**Standard Resistance:**

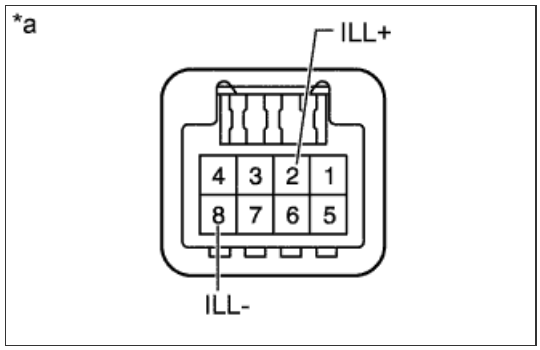
| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| 7 (ECU) - 6 (IG) | Main switch assembly (front and side monitor main switch) on | Below 1 Ω |
| 7 (ECU) - 6 (IG) | Main switch assembly (front and side monitor main switch) off | 10 kΩ or higher |

**Text in Illustration**

| | |
|---|---|
| *a | Component without harness connected (Main Switch Assembly (Front And Side Monitor Main Switch)) |

If the result is not as specified, replace the main switch assembly.

b. Check the switch illuminates.




i. Apply battery voltage to the main switch assembly (front and side monitor main switch) and check that the switch illuminates.

**OK:**

| Tester Connection | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 2 (ILL+)<br>Battery negative (-) → Terminal 8 (ILL-) | Illuminates |

**Text in Illustration**

| | |
|---|---|
| *a | Component without harness connected (Main Switch Assembly (Front And Side Monitor Main Switch)) |

If the result is not as specified, replace the main switch assembly.

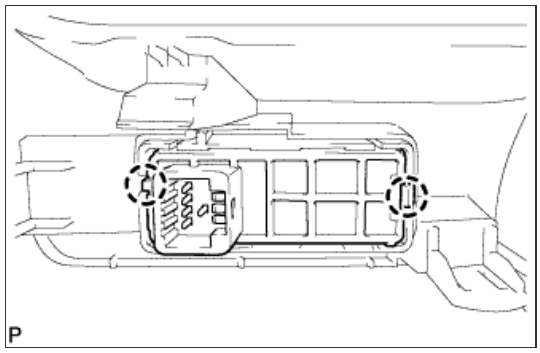
**for Preparation** Click here

**HINT:**

- **Use the same procedures for LHD and RHD vehicles.**
- **The procedures listed below are for LHD vehicles.**

## 1. INSTALL FRONT AND SIDE MONITOR MAIN SWITCH

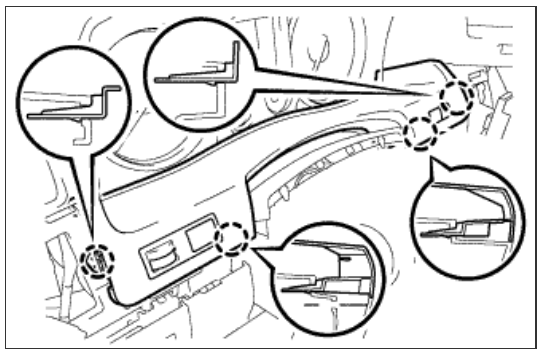
a. Detach the 2 claws and remove the front and side monitor main switch.




## 2. INSTALL INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

a. Connect the connectors.

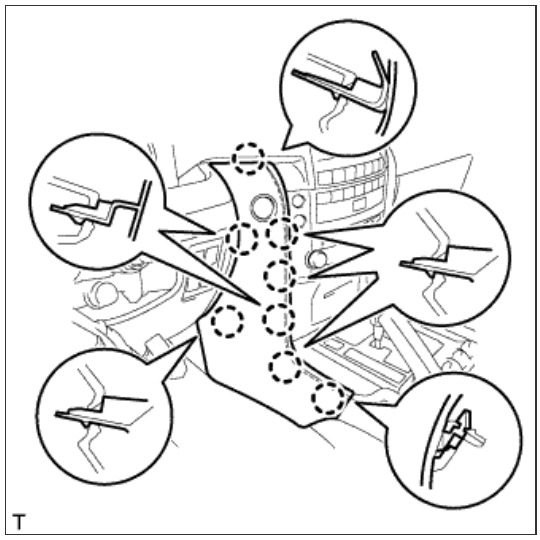
b. Attach the 4 claws to install the finish panel.



## 3. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Connect the connector.

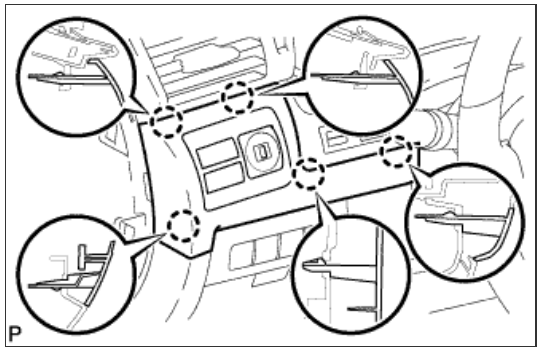
b. Attach the 8 claws to install the panel pad.




### 4. INSTALL NO. 1 SWITCH HOLE BASE

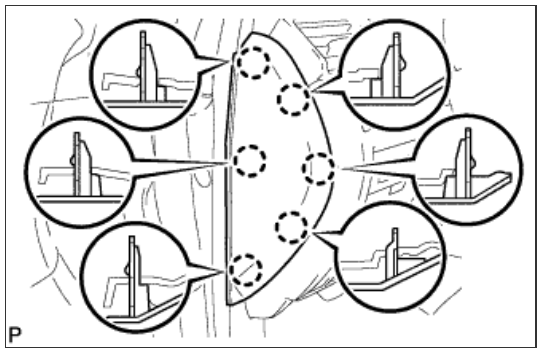
a. Connect the connectors.

b. Attach the 5 claws to install the switch hole base.




### 5. INSTALL INSTRUMENT SIDE PANEL LH

a. Attach the 6 claws to install the side panel.



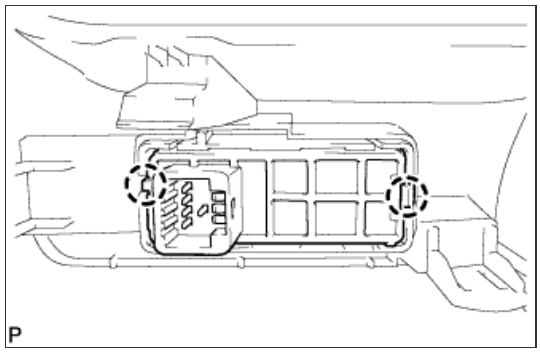
**for Preparation** Click here

**HINT:**

- **Use the same procedure for LHD and RHD vehicles.**
- **The procedure listed below is for LHD vehicles.**

## 1. INSTALL MAIN SWITCH ASSEMBLY

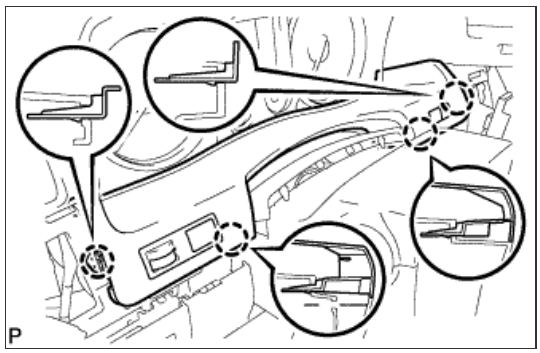
a. Detach the 2 claws and remove the main switch assembly.



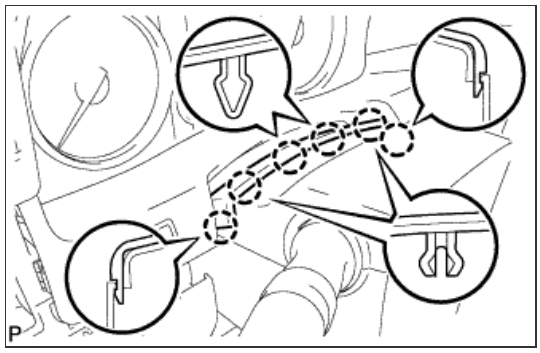

## 2. INSTALL INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

a. Connect the connectors.

b. Attach the 4 claws to install the finish panel.



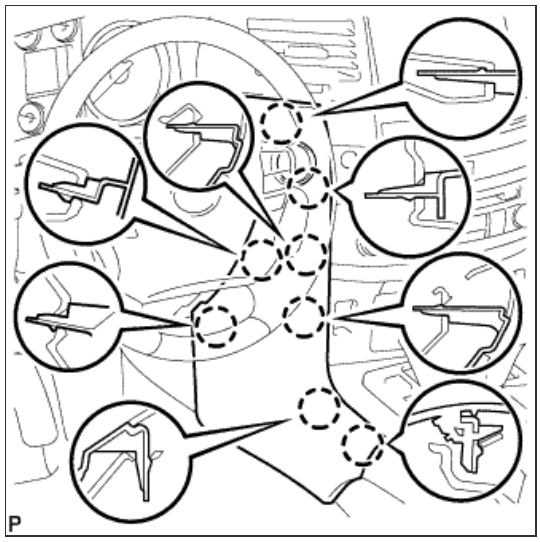

c. Attach the 6 claws.




## 3. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Connect the connector.

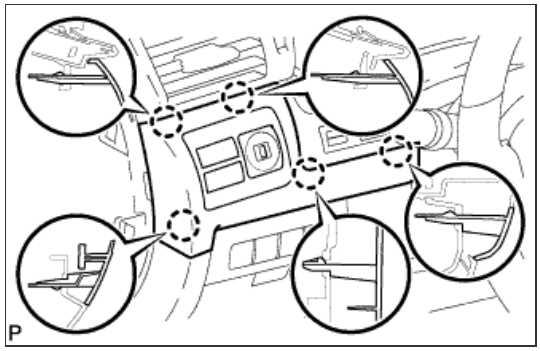
b. Attach the 8 claws to install the instrument panel pad.




### 4. INSTALL NO. 1 SWITCH HOLE BASE

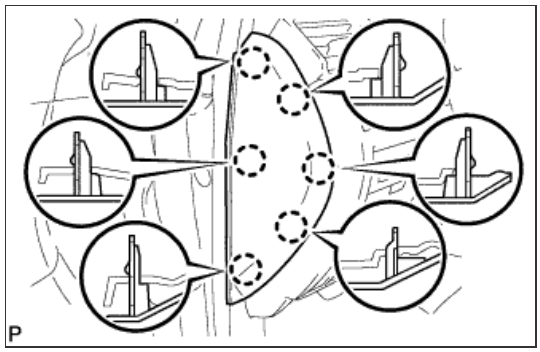
a. Connect the connectors.

b. Attach the 5 claws to install the switch hole base.

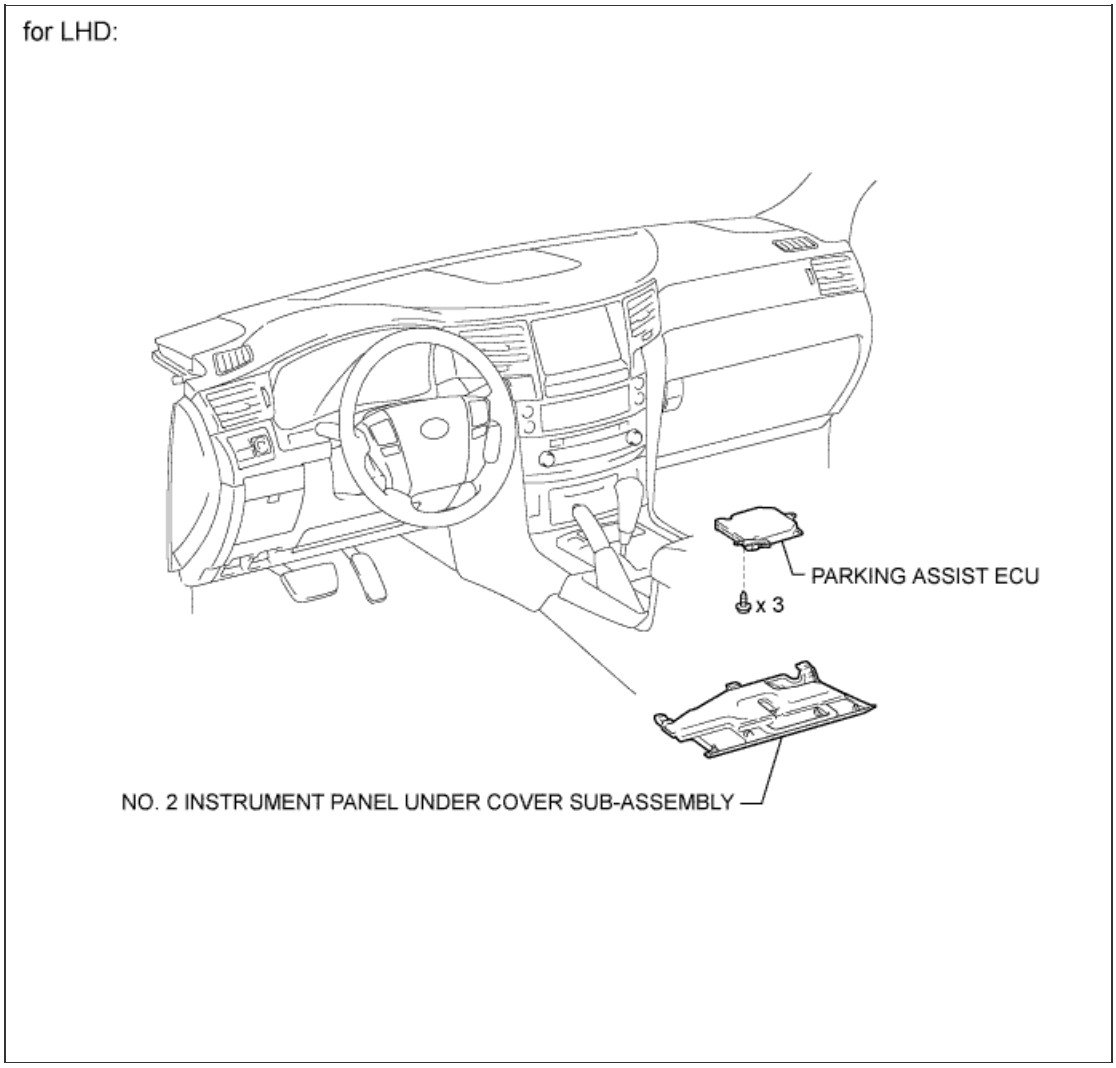



### 5. INSTALL INSTRUMENT SIDE PANEL LH

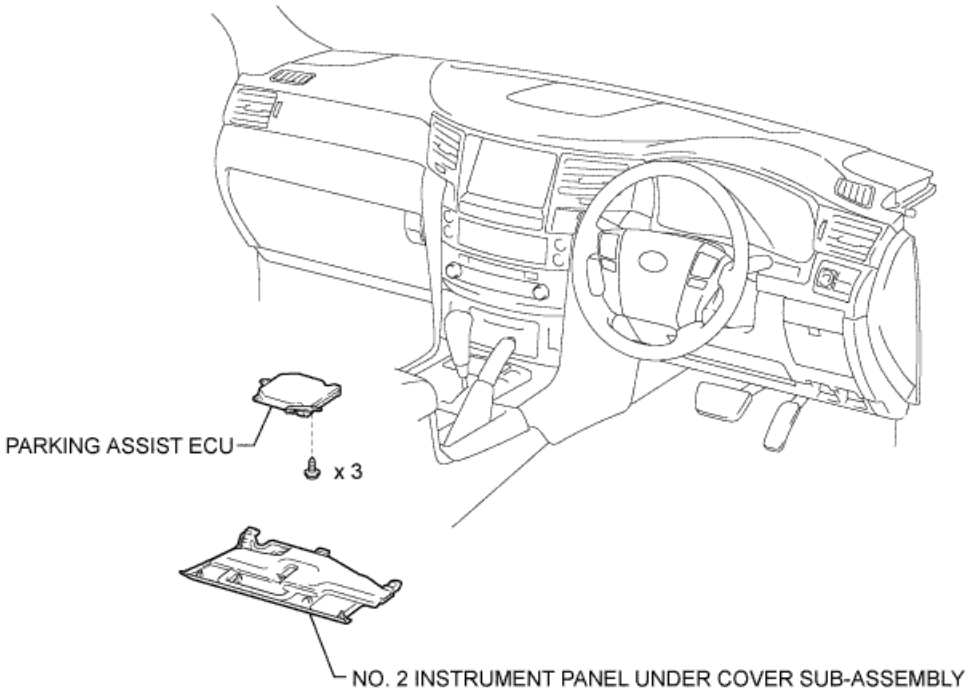
a. Attach the 6 claws to install the side panel.



**for Preparation** Click here



for RHD:


PARKING ASSIST ECU
x 3
NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

**for Preparation** Click here

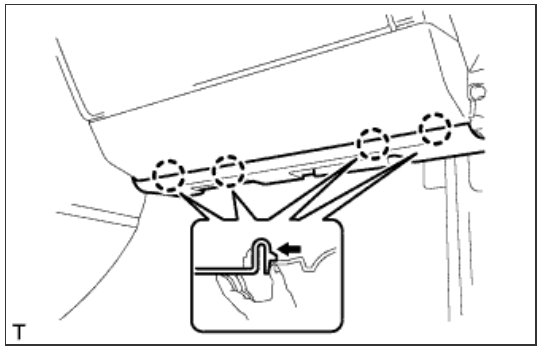
**HINT:**

- **Use the same procedures for LHD and RHD vehicles.**
- **The procedures listed below are for LHD vehicles.**

## 1. REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Detach the 4 claws.

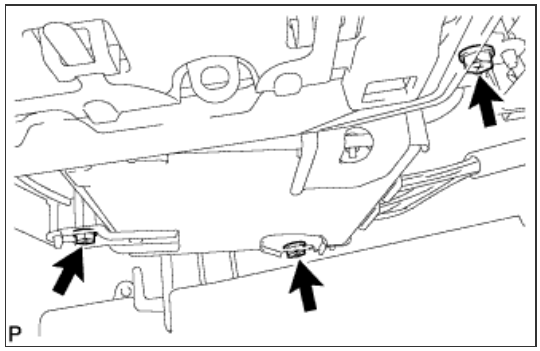
b. Remove the under cover and disconnect the connector.




## 2. REMOVE PARKING ASSIST ECU

a. Disconnect the connector.

b. Remove the 3 screws and parking assist ECU.



**for Preparation** Click here

**HINT:**

- **Use the same procedures for LHD and RHD vehicles.**
- **The procedures listed below are for LHD vehicles.**

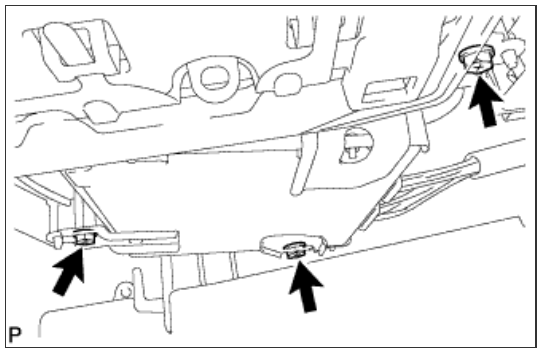
## 1. INSTALL PARKING ASSIST ECU

a. Install the parking assist ECU to the blower unit with the 3 screws.

**NOTICE:**

- **Avoid any impact to the parking assist ECU.**
- **Do not drop the ECU. If it is dropped, replace it with a new one.**

b. Connect the connector.




## 2. INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Connect the connector.

b. Attach the 4 claws to install the under cover.

